

Site Location: 19125747 Your C.O.C. #: 644253-02-01

**Attention: AURELIE BELLAVANCE** 

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

Report Date: 2021/09/07 Report #: R3068279

Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C164651 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 2

		Date	Date		
Analyses	Quantity	y Extracted	Analyzed	<b>Laboratory Method</b>	Analytical Method
Asbestos by PLM - 0.5 RDL (by layer) (1, 2)	2	N/A	2021/09/07	7 COR3SOP-00002	EPA 600/M4-82-020

### 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.

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

Bureau Veritas Laboratories' Asbestos Laboratory is accredited by NVLAP for bulk asbestos analysis by polarized light microscopy, NVLAP Code 600163-0.

This report may not be reproduced, except in full, without the written approval of Bureau Veritas Laboratories. This report may not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Bureau Veritas Laboratories' scope of accreditation includes EPA-600/M4-82-020: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" and EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials".

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 Vancouver
- (2) The Asbestos Analysis is based on NIOSH 9002 method and EPA/600R-93/116 Method.



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# **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C164651 Received: 2021/08/31, 08:35

**Encryption Key** 

Cynny Hagen
Key Account Specialis
08 Sep 2021 17:41:08

 $\label{thm:please} \textit{Please direct all questions regarding this Certificate of Analysis to your Project Manager.}$ 

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

Phone# (403)735-2273

\_\_\_\_\_\_

This report has been generated and distributed using a secure automated process.

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: 19125747

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

Sampler Initials: PT

# **Asbestos Analytical Results**

The Asbestos Analysis is based on NIOSH 9002 method and EPA/600R-93/116 Method. P.O.B. - Percent of Bulk

TP21-165-AS						
BV Labs ID:	AFA113				Date Analyzed:	2021/09/07
	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	100	Homogeneous white fibrous material	Not Detected	Fibreglass	20%	Non-Fibrous

TP21-12-FOA	М					
BV Labs ID:	AFA114			[	Date Analyzed:	2021/09/07
	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	90	Homogeneous off-white foam	Not Detected			Non-Fibrous
Layer 2	10	Homogeneous brown fibrous material	Not Detected	Cellulose	70%	Non-Fibrous
Layer Z	10	fibrous material	Not Detected	cellulose	7070	NOTIFIDI

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd



Report Date: 2021/09/07

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: 19125747 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

Results relate only to the items tested.



Client Project #: 20368099-6000-1001

Site Location: 19125747

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:

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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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Page 7 of 8

Company Name Contact Name

Address Phone Email Regulatory Criteria

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X (will be applied if Rush TAT is not specified)
Standard TAT = 5\* Working days for most tests.
Standard TAT = 5\* Working days for most tests.
Bease note: Standard TAT for example it ests such as BOD and Diouins/Furans are > 5 days - conflext your Project Manager for details.
Job Specific Rush TAT (if applies to entire submission) quantitation of Aspestos Page of \$ Bottle Order #: Project Manager Carmen McKay PLM - qualitative + semi Time Required: Laboratory Use Only Chain Of Custody Record C16465 Chain Of Custody Record BV Labs Job# Rush Confirmation Number Date Required: 1001-0001-60059505 024000 Project Information PETER TAN | AU PE LE BE | CAUCHTE | PO # 302 | PROJECT | PO # 302 | PROJECT ASB PLMOS-B BTEX and F1-F4 in Soil (Vials) Bureau Veritas Laboratories 4000 19st N.E., Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-5266 Fax (403) 291-3468 www bviats com Sulphate, True Total Barium Hexavalent Chromium, Nitrate AT1 Regulated Metals - Soils Metals Field Filtered ? ( Y / N ) Time Sampled Matrix of FOAM 10:45 Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form Company Name Samples must be kept cool ( < 10% ) from time of sampling until delivery to BV Labs Contact Name 02/80/1202 2021/08/1202 Address Phone Email (780) 483-1574 MADT-61-18-T (780) 483-3499 Fax (780) 483-15. CanadaAccountsPayableInvoices@golder.com TP31-165-45 #2045 GOLDER ASSOCIATES LTD ACCOUNTS PAYABLE 16820-107 AVE **EDMONTON AB T5P 4C3** INVOICE TO: Sample Barcode Label

Bureau Veritas Canada (2019) Inc.

• 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 WWW.BVLABS. COMMTERMS-AND-CONDITIONS.

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 AMALYTICAL TAT DELAYS.

Sustody Seal Intact on Cooler? No

Lab Use Only

# jars used and not submitted

Time

Date: (YY/MM/DD)

Time RECEIVED BY: (Signature/Print)

Date: (YY/MM/DD)

\* RELINQUISHED BY: (Signature/Print)

Yes

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Page 8 of 8

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell		_	Sampling Date	e: August 20, 2021
Golder Project Number:	20368099	-6000-100	1	Laborator	y: Bureau Veritas Calgary
Lab Submission Number:	C164651		-		
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 fo Has lab warranted all samples were	e samples able when racted with statistical racted the requestions.	documente they reach thin hold ti control in ested analy	ed and keped lab?: mes?: CoA?:	pt?	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	No	NA X X X X X	No laboratory (	Comments QC samples were analyzed.
Are All Field QC Samples Within	Alert Lim	nits (Yes, N	Io, Not A	pplicable)?	
Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Yes	No	NA X X X	No field QC san	Comments mples were collected.
Is data considered reliable (Yes/No If answer is "No" or "Suspect", de			ntionale:	Yes	
Data Reviewed by (Print):		bert er 9, 2021		Data Reviewed l	oy (Signature): Ondo Collect



Your C.O.C. #: 644253-03-01

### **Attention: AURELIE BELLAVANCE**

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

Report Date: 2021/09/09

Report #: R3069503 Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C164652 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 2

# Samples Received. 2					
		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1)	2	2021/09/05	2021/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	2	N/A	2021/09/08		Auto Calc
Chromium III (Calc'd) (1)	2	2021/09/03	2021/09/09		Auto Calc
Hexavalent Chromium (1, 2)	2	2021/09/07	2021/09/07	AB SOP-00063	SM 23 3500-Cr B m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	2	2021/09/05	2021/09/07	AB SOP-00036	CCME PHC-CWS m
Elements by ICPMS - Soils (1)	2	2021/09/08	2021/09/08	AB SOP-00001 / AB SOP- 00043	EPA 6020b R2 m
Non Routine/Non Validated Matrix Tested (1, 4)	2	N/A	2021/09/03		
Benzo[a]pyrene Equivalency (1)	2	N/A	2021/09/08		Auto Calc
PAH in Soil by GC/MS (1)	2	2021/09/05	2021/09/07	AB SOP-00036 / AB SOP-00003	EPA 3540C/8270E m
Polychlorinated Biphenyls in Soil (1)	2	2021/09/07	2021/09/07	CAL SOP-00149	EPA 8082A R1 m
Total PCBs in Soil (1)	2	N/A	2021/09/08		Auto Calc

### Remarks:

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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.

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CALGARY - NATIONAL CONTRACT
2800, 700 -2nd Street SW
CALGARY, AB
CANADA T2P 2W2

Report Date: 2021/09/09

Report #: R3069503 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

### BV LABS JOB #: C164652

### Received: 2021/08/31. 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 Environmental
- (2) 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.
- (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) Sample(s) analyzed using methodologies that have not been subjected to Bureau Veritas Laboratories' standard validation process for the submitted matrix and is not an accredited method. Analysis performed with client consent, however results should be viewed with discretion.

**Encryption Key** 



Bureau Veritas
09 Sep 2021 17:57:49

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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Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

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

	-					
BV Labs ID		AFA115	AFA116	AFA116		
Sampling Date		2021/08/24	2021/08/24	2021/08/24		
Sumpling Date		15:00	15:15	15:15		
COC Number		644253-03-01	644253-03-01	644253-03-01		
	UNITS	WP21-CF01	WP21-CF02	WP21-CF02 Lab-Dup	RDL	QC Batch
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	110	110	N/A	10	A342390
F3 (C16-C34 Hydrocarbons)	mg/kg	320	660	N/A	50	A342390
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	89	N/A	50	A342390
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	N/A	A342390
Volatiles						
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	A343313
Toluene	mg/kg	0.12	0.092	0.068	0.050	A343313
Ethylbenzene	mg/kg	0.018	0.024	0.027	0.010	A343313
m & p-Xylene	mg/kg	0.076	0.16	0.13	0.040	A343313
o-Xylene	mg/kg	0.067	0.21	0.19	0.020	A343313
Xylenes (Total)	mg/kg	0.14	0.36	N/A	0.045	A340894
F1 (C6-C10) - BTEX	mg/kg	17	23	N/A	10	A340894
F1 (C6-C10)	mg/kg	18	23	13	10	A343313
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	97	94	99	N/A	A343313
4-Bromofluorobenzene (sur.)	%	105	103	97	N/A	A343313
D10-o-Xylene (sur.)	%	81	80	74	N/A	A343313
D4-1,2-Dichloroethane (sur.)	%	95	93	96	N/A	A343313
O-TERPHENYL (sur.)	%	86	85	N/A	N/A	A342390
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

# **RESULTS OF CHEMICAL ANALYSES OF SOIL**

BV Labs ID		AFA115	AFA116		
		2021/08/24	2021/08/24		
Sampling Date		15:00	15:15		
COC Number		644253-03-01	644253-03-01		
	UNITS	WP21-CF01	WP21-CF02	RDL	QC Batch
Calculated Parameters					
Chromium III	mg/kg	8.4	24	2.0	A341256
Elements					
Hex. Chromium (Cr 6+)	mg/kg	<0.080 (1)	<0.080 (1)	0.080	A343760
MISCELLANEOUS	•				
Sample Matrix	N/A	WOOD	WOOD	N/A	ONSITE

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Hexavalent Chromium results reported as mg/kg without moisture correction. Refer to AB PDF-00074.



Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

# POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

	AFA115		AFA116		
	2021/08/24		2021/08/24		
	15:00		15:15		
	644253-03-01		644253-03-01		
UNITS	WP21-CF01	RDL	WP21-CF02	RDL	QC Batch
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A342685
mg/kg	<0.060	0.060	<0.050	0.050	A341258
%	61	N/A	88	N/A	A342685
it		•		•	•
	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	2021/08/24   15:00   644253-03-01   UNITS   WP21-CF01   WP21-CF0	2021/08/24   15:00   644253-03-01	2021/08/24         2021/08/24           15:00         15:15           644253-03-01         644253-03-01           UNITS         WP21-CF01         RDL         WP21-CF02           mg/kg         <0.060	2021/08/24   2021/08/24   15:00   15:15   644253-03-01   644253-03-01   UNITS   WP21-CF01   RDL   WP21-CF02   RDL   RD



Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

# **SEMIVOLATILE ORGANICS BY GC-MS (SOIL)**

g/kg g/kg g/kg g/kg g/kg g/kg g/kg	2021/08/24 15:00 644253-03-01 <b>WP21-CF01</b> <0.020 <0.029 <0.020 0.058 <0.016	0.020 0.029 0.020 0.040	2021/08/24 15:15 644253-03-01 <b>WP21-CF02</b> 0.025 <0.021 <0.015	RDL 0.015 0.021	
g/kg g/kg g/kg g/kg g/kg g/kg	<pre>644253-03-01 WP21-CF01  &lt;0.020 &lt;0.029 &lt;0.020 0.058 &lt;0.016</pre>	0.020 0.029 0.020	644253-03-01 <b>WP21-CF02</b> 0.025 <0.021	0.015	A342151
g/kg g/kg g/kg g/kg g/kg g/kg	<0.020 <0.029 <0.020 0.058 <0.016	0.020 0.029 0.020	0.025 <0.021	0.015	A342151
g/kg g/kg g/kg g/kg g/kg g/kg	<0.020 <0.029 <0.020 0.058 <0.016	0.020 0.029 0.020	0.025 <0.021	0.015	A342151
g/kg g/kg g/kg g/kg g/kg g/kg	<0.029 <0.020 0.058 <0.016	0.029	<0.021		
g/kg g/kg g/kg g/kg g/kg g/kg	<0.029 <0.020 0.058 <0.016	0.029	<0.021		
g/kg g/kg g/kg g/kg g/kg	<0.020 0.058 <0.016	0.020		0.021	404000
g/kg g/kg g/kg g/kg	0.058 <0.016		<0.015		A340997
g/kg g/kg g/kg	<0.016	0.040	·0.013	0.015	A342151
g/kg g/kg			<0.030	0.030	A342151
g/kg		0.016	<0.012	0.012	A342151
	<0.020	0.020	<0.015	0.015	A342151
-/1:-	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	0.24	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	0.021	0.020	0.041	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	0.18	0.020	1.5	0.015	A342151
g/kg	0.28	0.020	1.9	0.015	A342151
g/kg	0.15	0.020	0.84	0.015	A342151
g/kg	0.29	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.020	0.020	<0.015	0.015	A342151
g/kg	<0.040	0.040	<0.030	0.030	A342151
%	100	N/A	113	N/A	A342151
%	90	N/A	101	N/A	A342151
%	89	N/A	98	N/A	A342151
%	82	N/A	88	N/A	A342151
	·				
	g/kg g/kg g/kg g/kg g/kg g/kg g/kg g/kg	g/kg <0.020 g/kg 0.021 g/kg 0.021 g/kg 0.18 g/kg 0.18 g/kg 0.15 g/kg 0.29 g/kg <0.020 g/kg <0.020 g/kg <0.020 g/kg %g <0.020 g/kg <0.020 g/kg <0.020 g/kg <0.030	g/kg <0.020 0.020 g/kg 0.021 0.020 g/kg 0.021 0.020 g/kg 0.18 0.020 g/kg 0.18 0.020 g/kg 0.15 0.020 g/kg 0.29 0.020 g/kg <0.020 0.020 g/kg <0.040 0.040	g/kg         <0.020         0.020         0.24           g/kg         <0.020         0.020         <0.015           g/kg         <0.021         0.020         <0.015           g/kg         <0.020         <0.015           g/kg         <0.18         <0.020         <0.015           g/kg         <0.28         <0.020         <0.015           g/kg         <0.15         <0.020         <0.015           g/kg         <0.020         <0.015         <0.020           g/kg         <0.020         <0.015         <0.020           g/kg         <0.020         <0.015         <0.015           g/kg         <0.020         <0.020         <0.015           g/kg         <0.020         <0.020         <0.015           g/kg         <0.020         <0.020         <0.015           g/kg         <0.020         <0.020         <0.015           g/kg         <0.	g/kg         <0.020         0.020         0.24         0.015           g/kg         <0.020         0.020         <0.015         0.015           g/kg         <0.021         0.020         <0.041         0.015           g/kg         <0.020         <0.015         0.015           g/kg         <0.18         <0.020         <0.015         0.015           g/kg         <0.28         <0.020         <0.015         0.015           g/kg         <0.15         <0.020         <0.015         0.015           g/kg         <0.29         <0.020         <0.015         <0.015           g/kg         <0.020         <0.015         <0.015         <0.015           g/kg         <0.020         <0.015         <0.015         <0.015           g/kg         <0.020         <0.020         <0.015         <0.015           g/kg



Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

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

BV Labs ID		AFA115	AFA116		
Compling Date		2021/08/24	2021/08/24		
Sampling Date		15:00	15:15		
COC Number		644253-03-01	644253-03-01		
	UNITS	WP21-CF01	WP21-CF02	RDL	QC Batch
Elements					
Total Arsenic (As)	mg/kg	<2.0	<2.0	2.0	A344252
Total Chromium (Cr)	mg/kg	8.4	24	2.0	A344252
Total Chromium (Cr) Total Copper (Cu)	mg/kg mg/kg		24 3.0	2.0	A344252 A344252



Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

### **GENERAL COMMENTS**

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

Package 1	1.0°C
Package 2	0.7°C
Package 3	0.0°C
Package 4	1.3°C
Package 5	1.0°C
Package 6	4.0°C
Package 7	0.0°C
Package 8	-1.0°C
Package 9	0.0°C
Package 10	1.3°C
Package 11	0.7°C

Hexavalent Chromium results reported as mg/kg without moisture correction. Refer to AB PDF-00074.

Sample AFA115 [WP21-CF01]: Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil.

Sample AFA116 [WP21-CF02]: Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil.

### POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL) Comments

Sample AFA115 [WP21-CF01] Polychlorinated Biphenyls in Soil: Detection limits raised due to sample matrix. Sample AFA116 [WP21-CF02] Polychlorinated Biphenyls in Soil: Detection limits raised due to sample matrix.

## SEMIVOLATILE ORGANICS BY GC-MS (SOIL) Comments

Sample AFA115 [WP21-CF01] PAH in Soil by GC/MS: Detection limits raised due to sample matrix. Sample AFA116 [WP21-CF02] PAH in Soil by GC/MS: Detection limits raised due to sample matrix.

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

Sample AFA115 [WP21-CF01] Elements by ICPMS - Soils: Detection limits raised based on sample weight used for analysis. Sample AFA116 [WP21-CF02] Elements by ICPMS - Soils: Detection limits raised based on sample weight used for analysis.

Results relate only to the items tested.



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

# **QUALITY ASSURANCE REPORT**

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A342151	JC7	Matrix Spike	D10-ANTHRACENE (sur.)	2021/09/04		94	%	50 - 130
		·	D8-ACENAPHTHYLENE (sur.)	2021/09/04		90	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/04		87	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/04		79	%	50 - 130
			Acenaphthene	2021/09/04		90	%	50 - 130
			Acenaphthylene	2021/09/04		91	%	50 - 130
			Acridine	2021/09/04		65	%	50 - 130
			Anthracene	2021/09/04		82	%	50 - 130
			Benzo(a)anthracene	2021/09/04		86	%	50 - 130
			Benzo(b&j)fluoranthene	2021/09/04		81	%	50 - 130
			Benzo(k)fluoranthene	2021/09/04		85	%	50 - 130
			Benzo(g,h,i)perylene	2021/09/04		85	%	50 - 130
			Benzo(c)phenanthrene	2021/09/04		82	%	50 - 130
			Benzo(a)pyrene	2021/09/04		88	%	50 - 130
			Benzo(e)pyrene	2021/09/04		79	%	50 - 130
			Chrysene	2021/09/04		84	%	50 - 130
			Dibenz(a,h)anthracene	2021/09/04		88	%	50 - 130
			Fluoranthene	2021/09/04		87	%	50 - 130
			Fluorene	2021/09/04		92	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/09/04		88	%	50 - 130
			1-Methylnaphthalene	2021/09/04		73	%	50 - 130
			2-Methylnaphthalene	2021/09/04		89	%	50 - 130
			Naphthalene	2021/09/04		85	%	50 - 130
			Phenanthrene	2021/09/04		88	%	50 - 130
			Perylene	2021/09/04		84	%	50 - 130
			Pyrene	2021/09/04		87	%	50 - 130
			Quinoline	2021/09/04		104	%	50 - 130
A342151	JC7	Spiked Blank	D10-ANTHRACENE (sur.)	2021/09/04		99	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2021/09/04		96	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/04		90	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/04		91	%	50 - 130
			Acenaphthene	2021/09/04		94	%	50 - 130
			Acenaphthylene	2021/09/04		95	%	50 - 130
			Acridine	2021/09/04		68	%	50 - 130
			Anthracene	2021/09/04		86	%	50 - 130
			Benzo(a)anthracene	2021/09/04		104	%	50 - 130
			Benzo(b&j)fluoranthene	2021/09/04		97	%	50 - 130
			Benzo(k)fluoranthene	2021/09/04		93	%	50 - 130
			Benzo(g,h,i)perylene	2021/09/04		94	%	50 - 130
			Benzo(c)phenanthrene	2021/09/04		96	%	50 - 130
			Benzo(a)pyrene	2021/09/04		100	%	50 - 130
			Benzo(e)pyrene	2021/09/04		88	%	50 - 130
			Chrysene	2021/09/04		96	%	50 - 130
			Dibenz(a,h)anthracene	2021/09/04		99	%	50 - 130
			Fluoranthene	2021/09/04		105	%	50 - 130
			Fluorene	2021/09/04		101	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/09/04		104	%	50 - 130
			1-Methylnaphthalene	2021/09/04		75	%	50 - 130
			2-Methylnaphthalene	2021/09/04		93	%	50 - 130
			Naphthalene	2021/09/04		88	%	50 - 130
			Phenanthrene	2021/09/04		93	%	50 - 130
			Perylene	2021/09/04		88	%	50 - 130
			Pyrene	2021/09/04		103	%	50 - 130



Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC			QUALITY ASSURANCE	· · ·				
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
Dato		ζο . γρο	Quinoline	2021/09/04	74.40	99	%	50 - 130
A342151	JC7	Method Blank	D10-ANTHRACENE (sur.)	2021/09/04		105	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2021/09/04		103	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/04		97	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/04		101	%	50 - 130
			Acenaphthene	2021/09/04	<0.0050	101	mg/kg	30 130
			Acenaphthylene	2021/09/04	<0.0050		mg/kg	
			Acridine	2021/09/04	< 0.010		mg/kg	
			Anthracene	2021/09/04	<0.0040		mg/kg	
			Benzo(a)anthracene	2021/09/04	<0.0050		mg/kg	
			Benzo(b&j)fluoranthene	2021/09/04	<0.0050		mg/kg	
			Benzo(k)fluoranthene	2021/09/04	<0.0050		mg/kg	
			Benzo(g,h,i)perylene	2021/09/04	<0.0050		mg/kg	
			Benzo(c)phenanthrene	2021/09/04	<0.0050		mg/kg	
			Benzo(a)pyrene	2021/09/04	<0.0050		mg/kg	
			Benzo(e)pyrene	2021/09/04	<0.0050		mg/kg	
			Chrysene	2021/09/04	<0.0050		mg/kg	
			Dibenz(a,h)anthracene	2021/09/04	<0.0050		mg/kg	
			Fluoranthene	2021/09/04	<0.0050		mg/kg	
			Fluorene	2021/09/04	<0.0050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2021/09/04	<0.0050		mg/kg	
			1-Methylnaphthalene	2021/09/04	<0.0050		mg/kg	
			2-Methylnaphthalene	2021/09/04	<0.0050		mg/kg	
			Naphthalene	2021/09/04	<0.0050		mg/kg	
			Phenanthrene	2021/09/04	<0.0050		mg/kg	
			Perylene	2021/09/04	<0.0050		mg/kg	
			Pyrene	2021/09/04	<0.0050		mg/kg	
			Quinoline	2021/09/04	<0.010		mg/kg	
A342151	JC7	RPD	Acenaphthene	2021/09/04	NC		%	50
A342131	307	III D	Acenaphthylene	2021/09/04	NC		%	50
			Acridine	2021/09/04	NC		%	50
			Anthracene	2021/09/04	NC		%	50
			Benzo(a)anthracene	2021/09/04	NC		%	50
			Benzo(b&j)fluoranthene	2021/09/04	NC		%	50
			Benzo(kk)fluoranthene	2021/09/04	NC		%	50
			Benzo(g,h,i)perylene	2021/09/04	NC		%	50
			Benzo(c)phenanthrene	2021/09/04	NC		%	50
			Benzo(a)pyrene	2021/09/04	NC		%	50
			Benzo(a)pyrene Benzo(e)pyrene	2021/09/04	NC		%	50
			Chrysene	2021/09/04	NC		% %	50 50
			Dibenz(a,h)anthracene	2021/09/04	NC		% %	50 50
			Fluoranthene	2021/09/04			% %	50 50
			Fluorene	2021/09/04	NC NC		% %	50 50
			Indeno(1,2,3-cd)pyrene 1-Methylnaphthalene	2021/09/04 2021/09/04	NC NC		% %	50 50
			2-Methylnaphthalene	2021/09/04	NC		% %	50 50
			Naphthalene	2021/09/04	NC		% %	50 50
			Phenanthrene	2021/09/04 2021/09/04			% %	50 50
			Perylene	2021/09/04	NC NC		% %	50 50
			•					50 50
			Pyrene	2021/09/04	NC NC		%	
A242200	N 41 15	Matrix Cailes	Quinoline	2021/09/04	NC	433	%	50
A342390	MHF	Matrix Spike	O-TERPHENYL (sur.)	2021/09/05		123	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/05		117	%	60 - 140



BV Labs Job #: C164652 GOLDER ASSOCIATES LTD.
Report Date: 2021/09/09 Client Project #: 20368099

Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
		No. The	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
			F3 (C16-C34 Hydrocarbons)	2021/09/05	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/05	NC		%	40
A342685	JU2	Matrix Spike	Aroclor 1260	2021/09/07		88	%	50 - 130
		·	NONACHLOROBIPHENYL (sur.)	2021/09/07		87	%	50 - 130
A342685	JU2	Spiked Blank	Aroclor 1260	2021/09/07		100	%	50 - 130
			NONACHLOROBIPHENYL (sur.)	2021/09/07		106	%	50 - 130
A342685	JU2	Method Blank	Aroclor 1016	2021/09/07	< 0.010		mg/kg	
			Aroclor 1221	2021/09/07	< 0.010		mg/kg	
			Aroclor 1232	2021/09/07	< 0.010		mg/kg	
			Aroclor 1242	2021/09/07	< 0.010		mg/kg	
			Aroclor 1248	2021/09/07	< 0.010		mg/kg	
			Aroclor 1254	2021/09/07	< 0.010		mg/kg	
			Aroclor 1260	2021/09/07	< 0.010		mg/kg	
			Aroclor 1262	2021/09/07	< 0.010		mg/kg	
			Aroclor 1268	2021/09/07	< 0.010		mg/kg	
			NONACHLOROBIPHENYL (sur.)	2021/09/07		106	%	50 - 130
A342685	JU2	RPD	Aroclor 1016	2021/09/07	NC		%	50
			Aroclor 1221	2021/09/07	NC		%	50
			Aroclor 1232	2021/09/07	NC		%	50
			Aroclor 1242	2021/09/07	NC		%	50
			Aroclor 1248	2021/09/07	NC		%	50
			Aroclor 1254	2021/09/07	NC		%	50
			Aroclor 1260	2021/09/07	NC		%	50
			Aroclor 1262	2021/09/07	NC		%	50
			Aroclor 1268	2021/09/07	NC		%	50
A343313	RSU	Matrix Spike [AFA116-01]	1,4-Difluorobenzene (sur.)	2021/09/08		98	%	50 - 140
		,	4-Bromofluorobenzene (sur.)	2021/09/08		113	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		103	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		104	%	50 - 140
			Benzene	2021/09/08		89	%	50 - 140
			Toluene	2021/09/08		93	%	50 - 140
			Ethylbenzene	2021/09/08		107	%	50 - 140
			m & p-Xylene	2021/09/08		111	%	50 - 140
			o-Xylene	2021/09/08		118	%	50 - 140
			F1 (C6-C10)	2021/09/08		86	%	60 - 140
A343313	RSU	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/08		95	%	50 - 140
		•	4-Bromofluorobenzene (sur.)	2021/09/08		111	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		107	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		106	%	50 - 140
			Benzene	2021/09/08		71	%	60 - 130
			Toluene	2021/09/08		78	%	60 - 130
			Ethylbenzene	2021/09/08		76 76	%	60 - 130



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

## QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	lni+	OC Tuno	Darameter	Data Analyzad	Value	Doggvorv	UNITS	QC Limits
вассп	Init	QC Type	Parameter m & p-Xylene	Date Analyzed 2021/09/08	value	Recovery 78	%	60 - 130
			• •	• •		76 74	%	60 - 130
			o-Xylene F1 (C6-C10)	2021/09/08 2021/09/08		103	% %	60 - 140
A343313	RSU	Method Blank	,	• •		93	% %	50 - 140
A343313	KSU	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/08		93 101		
			4-Bromofluorobenzene (sur.)	2021/09/08			%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		95	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08	-0.0050	100	%	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	
A343313	RSU	RPD [AFA116-01]	Benzene	2021/09/08	NC		%	50
			Toluene	2021/09/08	31		%	50
			Ethylbenzene	2021/09/08	11		%	50
			m & p-Xylene	2021/09/08	20		%	50
			o-Xylene	2021/09/08	10		%	50
			F1 (C6-C10)	2021/09/08	NC		%	40
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	
A344252	LQ1	Matrix Spike	Total Arsenic (As)	2021/09/08		103	%	75 - 125
			Total Chromium (Cr)	2021/09/08		118	%	75 - 125
			Total Copper (Cu)	2021/09/08		103	%	75 - 125
A344252	LQ1	QC Standard	Total Arsenic (As)	2021/09/08		102	%	53 - 147
			Total Chromium (Cr)	2021/09/08		93	%	59 - 141
			Total Copper (Cu)	2021/09/08		100	%	83 - 117
A344252	LQ1	Spiked Blank	Total Arsenic (As)	2021/09/08		97	%	80 - 120
			Total Chromium (Cr)	2021/09/08		99	%	80 - 120
			Total Copper (Cu)	2021/09/08		101	%	80 - 120
A344252	LQ1	Method Blank	Total Arsenic (As)	2021/09/08	<1.0		mg/kg	
			Total Chromium (Cr)	2021/09/08	<1.0		mg/kg	
			Total Copper (Cu)	2021/09/08	<1.0		mg/kg	
A344252	LQ1	RPD	Total Arsenic (As)	2021/09/08	8.4		%	30
	-		Total Chromium (Cr)	2021/09/08	5.6		%	30
			Total Copper (Cu)	2021/09/08	10		%	30

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 (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 #: 20368099-6000-1000 Your P.O. #: 20368099-7000-1000

Sampler Initials: AB

### **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

Gita Pokhrel, Laboratory Supervisor

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

pronicatedk

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

CUSTODY SEAL         YES         NO         COOLER ID         COSTOR ID         COSTOR ID         PRESENT         YES         NO         COOLER ID         TEMP         A         COSTOR ID         TEMP         A         COSTOR ID         TEMP         A         A         A         COOLER ID         A         <
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# ADDITIONAL COOLER TEMPERATURE RECORD CHAIN-OF-CUSTODY RECORD

CUSTODY SEAL  PRESENT  PRESENT  CUSTODY SEAL  PRESENT  PRESENT  CUSTODY SEAL  PRESENT  PRESE	# XOUSTO JO NI PHO	COOLER OBSERVATIONS:	VATIONS:		1	11.0	MAXXAM JOB#:	A JOB#:					
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Color   Colo		ICE PRESENT		7-0	) - 1	3	ICE PRESE	INT		Т		rı	m
Colored   Colo		CUSTODY SEAL	YES	-	1		CUSTODY	' SEAL	Н		1		
Colored   Colo		TOPEN		T A		-		RESENT	1	Т			
Color   Colo		ICE PRESENT	1	T			ICE PRESE	NT NT	1	TEMB	-	,	er
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Control   Cont		CUSIODY SEAL	4	-	A ID		CUSTODY	SEAL	<u> </u>	-	QI 1		
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December   Corresponding   Colorer	A STATE OF THE PARTY OF THE PAR	Paggar	1		_		A.	ESENT.		-			
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ILE PRESENT   No.   ILE		124_W1	1/2	TEMP	જ	t		1000	+	TEMP			
OF         CLOSTODY SEAL         YES         NO         COOLER ID         CLOSTODY SEAL         YES         NO         COOLER ID           INT-ACT         INT-ACT <td>JO.</td> <td>ACE PRESENT</td> <td></td> <td>I</td> <td>,</td> <td></td> <td>ILE PRESEN</td> <td></td> <td>H</td> <td>T</td> <td>Name of the last</td> <td>2</td> <td>m</td>	JO.	ACE PRESENT		I	,		ILE PRESEN		H	T	Name of the last	2	m
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Page 15 of 18

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Jose Mercomy

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

Chain Of Custody Record

Page of

(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.

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

Standard TAT for example it sets such as BOD and Diowins/Furans are > 5 days - conted/your Project Manage for defails. 644253 Project Manager Yellow. Client Bottle Order #: Carmen McKay Sustody Seal Intact on Cooler? (25:25 No. AUG 31 2021 No Received in Yellowknife Please provide advance notice for rush project Time Required: Laboratory Use Only See min Yes Job Specific Rush TAT (if applies to entire submission) Chain Of Custody Record Lab Use Only 78781 Temp: UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITED 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.

THIS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD, AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN AMALYTICAL LAT DELAYS. BV Labs Job# By: bads Regular (Standard) TAT SSasoid poom say EXTRUCTOR # jars used and not submitted Project Information Trivalent + Carmen McKay-Mat. lea 31-Aug-21 08:35 Hexaba lent Cr Time X 1NS-0009 C164652 7 Date: (YY/MM/DD) Project Name HAY Sampled By + Project # P.O. # Site # MXF カナーノ X (Vialy) lioS ni 47-17 bns X3T8 a be Havene @ Sulphate, True Total Barium 15:30 Du Dawit Wibreak Hexavalent Chromium, Nitrate AT1 Regulated Metals - Soils RECEIVED BY: (Signatur Report Information (780) 483-3499 peter\_tan@golder.com, Regulated Drinking Water ? ( Y / N ) shell DGR @ golder. com PETERTAN , A Matrix 00 Time Sampled 15 Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form 5 is Samples must be kept cool ( < 10°C ) from time of sampling until delivery to BV Labs Company Name Contact Name 11/80/12 Date Sampled Phone Date: (YY/MM/DD) 
 (780) 483-3499
 Fax.
 (780) 483-1574

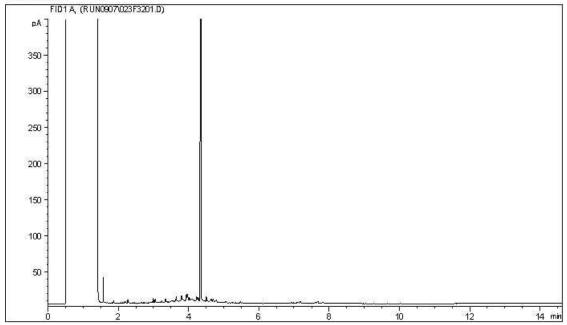
 CanadaAccountsPayableInvoices@golder.com
 CF02 Sample (Location) Identification WPZI-CFOI #2045, GOLDER ASSOCIATES LTD
ACCOUNTS PAYABLE
16820-107 AVE
EDMONTON AB T5P 4C3
(780) 483-3499 Fex (780) IN A Bellavance 1/2 INVOICE TO: 43 RELINQUISHED BY: (Signature/Print) Sample Barcode Label CONE 2 X 2 Regulatory Criteria Company Name Contact Name Address Phone Email 7 4 m

Bureau Veritas Canada (2019) Inc.

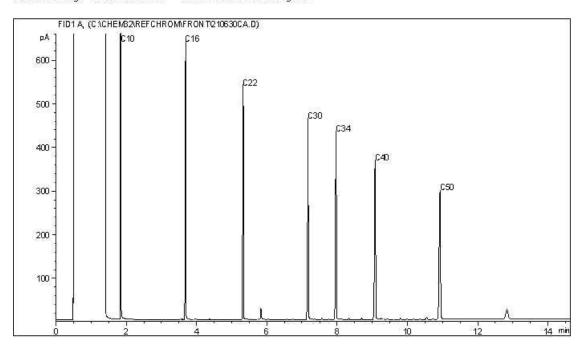
BV Labs Job #: C164652 GOLDER ASSOCIATES LTD.

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

Instrument: GC12



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+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

BV Labs Job #: C164652 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/09

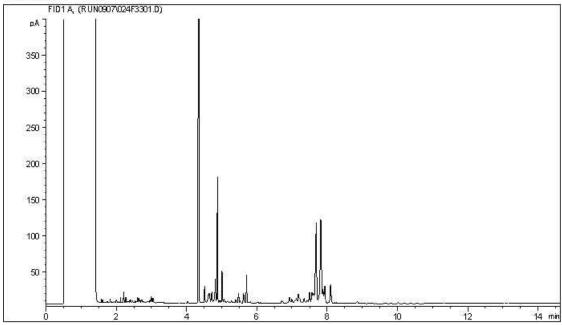
BV Labs Sample: AFA116

GOLDER ASSOCIATES LTD.
Client Project #: 20368099-6000-1000

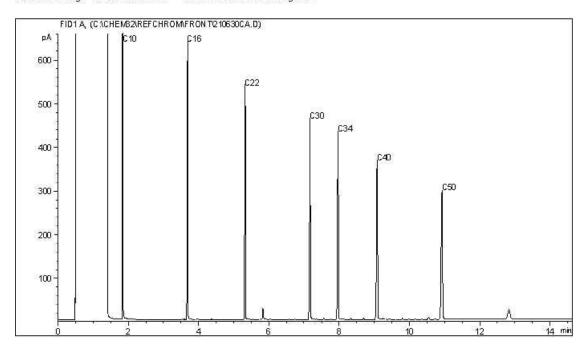
Client ID: WP21-CF02

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

Instrument: GC12



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+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farewo	ell		_	Sampling Date: August 24, 2021
Golder Project Number: 2	20368099	-6000-100	1	Laboratory: Bureau Veritas Edmonton
Lab Submission Number: <u>(</u>	C164652		<del>-</del>	
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 ble when racted wit statistical r the reque	documente they reach thin hold ti control in ested analy	ed and keped lab?: mes?: CoA?: vsis?	yes Yes Yes Yes Yes Yes No
Are All Laboratory QC Within Ac	ceptance (	Criteria (Y	es, No, N	lot Applicable)?
Surrogate Recovery Method Blank Concentration Laboratory Duplicate RPD Matrix Spike Recovery Blank Spike Recovery	Yes X X X X X X	No	NA	Comments  All laboratory QC results are within acceptance criteria.
Are All Field QC Samples Within	Alert Lim	iits (Yes, N	Io, Not Ap	.pplicable)?
Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Yes	No	NA X X X	Comments  No field QC samples were collected.
Is data considered reliable (Yes/No If answer is "No" or "Suspect", des			ntionale:	Yes
Data Reviewed by (Print):		bert r 10, 2021		Data Reviewed by (Signature): Onits Collect



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. #: 644511-51-01, 644511-59-01, 644511-60-01, 644511-61-01

Report Date: 2021/09/28 Report #: R3077732 Version: 4 - Revision

# **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164653 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 40

# Samples Received: 40			_		
Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Barium on ICP using Fusion Extraction (1)	3			AB SOP-00044 / AB SOP- 00042	EPA 6010d R5 m
Boron (Hot Water Soluble) (1)	1	2021/09/09	2021/09/09	AB SOP-00034 / AB SOP-00042	EPA 6010d R5 m
Boron (Hot Water Soluble) (1)	2	2021/09/15	2021/09/16	AB SOP-00034 / AB SOP- 00042	EPA 6010d R5 m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	39	N/A	2021/09/07	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	1	N/A	2021/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	40	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 in soil) (1, 4)	20	2021/09/04	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	14	2021/09/05	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	5	2021/09/05	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	1	2021/09/05	2021/09/09	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F4G in soil) (1, 4)	1	2021/09/04	2021/09/09	AB SOP-00036 AB SOP-00040	CCME PHC-CWS m
Elements by ICPMS - Soils (1)	3	2021/09/05	2021/09/06	AB SOP-00001 / AB SOP- 00043	EPA 6020b R2 m
Moisture (1)	40	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 Ions (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	2021/09/05		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



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. #: 644511-51-01, 644511-59-01, 644511-60-01, 644511-61-01

Report Date: 2021/09/28

Report #: R3077732 Version: 4 - Revision

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

BV LABS JOB #: C164653 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) 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.



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. #: 644511-51-01, 644511-59-01, 644511-60-01, 644511-61-01

Report Date: 2021/09/28

Report #: R3077732 Version: 4 - Revision

# **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164653 Received: 2021/08/31, 08:35

**Encryption Key** 



Bureau Veritas

28 Sep 2021 18:46:17

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.



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)

BV Labs ID		AFA117	AFA117		AFA118	AFA119	AFA120		
Sampling Date		2021/08/27	2021/08/27		2021/08/27	2021/08/27	2021/08/27		
Sampling Date		14:20	14:20		14:30	14:19	14:41		
COC Number		644511-51-01	644511-51-01		644511-51-01	644511-51-01	644511-51-01		
	UNITS	TP21-04-03	TP21-04-03 Lab-Dup	RDL	TP21-04-05	TP21-04-01	TP21-05-02	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	44 (1)	N/A	32	160	320	95	10	A342519
F3 (C16-C34 Hydrocarbons)	mg/kg	1100 (1)	N/A	160	130	770	230	50	A342519
F4 (C34-C50 Hydrocarbons)	mg/kg	440 (1)	N/A	160	<50	75	<50	50	A342519
Reached Baseline at C50	mg/kg	Yes	N/A	N/A	Yes	Yes	Yes	N/A	A342519
Physical Properties									
Moisture	%	69	N/A	0.30	16	14	14	0.30	A342516
Volatiles									
Xylenes (Total)	mg/kg	<0.20	N/A	0.20	0.54	<0.045	<0.045	0.045	A339733
F1 (C6-C10) - BTEX	mg/kg	<13	N/A	13	35	<10	<10	10	A339733
Field Preserved Volatiles									
Benzene	mg/kg	0.15 (2)	0.092	0.022	<0.0050	<0.0050	<0.0050	0.0050	A341608
Toluene	mg/kg	0.41 (2)	0.28	0.22	<0.050	<0.050	<0.050	0.050	A341608
Ethylbenzene	mg/kg	0.053 (2)	<0.045	0.045	0.15	0.014	<0.010	0.010	A341608
m & p-Xylene	mg/kg	0.19 (2)	<0.18	0.18	0.19	<0.040	<0.040	0.040	A341608
o-Xylene	mg/kg	<0.090 (2)	<0.090	0.090	0.35	<0.020	<0.020	0.020	A341608
F1 (C6-C10)	mg/kg	<13 (3)	<13	13	36	<10	<10	10	A341608
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	88	100	N/A	86	82	84	N/A	A341608
4-Bromofluorobenzene (sur.)	%	108	86	N/A	104	107	108	N/A	A341608
D10-o-Xylene (sur.)	%	109	66	N/A	124	120	112	N/A	A341608
D4-1,2-Dichloroethane (sur.)	%	108	77	N/A	112	107	108	N/A	A341608
O-TERPHENYL (sur.)	%	105	N/A	N/A	90	112	102	N/A	A342519

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 based on sample weight used for analysis.
- (3) 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: AB

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

<u> </u>									
BV Labs ID		AFA121	AFA122	AFA123	AFA124	AFA125	AFA126		
Sampling Date		2021/08/27	2021/08/27	2021/08/27	2021/08/27	2021/08/27	2021/08/27		
Jamping Date		14:42	14:53	15:02	15:03	15:10	15:10		
COC Number		644511-51-01	644511-51-01	644511-51-01	644511-51-01	644511-51-01	644511-51-01		
	UNITS	TP21-05-04	TP21-05-06	TP21-34-01	TP21-34-03	TP21-34-05	DUP-II	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	430	26	<10	<10	10	A342519
F3 (C16-C34 Hydrocarbons)	mg/kg	70	<50	580	94	<50	<50	50	A342519
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	<50	50	A342519
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A342519
Physical Properties									
Moisture	%	17	17	14	5.8	12	14	0.30	A342516
Volatiles	•		-	•	•	•	•	ē	,
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	0.045	A339733
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A339733
Field Preserved Volatiles	•	•	-	•	•	•	•	=	,
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A341608
Toluene	mg/kg	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A341608
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A341608
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A341608
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A341608
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A341608
Surrogate Recovery (%)	•	•	-	•	•	•	•	=	,
1,4-Difluorobenzene (sur.)	%	90	90	90	102	89	89	N/A	A341608
4-Bromofluorobenzene (sur.)	%	102	104	102	85	105	105	N/A	A341608
D10-o-Xylene (sur.)	%	101	103	97	77	103	99	N/A	A341608
D4-1,2-Dichloroethane (sur.)	%	96	97	101	76	97	97	N/A	A341608
O-TERPHENYL (sur.)	%	111	117	99	110	100	113	N/A	A342519
PDL - Papartable Detection Lin	i+								

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)

BV Labs ID		AFA127	AFA127		AFA128	AFA128		AFA129		
Sampling Date		2021/08/27	2021/08/27		2021/08/27	2021/08/27		2021/08/27		
Sampling Date		08:55	08:55		08:56	08:56		09:11		
COC Number		644511-59-01	644511-59-01		644511-59-01	644511-59-01		644511-59-01		
	UNITS	TP21-20-01	TP21-20-01 Lab-Dup	QC Batch	TP21-20-03	TP21-20-03 Lab-Dup	RDL	TP21-20-06	RDL	QC Batch
Ext. Pet. Hydrocarbon	-	·	•		·			•		
F2 (C10-C16 Hydrocarbons)	mg/kg	34 (1)	130 (2)	A342519	200	N/A	10	<10	10	A342519
F3 (C16-C34 Hydrocarbons)	mg/kg	190	270	A342519	380	N/A	50	<50	50	A342519
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A342519	<50	N/A	50	<50	50	A342519
Reached Baseline at C50	mg/kg	Yes	Yes	A342519	Yes	N/A	N/A	Yes	N/A	A342519
Physical Properties										
Moisture	%	15	N/A	A342516	13	13	0.30	17	0.30	A342516
Volatiles										
Xylenes (Total)	mg/kg	<0.045	N/A	A339733	<0.045	N/A	0.045	<0.045	0.045	A340129
F1 (C6-C10) - BTEX	mg/kg	16	N/A	A339733	20	N/A	10	<16	16	A340129
Field Preserved Volatiles	•	•	•	•	•	-	•	•	•	•
Benzene	mg/kg	<0.0050	N/A	A341608	<0.0050	N/A	0.0050	<0.0050	0.0050	A341608
Toluene	mg/kg	<0.050	N/A	A341608	0.091	N/A	0.050	<0.050	0.050	A341608
Ethylbenzene	mg/kg	<0.010	N/A	A341608	<0.010	N/A	0.010	<0.010	0.010	A341608
m & p-Xylene	mg/kg	<0.040	N/A	A341608	<0.040	N/A	0.040	<0.040	0.040	A341608
o-Xylene	mg/kg	<0.020	N/A	A341608	<0.020	N/A	0.020	<0.020	0.020	A341608
F1 (C6-C10)	mg/kg	16	N/A	A341608	20	N/A	10	<16 (3)	16	A341608
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	89	N/A	A341608	88	N/A	N/A	85	N/A	A341608
4-Bromofluorobenzene (sur.)	%	102	N/A	A341608	101	N/A	N/A	106	N/A	A341608
D10-o-Xylene (sur.)	%	96	N/A	A341608	96	N/A	N/A	115	N/A	A341608
D4-1,2-Dichloroethane (sur.)	%	100	N/A	A341608	96	N/A	N/A	94	N/A	A341608
O-TERPHENYL (sur.)	%	89	98	A342519	98	N/A	N/A	113	N/A	A342519
DDI Dementable Detection Li	:+							·		

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

- (1) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.
- (2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
- (3) 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)

BV Labs ID		AFA130		AFA131		AFA132		AFA133		
Sampling Date		2021/08/27 09:13		2021/08/27 09:14		2021/08/27 09:26		2021/08/27 09:39		
COC Number		644511-59-01		644511-59-01		644511-59-01		644511-59-01		
	UNITS	TP21-21-02	RDL	TP21-21-04	RDL	TP21-21-06	QC Batch	TP21-22-01	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	500	10	20	10	<10	A342519	130	10	A342304
F3 (C16-C34 Hydrocarbons)	mg/kg	1000	50	66	50	<50	A342519	290	50	A342304
F4 (C34-C50 Hydrocarbons)	mg/kg	210	50	<50	50	<50	A342519	<50	50	A342304
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	N/A	Yes	A342519	Yes	N/A	A342304
Physical Properties						•				
Moisture	%	28	0.30	14	0.30	18	A342516	17	0.30	A342306
Volatiles										
Xylenes (Total)	mg/kg	0.24	0.045	0.25	0.045	<0.045	A340129	<0.045	0.045	A340129
F1 (C6-C10) - BTEX	mg/kg	46	10	<16	16	<10	A340129	<10	10	A340129
Field Preserved Volatiles										
Benzene	mg/kg	0.062	0.0050	0.034	0.0050	<0.0050	A341608	<0.0050	0.0050	A341608
Toluene	mg/kg	1.7	0.050	0.25	0.050	<0.050	A341608	<0.050	0.050	A341608
Ethylbenzene	mg/kg	0.042	0.010	0.043	0.010	<0.010	A341608	0.014	0.010	A341608
m & p-Xylene	mg/kg	0.12	0.040	0.15	0.040	<0.040	A341608	<0.040	0.040	A341608
o-Xylene	mg/kg	0.12	0.020	0.10	0.020	<0.020	A341608	<0.020	0.020	A341608
F1 (C6-C10)	mg/kg	48	10	<16 (1)	16	<10	A341608	<10	10	A341608
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	85	N/A	82	N/A	85	A341608	87	N/A	A341608
4-Bromofluorobenzene (sur.)	%	100	N/A	102	N/A	103	A341608	103	N/A	A341608
D10-o-Xylene (sur.)	%	99	N/A	99	N/A	99	A341608	100	N/A	A341608
D4-1,2-Dichloroethane (sur.)	%	95	N/A	90	N/A	93	A341608	98	N/A	A341608
O-TERPHENYL (sur.)	%	105	N/A	108	N/A	112	A342519	90	N/A	A342304
	٠.					·		·		

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) 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)

BV Labs ID		AFA134			AFA135	AFA136		AFA137		
Sampling Date		2021/08/27 09:40			2021/08/27 09:46	2021/08/27 09:46		2021/08/27 09:47		
COC Number		644511-59-01			644511-59-01	644511-59-01		644511-60-01		
	UNITS	TP21-22-03	RDL	QC Batch	TP21-22-05	DUP-GG	QC Batch	TP21-22-06	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	350	10	A342304	64	3300	A342304	6800	10	A342304
F3 (C16-C34 Hydrocarbons)	mg/kg	1700	50	A342304	<50	<50	A342304	99	50	A342304
F4 (C34-C50 Hydrocarbons)	mg/kg	390	50	A342304	<50	<50	A342304	<50	50	A342304
Reached Baseline at C50	mg/kg	No	N/A	A342304	Yes	Yes	A342304	Yes	N/A	A342304
Physical Properties			•							
Moisture	%	46	0.30	A342394	8.2	10	A342306	16	0.30	A342394
Volatiles										
Xylenes (Total)	mg/kg	<0.14	0.14	A340129	0.25	1.2	A340129	19	0.045	A340129
F1 (C6-C10) - BTEX	mg/kg	<10	10	A340129	11	42	A340129	850	10	A340129
Field Preserved Volatiles										
Benzene	mg/kg	0.11 (1)	0.015	A341608	0.088	0.091	A341608	0.39	0.0050	A341610
Toluene	mg/kg	2.8 (1)	0.15	A341608	0.074	0.14	A341608	4.8	0.050	A341610
Ethylbenzene	mg/kg	<0.029 (2)	0.029	A341608	0.065	0.29	A341608	4.2	0.010	A341610
m & p-Xylene	mg/kg	<0.12 (1)	0.12	A341608	0.14	0.75	A341608	12	0.040	A341610
o-Xylene	mg/kg	<0.060 (1)	0.060	A341608	0.10	0.44	A341608	7.0	0.020	A341610
F1 (C6-C10)	mg/kg	<10 (2)	10	A341608	12	44	A341608	880	10	A341610
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	86	N/A	A341608	87	87	A341608	99	N/A	A341610
4-Bromofluorobenzene (sur.)	%	104	N/A	A341608	103	98	A341608	104	N/A	A341610
D10-o-Xylene (sur.)	%	91	N/A	A341608	90	92	A341608	102	N/A	A341610
D4-1,2-Dichloroethane (sur.)	%	95	N/A	A341608	96	98	A341608	101	N/A	A341610
O-TERPHENYL (sur.)	%	89	N/A	A342304	92	92	A342304	86	N/A	A342304

RDL = Reportable Detection Limit

N/A = Not Applicable

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

(2) 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: AB

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

	2021/08/27					AFA141	ı	l
	2021/00/27	2021/08/27		2021/08/27	2021/08/27	2021/08/27		
	09:47	10:01		10:02	10:11	10:11		
	644511-60-01	644511-60-01		644511-60-01	644511-60-01	644511-60-01		
UNITS	TP21-22-06 Lab-Dup	TP21-23-01	QC Batch	TP21-23-03	TP21-23-06	DUP-HH	RDL	QC Batch
mg/kg	N/A	100	A342304	120	190	610	10	A342304
mg/kg	N/A	240	A342304	250	94	120	50	A342304
mg/kg	N/A	<50	A342304	<50	<50	<50	50	A342304
mg/kg	N/A	Yes	A342304	Yes	Yes	Yes	N/A	A342304
•								
%	N/A	13	A342394	15	17	15	0.30	A342306
mg/kg	N/A	0.071	A340129	<0.045	1.2	0.59	0.045	A340129
mg/kg	N/A	<10	A340129	<10	44	230	10	A340129
mg/kg	0.41	<0.0050	A341610	<0.0050	0.56	0.23	0.0050	A341610
mg/kg	5.0	<0.050	A341610	<0.050	0.073	0.086	0.050	A341610
mg/kg	4.4	0.024	A341610	<0.010	0.60	0.56	0.010	A341610
mg/kg	13	0.071 (1)	A341610	<0.040	0.42	0.44	0.040	A341610
mg/kg	7.4	<0.020	A341610	0.029 (1)	0.81	0.15	0.020	A341610
mg/kg	870	<10	A341610	<10	46	230	10	A341610
%	100	94	A341610	93	94	96	N/A	A341610
%	110	107	A341610	105	102	102	N/A	A341610
%	106	100	A341610	94	109	101	N/A	A341610
%	104	97	A341610	99	97	103	N/A	A341610
%	N/A	89	A342304	87	96	97	N/A	A342304
	mg/kg	UNITS         TP21-22-06 Lab-Dup           mg/kg         N/A           mg/kg         5.0           mg/kg         4.4           mg/kg         13           mg/kg         7.4           mg/kg         870           %         100           %         106           %         104           %         N/A	UNITS         TP21-22-06 Lab-Dup         TP21-23-01           mg/kg         N/A         100           mg/kg         N/A         240           mg/kg         N/A         450           mg/kg         N/A         Yes           %         N/A         13           mg/kg         N/A         <10	UNITS         TP21-22-06 Lab-Dup         TP21-23-01         QC Batch           mg/kg         N/A         100         A342304           mg/kg         N/A         240         A342304           mg/kg         N/A         <50	UNITS         TP21-22-06 Lab-Dup         TP21-23-01         QC Batch         TP21-23-03           mg/kg         N/A         100         A342304         120           mg/kg         N/A         240         A342304         250           mg/kg         N/A         <50	UNITS         TP21-22-06 Lab-Dup         TP21-23-01         QC Batch         TP21-23-03         TP21-23-06           mg/kg         N/A         100         A342304         120         190           mg/kg         N/A         240         A342304         250         94           mg/kg         N/A         <50	UNITS         TP21-22-06 Lab-Dup         TP21-23-01         QC Batch         TP21-23-03         TP21-23-06         DUP-HH           mg/kg         N/A         100         A342304         120         190         610           mg/kg         N/A         240         A342304         250         94         120           mg/kg         N/A         <50	UNITS         TP21-22-06 Lab-Dup         TP21-23-01         QC Batch         TP21-23-03         TP21-23-06         DUP-HH         RDL           mg/kg         N/A         100         A342304         120         190         610         10           mg/kg         N/A         240         A342304         250         94         120         50           mg/kg         N/A         <50

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

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: AB

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

BV Labs ID		AFA142	AFA143	AFA143	AFA144	AFA145	AFA146		
Sampling Date		2021/08/27	2021/08/27	2021/08/27	2021/08/27	2021/08/27	2021/08/27		
Sampling Date		10:27	10:28	10:28	10:38	10:46	10:47		
COC Number		644511-60-01	644511-60-01	644511-60-01	644511-60-01	644511-60-01	644511-60-01		
	UNITS	TP21-24-01	TP21-24-03	TP21-24-03 Lab-Dup	TP21-24-06	TP21-25-02	TP21-25-04	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	97	380	360	39	360	74	10	A342304
F3 (C16-C34 Hydrocarbons)	mg/kg	280	520	460	75	320	370	50	A342304
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	110	50	A342304
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A342304
Physical Properties									
Moisture	%	13	14	N/A	17	15	36	0.30	A342306
Volatiles									
Xylenes (Total)	mg/kg	<0.045	<0.045	N/A	0.054	<0.045	0.18	0.045	A340129
F1 (C6-C10) - BTEX	mg/kg	<10	14	N/A	17	<10	17	10	A340129
Field Preserved Volatiles									
Benzene	mg/kg	<0.0050	<0.0050	N/A	<0.0050	<0.0050	<0.0050	0.0050	A341610
Toluene	mg/kg	<0.050	0.076	N/A	0.26	<0.050	2.4	0.050	A341610
Ethylbenzene	mg/kg	<0.010	0.013	N/A	0.021	<0.010	0.028	0.010	A341610
m & p-Xylene	mg/kg	<0.040	<0.040	N/A	<0.040	<0.040	0.092	0.040	A341610
o-Xylene	mg/kg	<0.020	0.028	N/A	0.054 (1)	<0.020	0.091	0.020	A341610
F1 (C6-C10)	mg/kg	<10	14	N/A	17	<10	20	10	A341610
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	94	92	N/A	93	92	94	N/A	A341610
4-Bromofluorobenzene (sur.)	%	100	99	N/A	103	101	107	N/A	A341610
D10-o-Xylene (sur.)	%	102	95	N/A	92	103	107	N/A	A341610
D4-1,2-Dichloroethane (sur.)	%	99	99	N/A	98	98	101	N/A	A341610
O-TERPHENYL (sur.)	%	104	92	92	99	101	107	N/A	A342304

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

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



Report Date: 2021/09/28

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

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

BV Labs ID		AFA147	AFA148		AFA149	AFA150		
CP D-t-		2021/08/27	2021/08/27		2021/08/27	2021/08/27		
Sampling Date		10:59	13:37		13:38	13:53		
COC Number		644511-61-01	644511-61-01		644511-61-01	644511-61-01		
	UNITS	TP21-25-06	TP21-26-02	QC Batch	TP21-26-04	TP21-26-06	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	120	A342304	2100	100	10	A342519
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	320	A342304	1600	130	50	A342519
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	59	A342304	130	<50	50	A342519
Reached Baseline at C50	mg/kg	Yes	Yes	A342304	Yes	Yes	N/A	A342519
Physical Properties			•	•		•		
Moisture	%	18	13	A342306	25	13	0.30	A342516
Volatiles	•						-	
Xylenes (Total)	mg/kg	<0.045	<0.045	A340129	5.4	0.25	0.045	A340129
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A340129	310	17	10	A340129
Field Preserved Volatiles				•			-	
Benzene	mg/kg	<0.0050	<0.0050	A341610	0.087	0.011	0.0050	A341610
Toluene	mg/kg	0.12	<0.050	A341610	1.8	<0.050	0.050	A341610
Ethylbenzene	mg/kg	<0.010	<0.010	A341610	1.1	0.055	0.010	A341610
m & p-Xylene	mg/kg	<0.040	<0.040	A341610	2.6	0.12	0.040	A341610
o-Xylene	mg/kg	<0.020	<0.020	A341610	2.8	0.13	0.020	A341610
F1 (C6-C10)	mg/kg	<10	<10	A341610	320	17	10	A341610
Surrogate Recovery (%)				•			-	
1,4-Difluorobenzene (sur.)	%	94	93	A341610	95	95	N/A	A341610
4-Bromofluorobenzene (sur.)	%	102	100	A341610	103	99	N/A	A341610
D10-o-Xylene (sur.)	%	107	98	A341610	105	86	N/A	A341610
D4-1,2-Dichloroethane (sur.)	%	97	98	A341610	102	95	N/A	A341610
O-TERPHENYL (sur.)	%	105	107	A342304	122	105	N/A	A342519
RDL = Reportable Detection Lir	nit			•			-	

RDL = Reportable Detection Limit

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 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AFA151	AFA152		AFA153	AFA154		
Sampling Date		2021/08/27	2021/08/27		2021/08/27	2021/08/27		
Sampling Date		13:56	13:57		14:04	15:22		
COC Number		644511-61-01	644511-61-01		644511-61-01	644511-61-01		
	UNITS	TP21-27-02	TP21-27-04	QC Batch	TP21-27-05	TP21-58-01	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	230	140	A342304	50	140	10	A342519
F3 (C16-C34 Hydrocarbons)	mg/kg	460	190	A342304	110	290	50	A342519
F4 (C34-C50 Hydrocarbons)	mg/kg	65	<50	A342304	<50	<50	50	A342519
Reached Baseline at C50	mg/kg	Yes	Yes	A342304	Yes	Yes	N/A	A342519
Physical Properties							-	
Moisture	%	15	6.7	A342306	9.9	9.4	0.30	A342516
Volatiles								
Xylenes (Total)	mg/kg	<0.045	<0.045	A340129	<0.045	<0.045	0.045	A340129
F1 (C6-C10) - BTEX	mg/kg	<10	19	A340129	11	<10	10	A340129
Field Preserved Volatiles		•	-	•	•		3	-
Benzene	mg/kg	<0.0050	<0.0050	A341610	<0.0050	<0.0050	0.0050	A341610
Toluene	mg/kg	<0.050	<0.050	A341610	0.23	<0.050	0.050	A341610
Ethylbenzene	mg/kg	<0.010	<0.010	A341610	<0.010	<0.010	0.010	A341610
m & p-Xylene	mg/kg	<0.040	<0.040	A341610	<0.040	<0.040	0.040	A341610
o-Xylene	mg/kg	<0.020	<0.020	A341610	<0.020	<0.020	0.020	A341610
F1 (C6-C10)	mg/kg	<10	19	A341610	11	<10	10	A341610
Surrogate Recovery (%)	•	•	-	•	•	•	='	
1,4-Difluorobenzene (sur.)	%	97	97	A341610	96	96	N/A	A341610
4-Bromofluorobenzene (sur.)	%	99	100	A341610	101	98	N/A	A341610
D10-o-Xylene (sur.)	%	85	94	A341610	97	92	N/A	A341610
D4-1,2-Dichloroethane (sur.)	%	96	94	A341610	95	94	N/A	A341610
O-TERPHENYL (sur.)	%	104	100	A342304	99	114	N/A	A342519
RDL = Reportable Detection Lir	mit				<u> </u>		•	

RDL = Reportable Detection Limit

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 BTEX AND F1-F4 IN SOIL (VIALS)

	AFA155	AFA156		
	2021/08/27 15:23	2021/08/27 15:32		
UNITS	TP21-58-03	TP21-58-06	RDL	QC Batch
mg/kg	51	<10	10	A342304
	270	<50	50	A342304
mg/kg	58	<50	50	A342304
mg/kg	Yes	Yes	N/A	A342304
<u>I</u>				
%	9.6	15	0.30	A342306
mg/kg	<0.045	<0.045	0.045	A340129
mg/kg	<10	<10	10	A340129
mg/kg	<0.0050	<0.0050	0.0050	A341610
mg/kg	0.33	<0.050	0.050	A341610
mg/kg	<0.010	<0.010	0.010	A341610
mg/kg	<0.040	<0.040	0.040	A341610
mg/kg	<0.020	<0.020	0.020	A341610
mg/kg	<10	<10	10	A341610
%	98	97	N/A	A341610
%	101	98	N/A	A341610
%	91	96	N/A	A341610
%	95	95	N/A	A341610
%	98	104	N/A	A342304
	mg/kg	15:23   644511-61-01   UNITS   TP21-58-03     mg/kg   51   mg/kg   58   mg/kg   Yes     %   9.6	15:23       15:32         644511-61-01       644511-61-01         UNITS       TP21-58-03       TP21-58-06         mg/kg       51       <10	15:23       15:32         644511-61-01         UNITS       TP21-58-06       RDL         mg/kg       51       <10



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)**

BV Labs ID		AFA148		AFA149			AFA150	AFA150		
Sampling Date		2021/08/27		2021/08/27			2021/08/27	2021/08/27		
Jamping Date		13:37		13:38			13:53	13:53		
COC Number		644511-61-01		644511-61-01			644511-61-01	644511-61-01		
	UNITS	TP21-26-02	RDL	TP21-26-04	RDL	QC Batch	TP21-26-06	TP21-26-06 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Calculated Boron (B)	mg/kg	<0.048	0.048	<0.064	0.064	A339887	<0.030	N/A	0.030	A339887
Elements										
Hex. Chromium (Cr 6+)	mg/kg	<0.080	0.080	<0.080	0.080	A343267	<0.080	N/A	0.080	A343717
Soluble Parameters	•									
Soluble Boron (B)	mg/L	<0.10	0.10	<0.10	0.10	A343801	<0.10	<0.10	0.10	A343801
Saturation %	%	48	N/A	64	N/A	A342449	30	29	N/A	A342449
Soluble Sulphate (SO4)	mg/L	390	5.0	72	5.0	A343801	110	100	5.0	A343801
Elements										
Total Antimony (Sb)	mg/kg	<0.50	0.50	<0.50	0.50	A342492	<0.50	N/A	0.50	A342492
Total Arsenic (As)	mg/kg	5.5	1.0	5.2	1.0	A342492	6.6	N/A	1.0	A342492
Total Barium (Ba)	mg/kg	1900	1.0	880	1.0	A342492	660	N/A	1.0	A342492
Total Beryllium (Be)	mg/kg	<0.40	0.40	<0.40	0.40	A342492	<0.40	N/A	0.40	A342492
Total Cadmium (Cd)	mg/kg	0.12	0.050	0.14	0.050	A342492	0.10	N/A	0.050	A342492
Total Chromium (Cr)	mg/kg	8.8	1.0	8.5	1.0	A342492	7.6	N/A	1.0	A342492
Total Cobalt (Co)	mg/kg	3.0	0.50	3.8	0.50	A342492	4.2	N/A	0.50	A342492
Total Copper (Cu)	mg/kg	7.9	1.0	7.1	1.0	A342492	5.8	N/A	1.0	A342492
Total Lead (Pb)	mg/kg	12	0.50	7.6	0.50	A342492	6.4	N/A	0.50	A342492
Total Mercury (Hg)	mg/kg	0.052	0.050	<0.050	0.050	A342492	<0.050	N/A	0.050	A342492
Total Molybdenum (Mo)	mg/kg	0.67	0.40	0.62	0.40	A342492	0.59	N/A	0.40	A342492
Total Nickel (Ni)	mg/kg	8.1	1.0	10	1.0	A342492	12	N/A	1.0	A342492
Total Selenium (Se)	mg/kg	<0.50	0.50	<0.50	0.50	A342492	<0.50	N/A	0.50	A342492
Total Silver (Ag)	mg/kg	<0.20	0.20	<0.20	0.20	A342492	<0.20	N/A	0.20	A342492
Total Thallium (TI)	mg/kg	<0.10	0.10	<0.10	0.10	A342492	<0.10	N/A	0.10	A342492
Total Tin (Sn)	mg/kg	<1.0	1.0	<1.0	1.0	A342492	<1.0	N/A	1.0	A342492
Total Uranium (U)	mg/kg	0.50	0.20	0.49	0.20	A342492	0.42	N/A	0.20	A342492
Total Vanadium (V)	mg/kg	19	1.0	17	1.0	A342492	15	N/A	1.0	A342492
Total Zinc (Zn)	mg/kg	28	10	27	10	A342492	31	N/A	10	A342492

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

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

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

					_					
BV Labs ID		AFA148		AFA149			AFA150	AFA150		
Sampling Date		2021/08/27		2021/08/27			2021/08/27	2021/08/27		
Jampinig Date		13:37		13:38			13:53	13:53		
COC Number		644511-61-01		644511-61-01			644511-61-01	644511-61-01		
	UNITS	TP21-26-02	RDL	TP21-26-04	BDI	QC Batch	TP21-26-06	TP21-26-06	RDL	QC Batch
	UNITS	1721-20-02	KDL	1721-20-04	NDL	QC Battii	1721-20-00	Lab-Dup	KDL	QC Batch
Calculated Parameters										
Calculated Sulphate (SO4)	mg/kg	190	2.4	46	3.2	A340064	32	N/A	1.5	A340064
Calculated Nitrate (N)	mg/kg	<0.096	0.096	<0.13	0.13	A340064	<0.060	N/A	0.060	A340064
Elements	•	•				-				-
Soluble (Hot water) Boron (B)	mg/kg	0.58	0.10	0.64	0.10	A352904	0.31	0.29	0.10	A345747
Soluble Parameters										
Soluble Nitrite (N)	mg/L	0.84	0.20	<0.20	0.20	A343137	<0.20	<0.20	0.20	A343137
Soluble Nitrate (N)	mg/L	0.60	0.20	<0.20	0.20	A343137	0.21	<0.20	0.20	A343137
	•	·								

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N/A = Not Applicable



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Territories

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

Sampler Initials: AB

# PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		AFA134		
Sampling Date		2021/08/27		
Sampling Date		09:40		
COC Number		644511-59-01		
	UNITS	TP21-22-03	RDL	QC Batch
Ext. Pet. Hydrocarbon	UNITS	TP21-22-03	RDL	QC Batch
Ext. Pet. Hydrocarbon F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg		<b>RDL</b> 500	QC Batch A345413



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)**

BV Labs ID		AFA148	AFA149	AFA150		
Sampling Date		2021/08/27	2021/08/27	2021/08/27		
Sampling Bate		13:37	13:38	13:53		
COC Number		644511-61-01	644511-61-01	644511-61-01		
	UNITS	TP21-26-02	TP21-26-04	TP21-26-06	RDL	QC Batch
Elements	UNITS	TP21-26-02	TP21-26-04	TP21-26-06	RDL	QC Batch
Elements Total Fusion Barium (Ba)	mg/kg		<b>TP21-26-04</b> 1600	1200	<b>FDL</b> 50	<b>QC Batch</b> 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 #4: Report reissued without rework data as per clietn request.

Version #3: Report reissued to include additional results for F2 & BTEX on sampleTP21-22-05, Dup-GG, TP21-23-06 and Dup-HH due to request for reanalysis by client. Sample reanalysis indicates sample non-homogeneity, both sets of data are reported.

Sample AFA135 [TP21-22-05]: Sample was analyzed past method specified hold time for CCME Hydrocarbons (F2-F4 in soil).

Sample AFA136 [DUP-GG]: Sample was analyzed past method specified hold time for CCME Hydrocarbons (F2-F4 in soil).

Sample AFA140 [TP21-23-06]: Sample was analyzed past method specified hold time for CCME Hydrocarbons (F2-F4 in soil).

Sample AFA141 [DUP-HH]: Sample was analyzed past method specified hold time for CCME Hydrocarbons (F2-F4 in soil).

Results relate only to the items tested.



Report Date: 2021/09/28

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
A341608	DO1	Matrix Spike [AFA117-02]	1,4-Difluorobenzene (sur.)	2021/09/07		87	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		112	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		121	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		104	%	50 - 140
			Benzene	2021/09/07		111	%	50 - 140
			Toluene	2021/09/07		116	%	50 - 140
			Ethylbenzene	2021/09/07		132	%	50 - 140
			m & p-Xylene	2021/09/07		127	%	50 - 140
			o-Xylene	2021/09/07		127	%	50 - 140
			F1 (C6-C10)	2021/09/07		103	%	60 - 140
A341608	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		75	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		96	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		97	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		99	%	50 - 140
			Benzene	2021/09/07		88	%	60 - 130
			Toluene	2021/09/07		90	%	60 - 130
			Ethylbenzene	2021/09/07		98	%	60 - 130
			m & p-Xylene	2021/09/07		96	%	60 - 130
			o-Xylene	2021/09/07		84	%	60 - 130
			F1 (C6-C10)	2021/09/07		83	%	60 - 140
A341608	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		88	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		108	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		107	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		107	%	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	
A341608	DO1	RPD [AFA117-02]	Benzene	2021/09/08	46		%	50
		[]	Toluene	2021/09/08	36		%	50
			Ethylbenzene	2021/09/08	17		%	50
			m & p-Xylene	2021/09/08	7.5		%	50
			o-Xylene	2021/09/08	NC		%	50
			F1 (C6-C10)	2021/09/08	NC		%	30
A341610	PKL	Matrix Spike [AFA137-02]	1,4-Difluorobenzene (sur.)	2021/09/07		96	%	50 - 140
7.5 11010		Matrix Spine [71171257 62]	4-Bromofluorobenzene (sur.)	2021/09/07		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		100	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		102	%	50 - 140
			Benzene	2021/09/07		87	%	50 - 140
			Toluene	2021/09/07		88	%	50 - 140
			Ethylbenzene	2021/09/07		94	%	50 - 140
			m & p-Xylene	2021/09/07		92	%	50 - 140
			o-Xylene	2021/09/07		95	%	50 - 140
			F1 (C6-C10)	2021/09/07		103	%	60 - 140
A341610	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		95	% %	50 - 140
~241010	i NL	Spined Didlik	4-Bromofluorobenzene (sur.)	2021/09/07		98	% %	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		89	% %	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		100	% %	50 - 140
			レオーエ・ムーレーにいい UECHIANE (SUL.)	2021/03/07		100	/0	JU - 140



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
			Toluene	2021/09/07		87	%	60 - 130
			Ethylbenzene	2021/09/07		90	%	60 - 130
			m & p-Xylene	2021/09/07		90	%	60 - 130
			o-Xylene	2021/09/07		87	%	60 - 130
			F1 (C6-C10)	2021/09/07		83	%	60 - 140
A341610	PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		97	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		83	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		97	%	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	
A341610	PKL	RPD [AFA137-02]	Benzene	2021/09/07	3.9		%	50
			Toluene	2021/09/07	3.7		%	50
			Ethylbenzene	2021/09/07	3.9		%	50
			m & p-Xylene	2021/09/07	3.5		%	50
			o-Xylene	2021/09/07	5.0		%	50
			F1 (C6-C10)	2021/09/07	0.59		%	30
A342304	GG3	Matrix Spike [AFA143-01]	O-TERPHENYL (sur.)	2021/09/07		92	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		83	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		88	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		95	%	60 - 140
A342304	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		87	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		82	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		87	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		88	%	60 - 140
A342304	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		92	%	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	
A342304	GG3	RPD [AFA143-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	5.1		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/07	12		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	NC		%	40
A342306	SVI	Method Blank	Moisture	2021/09/05	< 0.30		%	
A342306	SVI	RPD	Moisture	2021/09/05	14		%	20
A342394	RIL	Method Blank	Moisture	2021/09/05	< 0.30		%	
A342394	RIL	RPD	Moisture	2021/09/05	1.8		%	20
A342449	KKC	QC Standard	Saturation %	2021/09/05		102	%	75 - 125
A342449	KKC	RPD [AFA150-03]	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



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		110	%	75 - 125
			Total Molybdenum (Mo)	2021/09/06		NC	%	75 - 125
			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
713 12 132	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 Molybdenum (Mo)	2021/09/06		111	%	80 - 120
			Total Nickel (Ni)	2021/09/06		106	%	80 - 120
			Total Selenium (Se)	2021/09/06		107	%	80 - 120
			Total Selemum (Se)	2021/09/06		107	%	80 - 120
			Total Thallium (TI)	2021/09/06		105	%	80 - 120
			Total Tin (Sn)	2021/09/06		110	%	80 - 120
			Total Uranium (U)	2021/09/06		106	%	80 - 120
			Total Vanadium (V)	2021/09/06		106	%	80 - 120
			Total Variadidiff (V)  Total Zinc (Zn)			105	% %	80 - 120
A342492	KH2	Method Blank	Total Ziffe (Ziff) Total Antimony (Sb)	2021/09/06 2021/09/06	<0.50	103	∞ mg/kg	ou - 120
A342492	КΠΖ	Method Blank	* * *					
			Total Arsenic (As) Total Barium (Ba)	2021/09/06 2021/09/06	<1.0		mg/kg	
			• •		<1.0		mg/kg	
			Total Beryllium (Be)	2021/09/06	<0.40		mg/kg	
			Total Characters (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	



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
		-55- 715-	Total Copper (Cu)	2021/09/06	<1.0	,	mg/kg	
			Total Lead (Pb)	2021/09/06	<0.50		mg/kg	
			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 (Tl)	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
A342516	ARV	Method Blank	Moisture	2021/09/07	<0.30		%	30
A342516	ARV	RPD [AFA128-01]	Moisture	2021/09/05	0.77		%	20
A342519	GG3	Matrix Spike [AFA127-01]	O-TERPHENYL (sur.)	2021/09/07	0.77	97	%	60 - 140
A342313	003	Matrix Spike [Al A127-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07		63	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		100	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		117	%	60 - 140
A342519	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		98	%	60 - 140
A342313	003	эрікей Біатік	F2 (C10-C16 Hydrocarbons)	2021/09/07				
			F3 (C16-C34 Hydrocarbons)	2021/09/07		99 109	% %	60 - 140 60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		106	%	60 - 140
A342519	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		110	%	60 - 140
A342313	003	WELTIOU DIATIK	F2 (C10-C16 Hydrocarbons)	2021/09/07	<10	110	mg/kg	00 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50 <50			
A342519	GG3	RPD [AFA127-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	117 (1)		mg/kg %	40
~3 <del>4</del> 2313	GGS	W D [W WIZ/-01]	·				% %	
			F3 (C16-C34 Hydrocarbons)	2021/09/08 2021/09/08	34 NC			40 40
A343137	KDO	Matrix Spike [AFA150-03]	F4 (C34-C50 Hydrocarbons)	· ·	NC	101	%	40 75 125
434313/	KD9	iviatrix spike [AFA150-03]	Soluble Nitrite (N)	2021/09/07		101	%	75 - 125
A242427	VD0	OC Standard	Soluble Nitrate (N)	2021/09/07		100	%	75 - 125
A343137	KD9	QC Standard	Soluble Nitrate (N)	2021/09/07		107	%	75 - 125
A343137	KD9	Spiked Blank	Soluble Nitrite (N)	2021/09/07		101	%	80 - 120



Report Date: 2021/09/28

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(CONT'D)

QA/QC		007		5				001: ::
Batch	Init	QC Type	Parameter (A)	Date Analyzed	Value	Recovery	UNITS %	QC Limits
4242427	KDO	Markle and Diameter	Soluble Nitrate (N)	2021/09/07	.0.20	101		80 - 120
A343137	KD9	Method Blank	Soluble Nitrite (N)	2021/09/07	<0.20		mg/L	
4040407	1/00	DDD [454450 00]	Soluble Nitrate (N)	2021/09/07	<0.20		mg/L	20
A343137	KD9	RPD [AFA150-03]	Soluble Nitrite (N)	2021/09/07	NC		%	30
			Soluble Nitrate (N)	2021/09/07	4.6		%	30
A343267	KWE	Matrix Spike	Hex. Chromium (Cr 6+)	2021/09/07		93	%	75 - 125
A343267	KWE	Spiked Blank	Hex. Chromium (Cr 6+)	2021/09/07		97	%	80 - 120
A343267	KWE	Method Blank	Hex. Chromium (Cr 6+)	2021/09/07	<0.080		mg/kg	
A343267	KWE	RPD	Hex. Chromium (Cr 6+)	2021/09/07	NC		%	35
A343717	NR	Matrix Spike	Hex. Chromium (Cr 6+)	2021/09/07		92	%	75 - 125
A343717	NR	Spiked Blank	Hex. Chromium (Cr 6+)	2021/09/07		101	%	80 - 120
A343717	NR	Method Blank	Hex. Chromium (Cr 6+)	2021/09/07	<0.080		mg/kg	
A343717	NR	RPD	Hex. Chromium (Cr 6+)	2021/09/07	NC		%	35
A343801	MAP	Matrix Spike [AFA150-03]	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 [AFA150-03]	Soluble Boron (B)	2021/09/07	NC		%	30
			Soluble Sulphate (SO4)	2021/09/07	5.4		%	30
A345413	JB9	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09		100	%	60 - 140
A345413	JB9	Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09	<500		mg/kg	
A345747	MPU	Matrix Spike [AFA150-03]	Soluble (Hot water) Boron (B)	2021/09/09		117	%	75 - 125
A345747	MPU	Spiked Blank	Soluble (Hot water) Boron (B)	2021/09/09		106	%	80 - 120
A345747	MPU	Method Blank	Soluble (Hot water) Boron (B)	2021/09/09	<0.10		mg/kg	
A345747	MPU	RPD [AFA150-03]	Soluble (Hot water) Boron (B)	2021/09/09	8.5		%	35
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
A352904	MAP	Matrix Spike	Soluble (Hot water) Boron (B)	2021/09/16	_	113	%	75 - 125
A352904	MAP	Spiked Blank	Soluble (Hot water) Boron (B)	2021/09/16		103	%	80 - 120
A352904	MAP	Method Blank	Soluble (Hot water) Boron (B)	2021/09/16	<0.10		mg/kg	
A352904	MAP	RPD	Soluble (Hot water) Boron (B)	2021/09/16	1.9		<sub>6</sub> / <sub>6</sub>	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) 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: AB

## **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

Gita Pokhrel, Laboratory Supervisor

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

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

Control Fig.   Control Contr	TO MAND	ERVATIONS:	MAXXAM JO
Company   Comp	CHAIN OF CUSTODY #	JC 'C WE're	
Comparison	10	YES NO	YES
Comparison		V demo	
Contract	01	>-	I EMP
Control of the cont	or	YES NO	YES NO COOLERID
Control Section 1999		6	PRESENT
Comparison Seq.   Comparison	or	EMP	TEMP
Companies   Comp	3	res no	VEX NO COOLER D
Care	or		
Control Section 1	ř	TEMP 6	
Control   Cont			
Control   Cont	ţc.	YES NO	L YES NO COOLERID
Carrier   Carr	The second section is a second section of the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a section in the second section in the section is a section in the section in the section is a section in the section in the section is a section in the section in the section is a section in the section in the section is a section in the section in the section is a section in the section in the section in the section is a section in the section in the section is a section in the section in the section in the section is a section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section in the section is a section in the section in the sect		PRESENT
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CASTOD SEAL   CES NO COLER D   CASTOD SEAL   CES NO COLER D			ICE PRESENT
TEMP	t.	res no	YES NO COOLERID
Care			LV363EVF
Carrier National Colorer   Carrier National Ca	ċ	TEMP 4	LITINI
CANDON SEAL   TEAM   TEAM   TEAM   CANDON SEAL   TEAM	Ö		ICE PRESENT
No. 2002-844   Control State	t	YES NO COOLER	L YES NO COOLERID
Control			
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Name	5		ICE PRESENT
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N. Jack	er		
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CUSTOD Y SEAL   FEE NO GOLGER ID   TEMP   I   2   3   TECHNIMIN   DATE (YYYY/MIN/DD)   TIME (HH:MMIN)	or		L NEW YORK
Pagign   P		YES NO COOLERID	COSTODY SEAL YES NO COOLED ON
	10		
ILEPRESENT   TEMP   COLER   TEMP   LOSTODY SEAL   TEMP		CI // TEMP /	
COSTODY SEAL   VES NO GOOLER D   PRESENT   TEMP   LOSTODY SEAL   TES NO GOOLER D   PRESENT   TEMP   LOSTODY SEAL   LO		7	
N-3-27	(	YES NO COOLER D	AL YES NO CODIERID
No1			
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# ADDITIONAL COOLER TEMPERATURE RECORD

CHAIN-OF-CUSTODY RECORD

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CHAIN OF CUSTODY RECORD

PROJECT NICOLATES LTD.   Project   Project Name	hily:	Bottle Order #:		644511	Project Manager:		Carmen McKay	lired:	n projects	Manager for		Coall lab for #)	1		J. P.	,	sllowknife Ano	35 1	24	×	ere.		
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I» COS IODY RECORD, AN NOOMPLEIE GHANN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. Ttact your project manager

\*\* ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

Bureau Veritas Laboratories 4000 1981 N E. Calgary, Alberta Canada T2E 6P8 Tei (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9488 www.bylats.com

CHAIN OF CUSTODY RECORD

Page Zof 4

				REPORT TO:	:					PROJ	PROJECT INFORMATION:	MATION:			Laboratory Use Only:	July:	
#254 GOLDER ASSOCIATES LTD.	TES LTD.	Company Name:	ane: #6340 GOLDER ASSOCIATES LTD.	DER ASSO	CIATES	LTD.	C	to	Ountation #	000	C00480				BV Labs Job #:	Bottle Order #:	
ACCOUNTS PAYABLE		Attention:	Aurelie Belar	vance				# Capitali	# #	203	7-66089	20368099-7000-100					
2800, 700 -2nd Street SW	<b>D</b>	Address:	2800, 700 -2	nd Street SV	>			Project.	i to	203	9-66089	20368099-6000-1001				644511	
CALGARY AB T2P 2W2			CALGARY	B T2P 2W2				Proje	Project Name:						COC #:	Project Manager:	
(905) 567-5100 Ext: 1167 canadaaccountspayableir	(905) 567-5100 Ext: 1167 Fax: (403) 299-5606 canadaaccountspayableinvoices@golder.com	Tel:	(403) 299-5600 abellavance@golder.com	@aolder.con	Fax			Site #:	is:							Carmen McKay	
			Special Instructions	-	-		ANA	VSIS REOIL	ANALYSIS REDIESTED ID EASE BE SECTION	A SE DE SO	(0)0100			T_	C#844511-594-01	The state of the s	
		email		4	s						(۲)				l'umaround l'ime (TAT) Required: Please provide advance notice for rush projects	uired. h projects	
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\*\*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CLISTODY 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 THIS SHAWLE RECEIPT, FOR SPECIAL REQUIREST CONTACT YOUR PROJECT MANAGER.

Time RECEIVED BY: (Signature Print)
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34:46 9:46

7P21-22-05 DUP-GG

\*\* RELINQUISHED BY: (Signature/Print)

Yellow: Client No

Custody Seal Intact on Cooler? Yes White BV Labs

Laboratory Use Only

\(\sigma\_{\omega}(\text{TYMM/DD})\) Time # jars used and \(\sigma\_{\omega} \sigma\_{\omega} \) | (\(\sigma\_{\omega} \sigma\_{\omega} \) | (\(\sigma\_{\omega} \sigma\_{\omega} \) | (\(\sigma\_{\omega} \sigma\_{\omega} \sigma\_{\omega} \) | (\(\sigma\_{\omega} \sigma\_{\omega} \sigma\_{\omega} \sigma\_{\omega} \sigma\_{\omega} \) | (\(\sigma\_{\omega} \sigma\_{\omega} \sigma\_{\

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Bureau Verilas Laboratories 4000 19st N.E., Calgary, Alberta Canada T2E 6P9. Tel; (403) 291-3077. Toll-free 800-563-6286. Fax (403) 291-9468 www.bv/abs.com

CHAIN OF CUSTODY RECORD

Advancion   #6340 GOLDER ASSOCIATES LTD.   Advancion   #6340 GOLDER ASSOCIATES LTD.   Advancion   Advancion   #6340 GOLDER ASSOCIATES LTD.   Advancion   Advanci											PROJEC	PROJECT INFORMATION:	TION:		Laboratory Use Only:	Only:
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CALCARY No TSP 2012		AYABLE	•		Aurelie Belavance				# Cd	#1011#	20368	-0002-660	-1001			
Canadia accountispay able involces@golder.com   Fire   (403) 289-5606   Fire   (403) 289-5600   Fire		1 Street SW	4	8 15	2800, 700 -2nd Stree	et SW			Project	£ #	20368	-0009-660	-1001			644511
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Annual repaired by the control of		tspayableinvoices@golder	909	-, ,	abellavance@golde	1			Site#	ed Bv.					C#644511-60-01	Carmen McKay
And   Shell Clark Cook   Shell Coo	Regulatory Criteria:		_	Special Inst	uctions			ANAL	YSIS REQUE	ESTED (PLEA	SE BE SPEC	IFIC)			Turnaround Time (TAT) Required:	equired:
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CHAIN OF CUSTODY RECORD

Page of 4

		INVOICE TO:			REPORT TO:	ö					PROJECT	PROJECT INFORMATION:	ION:		I aboratory Use Only	Only:
Company Name:		#254 GOLDER ASSOCIATES LTD.	Company Name	#6340	GOLDER ASSOCIATES LTD	CIATES	LTD.				C00480				BV Labs .toh #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	PAYABLE		Auralia	Sychological				Quotation #	tion #:	20000	0001	,,,,,			
Address:	2800, 700 -2.	2800, 700 -2nd Street SW	Attention: Address:	2800, 700	-2nd Street S	3			P.O. #:		203680	20368099-7000-1001 20368099-6000-1001	1001			
	CALGARY AB T2P 2W2			CALGARY	AB T2P 2W2		B.		Project	Project Name:					COC#:	Project Manager:
Tel: Email:	canadaaccou	(905) 567-5100 EXt: 1167 Fax. (403) 299-5606 canadaaccountspayableinvoices@golder.com	G Tet: Email:	(403) 299- abellavan	(403) 299-5600 abellavance@golder.com	Fax			Site #: Sampled By	3d By:					C#64511-61-01	Carmen McKay
Regulator	Regulatory Criteria:		eds	Special Instructions				ANAL	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	STED (PLEAS	SE BE SPECIF	(2)		=	Turnaround Time (TAT) Required:	quired:
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	SAMPLES MUST BE	SAMPLES MUST BE KEPT COOL ( < 10°C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS	LING UNTIL DELIVERY	TO BV LABS				ES+E	CKI	IE B.			W ni	200	Rush Confirmation Number: (Ca	(call lab for #)
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(	* RELINQUISHED BY: (Signature/Print)			4	RECEIVED BY: (Signature/Print)	Y: (Signatu	re/Print)		Date: (	Date: (YY/MM/DD)	Time	# jars	# jars used and		Laboratory Use Only	
3	6	A. Bellavance 2110817	16:31	30 8	Jamit	Cibr	Libreal		noulos	10/20	15:50		not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
· UNLESS OTHE	RWISE AGREED TO IN WR.	THIS WORK SHIRMITTED ON THIS CHAM OF CHET	or Total dies of Vido												SER ACTR	Yes No
WWW.BVLABS.(	COM/TERMS-AND-CONDITI	THE CHAIN OF CUSTOMY AND CONTRICTORS. SIGNING OF THIS CHAIN OF CLISTON DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT THE RECOMMENT OF CLISTON DOCUMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT THE RECOMMENT OF CLISTON DOCUMENT OF CLISTON DOC	ODT IS SUBJECT TO BY L	ABS' STANDARD TERM	S AND CONDITIONS	SIGNING O	F THIS CHAIN	OF CUSTODY	DOCUMENT IS	ACKNOWLED	SMENT AND AC	SEPTANCE C	F OUR TERM!	WHICH ARE		White: BV Labs Yellow: Client
** ALL SAMPLES	S ARE HELD FOR 60 DAYS.	II IS THE RESPONSIBILITY OF THE RELINQUISHER LO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPL ** ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER	AIN OF CUSTODY RECOR		ETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.	AY RESULT I	N ANALYTICAL	. TAT DELAYS	ن د							

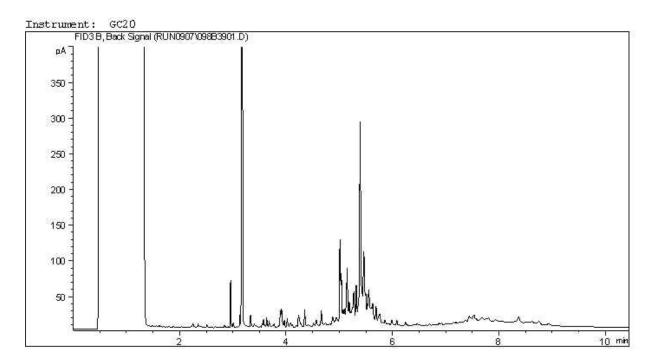
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

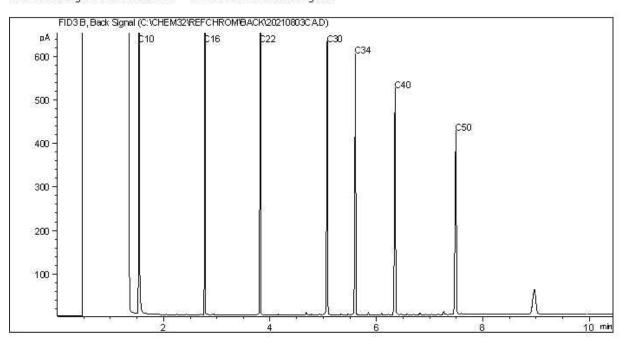
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-04-03

## 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+

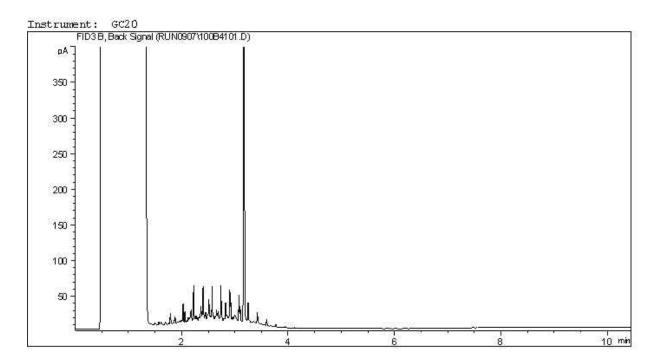
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

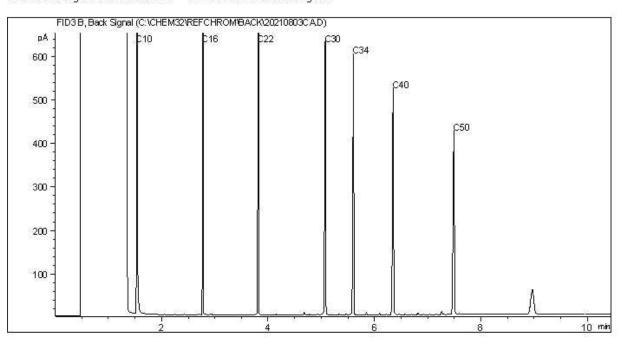
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-04-05

## 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+

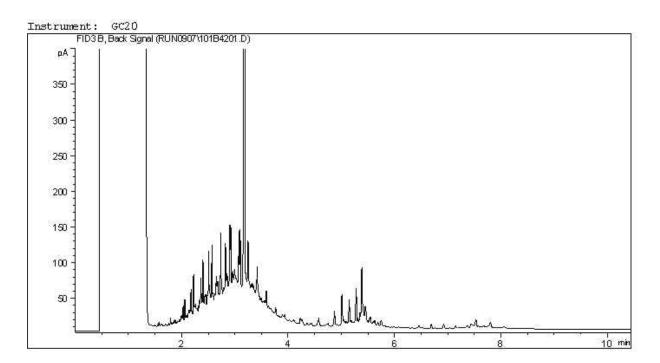
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

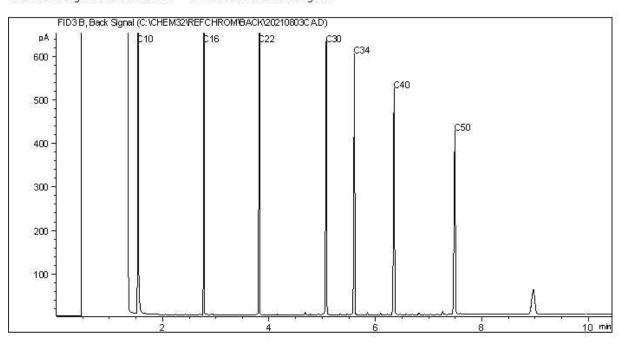
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-04-01

## **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+

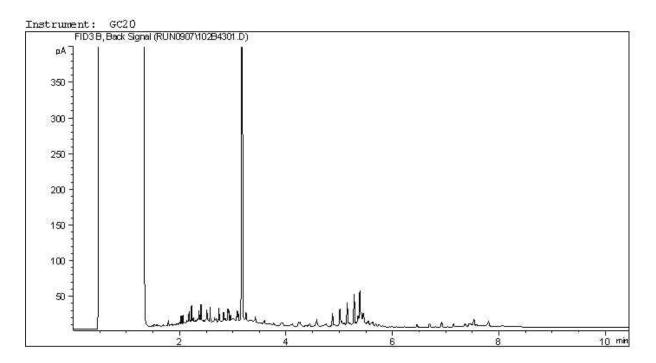
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Client Project #: 20368099-6000-1001

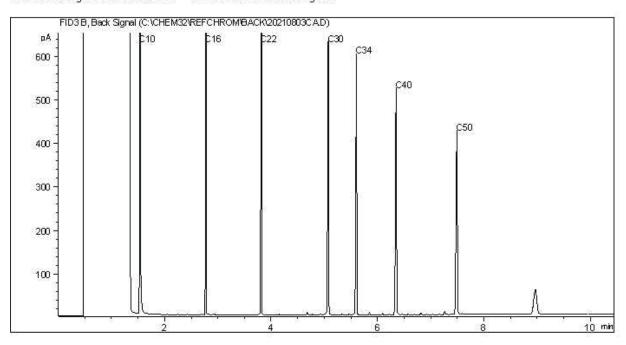
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-05-02

## 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+

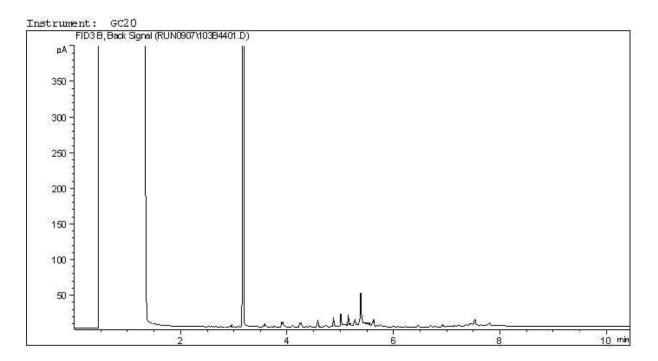
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Client Project #: 20368099-6000-1001

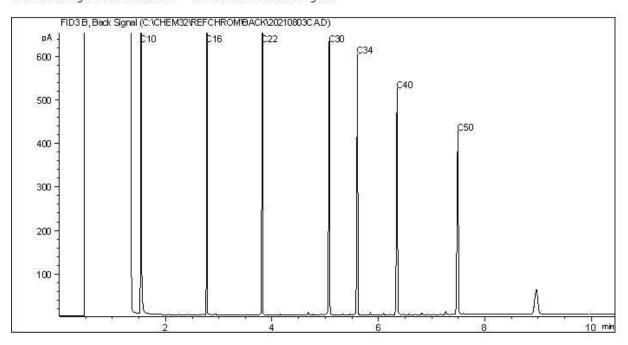
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-05-04

## 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+

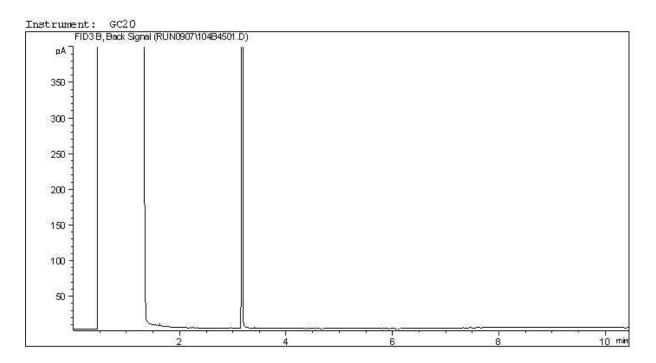
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Client Project #: 20368099-6000-1001

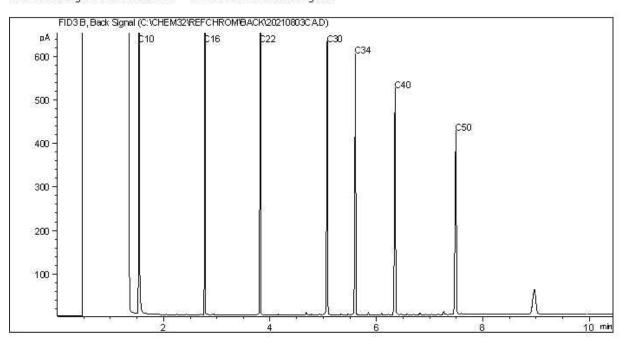
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-05-06

## **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+

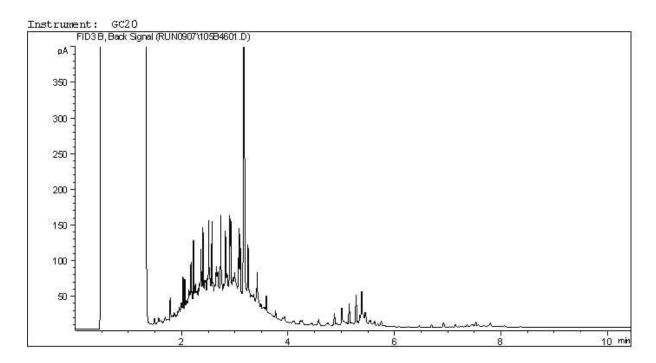
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

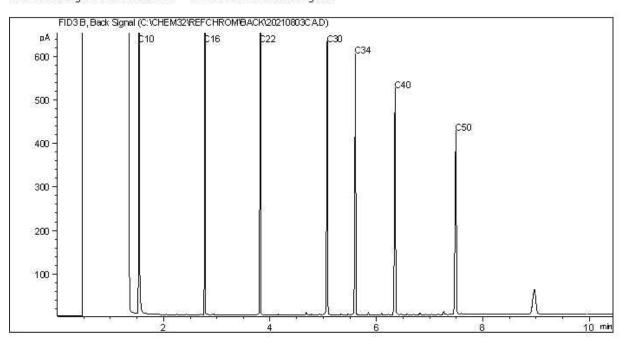
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-34-01

## 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+

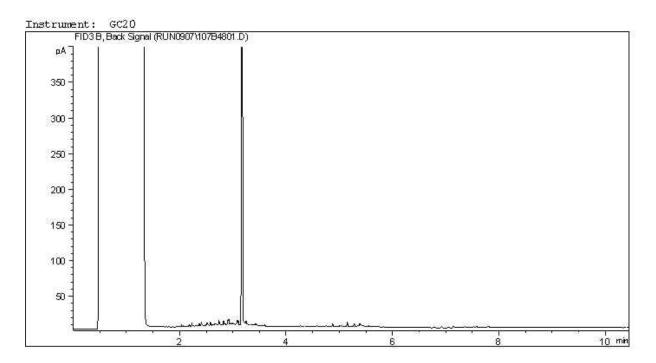
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Client Project #: 20368099-6000-1001

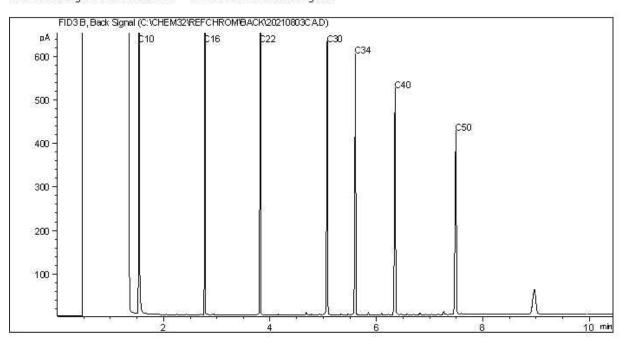
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-34-03

## **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+

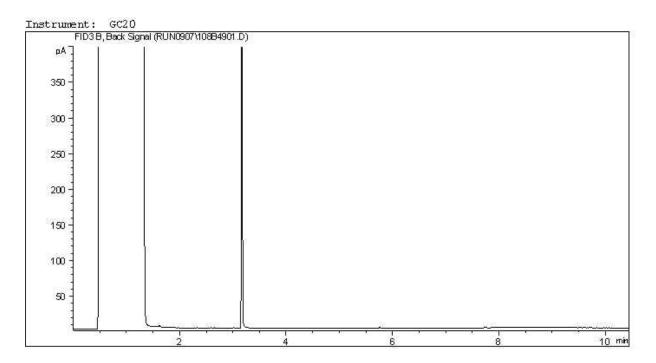
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

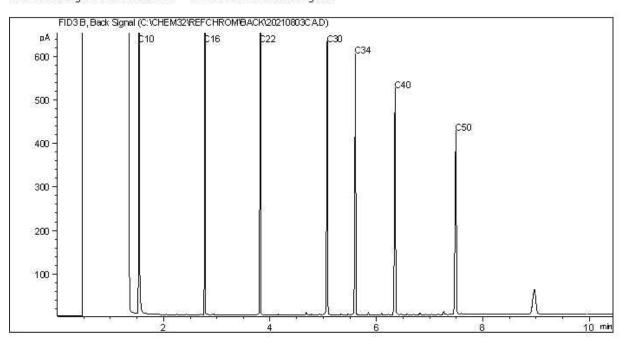
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-34-05

## **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+

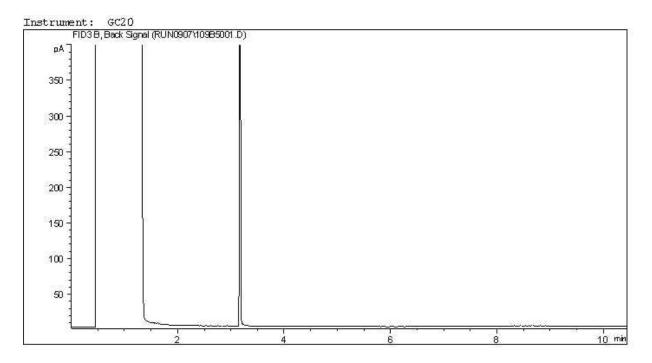
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

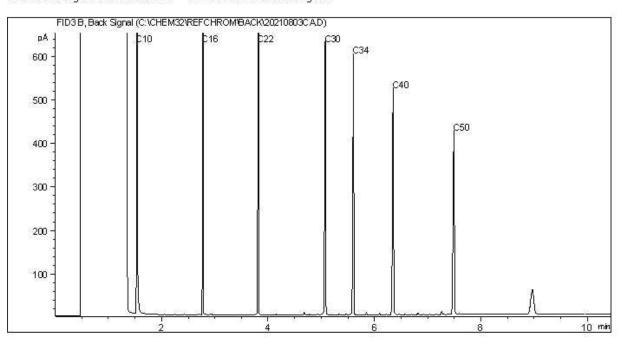
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-II

## 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+

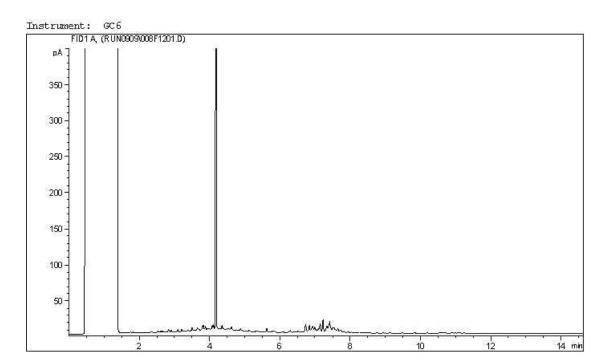
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Client Project #: 20368099-6000-1001

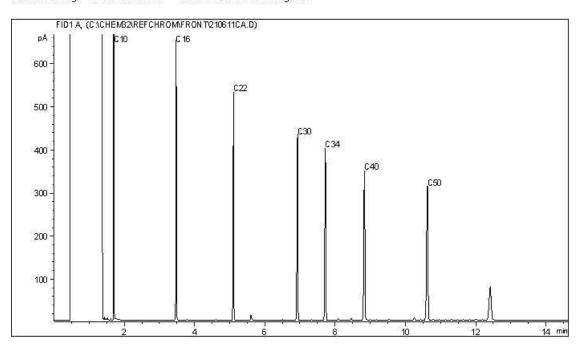
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-20-01

## **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+

BV Labs Job #: C164653 Report Date: 2021/09/28

BV Labs Sample: AFA127 Lab-Dup

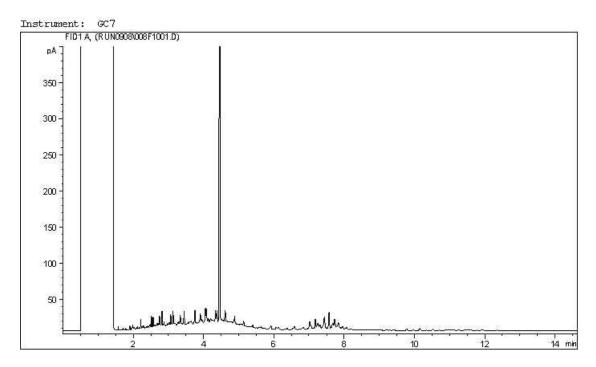
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Client Project #: 20368099-6000-1001

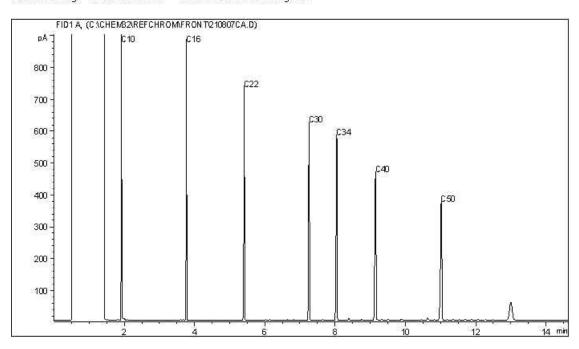
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-20-01

## **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+

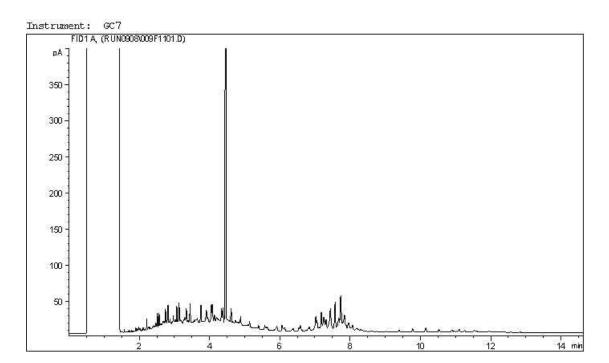
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Client Project #: 20368099-6000-1001

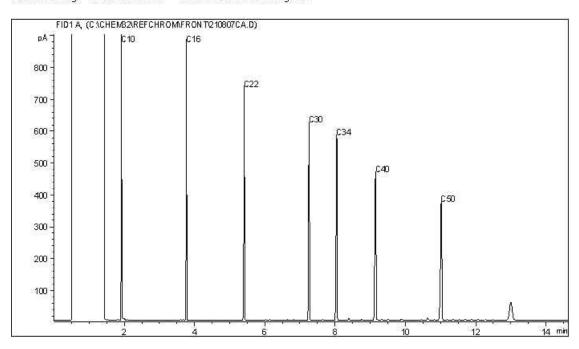
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-20-03

## **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+

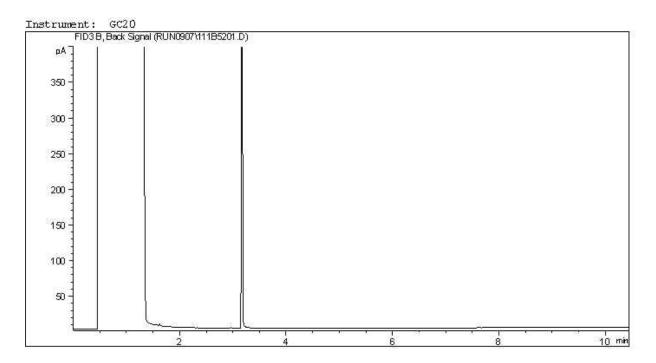
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Client Project #: 20368099-6000-1001

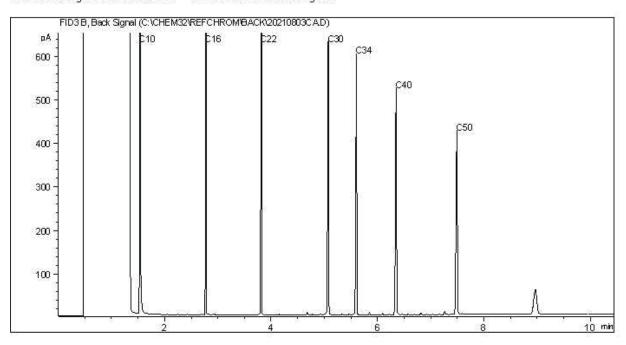
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-20-06

## **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+

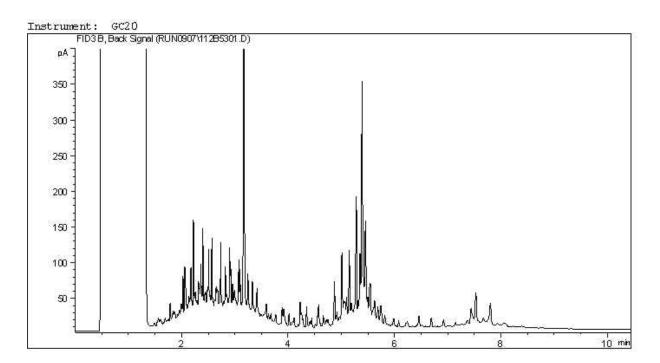
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

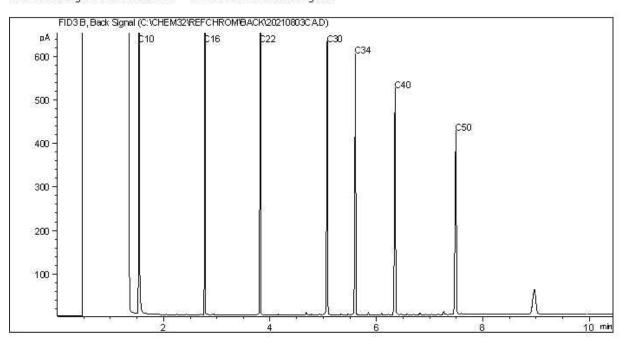
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-21-02

## 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+

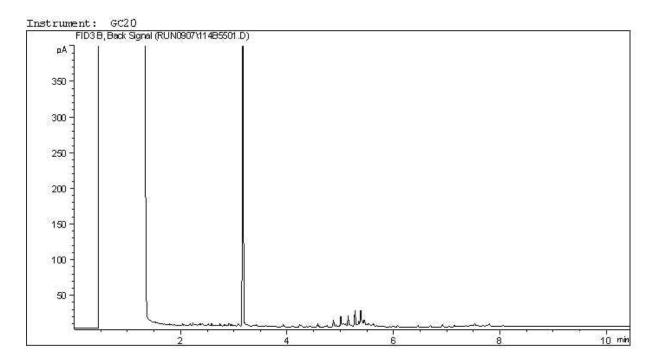
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Client Project #: 20368099-6000-1001

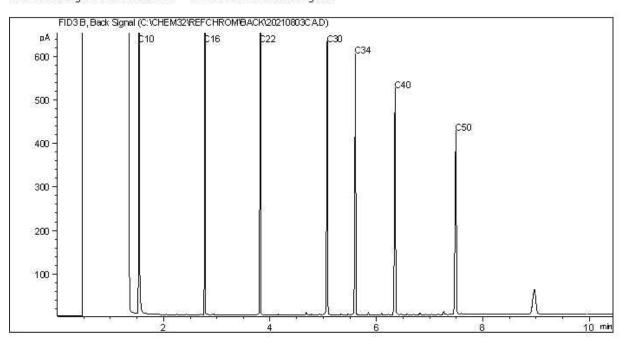
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-21-04

## **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+

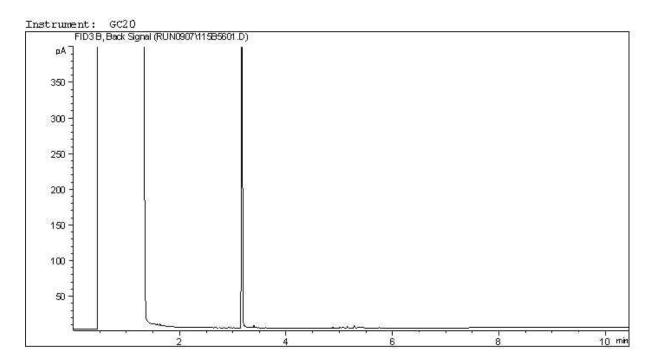
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

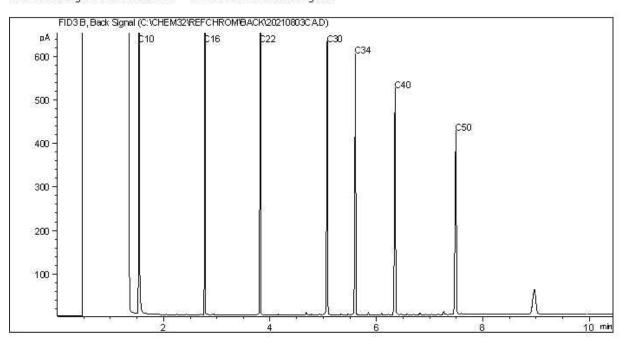
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-21-06

## **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+

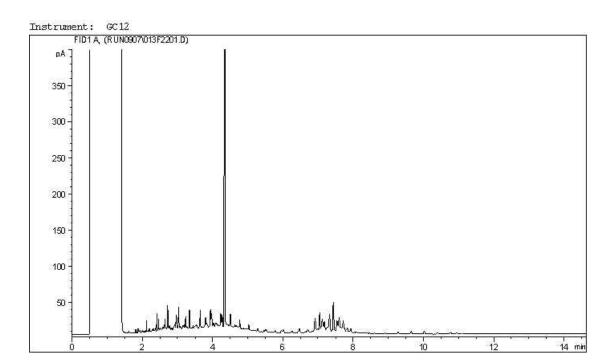
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

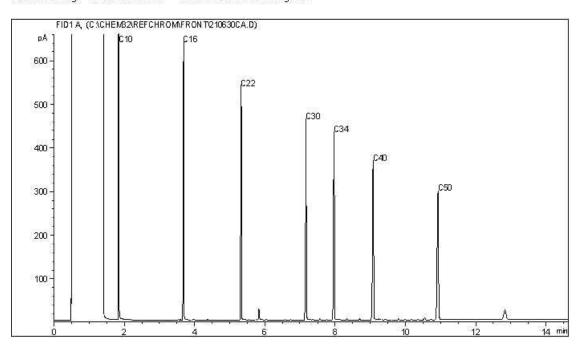
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-22-01

## **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+

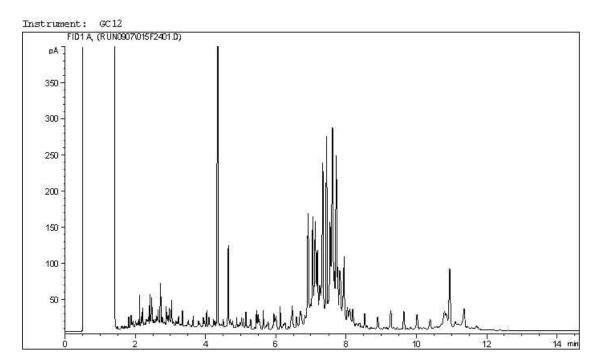
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

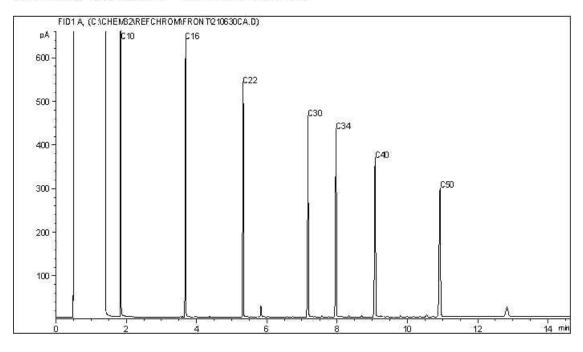
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-22-03

## **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+

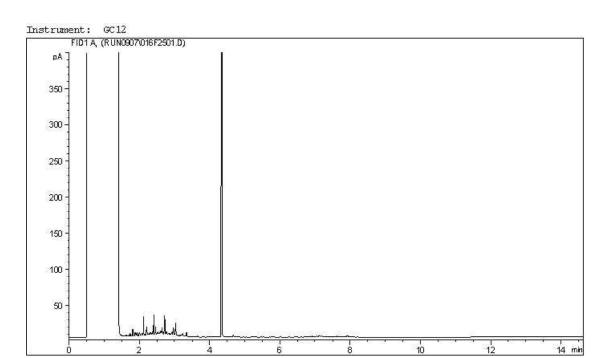
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

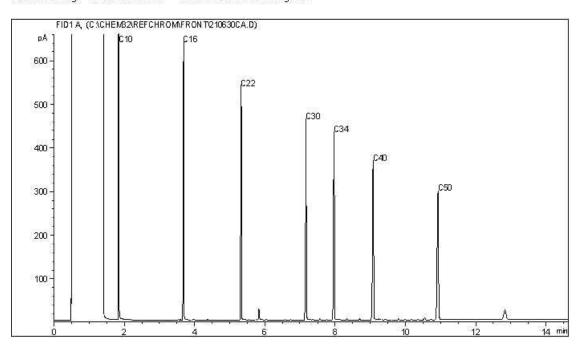
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-22-05

## **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+

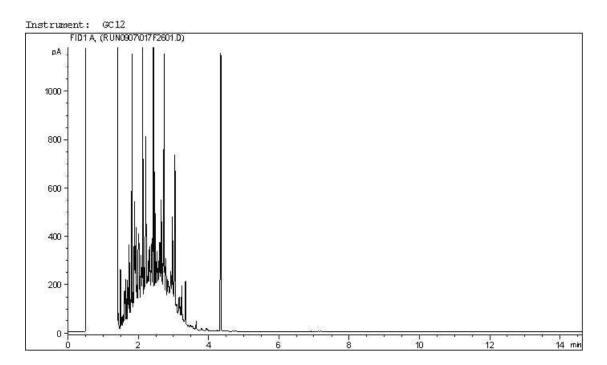
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

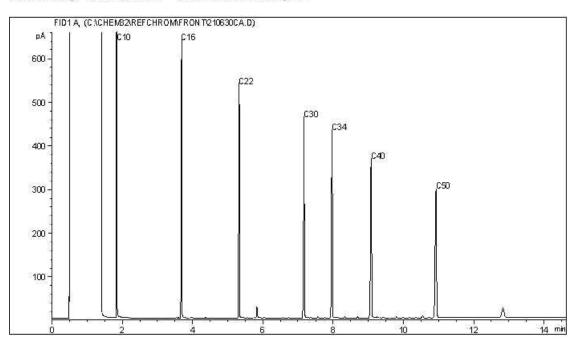
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-GG

## **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+

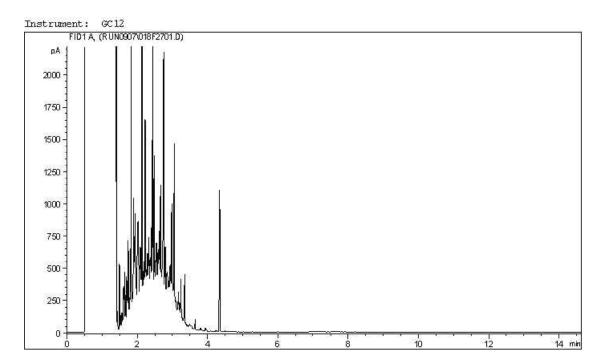
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

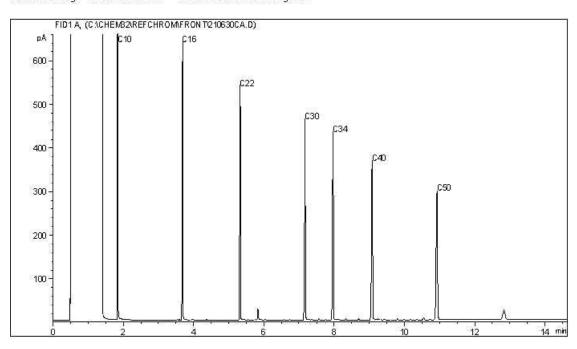
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-22-06

## **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: TP21-23-01

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

FID1A (RUN0907019F2801.D)

pA

330

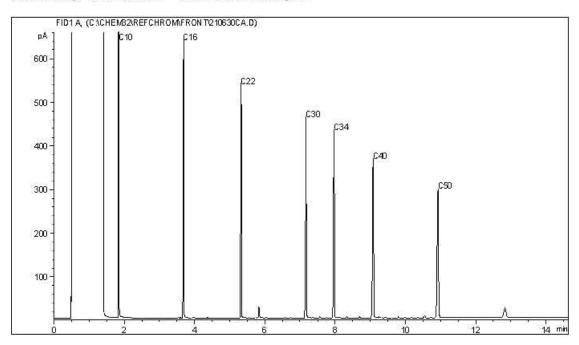
250

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

Client ID: TP21-23-03

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

Instrument: GC12

FID1A (RUN997020F2901D)

pA

390

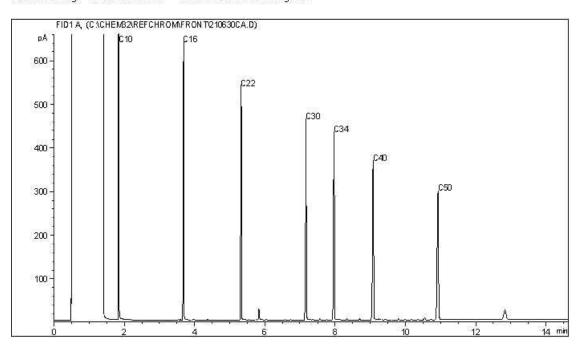
290

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+

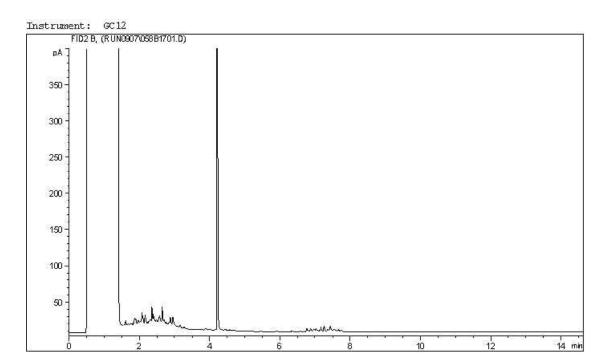
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

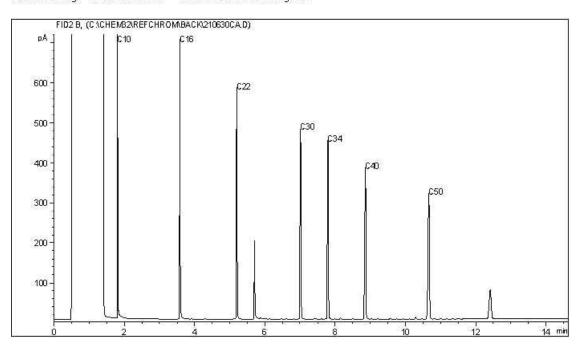
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-23-06

## 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+

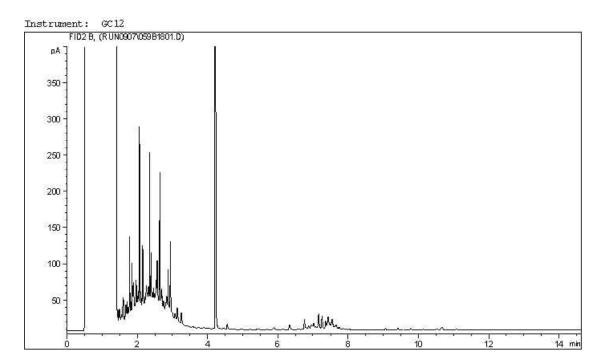
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

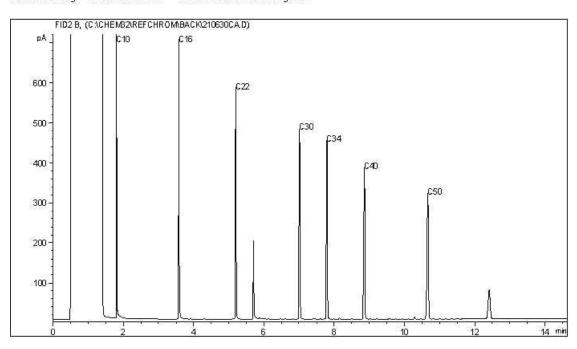
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-HH

## **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: TP21-24-01

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

FID2 B, (RUN0907080B1901.D)

pA

390

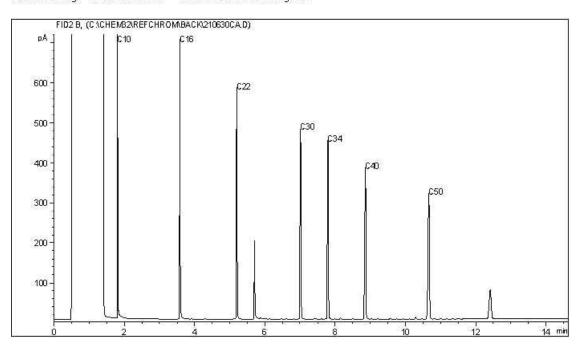
290

150

100

2 4 6 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+

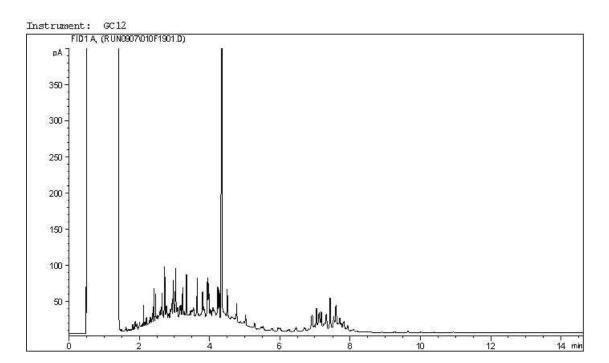
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

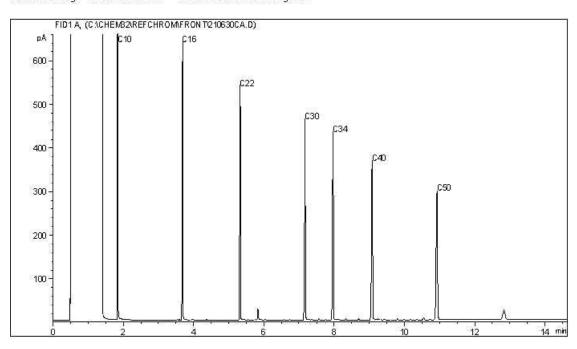
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-24-03

## **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+

BV Labs Job #: C164653 Report Date: 2021/09/28

BV Labs Sample: AFA143 Lab-Dup

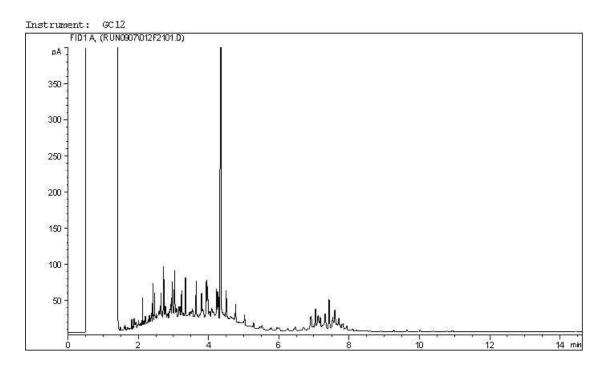
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

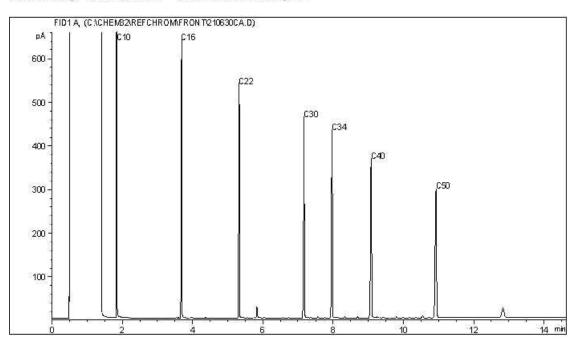
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-24-03

## **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.

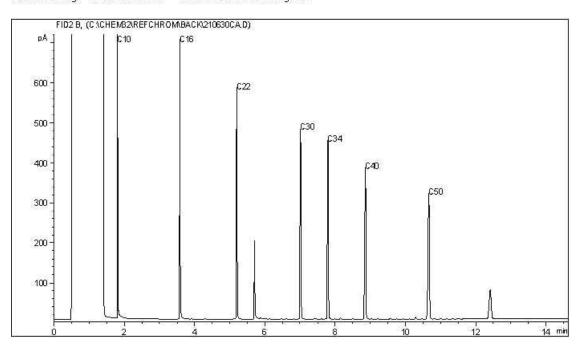
Client Project #: 20368099-6000-1001

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

Client ID: TP21-24-06

## **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.

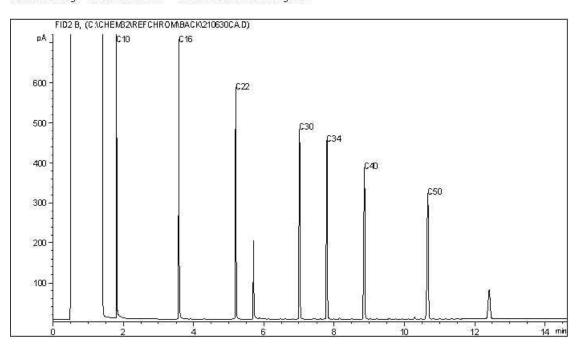
Client Project #: 20368099-6000-1001

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

Client ID: TP21-25-02

## **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: TP21-25-04

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

Instrument: GC12

FID2 B, (RUN0907063B2201.0)

pA

300

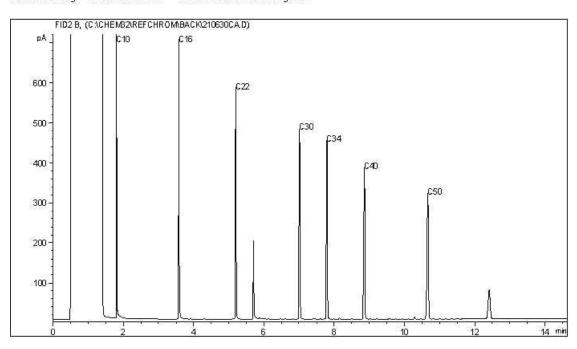
250

150

100

2 4 6 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: TP21-25-06

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

Instrument: GC12

FID2 B, (RUN0907065B2401.0)

pA

300

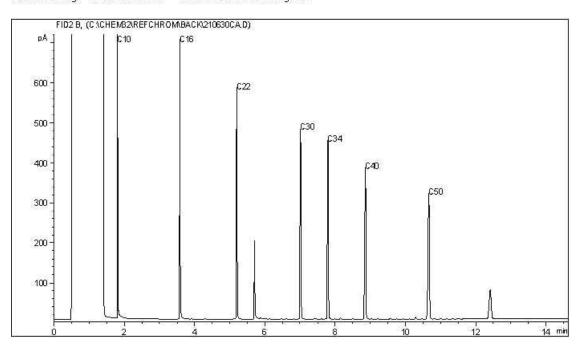
250

150

100

2 4 6 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.

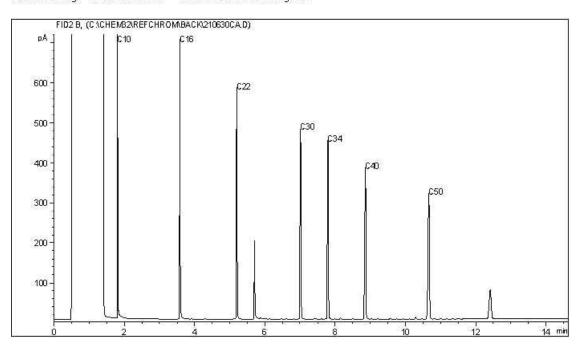
Client Project #: 20368099-6000-1001

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

Client ID: TP21-26-02

## **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+

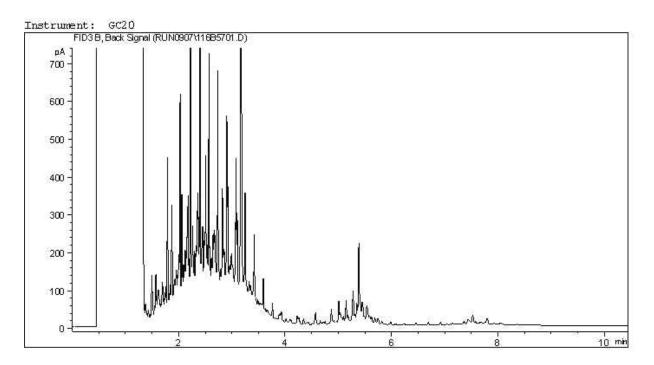
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

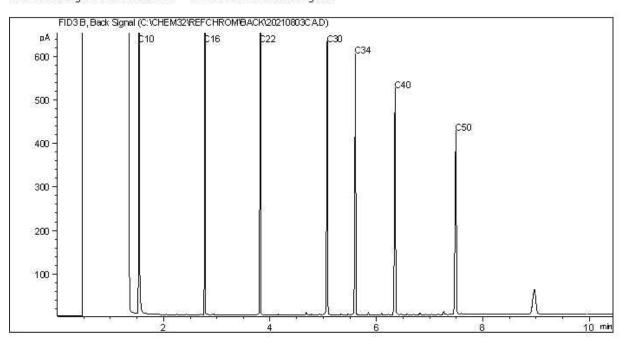
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-26-04

## 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+

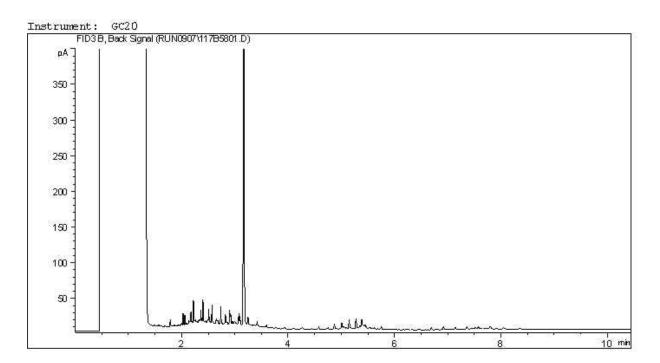
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

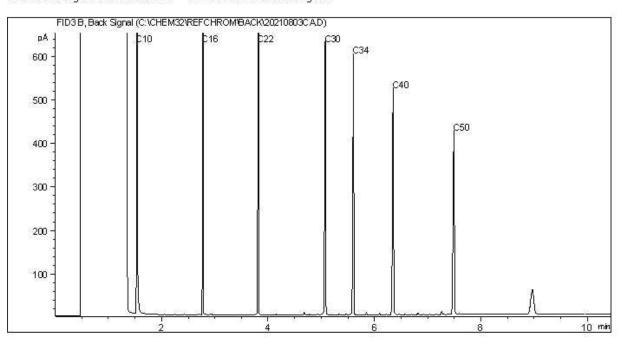
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-26-06

## 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: TP21-27-02

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

Instrument: GC12

FID2 B, (RUN090706782601.D)

pA

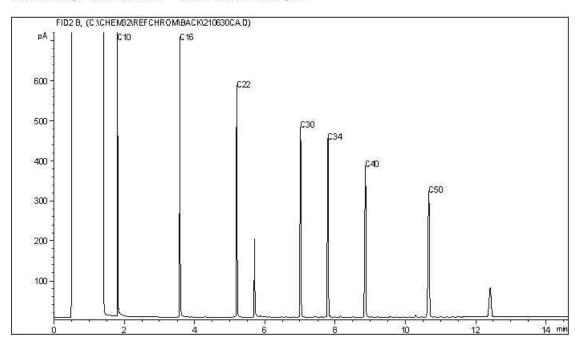
350

250

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: TP21-27-04

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

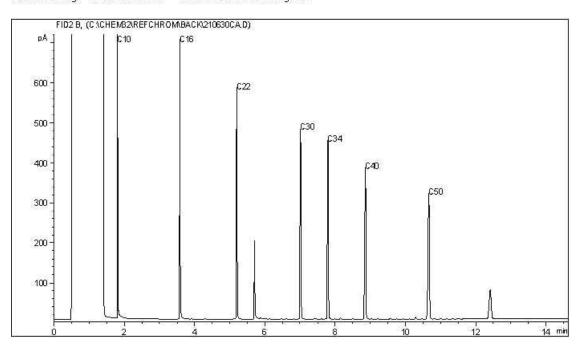
Instrument: GC12

FID2 B, (RUN0907083B2701.D)

pA

300 
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+

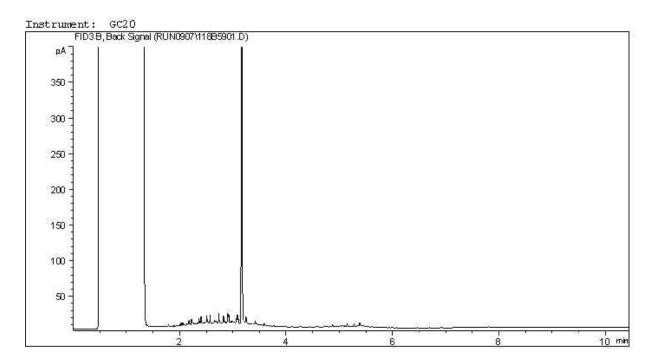
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

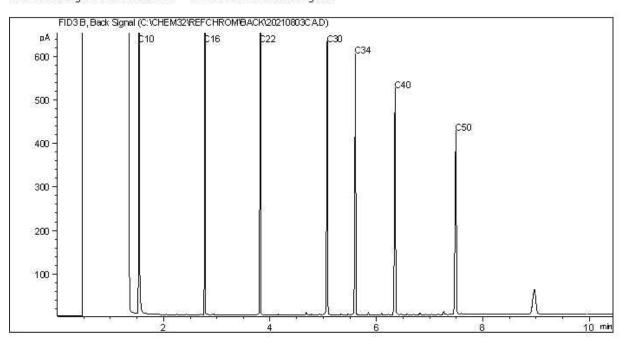
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-27-05

## 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+

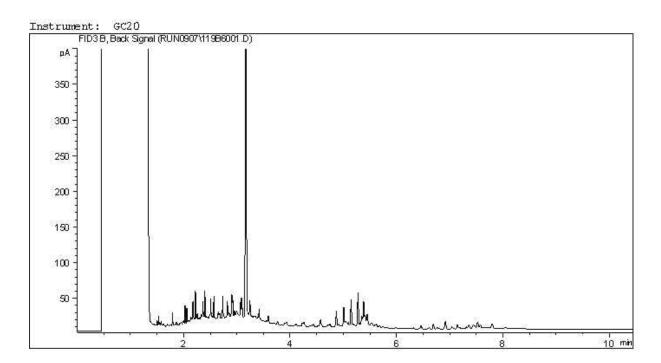
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

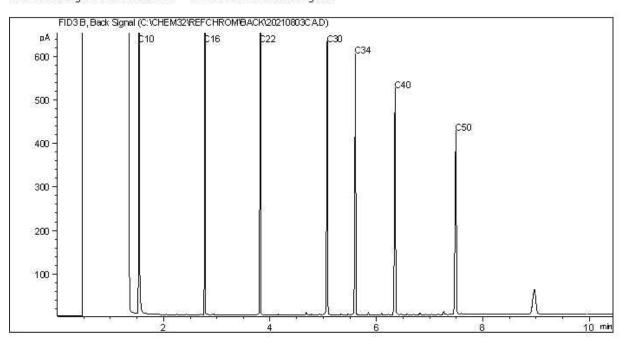
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-58-01

## 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: TP21-58-03

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

Tinstrument: GC12

FID2B, (RUN0907069B2801.D)

pA

300

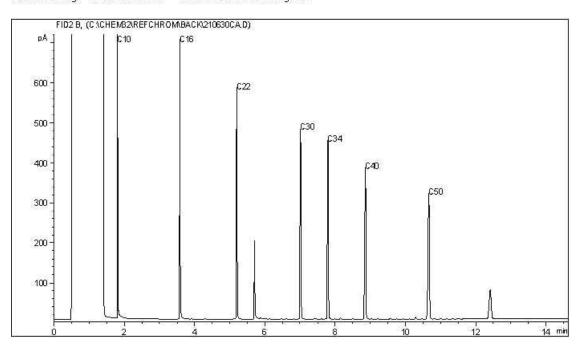
250

100

50

2 4 6 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: TP21-58-06

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

Instrument: GC12

FID2 B, (RUN090707082901.D)

pA

350

250

100

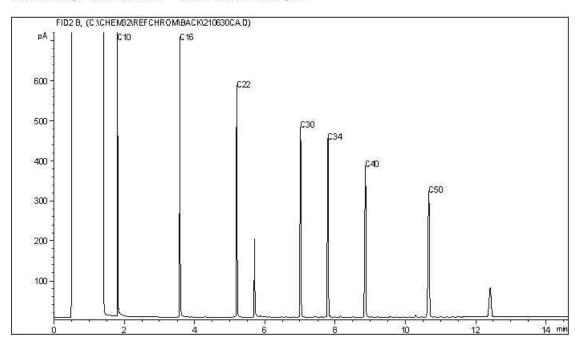
200

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 DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell		Sampling Date: August 27, 2021						
Golder Project Number: 2	20368099	9-6000-100	Laboratory: Bureau Veritas Edmonton						
Lab Submission Number:	C164653		-						
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 wi statistica r the requ	documented they reached thin hold till control in dested analy	ed and keped lab?: mes?: CoA?: rsis?	Yes Yes Yes Yes Yes Yes Yes Yes					
Are All Laboratory QC Within Ac	ceptance	Criteria (Y	es, No, No	ot Applicable)?					
Surrogate Recovery Method Blank Concentration Laboratory Duplicate RPD Matrix Spike Recovery Blank Spike Recovery	Yes X X X	No X	NA	Comments  Matrix duplicate RPD for F2 (117%) exceed the acceptance criteria (40%).  All remaining laboratory QC results are within acceptance criteria.					
Are All Field QC Samples Within	Alert Lin	nits (Yes, N	lo, Not Ap	oplicable)?					
	Yes	No	NA	Comments					
Field Blank Concentration			X	Samples TP21-22-05 and DUP-GG exceed the alert					
Trip Blank Concentration			X	limits for ethylbenzene (127%), total xylenes (131%)					
Field Duplicate RPD		X		and F2 (192%). Samples TP21-23-06 and DUP-HH					
				exceed the alert limit for F2 (105%). All remaining field QC samples are within alert limits.					
Is data considered reliable (Yes/No If answer is "No" or "Suspect", des	scribe and	/	ationale:	Suspect					
Data Reviewed by (Print):		lbert er 28, 2021		Data Reviewed by (Signature): Onto 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. #: 644511-69-01, 644511-67-01, 644511-68-01, 644511-46-01

Report Date: 2021/09/09

Report #: R3069502 Version: 1 - Final

# **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C164860 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 31

		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	2021/09/07	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	11	N/A	2021/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	20	N/A	2021/09/08		Auto Calc
F1-BTEX (1)	11	N/A	2021/09/09		Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	3	2021/09/04	2021/09/05	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	27	2021/09/04	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	1	2021/09/04	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F4G in soil) (1, 3)	2	2021/09/04	2021/09/09	AB SOP-00036	CCME PHC-CWS m
				AB SOP-00040	
Moisture (1)	31	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.

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



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. #: 644511-69-01, 644511-67-01, 644511-68-01, 644511-46-01

> Report Date: 2021/09/09 Report #: R3069502

> > Version: 1 - Final

# **CERTIFICATE OF ANALYSIS**

#### BV LABS JOB #: C164860

#### Received: 2021/08/31, 08:35

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**



Bureau Veritas

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

\_\_\_\_\_

This report has been generated and distributed using a secure automated process.

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: 2021/09/09

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		AFB066	AFB066		AFB067		AFB068	AFB069		
Sampling Date		2021/08/29	2021/08/29		2021/08/29		2021/08/29	2021/08/29		
Jamping Date		10:17	10:17		10:29		10:30	10:38		
COC Number		644511-69-01	644511-69-01		644511-69-01		644511-69-01	644511-69-01		
	UNITS	DUP-MM	DUP-MM Lab-Dup	RDL	TP21-97-02	RDL	TP-21-97-04	TP21-97-06	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	N/A	10	100	10	<10	23	10	A342301
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	N/A	50	2300	50	<50	51	50	A342301
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	N/A	50	910	50	<50	<50	50	A342301
Reached Baseline at C50	mg/kg	Yes	N/A	N/A	No	N/A	Yes	Yes	N/A	A342301
Physical Properties	•	•	•	•		=	-	•	ē	
Moisture	%	12	N/A	0.30	49	0.30	6.9	16	0.30	A342276
Volatiles										
Xylenes (Total)	mg/kg	<0.045	N/A	0.045	<0.11	0.11	<0.045	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	10	<24	24	<10	<10	10	A340320
Field Preserved Volatiles										
Benzene	mg/kg	<0.0050	<0.0050	0.0050	<0.0090 (1)	0.0090	<0.0050	<0.0050	0.0050	A341613
Toluene	mg/kg	<0.050	<0.050	0.050	0.31 (2)	0.12	<0.050	<0.050	0.050	A341613
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	<0.013 (1)	0.013	<0.010	<0.010	0.010	A341613
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	<0.094 (2)	0.094	<0.040	<0.040	0.040	A341613
o-Xylene	mg/kg	<0.020	<0.020	0.020	<0.047 (2)	0.047	<0.020	<0.020	0.020	A341613
F1 (C6-C10)	mg/kg	<10	<10	10	<24 (2)	24	<10	<10	10	A341613
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	93	92	N/A	93	N/A	93	93	N/A	A341613
4-Bromofluorobenzene (sur.)	%	107	106	N/A	106	N/A	106	106	N/A	A341613
D10-o-Xylene (sur.)	%	104	104	N/A	114	N/A	111	105	N/A	A341613
D4-1,2-Dichloroethane (sur.)	%	106	107	N/A	105	N/A	105	106	N/A	A341613
O-TERPHENYL (sur.)	%	123	N/A	N/A	103	N/A	102	106	N/A	A342301
	-					-	-			

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		AFB070			AFB071			AFB072		
Sampling Date		2021/08/29 10:47			2021/08/29 10:48			2021/08/29 10:54		
COC Number		644511-69-01			644511-69-01			644511-69-01		
	UNITS	TP21-98-03	RDL	QC Batch	TP21-98-04	RDL	QC Batch	TP21-98-05	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	470	10	A342301	30	10	A342301	<10	10	A342301
F3 (C16-C34 Hydrocarbons)	mg/kg	550	50	A342301	830	50	A342301	<50	50	A342301
F4 (C34-C50 Hydrocarbons)	mg/kg	83	50	A342301	300	50	A342301	<50	50	A342301
Reached Baseline at C50	mg/kg	Yes	N/A	A342301	No	N/A	A342301	Yes	N/A	A342301
Physical Properties						•				
Moisture	%	20	0.30	A342276	42	0.30	A342380	7.3	0.30	A342274
Volatiles										
Xylenes (Total)	mg/kg	<0.045	0.045	A340320	<0.13	0.13	A340320	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	10	A340320	<10	10	A340320	<10	10	A340320
Field Preserved Volatiles										
Benzene	mg/kg	<0.0050	0.0050	A341613	<0.011 (1)	0.011	A341613	<0.0050	0.0050	A341613
Toluene	mg/kg	<0.050	0.050	A341613	<0.14 (2)	0.14	A341613	<0.050	0.050	A341613
Ethylbenzene	mg/kg	<0.010	0.010	A341613	<0.016 (1)	0.016	A341613	<0.010	0.010	A341613
m & p-Xylene	mg/kg	<0.040	0.040	A341613	<0.12 (2)	0.12	A341613	<0.040	0.040	A341613
o-Xylene	mg/kg	<0.020	0.020	A341613	<0.058 (2)	0.058	A341613	<0.020	0.020	A341613
F1 (C6-C10)	mg/kg	<10	10	A341613	<10 (1)	10	A341613	<10	10	A341613
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	94	N/A	A341613	91	N/A	A341613	91	N/A	A341613
4-Bromofluorobenzene (sur.)	%	105	N/A	A341613	106	N/A	A341613	106	N/A	A341613
D10-o-Xylene (sur.)	%	118	N/A	A341613	112	N/A	A341613	113	N/A	A341613
D4-1,2-Dichloroethane (sur.)	%	107	N/A	A341613	104	N/A	A341613	108	N/A	A341613
O-TERPHENYL (sur.)	%	108	N/A	A342301	100	N/A	A342301	100	N/A	A342301
DDI Damantakia Dataatian ii	:									

RDL = Reportable Detection Limit

- (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		AFB072		AFB073	AFB074	AFB075	AFB105		
Sampling Date		2021/08/29		2021/08/29	2021/08/29	2021/08/29	2021/08/29		
Sampling Date		10:54		13:32	13:33	13:40	09:10		
COC Number		644511-69-01		644511-69-01	644511-69-01	644511-69-01	644511-67-01		
	UNITS	TP21-98-05 Lab-Dup	QC Batch	TP21-99-01	TP21-99-04	TP21-99-06	TP21-87-04	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	A342301	30	<10	<10	87	10	A342301
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	A342301	130	<50	<50	180	50	A342301
F4 (C34-C50 Hydrocarbons)	mg/kg	N/A	A342301	<50	<50	<50	<50	50	A342301
Reached Baseline at C50	mg/kg	N/A	A342301	Yes	Yes	Yes	Yes	N/A	A342301
Physical Properties									
Moisture	%	6.7	A342274	7.3	6.3	14	9.3	0.30	A342380
Volatiles		•	-	•	•		•	•	•
Xylenes (Total)	mg/kg	N/A	A340320	<0.045	<0.045	<0.045	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	N/A	A340320	<10	<10	<10	<10	10	A340320
Field Preserved Volatiles									
Benzene	mg/kg	N/A	A341613	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A341613
Toluene	mg/kg	N/A	A341613	<0.050	<0.050	<0.050	0.35	0.050	A341613
Ethylbenzene	mg/kg	N/A	A341613	0.012	<0.010	<0.010	<0.010	0.010	A341613
m & p-Xylene	mg/kg	N/A	A341613	<0.040	<0.040	<0.040	<0.040	0.040	A341613
o-Xylene	mg/kg	N/A	A341613	<0.020	<0.020	<0.020	<0.020	0.020	A341613
F1 (C6-C10)	mg/kg	N/A	A341613	<10	<10	<10	<10	10	A341613
Surrogate Recovery (%)	•	•		•	•		•	•	•
1,4-Difluorobenzene (sur.)	%	N/A	A341613	92	90	94	92	N/A	A341613
4-Bromofluorobenzene (sur.)	%	N/A	A341613	106	105	107	106	N/A	A341613
D10-o-Xylene (sur.)	%	N/A	A341613	113	113	107	111	N/A	A341613
D4-1,2-Dichloroethane (sur.)	%	N/A	A341613	107	105	110	107	N/A	A341613
O-TERPHENYL (sur.)	%	N/A	A342301	83	88	90	97	N/A	A342301
PDL - Papartable Detection Lie	i+								

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		AFB106	AFB107			AFB108		AFB109			
Sampling Date		2021/08/29 09:17	2021/08/29 09:30			2021/08/29 09:31		2021/08/29 09:38			
COC Number		644511-67-01	644511-67-01			644511-67-01		644511-67-01			
	UNITS	TP21-87-06	TP21-88-03	RDL	QC Batch	TP21-88-04	RDL	TP21-88-05	RDL	QC Batch	
Ext. Pet. Hydrocarbon											
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	10	A342301	36	10	<10	10	A342282	
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	50	A342301	680	50	<50	50	A342282	
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	50	A342301	180	50	<50	50	A342282	
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	A342301	Yes	N/A	Yes	N/A	A342282	
Physical Properties											
Moisture	%	18	3.9	0.30	A342380	42	0.30	12	0.30	A342380	
Volatiles											
Xylenes (Total)	mg/kg	<0.045	<0.045	0.045	A340320	<0.097	0.097	<0.045	0.045	A340320	
F1 (C6-C10) - BTEX	mg/kg	<10	<10	10	A340320	<22	22	<10	10	A340320	
Field Preserved Volatiles											
Benzene	mg/kg	<0.0050	<0.0050	0.0050	A341613	0.027 (1)	0.011	<0.0050	0.0050	A341613	
Toluene	mg/kg	<0.050	<0.050	0.050	A341613	18 (1)	0.11	<0.050	0.050	A341613	
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	A341613	<0.012 (2)	0.012	<0.010	0.010	A341613	
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	A341613	<0.087 (1)	0.087	<0.040	0.040	A341613	
o-Xylene	mg/kg	<0.020	<0.020	0.020	A341613	<0.044 (1)	0.044	0.027	0.020	A341613	
F1 (C6-C10)	mg/kg	<10	<10	10	A341613	<22 (1)	22	<10	10	A341613	
Surrogate Recovery (%)											
1,4-Difluorobenzene (sur.)	%	89	91	N/A	A341613	89	N/A	88	N/A	A341613	
4-Bromofluorobenzene (sur.)	%	105	106	N/A	A341613	108	N/A	108	N/A	A341613	
D10-o-Xylene (sur.)	%	122	115	N/A	A341613	123	N/A	114	N/A	A341613	
D4-1,2-Dichloroethane (sur.)	%	103	103	N/A	A341613	110	N/A	108	N/A	A341613	
O-TERPHENYL (sur.)	%	96	86	N/A	A342301	92	N/A	94	N/A	A342282	
001 0 111 0 111 11											

RDL = Reportable Detection Limit

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

<sup>(2)</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)

DV Laba ID		AED110	A ED110		AED111		AED112		
BV Labs ID	$\vdash$	AFB110	AFB110		AFB111		AFB112		
Sampling Date		2021/08/29	2021/08/29		2021/08/29		2021/08/29		
		09:48	09:48		09:58		10:06		
COC Number		644511-67-01	644511-67-01		644511-67-01		644511-67-01		
	UNITS	TP21-89-03	TP21-89-03 Lab-Dup	QC Batch	TP21-89-06	QC Batch	TP21-90-02	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	37	44	A342282	<10	A342296	200	10	A342282
F3 (C16-C34 Hydrocarbons)	mg/kg	280	360	A342282	57	A342296	420	50	A342282
F4 (C34-C50 Hydrocarbons)	mg/kg	65	85	A342282	<50	A342296	<50	50	A342282
Reached Baseline at C50	mg/kg	Yes	Yes	A342282	Yes	A342296	Yes	N/A	A342282
Physical Properties									
Moisture	%	15	N/A	A342380	17	A342307	6.5	0.30	A342380
Volatiles									,
Xylenes (Total)	mg/kg	<0.045	N/A	A340320	<0.045	A340320	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	A340320	<10	A340320	<10	10	A340320
Field Preserved Volatiles			•	-				•	,
Benzene	mg/kg	<0.0050	N/A	A341613	<0.0050	A341613	<0.0050	0.0050	A341613
Toluene	mg/kg	0.53	N/A	A341613	<0.050	A341613	<0.050	0.050	A341613
Ethylbenzene	mg/kg	<0.010	N/A	A341613	<0.010	A341613	<0.010	0.010	A341613
m & p-Xylene	mg/kg	<0.040	N/A	A341613	<0.040	A341613	<0.040	0.040	A341613
o-Xylene	mg/kg	<0.020	N/A	A341613	<0.020	A341613	<0.020	0.020	A341613
F1 (C6-C10)	mg/kg	<10	N/A	A341613	<10	A341613	<10	10	A341613
Surrogate Recovery (%)			•	-				•	,
1,4-Difluorobenzene (sur.)	%	89	N/A	A341613	88	A341613	87	N/A	A341613
4-Bromofluorobenzene (sur.)	%	110	N/A	A341613	108	A341613	107	N/A	A341613
D10-o-Xylene (sur.)	%	131	N/A	A341613	117	A341613	119	N/A	A341613
D4-1,2-Dichloroethane (sur.)	%	111	N/A	A341613	109	A341613	106	N/A	A341613
O-TERPHENYL (sur.)	%	96	109	A342282	103	A342296	102	N/A	A342282
		·	·		·				

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		AFB113			AFB114		AFB119		
Sampling Date		2021/08/29 10:07			2021/08/29 10:17		2021/08/29 13:49		
COC Number		644511-67-01			644511-67-01		644511-68-01		
	UNITS	TP21-90-04	RDL	QC Batch		QC Batch	TP21-100-01	RDL	QC Batch
Ext. Pet. Hydrocarbon			•						
F2 (C10-C16 Hydrocarbons)	mg/kg	67	10	A342282	<10	A342234	18	10	A342296
F3 (C16-C34 Hydrocarbons)	mg/kg	220	50	A342282	<50	A342234	92	50	A342296
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	A342282	<50	A342234	<50	50	A342296
Reached Baseline at C50	mg/kg	Yes	N/A	A342282	Yes	A342234	Yes	N/A	A342296
Physical Properties	•		•	•		•			
Moisture	%	6.6	0.30	A342380	14	A342380	9.0	0.30	A342307
Volatiles									
Xylenes (Total)	mg/kg	<0.045	0.045	A340320	<0.045	A340320	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<24	24	A340320	<10	A340320	<10	10	A340320
Field Preserved Volatiles	•		•	•		•			
Benzene	mg/kg	<0.0050	0.0050	A341613	<0.0050	A341613	<0.0050	0.0050	A343206
Toluene	mg/kg	<0.050	0.050	A341613	<0.050	A341613	<0.050	0.050	A343206
Ethylbenzene	mg/kg	<0.010	0.010	A341613	<0.010	A341613	<0.010	0.010	A343206
m & p-Xylene	mg/kg	<0.040	0.040	A341613	<0.040	A341613	<0.040	0.040	A343206
o-Xylene	mg/kg	<0.020	0.020	A341613	<0.020	A341613	<0.020	0.020	A343206
F1 (C6-C10)	mg/kg	<24 (1)	24	A341613	<10	A341613	<10	10	A343206
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	85	N/A	A341613	85	A341613	96	N/A	A343206
4-Bromofluorobenzene (sur.)	%	113	N/A	A341613	107	A341613	103	N/A	A343206
D10-o-Xylene (sur.)	%	120	N/A	A341613	124	A341613	88	N/A	A343206
D4-1,2-Dichloroethane (sur.)	%	103	N/A	A341613	106	A341613	114	N/A	A343206
O-TERPHENYL (sur.)	%	97	N/A	A342282	108	A342234	101	N/A	A342296

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) 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: PT

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

BV Labs ID		AFB120			AFB121		AFB122		
Sampling Date		2021/08/29 13:50			2021/08/29 13:56		2021/08/29 14:07		
COC Number		644511-68-01			644511-68-01		644511-68-01		
	UNITS	TP21-100-03	RDL	QC Batch	TP21-100-06	QC Batch	TP21-101-01	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<22 (1)	22	A342282	17	A342296	33	10	A342234
F3 (C16-C34 Hydrocarbons)	mg/kg	370 (1)	110	A342282	120	A342296	110	50	A342234
F4 (C34-C50 Hydrocarbons)	mg/kg	<110 (1)	110	A342282	<50	A342296	<50	50	A342234
Reached Baseline at C50	mg/kg	Yes	N/A	A342282	Yes	A342296	Yes	N/A	A342234
Physical Properties			•						
Moisture	%	54	0.30	A342380	14	A342307	7.9	0.30	A342307
Volatiles			•						
Xylenes (Total)	mg/kg	<0.12	0.12	A340320	<0.045	A340320	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<18	18	A340320	<10	A340320	<10	10	A340320
Field Preserved Volatiles				•		•			
Benzene	mg/kg	<0.0086 (2)	0.0086	A343206	<0.0050	A343206	<0.0050	0.0050	A343206
Toluene	mg/kg	0.47 (3)	0.13	A343206	0.16	A343206	<0.050	0.050	A343206
Ethylbenzene	mg/kg	<0.010 (2)	0.010	A343206	<0.010	A343206	<0.010	0.010	A343206
m & p-Xylene	mg/kg	<0.10 (3)	0.10	A343206	<0.040	A343206	<0.040	0.040	A343206
o-Xylene	mg/kg	<0.052 (3)	0.052	A343206	<0.020	A343206	<0.020	0.020	A343206
F1 (C6-C10)	mg/kg	<18 (2)	18	A343206	<10	A343206	<10	10	A343206
Surrogate Recovery (%)				•		•			
1,4-Difluorobenzene (sur.)	%	97	N/A	A343206	98	A343206	96	N/A	A343206
4-Bromofluorobenzene (sur.)	%	102	N/A	A343206	103	A343206	103	N/A	A343206
D10-o-Xylene (sur.)	%	105	N/A	A343206	93	A343206	104	N/A	A343206
D4-1,2-Dichloroethane (sur.)	%	109	N/A	A343206	111	A343206	111	N/A	A343206
O-TERPHENYL (sur.)	%	96	N/A	A342282	107	A342296	102	N/A	A342234
	• • •								

RDL = Reportable Detection Limit

N/A = Not Applicable

- (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.



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		AFB123	AFB123	AFB124	AFB124		AFB125		
Sampling Date		2021/08/29	2021/08/29	2021/08/29	2021/08/29		2021/08/29		
Janipinig Date		14:08	14:08	14:16	14:16		14:26		
COC Number		644511-68-01	644511-68-01	644511-68-01	644511-68-01		644511-68-01		
	UNITS	TP21-101-04	TP21-101-04 Lab-Dup	TP21-101-05	TP21-101-05 Lab-Dup	QC Batch	TP21-102-03	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	28	N/A	<10	<10	A342296	44	10	A342301
F3 (C16-C34 Hydrocarbons)	mg/kg	120	N/A	<50	56	A342296	74	50	A342301
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	N/A	<50	<50	A342296	<50	50	A342301
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	Yes	A342296	Yes	N/A	A342301
Physical Properties									
Moisture	%	8.7	9.5	6.8	N/A	A342307	9.7	0.30	A342307
Volatiles	•								
Xylenes (Total)	mg/kg	<0.045	N/A	<0.045	N/A	A340320	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	<10	N/A	A340320	<10	10	A340320
Field Preserved Volatiles	•								
Benzene	mg/kg	<0.0050	N/A	<0.0050	N/A	A343206	<0.0050	0.0050	A343206
Toluene	mg/kg	<0.050	N/A	<0.050	N/A	A343206	<0.050	0.050	A343206
Ethylbenzene	mg/kg	<0.010	N/A	<0.010	N/A	A343206	<0.010	0.010	A343206
m & p-Xylene	mg/kg	<0.040	N/A	<0.040	N/A	A343206	<0.040	0.040	A343206
o-Xylene	mg/kg	<0.020	N/A	<0.020	N/A	A343206	<0.020	0.020	A343206
F1 (C6-C10)	mg/kg	<10	N/A	<10	N/A	A343206	<10	10	A343206
Surrogate Recovery (%)	,	•	•	•	•	-		•	<u>,                                      </u>
1,4-Difluorobenzene (sur.)	%	97	N/A	97	N/A	A343206	97	N/A	A343206
4-Bromofluorobenzene (sur.)	%	102	N/A	103	N/A	A343206	104	N/A	A343206
D10-o-Xylene (sur.)	%	105	N/A	102	N/A	A343206	104	N/A	A343206
D4-1,2-Dichloroethane (sur.)	%	112	N/A	112	N/A	A343206	111	N/A	A343206
O-TERPHENYL (sur.)	%	104	N/A	100	104	A342296	90	N/A	A342301
							-		

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

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		AFB126	AFB127	AFB128		AFB130		
Sampling Date		2021/08/29	2021/08/29	2021/08/29		2021/08/29		
Sampling Date		14:37	14:49	14:50		14:54		
COC Number		644511-68-01	644511-68-01	644511-68-01		644511-46-01		
	UNITS	TP21-102-06	TP21-103-02	TP21-103-04	QC Batch	TP21-103-06	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	51	55	A342296	<10	10	A342234
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	190	120	A342296	100	50	A342234
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	A342296	<50	50	A342234
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	A342296	Yes	N/A	A342234
Physical Properties							-	
Moisture	%	17	9.5	7.7	A342307	13	0.30	A342307
Volatiles							-	
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	A340320	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	A340320	<10	10	A340320
Field Preserved Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	A343206	<0.0050	0.0050	A343206
Toluene	mg/kg	<0.050	<0.050	<0.050	A343206	<0.050	0.050	A343206
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	A343206	<0.010	0.010	A343206
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	A343206	<0.040	0.040	A343206
o-Xylene	mg/kg	<0.020	<0.020	<0.020	A343206	0.026	0.020	A343206
F1 (C6-C10)	mg/kg	<10	<10	<10	A343206	<10	10	A343206
Surrogate Recovery (%)			-	•	-	•	<u>-</u>	-
1,4-Difluorobenzene (sur.)	%	95	96	95	A343206	94	N/A	A343206
4-Bromofluorobenzene (sur.)	%	102	102	104	A343206	104	N/A	A343206
D10-o-Xylene (sur.)	%	106	104	101	A343206	96	N/A	A343206
D4-1,2-Dichloroethane (sur.)	%	111	111	112	A343206	119	N/A	A343206
O-TERPHENYL (sur.)	%	105	107	105	A342296	98	N/A	A342234
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

## PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		AFB067	AFB071		
Sampling Date		2021/08/29	2021/08/29		
Sampling Date		10:29	10:48		
COC Number		644511-69-01	644511-69-01		
	UNITS	TP21-97-02	TP21-98-04	RDL	QC Batch
Ext. Pet. Hydrocarbon					
F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	6000	2400	500	A345342
RDL = Reportable Detection Limit	•				



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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

Results relate only to the items tested.



Client Project #: 20368099-6000-1001

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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
A341613	DO1	Matrix Spike [AFB066-02]	1,4-Difluorobenzene (sur.)	2021/09/07		89	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		108	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		118	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		106	%	50 - 140
			Benzene	2021/09/07		115	%	50 - 140
			Toluene	2021/09/07		118	%	50 - 140
			Ethylbenzene	2021/09/07		134	%	50 - 140
			m & p-Xylene	2021/09/07		129	%	50 - 140
			o-Xylene	2021/09/07		131	%	50 - 140
			F1 (C6-C10)	2021/09/07		90	%	60 - 140
A341613	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		79	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		93	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		92	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		97	%	50 - 140
			Benzene	2021/09/07		84	%	60 - 130
			Toluene	2021/09/07		87	%	60 - 130
			Ethylbenzene	2021/09/07		93	%	60 - 130
			m & p-Xylene	2021/09/07		92	%	60 - 130
			o-Xylene	2021/09/07		83	%	60 - 130
			F1 (C6-C10)	2021/09/07		104	%	60 - 140
A341613	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		94	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		107	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		98	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		105	%	50 - 140
			Benzene	2021/09/07	<0.0050	103	mg/kg	30 110
			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	
			•	2021/09/07	<10			
A 2 41 C1 2	DO1	DDD [45D0CC 02]	F1 (C6-C10)				mg/kg	Ε0
A341613	DO1	RPD [AFB066-02]	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
A342234	MHF	Matrix Spike	O-TERPHENYL (sur.)	2021/09/04		105	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/04		100	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/04		104	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/04		102	%	60 - 140
A342234	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/09/04		106	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/04		100	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/04		103	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/04		101	%	60 - 140
A342234	MHF	Method Blank	O-TERPHENYL (sur.)	2021/09/04		110	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/04	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/04	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/04	<50		mg/kg	
A342234	MHF	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/04	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/04	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/04	NC		%	40



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Territories

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

Sampler Initials: PT

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC			QUALITY ASSURANCE	<u> </u>				
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A342274	ARV	Method Blank	Moisture	2021/09/05	<0.30	,	%	
A342274	ARV	RPD [AFB072-01]	Moisture	2021/09/05	8.6		%	20
A342276	ARV	Method Blank	Moisture	2021/09/05	<0.30		%	
A342276	ARV	RPD	Moisture	2021/09/05	2.7		%	20
A342282	GG3	Matrix Spike [AFB110-01]	O-TERPHENYL (sur.)	2021/09/07		113	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		95	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		96	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		96	%	60 - 140
A342282	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		107	%	60 - 140
		•	F2 (C10-C16 Hydrocarbons)	2021/09/07		88	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		87	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		89	%	60 - 140
A342282	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		95	%	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	
A342282	GG3	RPD [AFB110-01]	F2 (C10-C16 Hydrocarbons)	2021/09/08	18		g/g	40
7.0 .2202	000	5 [/ 5220 02]	F3 (C16-C34 Hydrocarbons)	2021/09/08	26		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/08	27		%	40
A342296	GG3	Matrix Spike [AFB124-01]	O-TERPHENYL (sur.)	2021/09/07	_,	104	%	60 - 140
7.0 .2250	000		F2 (C10-C16 Hydrocarbons)	2021/09/07		95	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		100	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		95	%	60 - 140
A342296	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		97	%	60 - 140
A342230	005	эрікса віатк	F2 (C10-C16 Hydrocarbons)	2021/09/07		94	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		98	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		94	%	60 - 140
A342296	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		104	%	60 - 140
A342230	005	Wictioa Blank	F2 (C10-C16 Hydrocarbons)	2021/09/07	<10	104	mg/kg	00 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50		mg/kg	
A342296	GG3	RPD [AFB124-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	NC		/// // // // // // // // // // // // //	40
A342230	003	N D [A D124-01]	F3 (C16-C34 Hydrocarbons)	2021/09/07	11		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	NC		%	40
A342301	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/07	NC	105	%	60 - 140
A342301	003	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2021/09/07		NC	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		90	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		94	%	60 - 140
A342301	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		115	%	60 - 140
A342301	003	эрікей Біатік	F2 (C10-C16 Hydrocarbons)	2021/09/07		96	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		101	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		94	% %	60 - 140
A 2 4 2 2 O 1	GG3	Method Blank	, ,	2021/09/07			% %	60 - 140
A342301	GGS	METHOR PIGHK	O-TERPHENYL (sur.) F2 (C10-C16 Hydrocarbons)		<b>~10</b>	100		60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07	<10 <50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50 <50		mg/kg	
A242201	GC2	DDD	, , ,	2021/09/07 2021/09/07			mg/kg	40
A342301	GG3	RPD	F2 (C10-C16 Hydrocarbons)		6.7		%	40 40
			F3 (C16-C34 Hydrocarbons)	2021/09/07	13		%	40
A 2 4 2 2 2 7	C) //	Mothod Disale	F4 (C34-C50 Hydrocarbons)	2021/09/07	15		%	40
A342307	SVI	Method Blank	Moisture	2021/09/05	<0.30		%	20
A342307	SVI	RPD [AFB123-01]	Moisture	2021/09/05	8.8		%	20



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
A342380	ARV	Method Blank	Moisture	2021/09/05	<0.30		%	
A342380	ARV	RPD	Moisture	2021/09/05	18		%	20
A343206	DO1	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/08		92	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		99	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		113	%	50 - 140
			Benzene	2021/09/08		93	%	50 - 140
			Toluene	2021/09/08		91	%	50 - 140
			Ethylbenzene	2021/09/08		101	%	50 - 140
			m & p-Xylene	2021/09/08		96	%	50 - 140
			o-Xylene	2021/09/08		99	%	50 - 140
			F1 (C6-C10)	2021/09/08		102	%	60 - 140
A343206	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/08		85	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		89	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		84	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		103	%	50 - 140
			Benzene	2021/09/08		79	%	60 - 130
			Toluene	2021/09/08		84	%	60 - 130
			Ethylbenzene	2021/09/08		86	%	60 - 130
			m & p-Xylene	2021/09/08		83	%	60 - 130
			o-Xylene	2021/09/08		76	%	60 - 130
			F1 (C6-C10)	2021/09/08		85	%	60 - 140
A343206	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/08		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		89	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		109	%	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	
A343206	DO1	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
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	103	mg/kg	00 140
M34334Z	183	iviethoù blank	r40-30 (neavy nydrocarbons-Grav.)	2021/09/09	<b>&lt;</b> 500		mg/kg	



Client Project #: 20368099-6000-1001

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**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
A345342	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 (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 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

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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.

Page 19 of 55

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#254 GOLDER ASSOCIATES LTD.	Company Name:	#6340	GOLDER ASSOCIATES LTD	ATES LT	Ċ.		Quotation #:	00	C00480			BV Labs Job #: Bo	Bottle Order #:
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		CALGARY AB T2P 2W2	2P 2W2				Project Name:	l				COC #: Pro	Project Manager:
(905) 567-6100 Ext: 1167 Fax: (403) 299-5606	Tel:	(403) 299-5600		Fax			Site #						Carmon Markan
canadaaccountspayableinvoices@golder.com	Email:	abellavance@g	older.com				Sampled By:						allies i Michay
	Speci	Special Instructions	7			NALYSIS RI	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	LEASE BE S	PECIFIC)			Turnaround Time (TAT) Required:	
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Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Canada 72E 6P8 Tel (403) 251-3077 Toll-free 300-563-6286 Fax (403) 291-9468 www.bvlabs.com

Company Name. #254 GOLDER ASSOCIATES LTD.							-		PROJECT	PROJECT INFORMATION:	TON:	_	Laboratory Use Only:	nly:
	3	Company Name:	#6340	GOLDER ASSOCIATES LTD	IATES LTE	).	O	Quotation #:	C00480	0			BV Labs Job #:	Bottle Order #:
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7	(403) 299-5606	-	(403) 299-5600	00			-A	Project Name:					- 1.3	
voices@		lei: Email:	abellavance	abellavance@golder.com	Fax:		Sa	Site #: Sampled By:					C#644511-67-01	Carmen McKay
Regulatory Criteria:		Special Instructions	structions			A	NALYSIS REC	QUESTED (PLE	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	FIC)		_	Turnaround Time (TAT) Required:	ired:
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Bureau Veritas Canada (2019) Inc.

Bottle Order #: Project Manager: Carmen McKay Laboratory Use Only: C#644511-68-01 0985 BV Labs Job #: C00480 20368099-7000-1001 20368099-6000-1001 PROJECT INFORMATION: P.O. #. Project: Project Name: Site #: Sampled By: Bursau 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.bv/abs.com #6340 GOLDER ASSOCIATES LTD. Fax Aurelie Belavance
2800, 700 -2nd Street SW
CALGARY AB T2P 2W2
(403) 299-5600
rabellavance@golder.com REPORT TO: Company Name: Attention: Address: Tel: Email: (403) 299-5606 #254 GOLDER ASSOCIATES LTD.
ACCOUNTS PAYABLE
2800, 700 -2nd Street SW
CALGARY AB T2P 2W2
(905) 567-6100 Ext: 1167 Fax (403) 299-5606
canadaaccountspayableinvoices@golder.com INVOICE TO: BUREAU Company Name: Attention: Address: Tel:

Turnaround Time (TAT) Required:	Please provide advance notice for rush projects   Regular (Standard) TAT:   (will be applied (Rent AT // is not specified):	ssolved i in Water	eid - HA9	e	4	3	S Received in Yellowknife	3 BY: J.Mechan	3 4116 91 2021	2	3 Temp: / /	3	3		not submitted Time Sensitive Temperature (°C) on Receipt Custody Seal Infact on Cooler?
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		SAMPLES MUST BE KEPT COOL (< 10°C.) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS	Sample (Location) Identification	19-100-01	191-100-63	JO-001-181	10-101-169T	HO-101-101	TP31-101-05	TP31 - 102 -03	20-201-16dT	MM - 103-02	103-04	Y: (Signature/Print) Date: (YY/MM/DD)	A. Sellatone 21/08/29
Regulatory Criteria:	ATI COME Other	SAMPLES MUST BE	Sample Barcode Label	NA A	2	3	4	S.	9	7	80	6	) 01	* RELINQUISHED BY: (Signature/Print)	Coll of

- UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LARS' STANDARD TERMS AND CONDITIONS.

- UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY SECORD.

- IT IS THE RESPONSIBILITY OF THE RELIAQUISHER TO BESURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

- ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT WANAGER.

Yellow: Client

White: BV Labs

Paget of 4

								Laboratory Use Only:
Company Name: #6	#6340 GOLDER ASSOCIATES LTD	TES LTD.		# contestor O	C00480			BV Labs Job #: Bottle Order #:
				P.O. #:	20368099-7000-1001	7000-1001		787 10
ŭΙΟ	800, 700 -2nd Street SW ALGARY AB T2P 2W2			Project	20368099-6000-100	3000-1001		COC #: Project Manager:
4)  #	(403) 299-5600 abellavance@golder.com	Fax:		Site # Sampled By:				Carmen McKay C#644511-46-01
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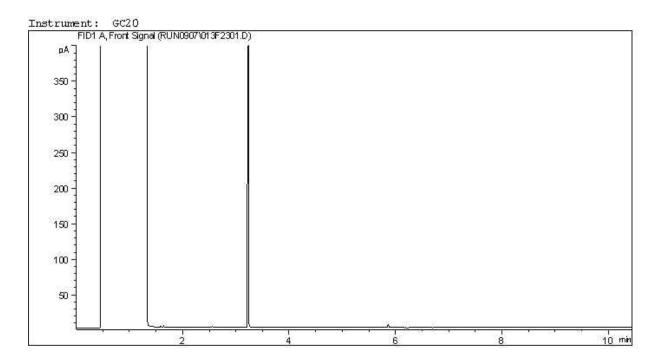
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

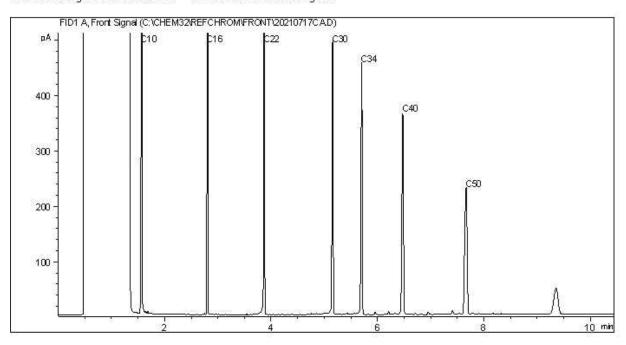
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-MM

#### 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+

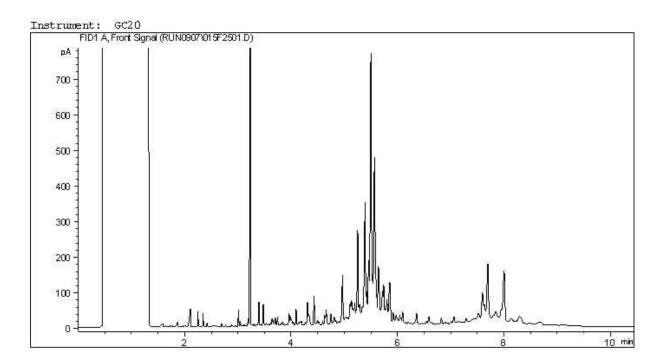
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

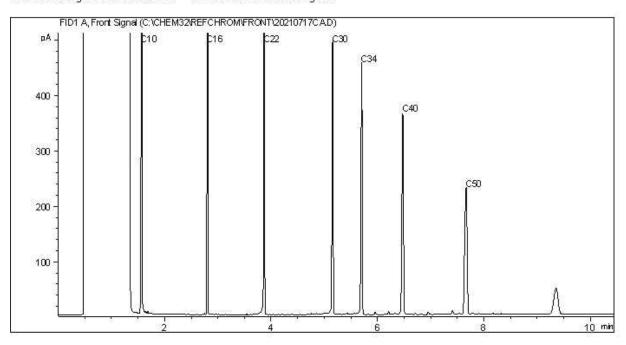
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-97-02

#### 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+

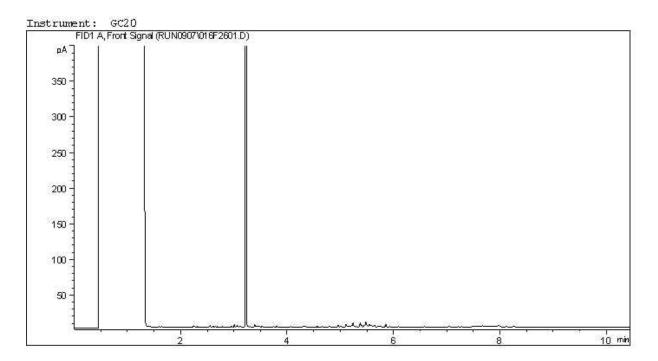
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

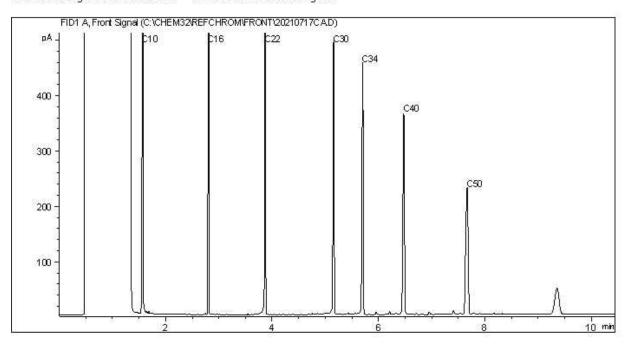
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP-21-97-04

#### 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+

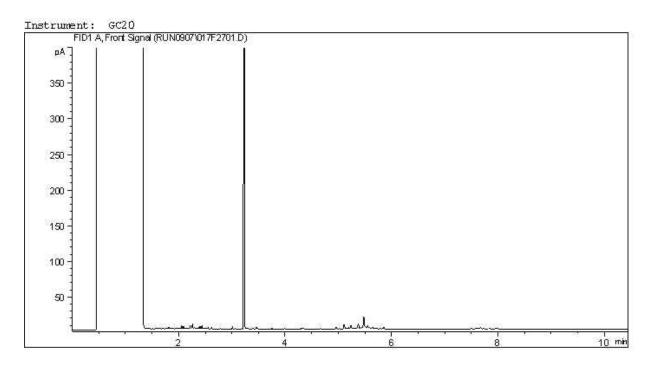
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

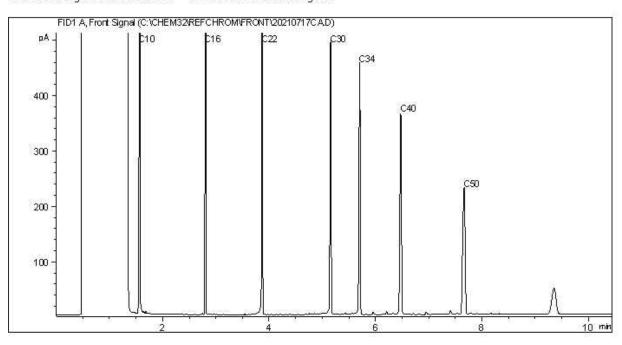
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-97-06

#### **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+

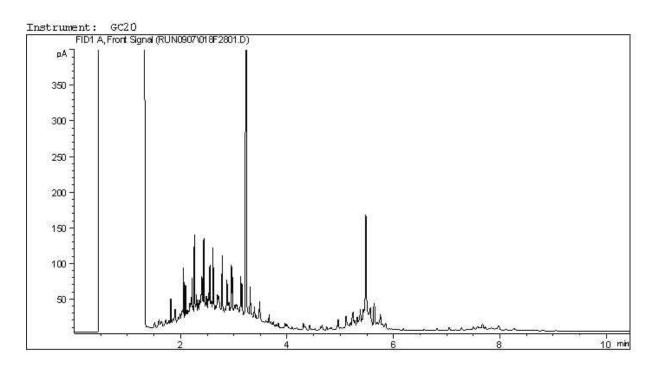
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

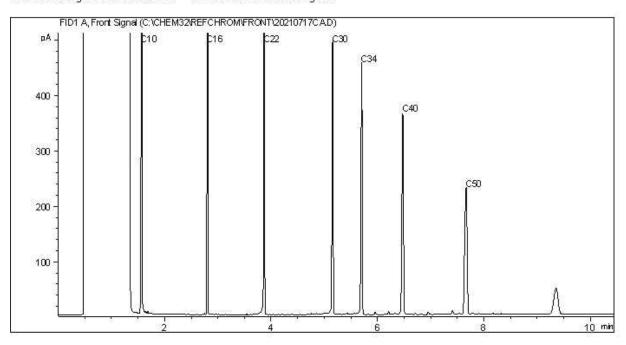
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-98-03

#### 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+

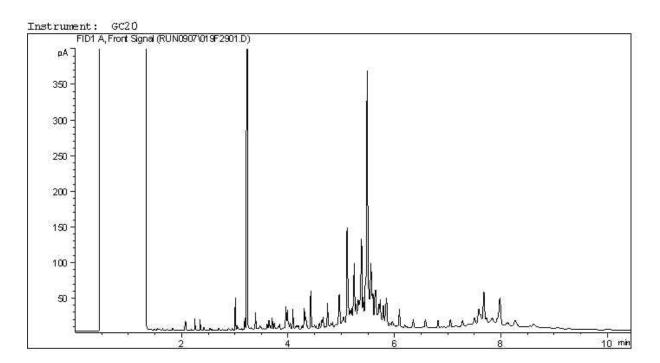
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

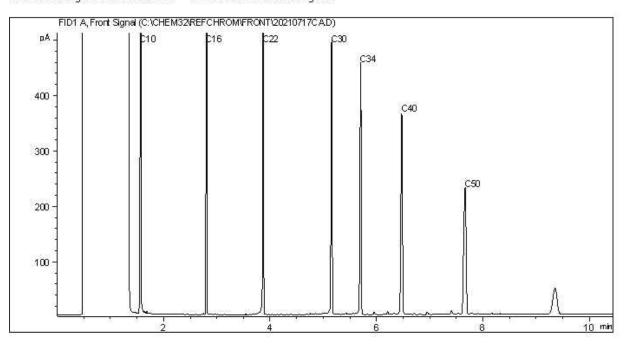
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-98-04

#### **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+

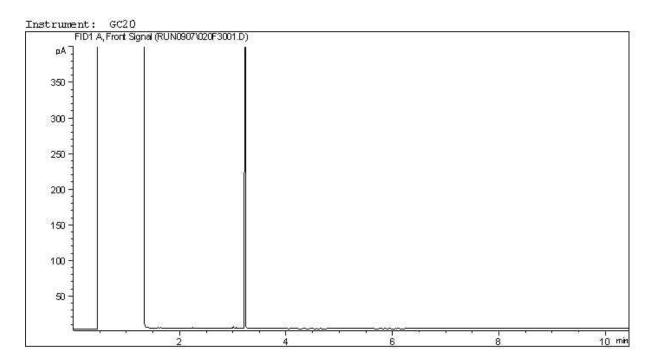
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

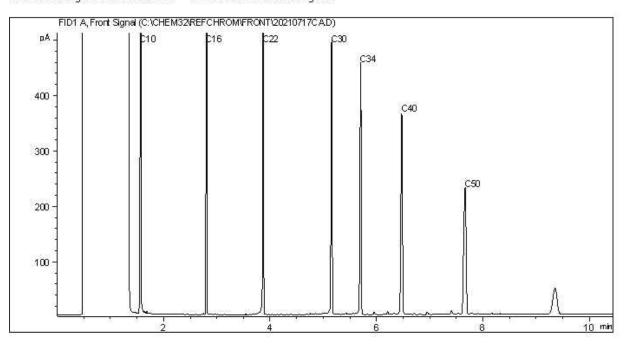
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-98-05

#### 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+

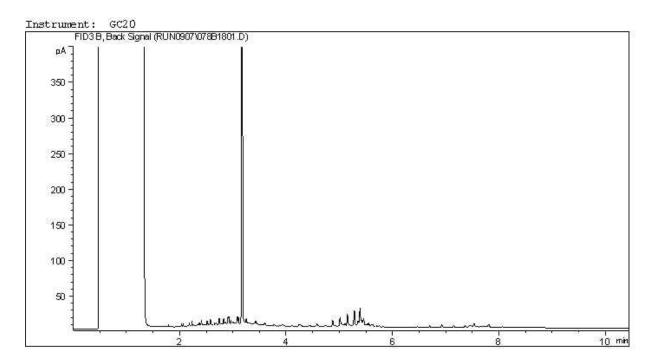
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

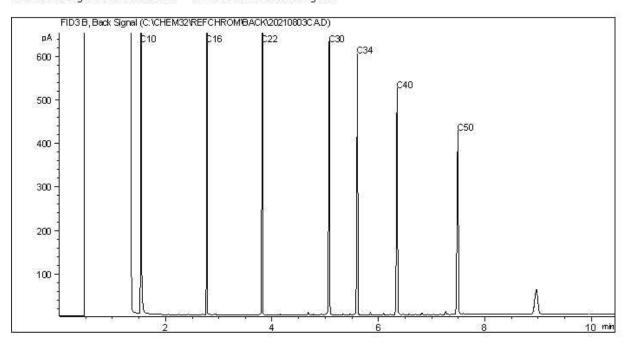
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-99-01

#### **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+

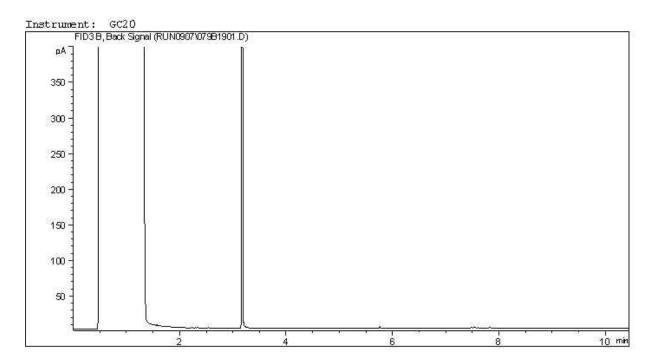
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

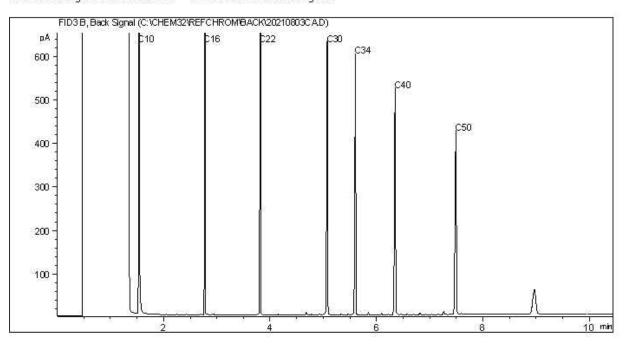
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-99-04

#### **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+

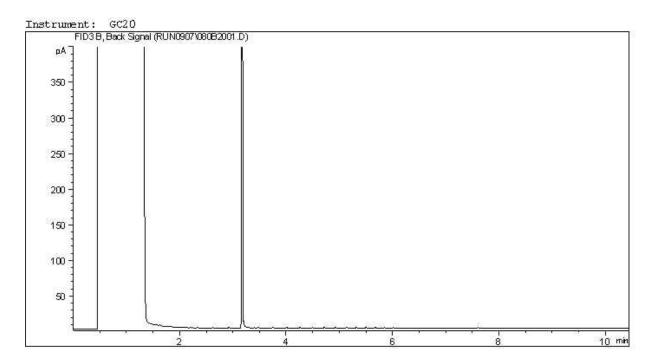
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

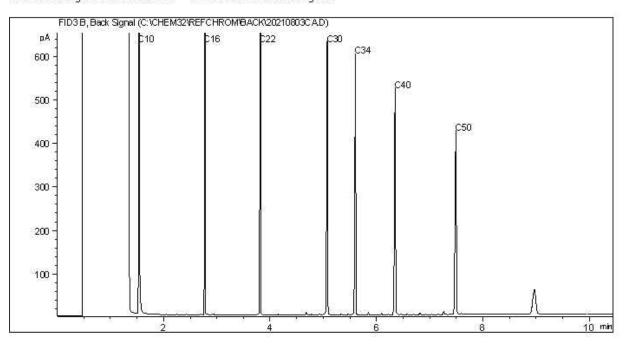
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-99-06

#### **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+

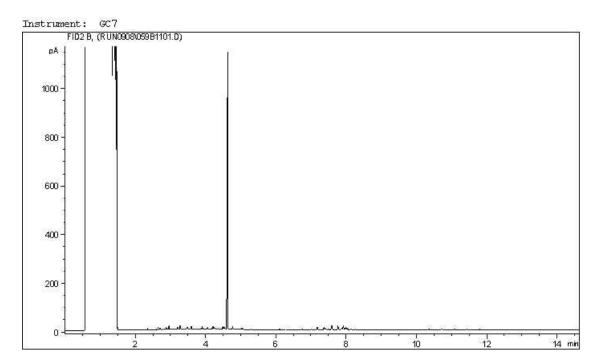
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

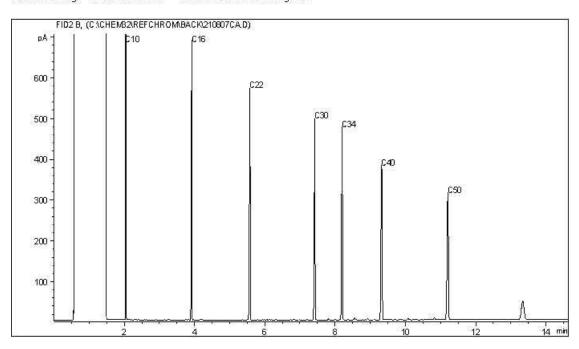
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-87-04

#### **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	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	-	C16	Crude Oils:	C3	-	C60+

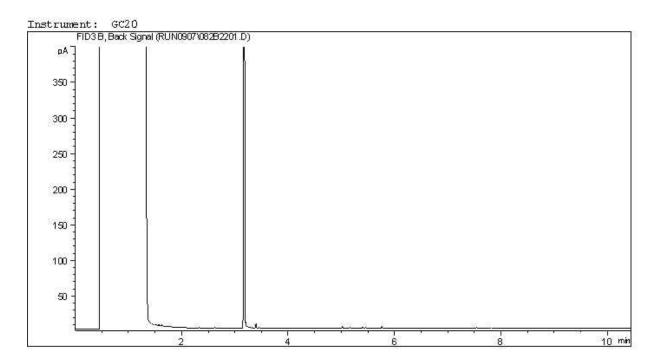
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

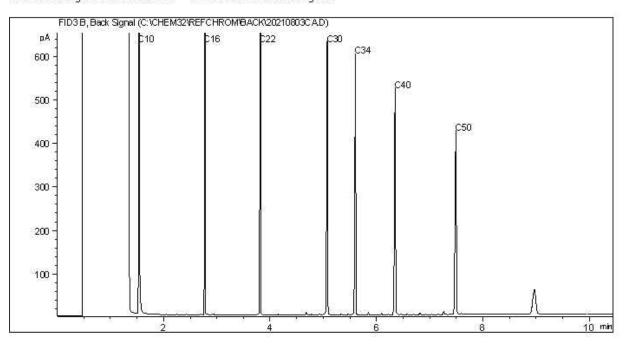
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-87-06

#### 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+

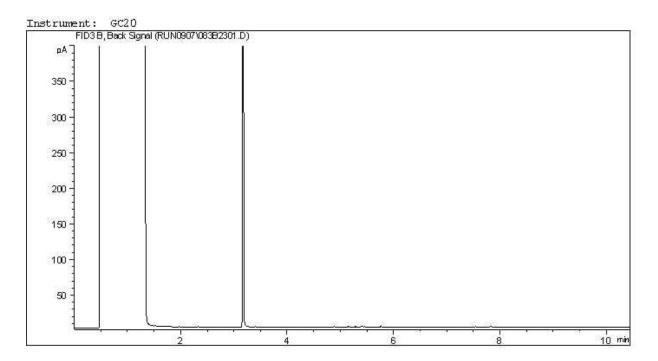
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

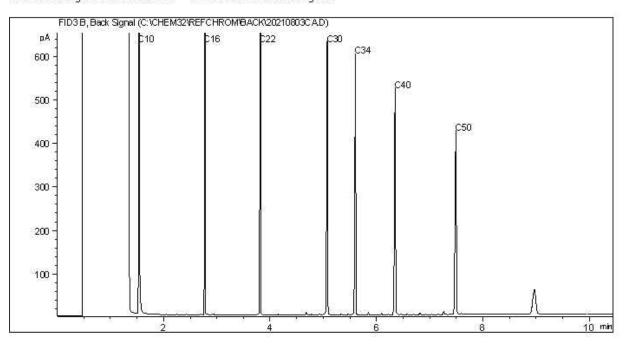
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-88-03

#### **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+

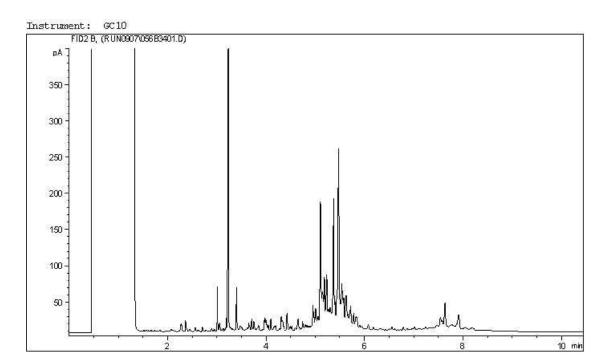
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

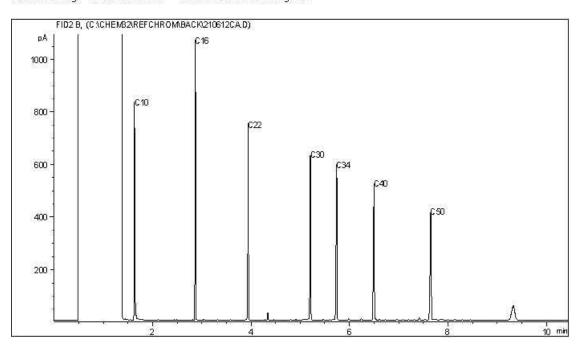
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-88-04

#### **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	: <del>- )</del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-	C60+

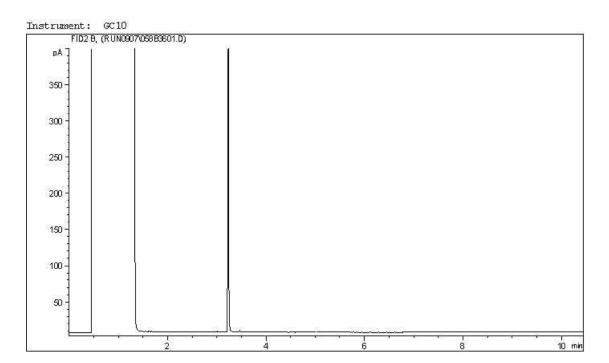
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

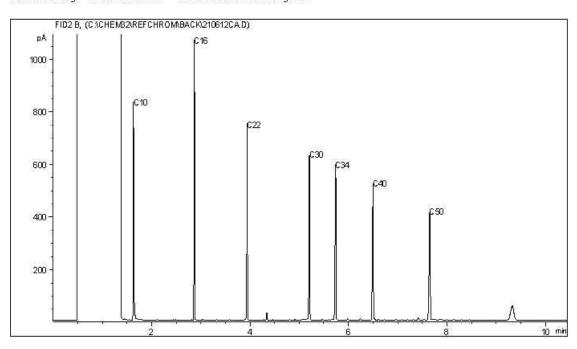
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-88-05

#### **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+

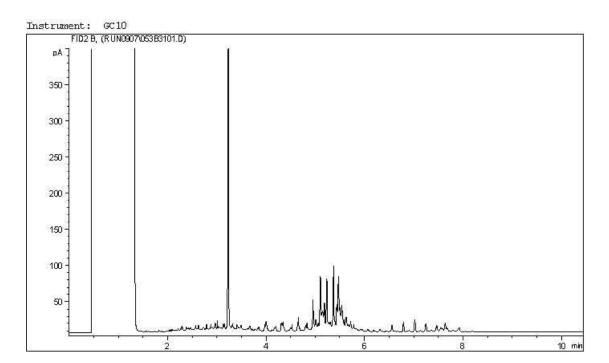
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

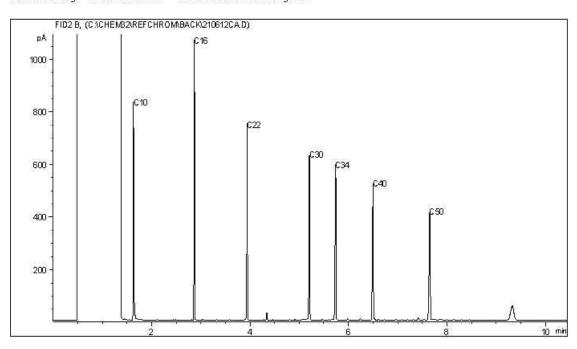
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-89-03

#### **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+

BV Labs Job #: C164860 Report Date: 2021/09/09

BV Labs Sample: AFB110 Lab-Dup

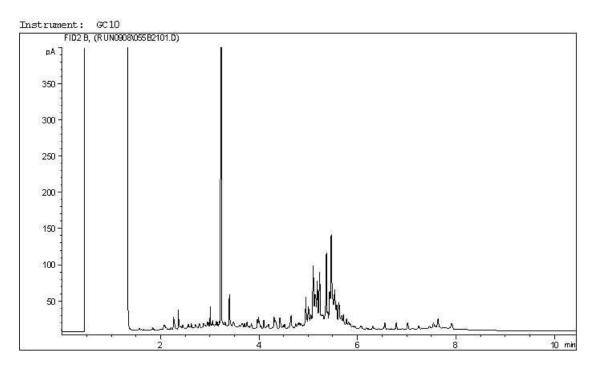
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

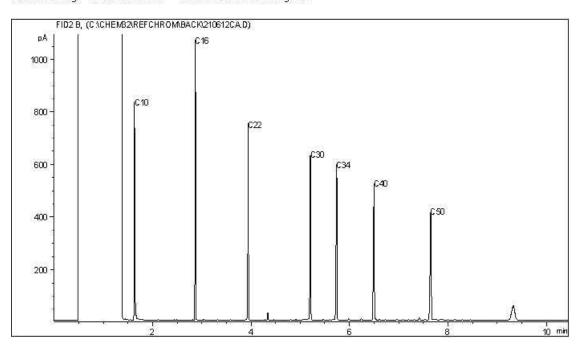
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-89-03

#### **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.

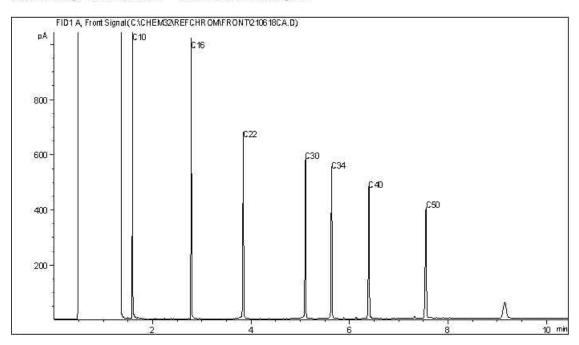
Client Project #: 20368099-6000-1001

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

Client ID: TP21-89-06

#### 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+

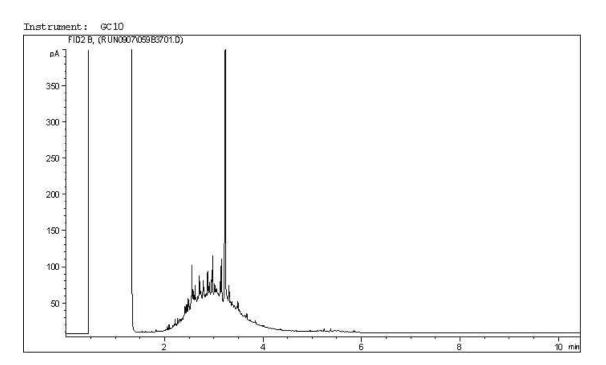
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

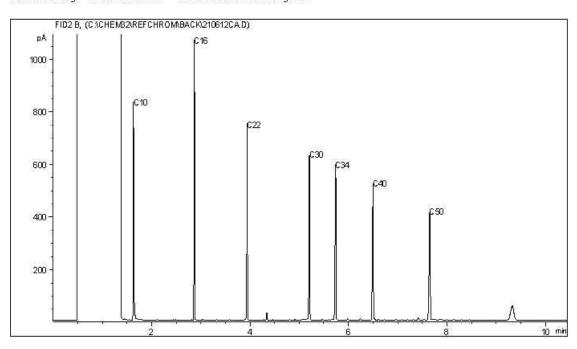
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-90-02

#### **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+

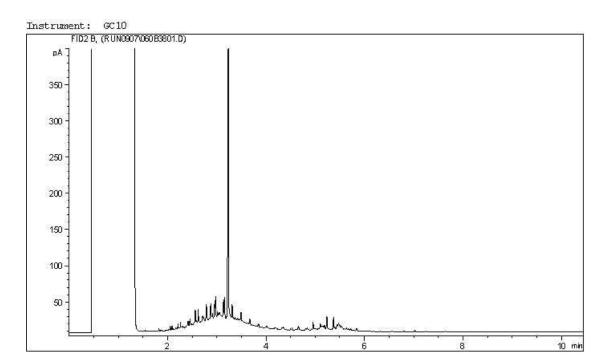
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

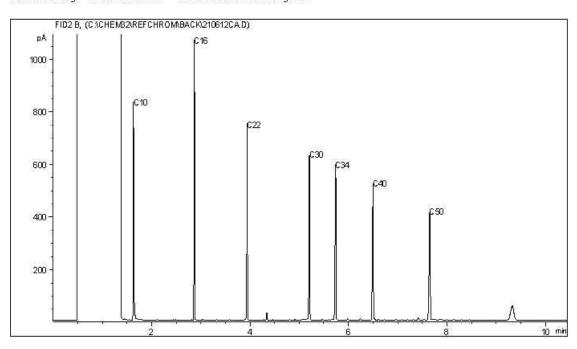
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-90-04

#### 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: TP21-90-06

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

Instrument: GC13

FID1A Front Signal(RUN0905023F2901.D)

pA

330

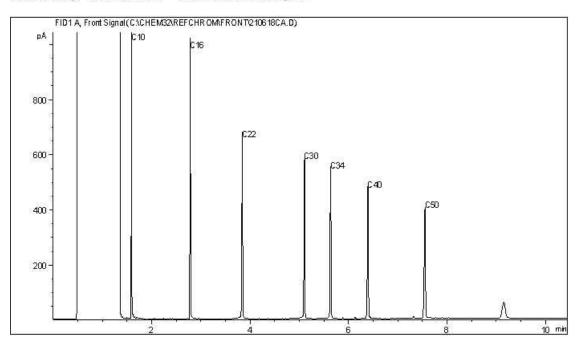
290

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+

50 -

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

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

Client ID: TP21-100-01

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

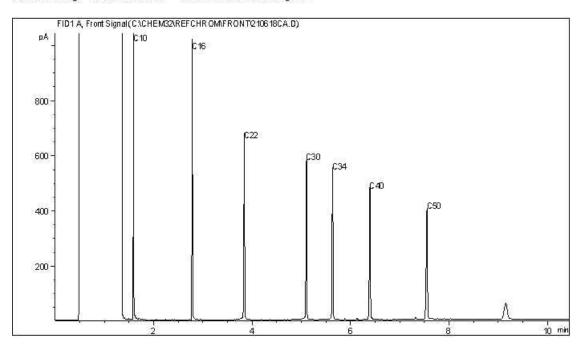
Instrument: GC13

FID1 A Front Signal(RUN0907/044F5801.D)

pA

350 
250 
150 
100 -

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: TP21-100-03

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

Instrument: GC10

FID2 B, (RUNGO7061B3901.D)

pA

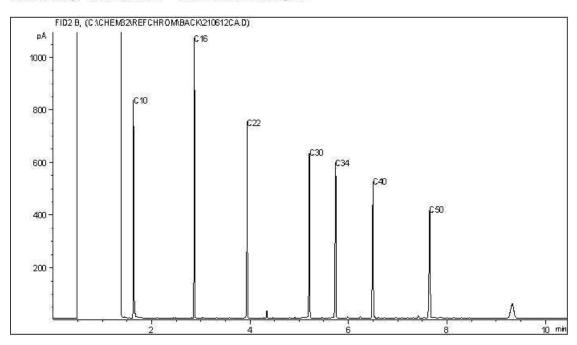
350

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.

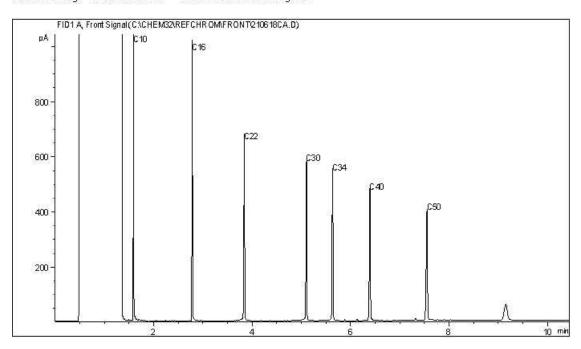
Client Project #: 20368099-6000-1001

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

Client ID: TP21-100-06

#### 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: TP21-101-01

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

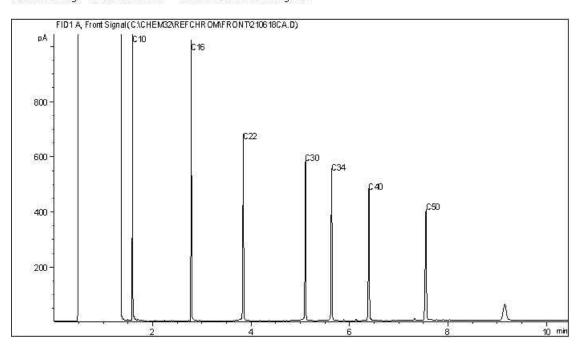
Instrument: GC13

FID1 A Front Signal(RUN09050024F3001.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: TP21-101-04

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

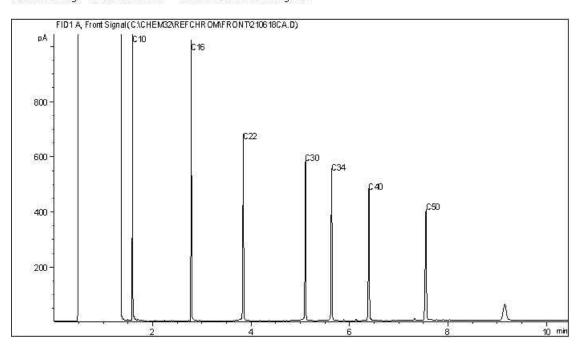
Instrument: GC13

FID1A Front Signal (RUN0907048F5301.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

10 min

Client ID: TP21-101-05

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

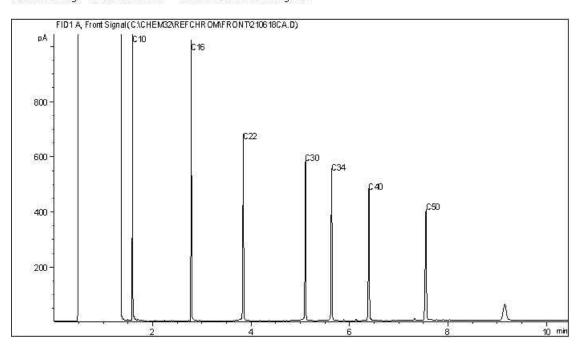
Instrument: GC13

FID1 A Front Signal(RUN0907/025F3701.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+

BV Labs Job #: C164860 Report Date: 2021/09/09

BV Labs Sample: AFB124 Lab-Dup

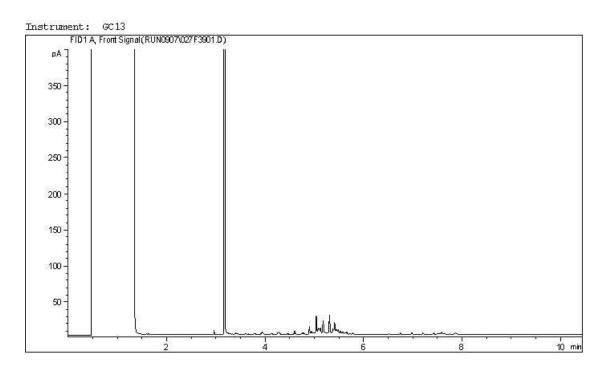
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

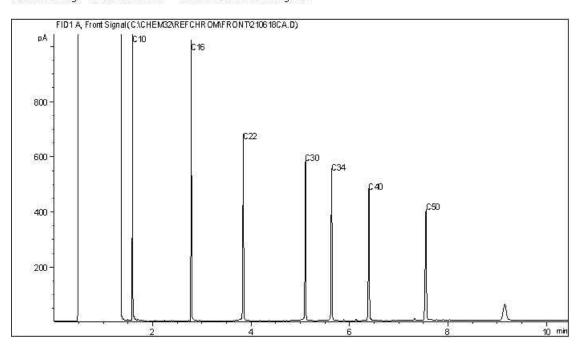
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-101-05

#### 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+

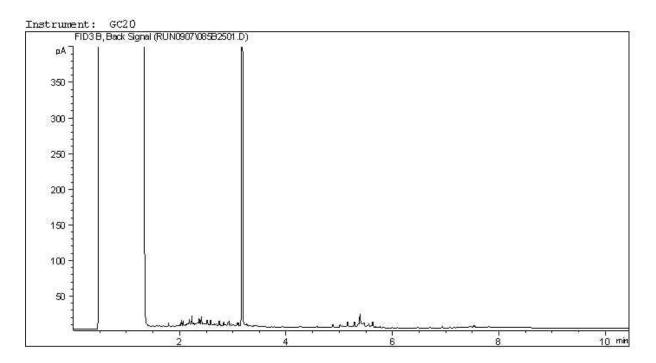
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

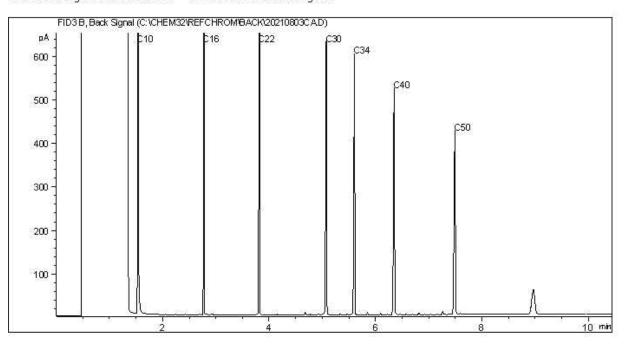
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-102-03

#### 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

10 min

Client ID: TP21-102-06

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

Instrument: GC13

FID1 A, Front Signal (RUN0907047F5901.D)

pA

300

250

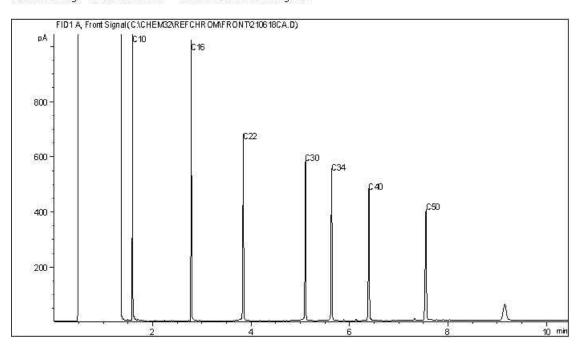
150

100

50

100

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: TP21-103-02

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

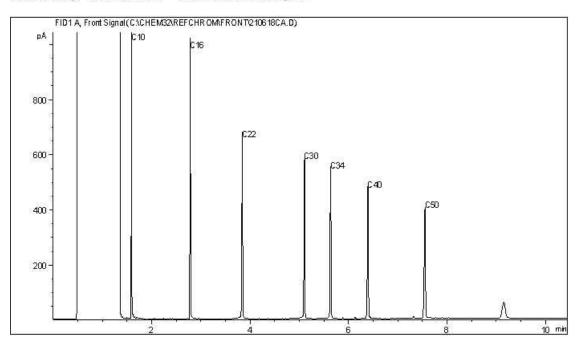
Instrument: GC13

FID1A, Front Signal(RUN0907048F6001.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: TP21-103-04

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

Instrument: GC13

FID1 A Front Signal (RUN0907049F6101.D)

pA

350

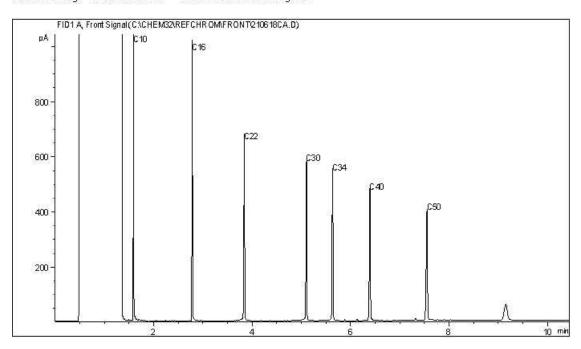
250

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.

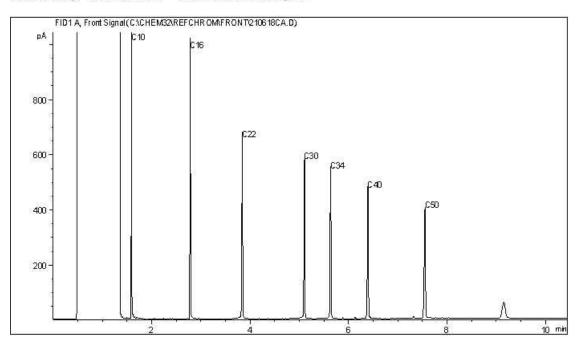
Client Project #: 20368099-6000-1001

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

Client ID: TP21-103-06

#### 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 DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farewo	ell		Sampling Date: August 29, 2021						
Golder Project Number: 2	20368099	9-6000-100	1	Laboratory: <u>F</u>	Bureau Veritas Edmonto	n			
Lab Submission Number: <u>(</u>	C164860		-						
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	documente they reache thin hold tin I control in tested 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 (Yo	es, No, N	ot Applicable)?					
Yes No NA Comments  Surrogate Recovery X All laboratory QC results are within  Method Blank Concentration X acceptance criteria.  Laboratory Duplicate RPD X Matrix Spike Recovery X Blank Spike Recovery X Blank Spike Recovery X									
Are All Field QC Samples Within	Alert Lin	nits (Yes, N	o, Not Ap	pplicable)?					
Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Yes	No	NA X X	All field QC sampl alert limits.	Comments es are within				
Is data considered reliable (Yes/No If answer is "No" or "Suspect", des			ntionale:	Yes					
Data Reviewed by (Print):		bert er 10, 2021		Data Reviewed by (	Signature): Ondo	Colbert			



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. #: 644511-42-01, 644511-43-01, 644511-44-01, 644511-45-01

Report Date: 2021/09/15 Report #: R3071641

Version: 3 - Revision

# **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164989 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 41

'		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	<b>Analytical Method</b>
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1)	3	2021/09/09	2021/09/10	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	34	N/A	2021/09/07	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	4	N/A	2021/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	38	N/A	2021/09/08		Auto Calc
F1-BTEX (1)	3	N/A	2021/09/10		Auto Calc
CCME Hydrocarbons (F2-F4)+F3A/B in soil (1, 3)	4	2021/09/04	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4)+F3A/B in soil (1, 3)	1	2021/09/08	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	15	2021/09/03	2021/09/05	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	16	2021/09/04	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	3	2021/09/04	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	1	2021/09/04	2021/09/09	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	1	2021/09/09	2021/09/09	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2/F2+F3B) in soil (1, 5)	5	N/A	2021/09/05		Auto Calc
Moisture (1)	15	N/A	2021/09/04	AB SOP-00002	CCME PHC-CWS m
Moisture (1)	25	N/A	2021/09/05	AB SOP-00002	CCME PHC-CWS m
Moisture (1)	1	N/A	2021/09/09	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



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. #: 644511-42-01, 644511-43-01, 644511-44-01, 644511-45-01

Report Date: 2021/09/15 Report #: R3071641

Version: 3 - Revision

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

#### BV LABS JOB #: C164989 Received: 2021/08/31, 08:35

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 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.
- (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** 

Cynny Hagen Key Account Specialist 15 Sep 2021 15:17:10

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 (SOIL)

BV Labs ID		AFC301			AFC382	AFC385		
Sampling Date		2021/08/23			2021/08/23	2021/08/23		
Jumpmig Dute		09:59			15:18	15:45		
COC Number		644511-42-01			644511-45-01	644511-45-01		
	UNITS	TP21-02-02	RDL	QC Batch	TP21-51-06	TP21-52-05	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	140 (1)	37	A346257	<10	<10	10	A341906
F3 (C16-C34 Hydrocarbons)	mg/kg	1700 (1)	180	A346257	<50	<50	50	A341906
F4 (C34-C50 Hydrocarbons)	mg/kg	810 (1)	180	A346257	<50	<50	50	A341906
Reached Baseline at C50	mg/kg	Yes	N/A	A346257	Yes	Yes	N/A	A341906
Physical Properties								
Moisture	%	73	0.30	A346245	16	13	0.30	A341982
Volatiles								
Benzene	mg/kg	<0.017 (2)	0.017	A343327	<0.0050	<0.0050	0.0050	A343327
Toluene	mg/kg	<0.080 (3)	0.080	A343327	<0.050	<0.050	0.050	A343327
Ethylbenzene	mg/kg	<0.035 (2)	0.035	A343327	<0.010	<0.010	0.010	A343327
m & p-Xylene	mg/kg	<0.14 (2)	0.14	A343327	<0.040	<0.040	0.040	A343327
o-Xylene	mg/kg	<0.069 (2)	0.069	A343327	<0.020	<0.020	0.020	A343327
Xylenes (Total)	mg/kg	<0.16	0.16	A346003	<0.045	<0.045	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<24	24	A346003	<10	<10	10	A340815
F1 (C6-C10)	mg/kg	<24 (3)	24	A343327	<10	<10	10	A343327
Surrogate Recovery (%)	•	•	-		•	•	•	
1,4-Difluorobenzene (sur.)	%	99	N/A	A343327	106	104	N/A	A343327
4-Bromofluorobenzene (sur.)	%	88	N/A	A343327	85	83	N/A	A343327
D10-o-Xylene (sur.)	%	83	N/A	A343327	72	75	N/A	A343327
D4-1,2-Dichloroethane (sur.)	%	81	N/A	A343327	77	77	N/A	A343327
O-TERPHENYL (sur.)	%	74	N/A	A346257	90	97	N/A	A341906

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: AB

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

_				_					
BV Labs ID		AFC300	AFC300		AFC302	AFC303	AFC304		
Sampling Date		2021/08/23	2021/08/23		2021/08/23	2021/08/23	2021/08/23		
Sampling Date		09:47	09:47		10:01	10:10	10:11		
COC Number		644511-42-01	644511-42-01		644511-42-01	644511-42-01	644511-42-01		
	UNITS	TP21-01-02	TP21-01-02 Lab-Dup	RDL	TP21-02-03	TP21-03-01	TP21-03-03	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<27 (1)	N/A	27	<10	110	960	10	A342301
F3 (C16-C34 Hydrocarbons)	mg/kg	360 (1)	N/A	130	<50	150	220	50	A342301
F4 (C34-C50 Hydrocarbons)	mg/kg	<130 (1)	N/A	130	<50	<50	<50	50	A342301
Reached Baseline at C50	mg/kg	Yes	N/A	N/A	Yes	Yes	Yes	N/A	A342301
Physical Properties									
Moisture	%	63	N/A	0.30	12	15	13	0.30	A342276
Volatiles									
Xylenes (Total)	mg/kg	<0.19	N/A	0.19	<0.045	0.092	0.94	0.045	A340601
F1 (C6-C10) - BTEX	mg/kg	<29	N/A	29	<10	<10	<10	10	A340601
Field Preserved Volatiles									
Benzene	mg/kg	<0.014 (2)	<0.014	0.014	<0.0050	0.014	0.035	0.0050	A342606
Toluene	mg/kg	<0.050 (2)	<0.050	0.050	<0.050	0.077	0.079	0.050	A342606
Ethylbenzene	mg/kg	<0.016 (2)	<0.016	0.016	<0.010	0.022	0.11	0.010	A342606
m & p-Xylene	mg/kg	<0.17 (3)	<0.17	0.17	<0.040	0.063	0.58	0.040	A342606
o-Xylene	mg/kg	<0.087 (3)	<0.087	0.087	<0.020	0.029	0.36	0.020	A342606
F1 (C6-C10)	mg/kg	<29 (2)	<29	29	<10	<10	<10	10	A342606
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	101	96	N/A	99	98	98	N/A	A342606
4-Bromofluorobenzene (sur.)	%	86	100	N/A	101	103	102	N/A	A342606
D10-o-Xylene (sur.)	%	78	111	N/A	117	105	104	N/A	A342606
D4-1,2-Dichloroethane (sur.)	%	75	108	N/A	104	108	108	N/A	A342606
O-TERPHENYL (sur.)	%	100	N/A	N/A	89	98	99	N/A	A342301

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.



Report Date: 2021/09/15

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

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

			. = 00 0 =		. = 00.00			1	
BV Labs ID		AFC305	AFC305		AFC306	AFC307	AFC308		
Sampling Date		2021/08/23	2021/08/23		2021/08/23	2021/08/23	2021/08/23		
		10:23	10:23		10:33	10:34	10:39		
COC Number		644511-42-01	644511-42-01		644511-42-01	644511-42-01	644511-42-01		
	UNITS	TP21-03-06	TP21-03-06 Lab-Dup	QC Batch	TP21-35-02	TP21-35-04	TP21-35-05	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	1000	1100	A342301	160	240	66	10	A342282
F3 (C16-C34 Hydrocarbons)	mg/kg	210	240	A342301	230	270	62	50	A342282
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	58	A342301	<50	<50	<50	50	A342282
Reached Baseline at C50	mg/kg	Yes	Yes	A342301	Yes	Yes	Yes	N/A	A342282
Physical Properties									
Moisture	%	31	N/A	A342276	10	9.0	15	0.30	A342276
Volatiles									
Xylenes (Total)	mg/kg	1.3	N/A	A340601	<0.045	0.15	<0.045	0.045	A340601
F1 (C6-C10) - BTEX	mg/kg	64	N/A	A340601	<10	<10	<10	10	A340601
Field Preserved Volatiles				•			•	•	•
Benzene	mg/kg	<0.0050	N/A	A342606	<0.0050	0.0078	<0.0050	0.0050	A342606
Toluene	mg/kg	0.25	N/A	A342606	0.21	0.54	<0.050	0.050	A342606
Ethylbenzene	mg/kg	0.11	N/A	A342606	<0.010	0.038	0.014	0.010	A342606
m & p-Xylene	mg/kg	0.83	N/A	A342606	<0.040	0.13	<0.040	0.040	A342606
o-Xylene	mg/kg	0.52	N/A	A342606	<0.020	0.026	0.026	0.020	A342606
F1 (C6-C10)	mg/kg	66	N/A	A342606	<10	<10	<10	10	A342606
Surrogate Recovery (%)			•	-	•		•	•	•
1,4-Difluorobenzene (sur.)	%	97	N/A	A342606	96	99	99	N/A	A342606
4-Bromofluorobenzene (sur.)	%	103	N/A	A342606	102	102	101	N/A	A342606
D10-o-Xylene (sur.)	%	90	N/A	A342606	109	99	101	N/A	A342606
D4-1,2-Dichloroethane (sur.)	%	107	N/A	A342606	104	107	104	N/A	A342606
O-TERPHENYL (sur.)	%	88	108	A342301	102	104	97	N/A	A342282
1							·		·

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)

BV Labs ID Sampling Date COC Number  Ext. Pet. Hydrocarbon F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons) F4 (C34-C50 Hydrocarbons)	UNITS  mg/kg mg/kg	AFC309 2021/08/23 10:52 644511-42-01 TP21-36-02  N/A	AFC321 2021/08/23 10:53 644511-43-01 TP21-36-03	RDL	QC Batch	AFC322 2021/08/23 10:54 644511-43-01 <b>TP21-36-05</b>	AFC322 2021/08/23 10:54 644511-43-01 <b>TP21-36-05</b>	RDL						
Ext. Pet. Hydrocarbon F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons)	mg/kg	10:52 644511-42-01 <b>TP21-36-02</b>	10:53 644511-43-01	RDL	QC Batch	10:54 644511-43-01	10:54 644511-43-01	, DDI						
Ext. Pet. Hydrocarbon F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons)	mg/kg	644511-42-01 TP21-36-02	644511-43-01	RDL	QC Batch	644511-43-01	644511-43-01	, DDI						
Ext. Pet. Hydrocarbon F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons)	mg/kg	TP21-36-02		RDL	QC Batch			DDI.						
F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons)	mg/kg		TP21-36-03	RDL	QC Batch	TP21-36-05	TP21-36-05	DD.						
F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons)		N/A				21 30 33	Lab-Dup	KDL	QC Batch					
F3 (C16-C34 Hydrocarbons)		N/A												
	mg/kg													
F4 (C34-C50 Hydrocarbons)		N/A	N/A	50	A342282	500 (1)	N/A	100	A342301					
	mg/kg	N/A	N/A	50	A342282	160 (1)	N/A	100	A342301					
Reached Baseline at C50	mg/kg	N/A	N/A	N/A	A342282	Yes	N/A	N/A	A342301					
Physical Properties				•										
Moisture	%	10	16	0.30	A342276	52	53	0.30	A342276					
Volatiles				•										
Xylenes (Total)	mg/kg	0.10	0.34	0.045	A340601	0.63	N/A	0.15	A340601					
F1 (C6-C10) - BTEX	mg/kg	13	42	10	A340601	<20	N/A	20	A340601					
Field Preserved Volatiles														
Benzene	mg/kg	<0.0050	<0.0050	0.0050	A342606	<0.013 (2)	N/A	0.013	A342606					
Toluene	mg/kg	0.25	0.61	0.050	A342606	1.7 (3)	N/A	0.17	A342606					
Ethylbenzene	mg/kg	0.019	0.078	0.010	A342606	0.073 (3)	N/A	0.035	A342606					
m & p-Xylene	mg/kg	0.049	0.14	0.040	A342606	0.37 (3)	N/A	0.14	A342606					
o-Xylene	mg/kg	0.051	0.20	0.020	A342606	0.26 (3)	N/A	0.069	A342606					
F1 (C6-C10)	mg/kg	13	43	10	A342606	<20 (2)	N/A	20	A342606					
Surrogate Recovery (%)														
1,4-Difluorobenzene (sur.)	%	100	98	N/A	A342606	103	N/A	N/A	A342606					
4-Bromofluorobenzene (sur.)	%	103	101	N/A	A342606	89	N/A	N/A	A342606					
D10-o-Xylene (sur.)	%	102	97	N/A	A342606	93	N/A	N/A	A342606					
D4-1,2-Dichloroethane (sur.)	%	107	109	N/A	A342606	80	N/A	N/A	A342606					
O-TERPHENYL (sur.)	%	N/A	N/A	N/A	A342282	97	N/A	N/A	A342301					

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.



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)

BV Labs ID		AFC323			AFC324		AFC325	AFC326		
Sampling Date		2021/08/23			2021/08/23		2021/08/23	2021/08/23		
Jamping Date		10:58			11:15		11:16	11:17		
COC Number		644511-43-01			644511-43-01		644511-43-01	644511-43-01		
	UNITS	TP21-36-06	RDL	QC Batch	TP21-37-01	QC Batch	TP21-37-04	TP21-37-06	RDL	QC Batch
Ext. Pet. Hydrocarbon	•	•	•	•	•	•	•	•	•	<u></u>
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	21	A342301	140	A342282	150	<10	10	A342282
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	100	A342301	320	A342282	290	<50	50	A342282
F4 (C34-C50 Hydrocarbons)	mg/kg	N/A	100	A342301	<50	A342282	<50	<50	50	A342282
Reached Baseline at C50	mg/kg	N/A	N/A	A342301	Yes	A342282	Yes	Yes	N/A	A342282
Physical Properties										
Moisture	%	26	0.30	A342274	13	A342274	12	13	0.30	A342276
Volatiles	•	•	·	•	•	•		•	-	,
Xylenes (Total)	mg/kg	<0.045	0.045	A340601	0.075	A340601	<0.045	0.070	0.045	A340601
F1 (C6-C10) - BTEX	mg/kg	<10	10	A340601	18	A340601	<10	<10	10	A340601
Field Preserved Volatiles	•	•	·	•	•	•		•	-	,
Benzene	mg/kg	0.0092	0.0050	A342606	<0.0050	A342606	<0.0050	0.040	0.0050	A342606
Toluene	mg/kg	0.16	0.050	A342606	0.077	A342606	0.091	<0.050	0.050	A342606
Ethylbenzene	mg/kg	0.018	0.010	A342606	0.017	A342606	<0.010	0.021	0.010	A342606
m & p-Xylene	mg/kg	<0.040	0.040	A342606	0.051	A342606	<0.040	<0.040	0.040	A342606
o-Xylene	mg/kg	0.033	0.020	A342606	0.024	A342606	<0.020	0.070	0.020	A342606
F1 (C6-C10)	mg/kg	<10	10	A342606	18	A342606	<10	<10	10	A342606
Surrogate Recovery (%)	•	•	=	•	•	•	•	•	•	,
1,4-Difluorobenzene (sur.)	%	96	N/A	A342606	97	A342606	100	99	N/A	A342606
4-Bromofluorobenzene (sur.)	%	102	N/A	A342606	102	A342606	104	105	N/A	A342606
D10-o-Xylene (sur.)	%	117	N/A	A342606	137	A342606	103	113	N/A	A342606
D4-1,2-Dichloroethane (sur.)	%	107	N/A	A342606	106	A342606	106	106	N/A	A342606
O-TERPHENYL (sur.)	%	N/A	N/A	N/A	104	A342282	102	99	N/A	A342282
RDI = Reportable Detection Lin	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: AB

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

BV Labs ID		AFC327	AFC328		AFC329	AFC330	AFC341		
Sampling Date		2021/08/23	2021/08/23		2021/08/23	2021/08/23	2021/08/23		
Jamping Date		13:46	13:47		13:55	14:02	14:10		
COC Number		644511-43-01	644511-43-01		644511-43-01	644511-43-01	644511-44-01		
	UNITS	TP21-38-03	TP21-38-04	QC Batch	TP21-38-05	TP21-38-07	TP21-39-03	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	300	350	A342282	930	1700	130	10	A342282
F3 (C16-C34 Hydrocarbons)	mg/kg	290	260	A342282	530	310	190	50	A342282
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A342282	<50	<50	<50	50	A342282
Reached Baseline at C50	mg/kg	Yes	Yes	A342282	Yes	Yes	Yes	N/A	A342282
Physical Properties									
Moisture	%	11	15	A342276	10	18	16	0.30	A342274
Volatiles	•			•	•		•	•	
Xylenes (Total)	mg/kg	0.10	0.19	A340601	1.3	7.2	<0.045	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<10	27	A340601	86	270	23	10	A340815
Field Preserved Volatiles	•			•	•		•	•	
Benzene	mg/kg	<0.0050	0.0078	A342606	0.024	0.084	0.0069	0.0050	A342606
Toluene	mg/kg	0.20	0.79	A342606	0.68	0.93	<0.050	0.050	A342606
Ethylbenzene	mg/kg	0.019	0.027	A342606	0.17	1.3	0.015	0.010	A342606
m & p-Xylene	mg/kg	0.059	0.075	A342606	0.47	4.5	<0.040	0.040	A342606
o-Xylene	mg/kg	0.043	0.11	A342606	0.81	2.7	0.033	0.020	A342606
F1 (C6-C10)	mg/kg	<10	28	A342606	89	280	23	10	A342606
Surrogate Recovery (%)	•	•	•	•	•	•	•	=	•
1,4-Difluorobenzene (sur.)	%	99	100	A342606	98	98	97	N/A	A342606
4-Bromofluorobenzene (sur.)	%	102	102	A342606	102	104	102	N/A	A342606
D10-o-Xylene (sur.)	%	97	108	A342606	105	103	108	N/A	A342606
D4-1,2-Dichloroethane (sur.)	%	105	105	A342606	110	107	106	N/A	A342606
O-TERPHENYL (sur.)	%	106	108	A342282	122	122	98	N/A	A342282
RDL = Reportable Detection Lir	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: AB

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

BV Labs ID		AFC342	AFC342		AFC343	AFC344		AFC345		
Sampling Date		2021/08/23	2021/08/23		2021/08/23	2021/08/23		2021/08/23		
Jampinig Date		14:14	14:14		14:15	14:11		14:38		
COC Number		644511-44-01	644511-44-01		644511-44-01	644511-44-01		644511-44-01		
	UNITS	TP21-39-05	TP21-39-05 Lab-Dup	RDL	TP21-39-06	TP21-39-04	QC Batch	TP21-40-02	RDL	QC Batch
Ext. Pet. Hydrocarbon		•	•	•	•	•	•	•	•	•
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	N/A	10	<10	150	A342282	190	10	A341853
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	N/A	50	<50	190	A342282	310	50	A341853
F4 (C34-C50 Hydrocarbons)	mg/kg	N/A	N/A	50	<50	<50	A342282	54	50	A341853
Reached Baseline at C50	mg/kg	N/A	N/A	N/A	Yes	Yes	A342282	Yes	N/A	A341853
Physical Properties	-	•	•		•	•	•	•	ē	-
Moisture	%	41	N/A	0.30	17	9.1	A342274	12	0.30	A341991
Volatiles										
Xylenes (Total)	mg/kg	<0.12	N/A	0.12	0.52	0.10	A340815	0.082	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<18	N/A	18	<10	<10	A340815	<10	10	A340815
Field Preserved Volatiles										
Benzene	mg/kg	0.16 (1)	0.16	0.013	0.079	<0.0050	A342607	<0.0050	0.0050	A342607
Toluene	mg/kg	2.3 (1)	2.2	0.13	0.10	0.11	A342607	0.072	0.050	A342607
Ethylbenzene	mg/kg	<0.010 (2)	<0.010	0.010	0.17	0.020	A342607	<0.010	0.010	A342607
m & p-Xylene	mg/kg	<0.11 (1)	<0.11	0.11	0.27	0.057	A342607	0.056	0.040	A342607
o-Xylene	mg/kg	<0.053 (1)	<0.053	0.053	0.24	0.044	A342607	0.026	0.020	A342607
F1 (C6-C10)	mg/kg	<18 (2)	<18	18	<10	<10	A342607	<10	10	A342607
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	97	97	N/A	98	97	A342607	95	N/A	A342607
4-Bromofluorobenzene (sur.)	%	105	103	N/A	102	102	A342607	102	N/A	A342607
D10-o-Xylene (sur.)	%	105	99	N/A	115	106	A342607	119	N/A	A342607
D4-1,2-Dichloroethane (sur.)	%	108	111	N/A	105	108	A342607	109	N/A	A342607
O-TERPHENYL (sur.)	%	N/A	N/A	N/A	102	107	A342282	100	N/A	A341853
DDI - Damantahla Dataatian Li	:-									

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

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



Report Date: 2021/09/15

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

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

BV Labs ID		AFC346	AFC347	AFC348	AFC348		AFC349		
0 " 0 .		2021/08/23	2021/08/23	2021/08/23	2021/08/23		2021/08/23		
Sampling Date		14:39	14:45	14:54	14:54		14:55		
COC Number		644511-44-01	644511-44-01	644511-44-01	644511-44-01		644511-44-01		
	UNITS	TP21-40-04	TP21-40-06	TP21-41-02	TP21-41-02 Lab-Dup	QC Batch	TP21-41-04	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	140	12	200	N/A	A341853	150	10	A342282
F3 (C16-C34 Hydrocarbons)	mg/kg	330	<50	400	N/A	A341853	290	50	A342282
F4 (C34-C50 Hydrocarbons)	mg/kg	76	<50	<50	N/A	A341853	<50	50	A342282
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	A341853	Yes	N/A	A342282
Physical Properties	•								•
Moisture	%	13	18	13	13	A341991	11	0.30	A342274
Volatiles	•								
Xylenes (Total)	mg/kg	0.088	<0.045	<0.045	N/A	A340815	<0.045	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	11	<10	16	N/A	A340815	<10	10	A340815
Field Preserved Volatiles	•			•				•	-
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	N/A	A342607	<0.0050	0.0050	A342607
Toluene	mg/kg	0.090	<0.050	<0.050	N/A	A342607	0.11	0.050	A342607
Ethylbenzene	mg/kg	0.022	<0.010	<0.010	N/A	A342607	<0.010	0.010	A342607
m & p-Xylene	mg/kg	0.054	<0.040	<0.040	N/A	A342607	<0.040	0.040	A342607
o-Xylene	mg/kg	0.035	<0.020	<0.020	N/A	A342607	<0.020	0.020	A342607
F1 (C6-C10)	mg/kg	11	<10	16	N/A	A342607	<10	10	A342607
Surrogate Recovery (%)	•	•	•	•	•	•	•	•	•
1,4-Difluorobenzene (sur.)	%	96	96	98	N/A	A342607	99	N/A	A342607
4-Bromofluorobenzene (sur.)	%	104	104	101	N/A	A342607	102	N/A	A342607
D10-o-Xylene (sur.)	%	113	109	97	N/A	A342607	93	N/A	A342607
D4-1,2-Dichloroethane (sur.)	%	109	108	105	N/A	A342607	107	N/A	A342607
O-TERPHENYL (sur.)	%	106	103	103	N/A	A341853	105	N/A	A342282
DDI Danastalala Datastian Li									

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)

BV Labs ID		AFC350		AFC380	AFC381	AFC383	AFC384		
Compling Date		2021/08/23		2021/08/23	2021/08/23	2021/08/23	2021/08/23		
Sampling Date		14:56		15:16	15:17	15:30	15:31		
COC Number		644511-44-01		644511-45-01	644511-45-01	644511-45-01	644511-45-01		
	UNITS	TP21-41-05	QC Batch	TP21-51-01	TP21-51-03	TP21-52-01	TP21-52-03	RDL	QC Batch
Ext. Pet. Hydrocarbon	_	·	·	·	<u> </u>		·	<u> </u>	·
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	A342282	170	290	37	52	10	A341906
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	A342282	300	450	100	130	50	A341906
F4 (C34-C50 Hydrocarbons)	mg/kg	N/A	A342282	<50	77	<50	<50	50	A341906
Reached Baseline at C50	mg/kg	N/A	A342282	Yes	Yes	Yes	Yes	N/A	A341906
Physical Properties									
Moisture	%	35	A342274	12	13	10	11	0.30	A341982
Volatiles	•								
Xylenes (Total)	mg/kg	0.18	A340815	<0.045	<0.045	<0.045	0.082	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	13	A340815	<10	<10	<10	<10	10	A340815
Field Preserved Volatiles	•	•	-	•	•		•	ē	•
Benzene	mg/kg	0.016	A342607	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A342607
Toluene	mg/kg	0.22	A342607	<0.050	0.48	<0.050	0.085	0.050	A342607
Ethylbenzene	mg/kg	0.056	A342607	<0.010	<0.010	<0.010	0.018	0.010	A342607
m & p-Xylene	mg/kg	0.085	A342607	<0.040	<0.040	<0.040	0.054	0.040	A342607
o-Xylene	mg/kg	0.094	A342607	<0.020	0.031	<0.020	0.028	0.020	A342607
F1 (C6-C10)	mg/kg	13	A342607	<10	<10	<10	<10	10	A342607
Surrogate Recovery (%)	•		-		•			•	•
1,4-Difluorobenzene (sur.)	%	97	A342607	102	98	97	97	N/A	A342607
4-Bromofluorobenzene (sur.)	%	102	A342607	86	103	103	102	N/A	A342607
D10-o-Xylene (sur.)	%	100	A342607	74	98	112	97	N/A	A342607
D4-1,2-Dichloroethane (sur.)	%	109	A342607	76	110	109	108	N/A	A342607
O-TERPHENYL (sur.)	%	N/A	A342282	106	109	95	96	N/A	A341906
RDL = Reportable Detection Lir	mit			<del></del>		<del></del>	<del></del>		

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)

BV Labs ID		AFC386		AFC387	AFC387			AFC388		
Campling Date		2021/08/23		2021/08/23	2021/08/23			2021/08/23		
Sampling Date		10:39		10:54	10:54			13:55		
COC Number		644511-45-01		644511-45-01	644511-45-01			644511-45-01		
	UNITS	DUP V	RDL	DUP W	DUP W Lab-Dup	RDL	QC Batch	DUP X	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	39	10	75 (1)	<29	29	A341906	990	10	A341853
F3 (C16-C34 Hydrocarbons)	mg/kg	73	50	470 (1)	280	140	A341906	480	50	A341853
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	<140 (1)	<140	140	A341906	55	50	A341853
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	Yes	N/A	A341906	Yes	N/A	A341853
Physical Properties	•								•	•
Moisture	%	16	0.30	65	N/A	0.30	A341982	14	0.30	A341732
Volatiles										
Xylenes (Total)	mg/kg	<0.045	0.045	1.8	N/A	0.20	A340815	4.0	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<10	10	<30	N/A	30	A340815	210	10	A340815
Field Preserved Volatiles										
Benzene	mg/kg	<0.0050	0.0050	<0.015 (2)	N/A	0.015	A342607	0.092	0.0050	A342607
Toluene	mg/kg	<0.050	0.050	5.7 (3)	N/A	0.22	A342607	1.6	0.050	A342607
Ethylbenzene	mg/kg	<0.010	0.010	0.22 (3)	N/A	0.044	A342607	0.64	0.010	A342607
m & p-Xylene	mg/kg	<0.040	0.040	0.99 (3)	N/A	0.18	A342607	2.3	0.040	A342607
o-Xylene	mg/kg	0.028	0.020	0.76 (3)	N/A	0.087	A342607	1.7	0.020	A342607
F1 (C6-C10)	mg/kg	<10	10	<30 (2)	N/A	30	A342607	210	10	A342607
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	98	N/A	98	N/A	N/A	A342607	100	N/A	A342607
4-Bromofluorobenzene (sur.)	%	102	N/A	102	N/A	N/A	A342607	101	N/A	A342607
D10-o-Xylene (sur.)	%	106	N/A	107	N/A	N/A	A342607	140	N/A	A342607
D4-1,2-Dichloroethane (sur.)	%	106	N/A	108	N/A	N/A	A342607	108	N/A	A342607
O-TERPHENYL (sur.)	%	95	N/A	88	92	N/A	A341906	104	N/A	A341853

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.



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)

BV Labs ID		AFC389	AFC390		
Sampling Date		2021/08/23 15:45	2021/08/23		
COC Number		644511-45-01	644511-45-01		
	UNITS	DUP Y	TP21-22-02	RDL	QC Batch
Ext. Pet. Hydrocarbon	•			•	
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	800	10	A341853
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	660	50	A341853
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	120	50	A341853
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	A341853
Physical Properties					
Moisture	%	14	23	0.30	A341732
Volatiles	•			•	
Xylenes (Total)	mg/kg	<0.045	1.1	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<10	74	10	A340815
Field Preserved Volatiles	•	•	•	•	
Benzene	mg/kg	<0.0050	0.013	0.0050	A342607
Toluene	mg/kg	0.16	1.7	0.050	A342607
Ethylbenzene	mg/kg	<0.010	0.16	0.010	A342607
m & p-Xylene	mg/kg	<0.040	0.46	0.040	A342607
o-Xylene	mg/kg	<0.020	0.66	0.020	A342607
F1 (C6-C10)	mg/kg	<10	77	10	A342607
Surrogate Recovery (%)		•	•	•	
1,4-Difluorobenzene (sur.)	%	102	98	N/A	A342607
4-Bromofluorobenzene (sur.)	%	88	102	N/A	A342607
D10-o-Xylene (sur.)	%	78	115	N/A	A342607
D4-1,2-Dichloroethane (sur.)	%	75	106	N/A	A342607
D4-1,2-Dicilior detriane (3ul.)					A341853



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)

BV Labs ID		AFC309	AFC321	AFC323	AFC342	AFC350	AFC350		
Sampling Date		2021/08/23	2021/08/23	2021/08/23	2021/08/23	2021/08/23	2021/08/23		
Sampling Date		10:52	10:53	10:58	14:14	14:56	14:56		
COC Number		644511-42-01	644511-43-01	644511-43-01	644511-44-01	644511-44-01	644511-44-01		
	UNITS	TP21-36-02	TP21-36-03	TP21-36-06	TP21-39-05	TP21-41-05	TP21-41-05 Lab-Dup	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	320	300	130	41	150 (1)	190	10	A342281
F3 (C16-C34 Hydrocarbons)	mg/kg	430	370	75	600	490	N/A	71	A340819
F3A (C16-C22)	mg/kg	270	190	75	57	150 (1)	160	50	A342281
F3B (C22-C34)	mg/kg	160	180	<50	540	340	450	50	A342281
F2% (BIC)	mg/kg	NC	NC	NC	7.0	31	N/A	N/A	A340819
F4 (C34-C50 Hydrocarbons)	mg/kg	53	64	<50	190	94	180	50	A342281
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A342281
Surrogate Recovery (%)									·
O-TERPHENYL (sur.)	%	101	93	93	92	94	98	N/A	A342281

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Matrix spike exceeds acceptance limits due to matrix interference.



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

1.0°C
0.7°C
0.0°C
1.3°C
1.0°C
4.0°C
0.0°C
-1.0°C
0.0°C
1.3°C
0.7°C

Version #3: Report reissued to include results for missing F2 data on sample TP21-39-05 (AFC342) 20210915

Sample AFC301 [TP21-02-02]: Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil. Sample was analyzed past method specified hold time for CCME Hydrocarbons (F2-F4 in soil).

Sample AFC350 [TP21-41-05]: Sample was analyzed past method specified hold time for CCME Hydrocarbons (F2-F4)+F3A/B in soil.

Sample AFC382 [TP21-51-06] : Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil.

Sample AFC385 [TP21-52-05] : 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 #: C164989 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/15 Client Project #: 20368099-6000-1001

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

Territories

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

Sampler Initials: AB

## **OUALITY ASSURANCE REPORT**

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A341732	KLG	Method Blank	Moisture	2021/09/04	<0.30		%	40
A341732	KLG	RPD	Moisture	2021/09/04	6.2		%	20
A341853	MHF	Matrix Spike	O-TERPHENYL (sur.)	2021/09/05		120	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/05		111	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/05		104	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/05		102	%	60 - 140
A341853	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/09/05		129	%	60 - 140
		·	F2 (C10-C16 Hydrocarbons)	2021/09/05		119	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/05		111	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/05		109	%	60 - 140
A341853	MHF	Method Blank	O-TERPHENYL (sur.)	2021/09/05		98	%	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	
A341853	MHF	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/05	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/05	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/05	NC		%	40
A341906	MHF	Matrix Spike [AFC387-01]	O-TERPHENYL (sur.)	2021/09/05		107	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/05		78	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/05		71	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/05		87	%	60 - 140
A341906	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/09/05		114	%	60 - 140
		·	F2 (C10-C16 Hydrocarbons)	2021/09/05		95	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/05		95	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/05		97	%	60 - 140
A341906	MHF	Method Blank	O-TERPHENYL (sur.)	2021/09/05		94	%	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	
A341906	MHF	RPD [AFC387-01]	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
A341982	KLG	Method Blank	Moisture	2021/09/04	< 0.30		%	
A341982	KLG	RPD	Moisture	2021/09/04	3.6		%	20
A341991	WLE	Method Blank	Moisture	2021/09/04	<0.30		%	
A341991	WLE	RPD [AFC348-01]	Moisture	2021/09/04	0.78		%	20
A342274	ARV	Method Blank	Moisture	2021/09/05	< 0.30		%	
A342274	ARV	RPD	Moisture	2021/09/05	8.6		%	20
A342276	ARV	Method Blank	Moisture	2021/09/05	< 0.30		%	
A342276	ARV	RPD [AFC322-01]	Moisture	2021/09/05	2.7		%	20
A342281	MHF	Matrix Spike [AFC350-01]	O-TERPHENYL (sur.)	2021/09/07		104	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		56 (1)	%	60 - 140
			F3A (C16-C22)	2021/09/07		52 (1)	%	60 - 140
			F3B (C22-C34)	2021/09/07		83	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		85	%	60 - 140
A342281	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		101	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		91	%	60 - 140
			F3A (C16-C22)	2021/09/07		84	%	60 - 140
			F3B (C22-C34)	2021/09/07		85	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		83	%	60 - 140
A342281	MHF	Method Blank	O-TERPHENYL (sur.)	2021/09/07		98	%	60 - 140



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
			F2 (C10-C16 Hydrocarbons)	2021/09/07	<10		mg/kg	
			F3A (C16-C22)	2021/09/07	<50		mg/kg	
			F3B (C22-C34)	2021/09/07	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50		mg/kg	
A342281	MHF	RPD [AFC350-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	22		%	40
			F3A (C16-C22)	2021/09/07	5.2		%	40
			F3B (C22-C34)	2021/09/07	27		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	NC		%	40
A342282	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/07		113	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		95	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		96	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		96	%	60 - 140
A342282	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		107	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		88	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		87	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		89	%	60 - 140
A342282	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		95	%	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	
A342282	GG3	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/08	18		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/08	26		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/08	27		%	40
A342301	GG3	Matrix Spike [AFC305-01]	O-TERPHENYL (sur.)	2021/09/07		105	%	60 - 140
		,	F2 (C10-C16 Hydrocarbons)	2021/09/07		NC	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		90	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		94	%	60 - 140
A342301	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		115	%	60 - 140
		-r	F2 (C10-C16 Hydrocarbons)	2021/09/07		96	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		101	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		94	%	60 - 140
A342301	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		100	%	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	
A342301	GG3	RPD [AFC305-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	6.7		%	40
7.0 .2002	000	2 [, 0000 02]	F3 (C16-C34 Hydrocarbons)	2021/09/07	13		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	15		%	40
A342606	DO1	Matrix Spike [AFC300-02]	1,4-Difluorobenzene (sur.)	2021/09/07	13	90	%	50 - 140
A342000	D01	Matrix Spike [Ai e300 02]	4-Bromofluorobenzene (sur.)	2021/09/07		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		99	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		106	%	50 - 140
			Benzene	2021/09/07		92	%	50 - 140
			Toluene	2021/09/07		91	%	50 - 140
			Ethylbenzene	2021/09/07		100	%	50 - 140
			m & p-Xylene	2021/09/07		96	% %	50 - 140 50 - 140
			· <i>'</i>	2021/09/07				
			o-Xylene 51 (C6-C10)			100	% %	50 - 140 60 - 140
A242C0C	DO1	Cniked Blank	F1 (C6-C10)	2021/09/07		94	%	60 - 140
A342606	חחד	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		85	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		90	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		81	%	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: AB

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D4-1,2-Dichloroethane (sur.)	2021/09/07		100	%	50 - 140
			Benzene	2021/09/07		76	%	60 - 130
			Toluene	2021/09/07		82	%	60 - 130
			Ethylbenzene	2021/09/07		86	%	60 - 130
			m & p-Xylene	2021/09/07		83	%	60 - 130
			o-Xylene	2021/09/07		76	%	60 - 130
			F1 (C6-C10)	2021/09/07		100	%	60 - 140
A342606	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		97	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		99	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		105	%	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	
A342606	DO1	RPD [AFC300-02]	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
A342607	DO1	Matrix Spike [AFC342-02]	1,4-Difluorobenzene (sur.)	2021/09/07		89	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		101	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		104	%	50 - 140
			Benzene	2021/09/07		93	%	50 - 140
			Toluene	2021/09/07		92	%	50 - 140
			Ethylbenzene	2021/09/07		102	%	50 - 140
			m & p-Xylene	2021/09/07		96	%	50 - 140
			o-Xylene	2021/09/07		100	%	50 - 140
			F1 (C6-C10)	2021/09/07		99	%	60 - 140
4342607	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		83	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		91	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		83	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		102	%	50 - 140
			Benzene	2021/09/07		79	%	60 - 130
			Toluene	2021/09/07		86	%	60 - 130
			Ethylbenzene	2021/09/07		88	%	60 - 130
			m & p-Xylene	2021/09/07		87	%	60 - 130
			o-Xylene	2021/09/07		79	%	60 - 130
			F1 (C6-C10)	2021/09/07		98	%	60 - 140
A342607	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		96	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		82	%	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	



BV Labs Job #: C164989 Report Date: 2021/09/15 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(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
		. ,,	o-Xylene	2021/09/07	<0.020	,	mg/kg	
			F1 (C6-C10)	2021/09/07	<10		mg/kg	
A342607	DO1	RPD [AFC342-02]	Benzene	2021/09/07	0.48		%	50
			Toluene	2021/09/07	5.9		%	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
A343327	PKL	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/08		97	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		114	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		102	%	50 - 140
			Benzene	2021/09/08		111	%	50 - 140
			Toluene	2021/09/08		115	%	50 - 140
			Ethylbenzene	2021/09/08		118	%	50 - 140
			m & p-Xylene	2021/09/08		119	%	50 - 140
			o-Xylene	2021/09/08		119	%	50 - 140
			F1 (C6-C10)	2021/09/08		93	%	60 - 140
A343327	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/08		99	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		104	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		105	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		107	%	50 - 140
			Benzene	2021/09/08		102	%	60 - 130
			Toluene	2021/09/08		96	%	60 - 130
			Ethylbenzene	2021/09/08		84	%	60 - 130
			m & p-Xylene	2021/09/08		87	%	60 - 130
			o-Xylene	2021/09/08		76	%	60 - 130
			F1 (C6-C10)	2021/09/08		84	%	60 - 140
A343327	PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/08		96	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		104	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		105	%	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	
A343327	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		%	40
A346245	RIL	Method Blank	Moisture	2021/09/09	<0.30		%	
A346245	RIL	RPD	Moisture	2021/09/09	3.4		%	20
A346257	EC0	Matrix Spike	O-TERPHENYL (sur.)	2021/09/09		88	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/09		86	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/09		84	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/09		80	%	60 - 140
A346257	EC0	Spiked Blank	O-TERPHENYL (sur.)	2021/09/09		90	%	60 - 140



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
			F2 (C10-C16 Hydrocarbons)	2021/09/09		84	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/09		87	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/09		81	%	60 - 140
A346257	EC0	Method Blank	O-TERPHENYL (sur.)	2021/09/09		91	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/09	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/09	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/09	<50		mg/kg	
A346257	EC0	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/09	12		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/09	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/09	NC		%	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 (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.



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

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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	Bureau Veritas Laboratories 4000 19st N.E. Calgary Alberta Canada TZE 6PB Tel (403) 291-3077 Toll-free 800-563-5256 Fax.(403) 291-9468 www.bi/labs.com	la T2E 6P8 Tel:(403) 291-	3077 Toll-free 800-563	-6266 Fax:(403)	291-9468 ww	w bylabs.con	-	S					5	CHAIN OF CUSTODY RECORD	Page of
G. P. Salar Market	INVOICE TO:	_		REPORT TO						PROJECT INFORMATION:	NFORMAT	ON:		Laboratory Use Only:	
Company Name. #254 GOL	#254 GOLDER ASSOCIATES LTD.	Company Name:	me: #6340 GOLDER ASSOCIATES LTD	DER ASSOC	IATES LT	0		Quotation #		C00480				BV Labs Job#:	Bottle Order #:
- 1	ACCOUNTS PAYABLE	Attention	Aurelie Belav	ance				P.O. #		203680	20368099-7000-1007	1001		4	
	2800, 700 -2nd Street SW	Address	2800, 700 -2	nd Street SW				Project		203680	20368099-6000-1001	1001		(164981	644511
CALGARY			CALGARY A	3 T2P 2W2				Project Name	9					:#: COC #:	Project Manager:
Tel (905) 567-6	(905) 567-6100 Ext: 1167 Fax (403) 299-5606	06 Tel:	(403) 299-56	00	Fax			Site #							
Email: canadaacc	canadaaccountspayableinvoices@golder.com	Email	abellavance@golder.com	@golder.com				Sampled By						C#644511-42-01	Carmen McKay
Regulatory Critaria:		Spec	Special Instructions				ANALYSIS	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	(PLEASE	BE SPECIF	(C)			Turnaround Time (TAT) Required:	
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				Field Filte	bətslugə		CALE An 2+F3B) in 3te / nitra	J on ICP	s X3T8	e Water		n Water b	əldms2 t	Job Specific Rush TAT (if applies to entire submission) Date Required. Rush Confirmation Number:	
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Clear July	LA US H Belfavance 21/1	21/08/24 8:34	after o	RECEIVED BY: (Signature/Frint)	C: (Signature/	b read		2021   09   0	(O)	Time / ('t t')	1	# jars used and not submitted	Time Sensitive	Laboratory Use Only Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
														+CTR	Yes
* UNLESS OTHERWISE AGREED TO IN WWW.BYLABS.COMTERMS-AND-CON * IT is THE RESPONSIBILITY OF THE R	- UNICESS OTHERING YOU WINTTHING, 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 ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYSTICAL TAT DELAYS.	STODY IS SUBJECT TO BY L	ABS' STANDARD TERMS A	IND CONDITIONS.	SIGNING OF T	HIS CHAIN OF	CUSTODY DOC	CUMENT IS ACK	VOWLEDGME	ENT AND ACC	SEPTANCE	F OUR TERM	S WHICH AF	E AVAILABLE FOR VIEWING AT While; BV Labs	abs Yellow: Client
" ALL SAMPLES ARE HELD FOR 60 DA	** ALL SAMPLES ARE HELD FOR 50 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER	STS CONTACT YOUR PROJEC	T MANAGER		West in										

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Bureau Veritas Laboratories 4000 19st N.E. Galgary. Alberta Canada 12E Katal A.K.S.	Bureau Verius Laboratories 4000 (9st N.E. Calgary, Alberta Canada T2E 6P8 Tel.(403) 291-3077 Toll-free 800-563-6266 Fax.(403) 291-9468 www.bvlabs.com	(403) 291-9468 www bulabs.com						CHAIN O	CHAIN OF CUSTODY RECORD	7/1
INVOICE TO:	REPORT TO	тто:			PROJECT INFORMATION	<b>IFORMATI</b>	:No		Laboratory Use Only:	-
Company Name: #254 GOLDER ASSOCIATES LTD.	Company Name: #6340 GOLDER ASSOCIATES LTD	SOCIATES LTD.	Ouot	Onotation #	C00480					Bottle Order #:
			P.O.#	11:	2036809	20368099-7000-100	100		00001110	
Addiress: 2800, 700 -2nd Street SW	Address 2800, 700 -2nd Street	SW	Project	t	2036809	20368099-6000-100	100		こってい	644511
CALGARY AB T2P 2W2	CALGARY AB T2P 2V	V2	Proje	Project Name					COC #:	Project Manager:
Tel: (905) 567-6100 Ext: 1167 Fax: (403) 299-5606	Tel: (403) 299-5600	Fax	Site #	44						E 000
Email: canadaaccountspayableinvoices@golder.com	Email: abellavance@golder.com	сош	Samp	Sampled By:					C#644511-43-01	Carmen McKay
Regulatory Criteria:	Special Instructions		ALYSIS REQU	ESTED (PLEA	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	()		_	Turnaround Time (TAT) Required:	
ATI COME  Other		iltered ? ( Y / N )  Metals - Soils  The in Soil  Analysis in soil		P using Fusion rue Barium) and F1-F2 in	) t	etals (CCME/AT1)	L by GC/MS		Please provide advance notice for rush projects Regular (Standard) TAT:  Regular (Standard) TAT:  Standard TAT 5-7 Working days for most lests.  Standard TAT 5-7 Working days for most lests.  Standard TAT for certain lests are > 5 days - contact your Project Manager for deals.  Job Specific Rush TAT (if applies to entire submission)	its  Wr Project Managar for
SAMPTES MUST BE KEPT COOL ( < 10°C.) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LAB	G UNTIL DELIVERY TO BY LABS	Regulat BTEX a s)	in \ ətsd	T) noitos	etsW əni	M batelu solved	etsVV ni		Date Required: Rush Confirmation Number (call lab for #)	
Sample Barcade Label Sample (Location) (dentification	Date Sampled Time Sampled Matrix	AT1 (Vial		CCN	Wate Juo A			# of Bottles	Comments	
1 MA1 1921-36-03	234M/121 1053 SOIL	>						W		
2 TPD -36-05	h50)	>						W		
3 TP31-36-06	1058	>						M		
10-45-1647	1116	>						~	eceived	knife
40-45-169T	9)11	>						3	DY. J. MOUTE	F
· + 181-37-06	= =====================================	\ \ \						2	AUG 3 1 2021	
791-28-03	9251	>						M	Jee ACTK	
8 TP31-28-04	1347	>						M	Temp: /	1
50-82- Kd	1355 7	7						~		
10-85-1897 July -28-07	1402 V	>						2		
RELINQUISHED BY: (Signature/Print) Date: (YYMM/DD)	Time 7:30 Q1	RECEIVED BY: (Signature/Print)	Date	Date: (YY/MM/DD)	Time	# jars used and not submitted	sed and mitted	Time Sensitive	Tamparatura (PC) on Revent	Custody Seal Infact on Cooler?
		resident.	3	0 0	2.5				CTR	No No
* UNIGNESS OFFERNIES OF STANDARD AS AGREED TO BY VERSUE STANDARD TERMS WHICH ARE AGUIGNED TO BY LABS" STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DECUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AGUIGNOY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY RECORD. MAY RESULT IN ANALYTICAL TAT DELAYS.  ** ALL SAMPLES ARE HELD FOR 50 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER.	Y IS SUBJECT TO BY LABS' STANDARD TERMS AND CONDITY FOR CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTOD ONTACT YOUR PROJECT MANAGER	ONS. SIGNING OF THIS CHAIN OF CUSTO BY MAY RESULT IN ANALYTICAL TAT DEL	DDY DOCUMENT AYS.	IS ACKNOWLE	GMENT AND ACC	EPTANCE OF	OUR TERMS V	VHICH ARE AVAIL	IBLE FOR VIEWING AT WHITE: BV Labs	Yellow Client

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	Bureau Veritas Laboratories 4000 19st N.E., Calgary, Alberta Canada 12E 6P8 Tel.(403) 291-3077 Toll-free 800-563-5286 Fax.(403) 291-3468 www.bvlabs.com	2E 6P8 Tel:(403) 291-	3077 Toll-free 800-563-	6266 Fax (403)	291-9468 www	bvlabs.com						0	CHAIN OF CUSTODY RECORD	7/5
VERITAS	INVOICE TO:			REPORT TO:					PROJ	PROJECT INFORMATION	IATION:		Laboratory Use Only	Only:
Company Name: #254 GOL	#254 GOLDER ASSOCIATES LTD.	Company Name:	#6340	GOLDER ASSOCIATES LTD	ATES LTD		ā	Ountation #	000	C00480			BV Labs Job #:	Bottle Order #:
. 2	ACCOUNTS PAYABLE	Attention:		ance			P.C	P.O. #.	203	20368099-7000-100	1001-00		7	
	2800, 700 -2nd Street SW	Address:	2800, 700 -2n	d Street SW			Pro	Project	203	20368099-6000-1001	1001-00		((64984	644511
			CALGARY AE	3 T2P 2W2			Pro	Project Name					COC#:	Project Manager:
Tel: (905) 567-6	(905) 567-6100 Ext: 1167 Fax (403) 299-5606	Tel:	(403) 299-560	00	Fax		Sife	Site #:						John Common
Email: canadaacco	canadaaccountspayableinvoices@golder.com	Email:	abellavance@golder.com	2golder.com			Sar	Sampled By:					C#644511-45-01	Carmen McNay
Regulatory Criteria:		Spec	Special Instructions			AN	IALYSIS REQ	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	EASE BE SP	ECIFIC)			Turnaround Time (TAT) Required:	equired:
ATI				(	200	1100				(tTA			Please provide advance notice for rush projects Regular (Standard) TAT:	
CCME				N/A)	S - sli	S ui 4		isuA (mui		CWE	SW/		(will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests	
Other				red ?	and traperopoli	sisyls	ət	Bar		O) ele	oy GC	•	Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details	contact your Project Manager for
				Filte		uA∃	ertin	True		stəM		əldw	Job Specific Rush TAT (if applies to entire submission. Date Required:	ion)
SAMPLES MIET	A NATIONAL STATE OF STATE OF STATE OF SAMBLING HATH DELIVED OF SAMBLING HATH DELIVED OF SAMBLING HATH.	NC HATH DELINEDY	TO BY LABS	Field		(	\ əte	noit				is2 b	n Number:	
SAWITES MISS	SE KETT COCK ( > 10 C ) FROM TIME OF SAMIFLI	NG ONLIE DELIVERY	S BY LABS	he he	- 1021-9A	Vials	ydjn	xtrac	later	nbə		ətim	(c) the Bottles	(call lab for #)
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix		()	S	3	M	В		İΠ		
1018	10-15-1801	16/1/1488	9151	SOIL		>							3	
2	TP31-5-1-03	-	1217	-		>							3	
E	TO21-5-1-06		1518			>							3	
4	10-65-1691		(530			>							S Received in Yellowknife	ellowknife
2	th21-52-03		1531			/							3 (38:30)	130 Ar
9	MAI - 52-05		1546			>							AUG 51	2021
7	人dna 中田		1039			>							3	
8	M JMG ART		H 501			<b>&gt;</b>							S Temp:	1
6	x dro last		1355	1		っ							~	
)	THE DUP	>	1645	>	1 11	>							3	
· RELINQUISHED	* RELINQUISHED BY: (Signature/Print)  Date: (YY/MM/DD)	MM/DD) Time	9	RECEIVED BY: (Signature/Print)	(Signature/Pr	int)	Da	YYIMM	- 1		# jars used and not submitted		Laboratory Use Only	Control of the test of the test of
3	A-Belliavalle 21/08/25	0	3	awit	12 DZ	576a4	non	110010	2	3			Temperature (°C) on Receipt	Custody Seal Intact on Cooler of Yes No
· UNLESS OTHERWISE AGREED TO IN	- UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS' STANDA WWW.HU ARS. COMITERMS.AMDCONDITIONS.	DY IS SUBJECT TO BV L	ABS' STANDARD TERMS A	ND CONDITIONS.	SIGNING OF THE	S CHAIN OF CUST	ору росимен	NT IS ACKNOW	EDGMENT A	ID ACCEPTAN	CE OF OUR T	ERMS WHICH	ING AT	White: BV Labs Yellow: Client
"IT IS THE RESPONSIBILITY OF THE R "ALL SAMPLES ARE HELD FOR 60 DA	* IT STHE 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.	IN OF CUSTODY RECORI CONTACT YOUR PROJEC	). AN INCOMPLETE CHAIN ST MANAGER	OF CUSTODY MA'	RESULT IN AN	ALYTICAL TAT DEI	AYS.							

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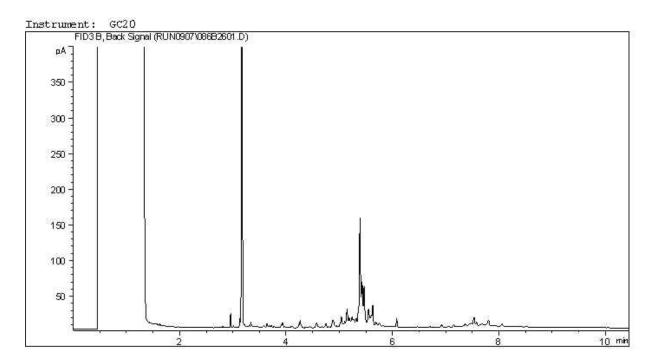
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

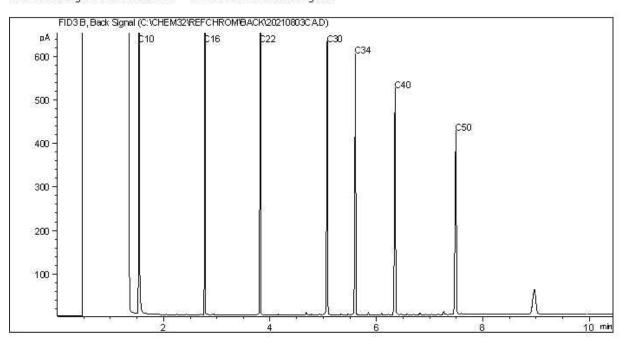
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-01-02

# 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: TP21-02-02

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

Instrument: GC13

FID1A Front Signal(RUN0909024F2501.D)

pA

350

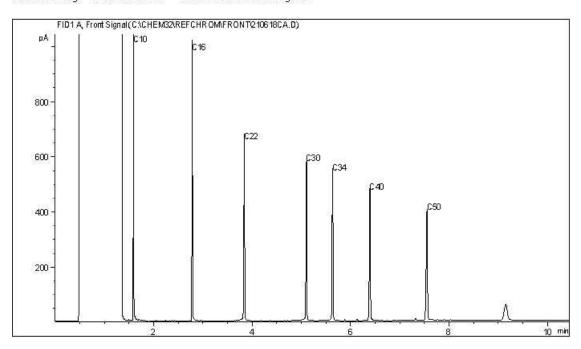
250

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+

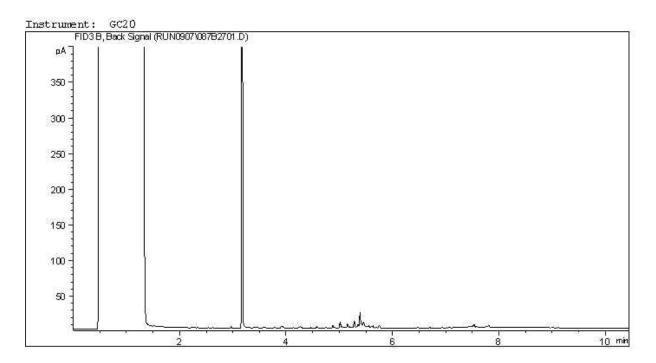
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

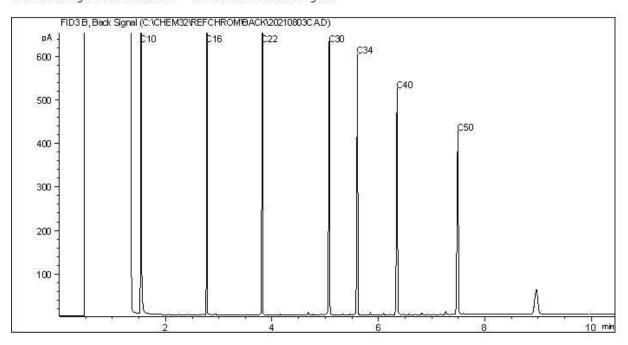
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-02-03

# 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	ш	C40
Kerosene:	c7	_	C16	Crude Oils:	C3	_	C60+

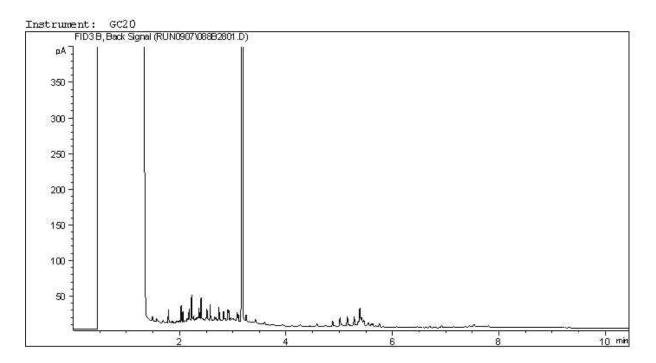
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

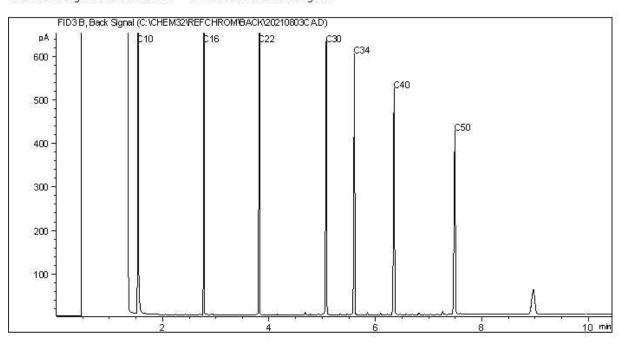
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-03-01

# **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+

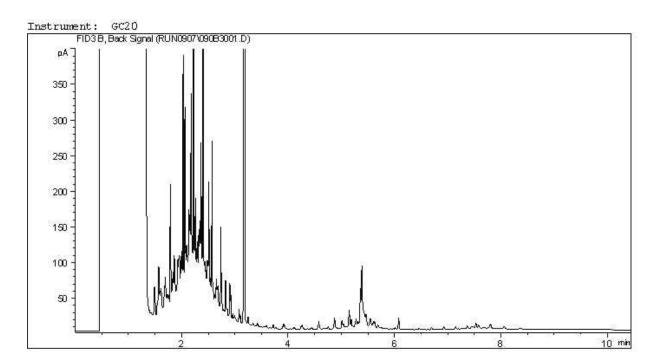
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

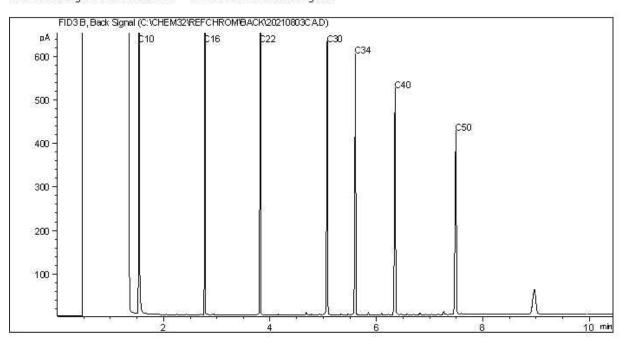
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-03-03

# 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		C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

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

Client ID: TP21-03-06

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

Instrument: GC6

FID2B, (RUN000905981201.D)

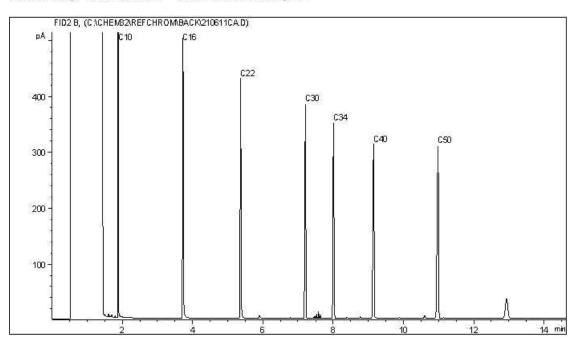
9A

400

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+

BV Labs Job #: C164989 Report Date: 2021/09/15

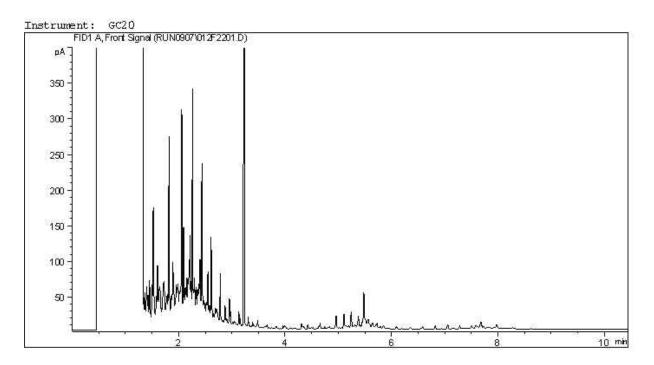
Report Date: 2021/09/15 BV Labs Sample: AFC305 Lab-Dup GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

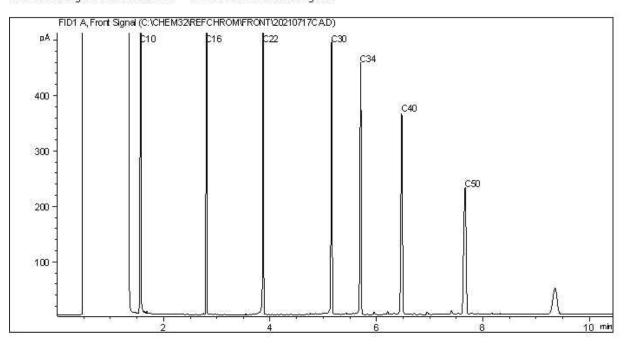
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-03-06

# **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	1	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

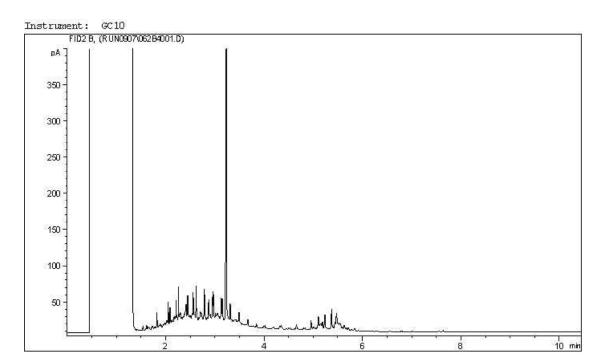
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

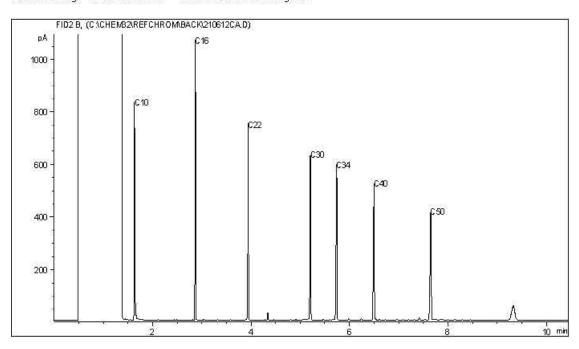
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-35-02

# **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+

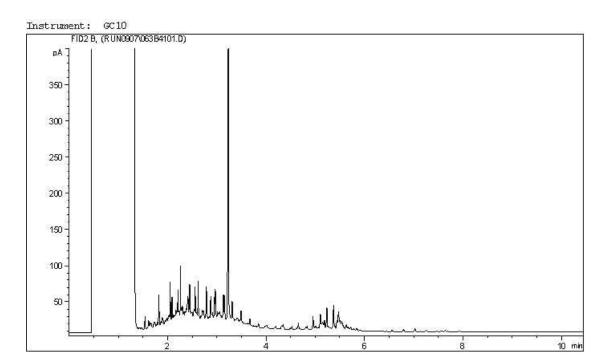
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

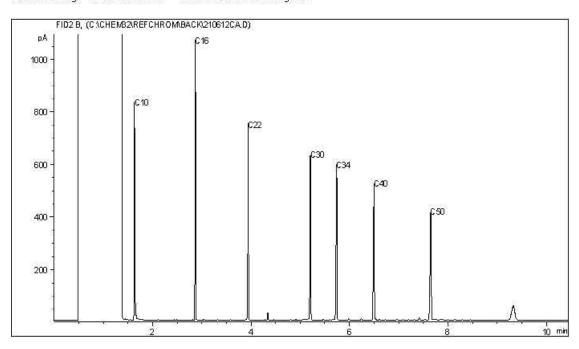
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-35-04

# **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+

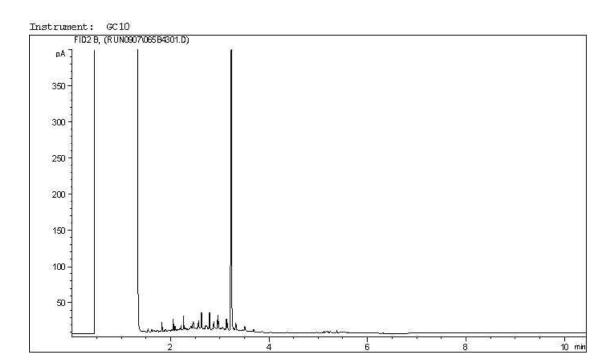
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

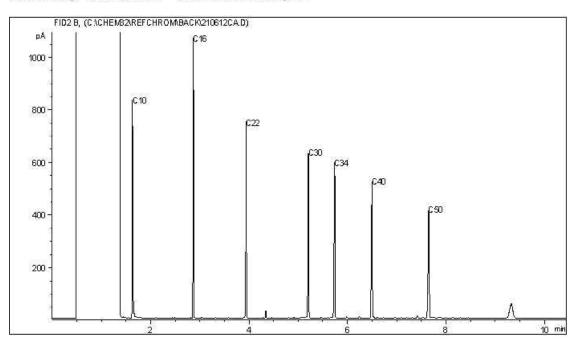
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-35-05

# **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+

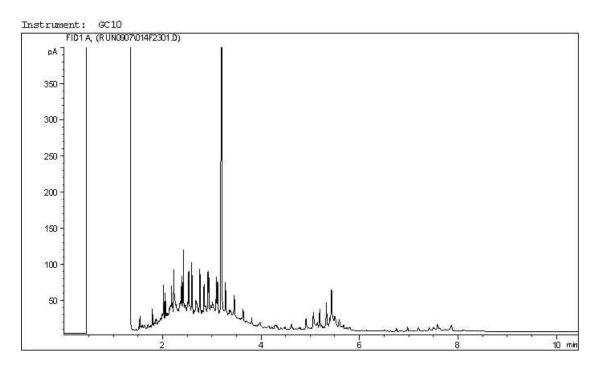
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

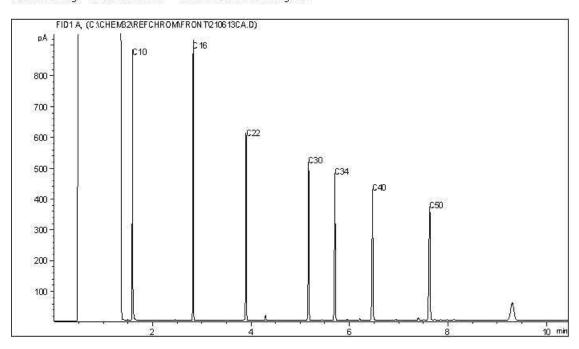
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-36-02

# 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+

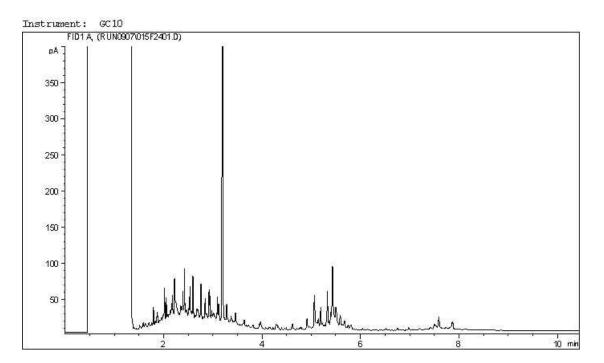
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

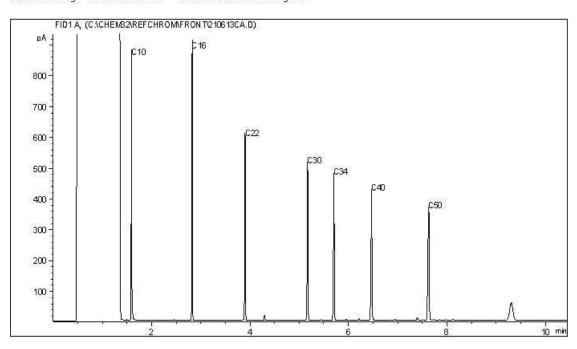
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-36-03

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

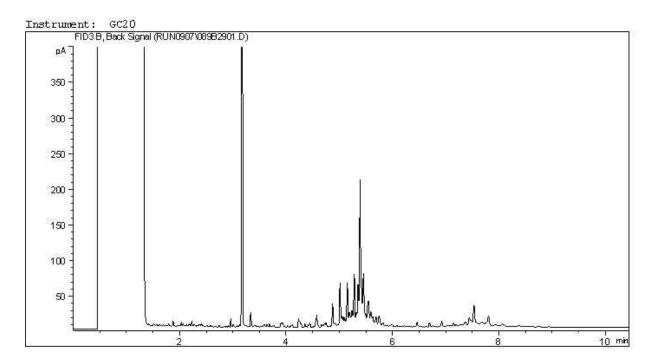
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

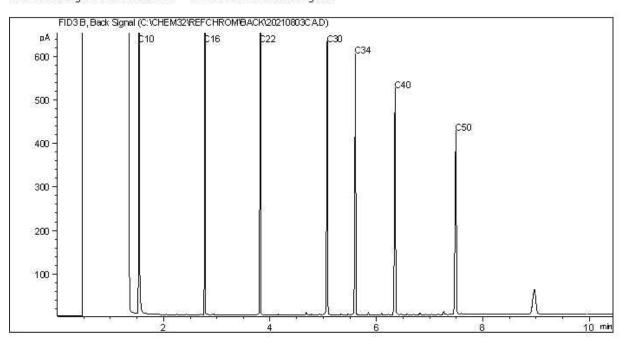
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-36-05

# 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+

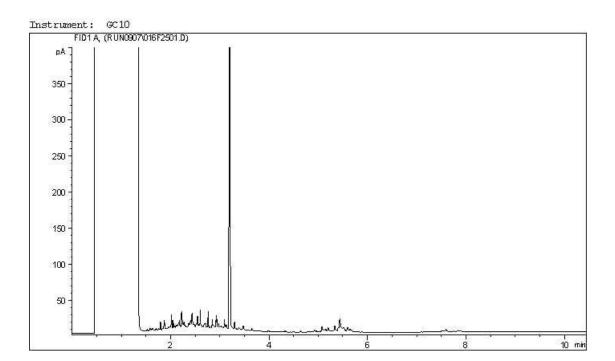
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

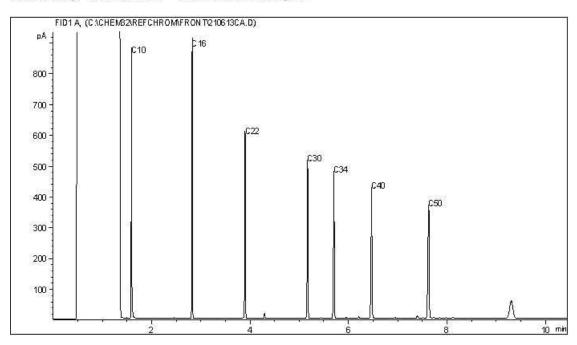
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-36-06

# 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+

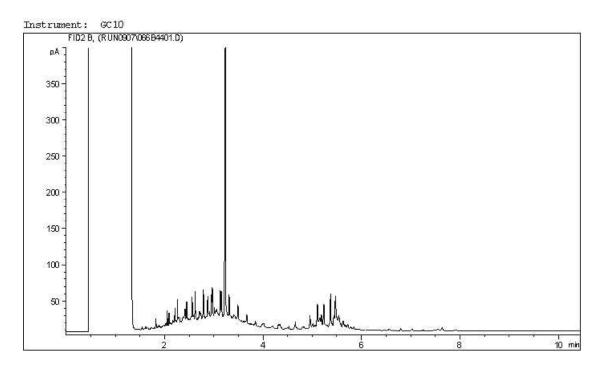
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

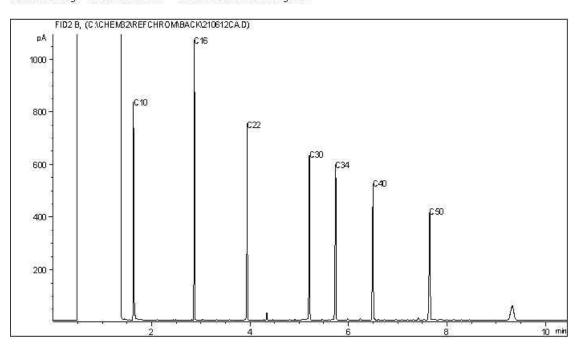
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-37-01

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



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	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: TP21-37-04

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

Instrument: GC10

FID2B, (RUN0907067B-501.D)

pA

390

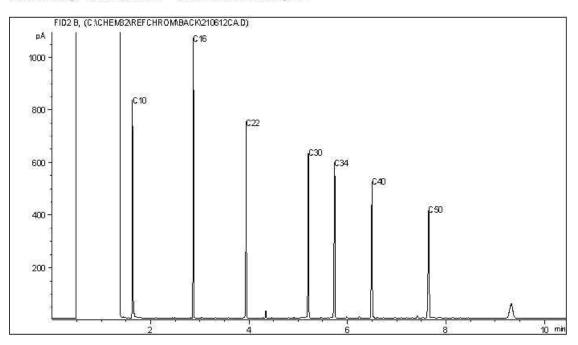
250

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: TP21-37-06

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

Instrument: GC10

FID2 B, (RUNGE070688B4501.0)

pA

330

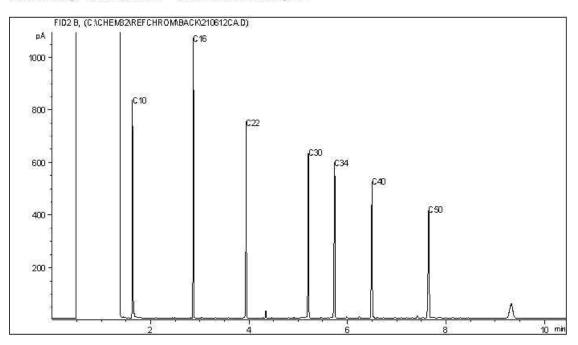
250

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+

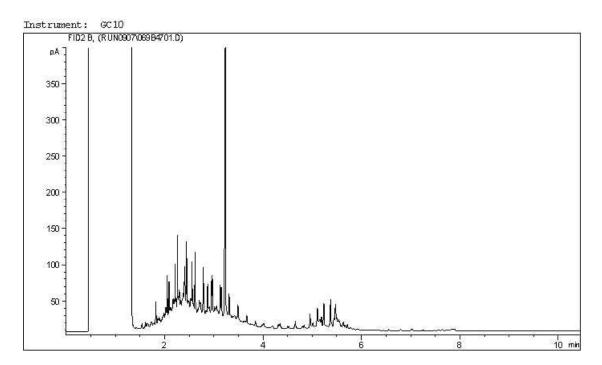
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

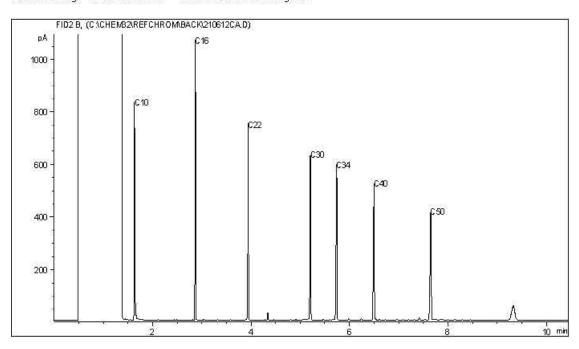
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-38-03

# 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+

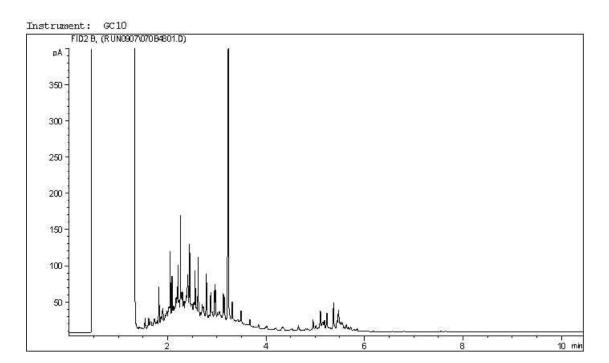
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

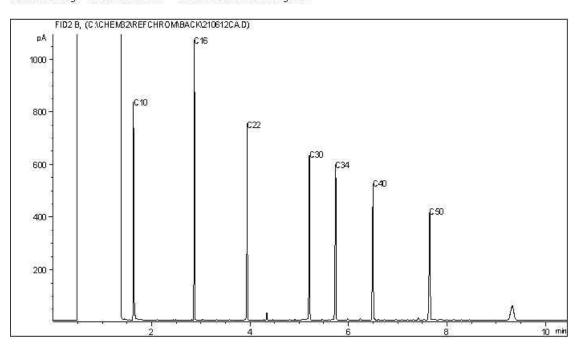
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-38-04

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



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

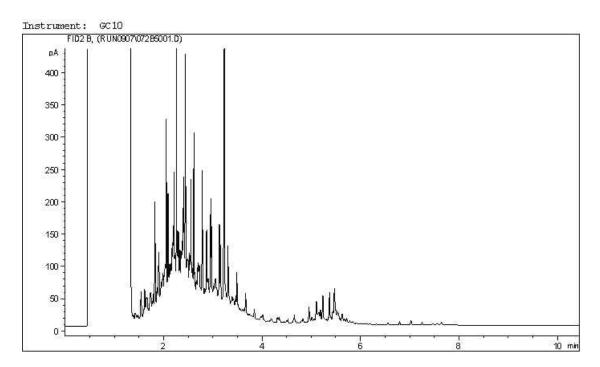
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Client Project #: 20368099-6000-1001

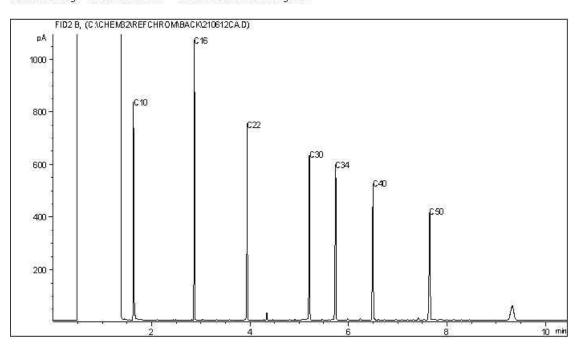
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-38-05

# **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+

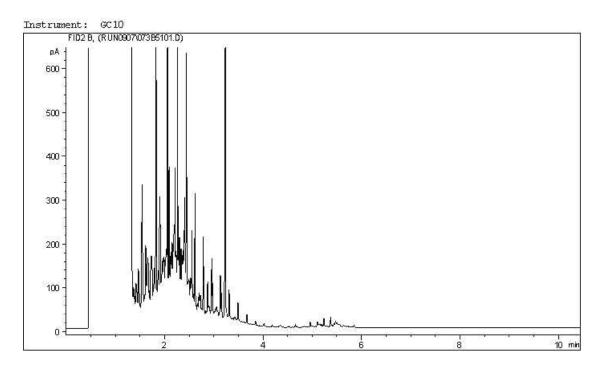
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Client Project #: 20368099-6000-1001

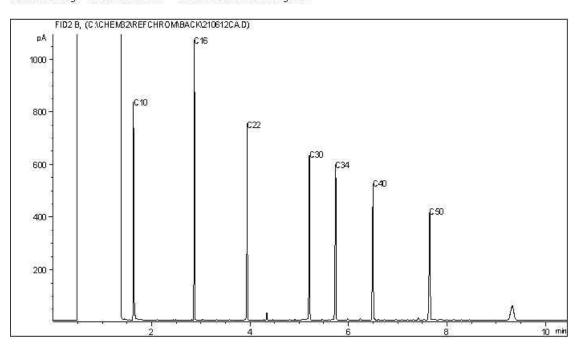
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-38-07

# **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+

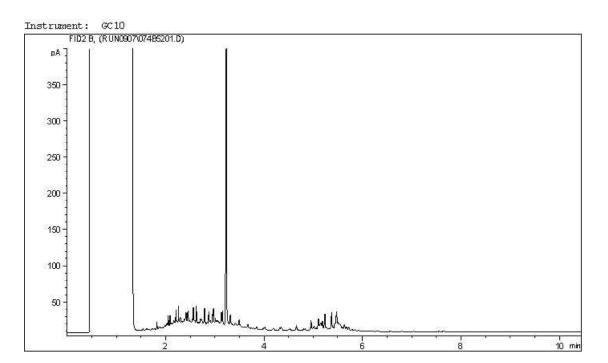
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

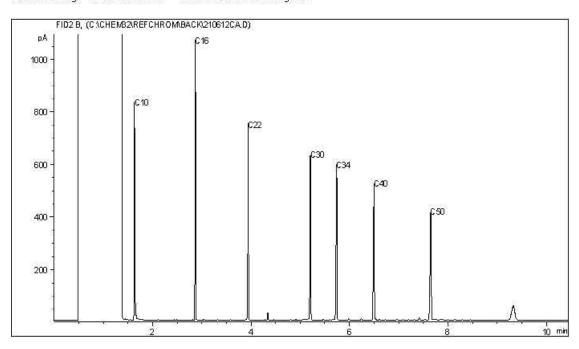
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-39-03

# **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+

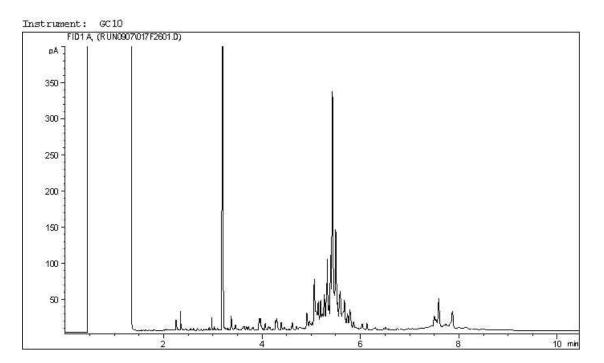
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Client Project #: 20368099-6000-1001

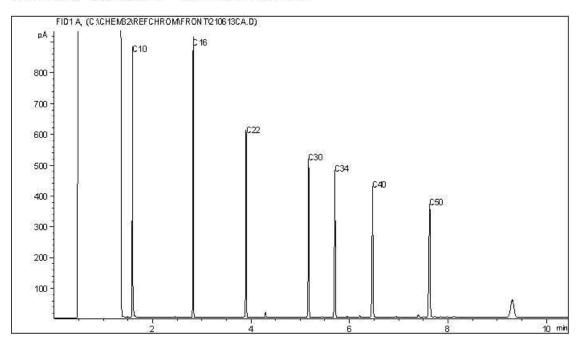
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-39-05

# 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+

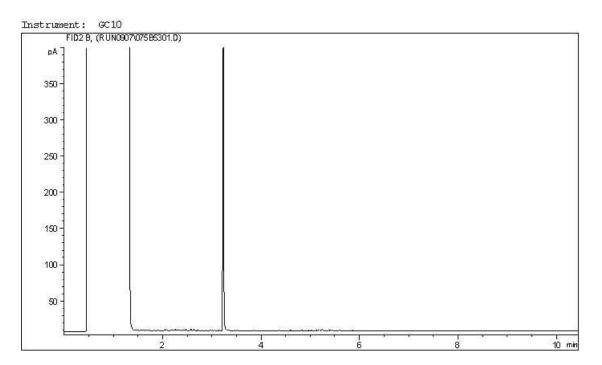
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Client Project #: 20368099-6000-1001

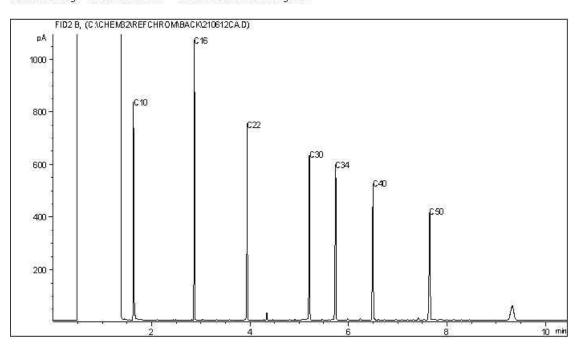
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-39-06

# **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+

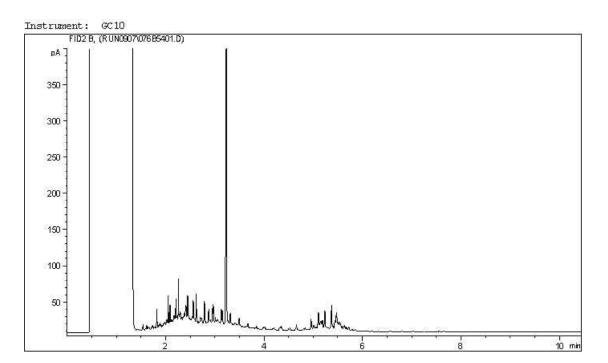
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Client Project #: 20368099-6000-1001

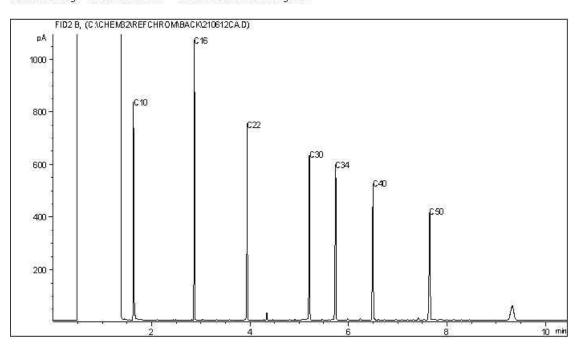
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-39-04

# **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+

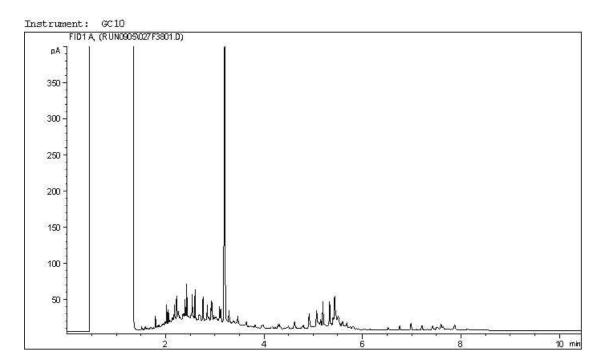
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Client Project #: 20368099-6000-1001

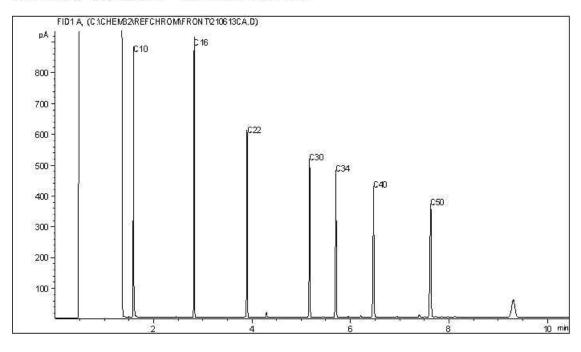
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-40-02

# **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+

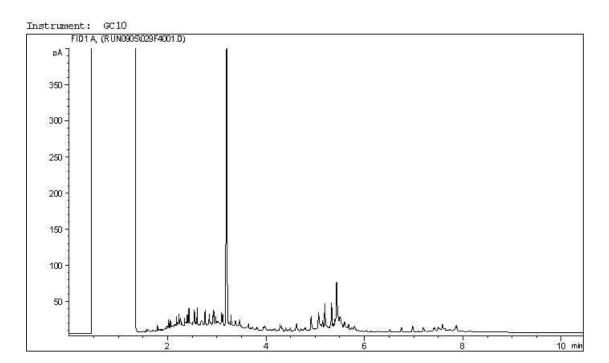
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

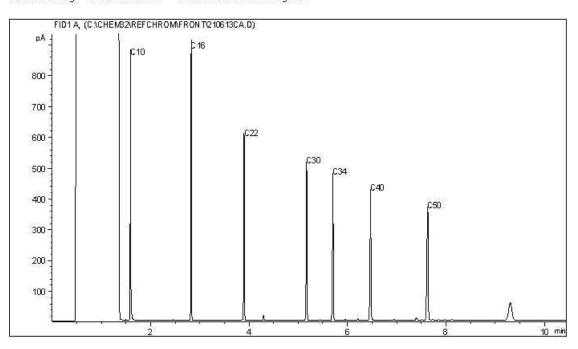
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-40-04

# **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+

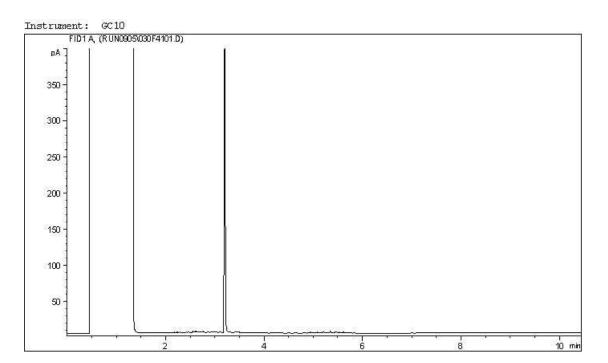
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

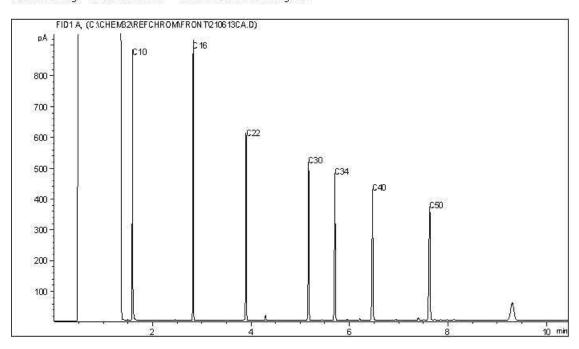
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-40-06

# **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+

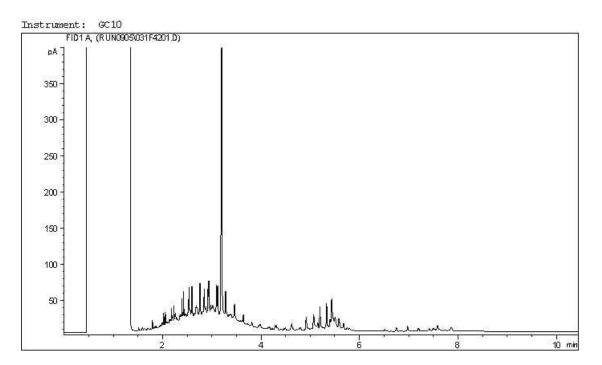
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

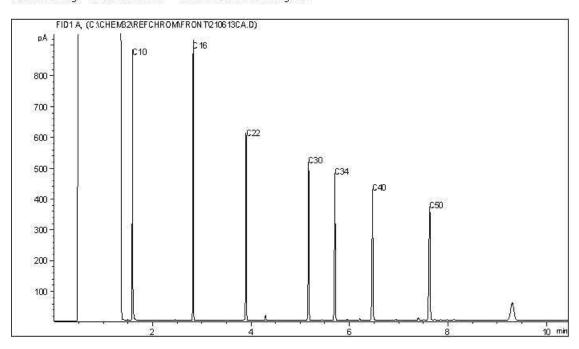
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-41-02

# CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

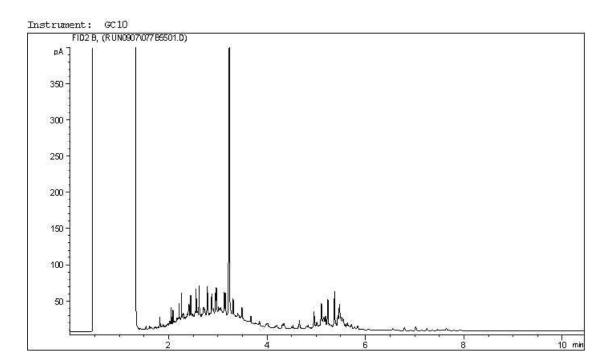
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

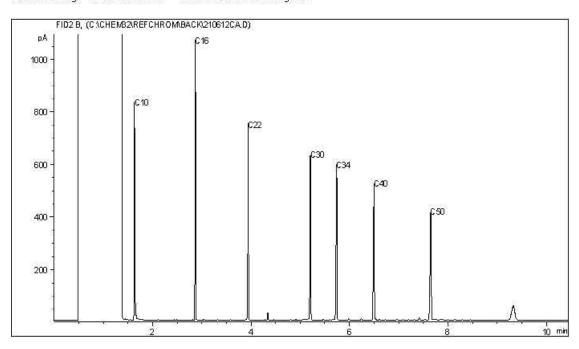
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-41-04

# **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+

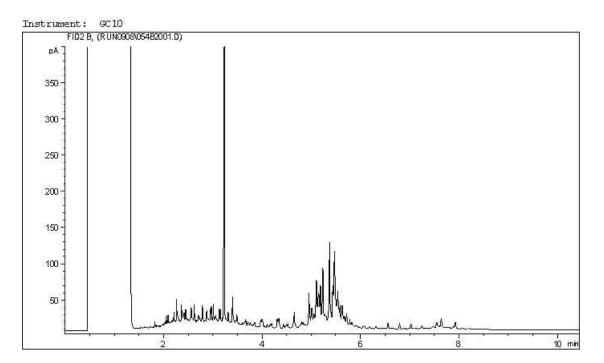
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

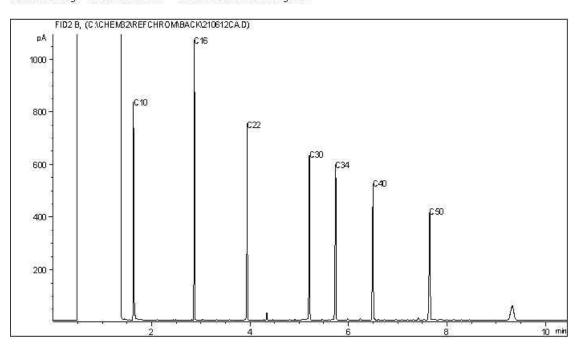
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-41-05

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



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4		C12	Diesel:	c8	7	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

BV Labs Job #: C164989 Report Date: 2021/09/15

BV Labs Sample: AFC350 Lab-Dup

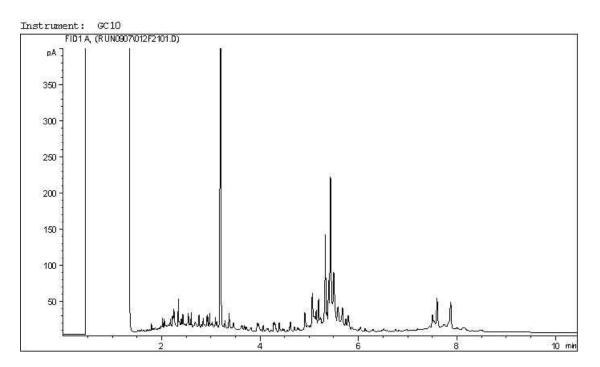
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

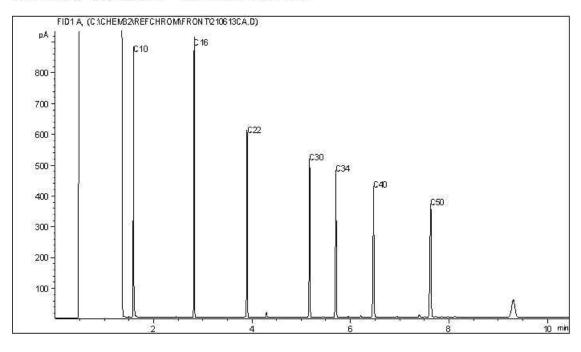
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-41-05

# 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	_	C16	Crude Oils:	c3 -	-	C60+

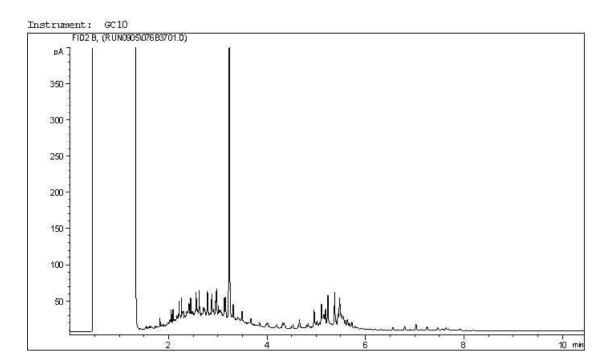
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

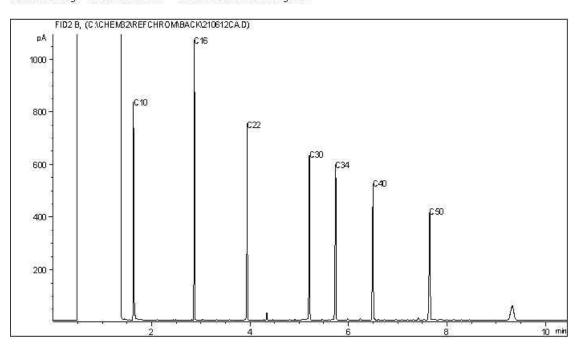
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-51-01

# **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+

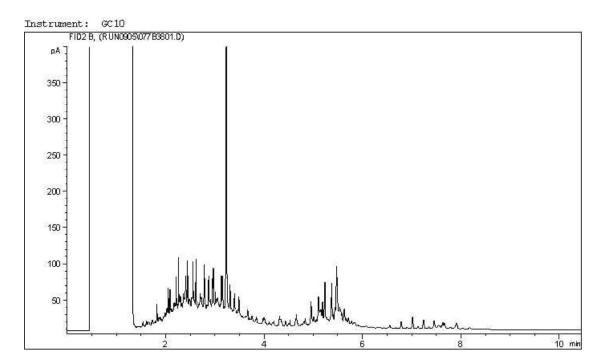
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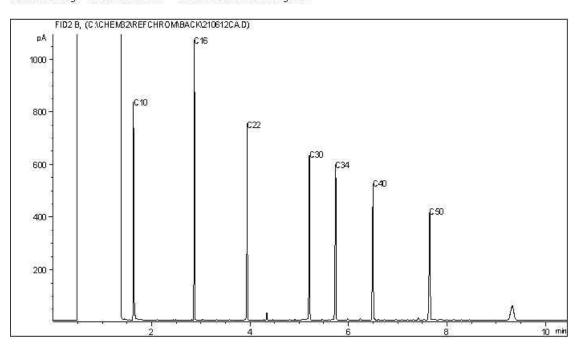
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-51-03

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



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

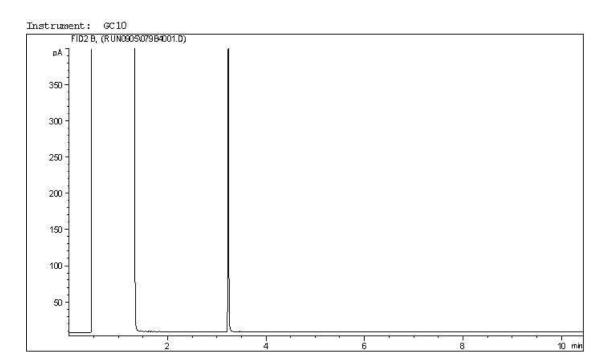
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

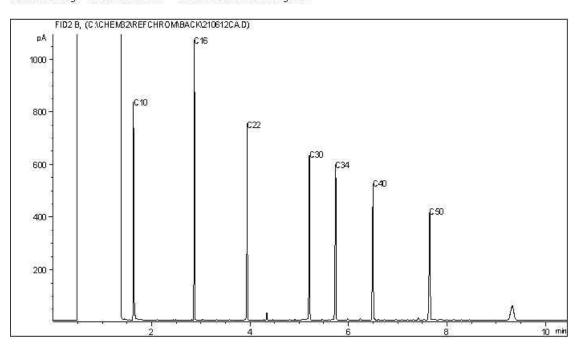
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-51-06

## **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+

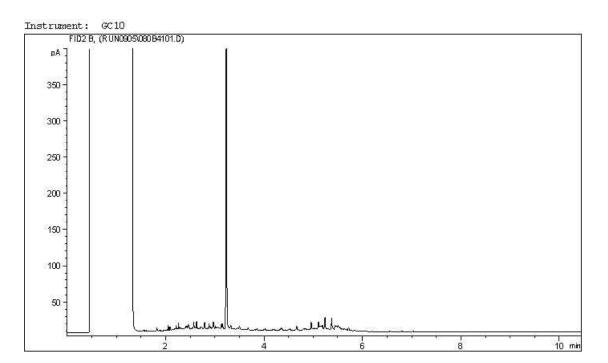
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Client Project #: 20368099-6000-1001

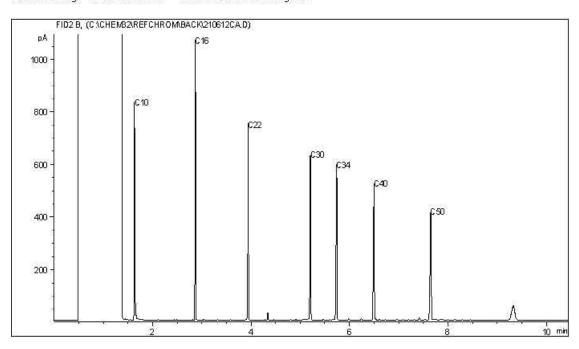
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-52-01

## **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+

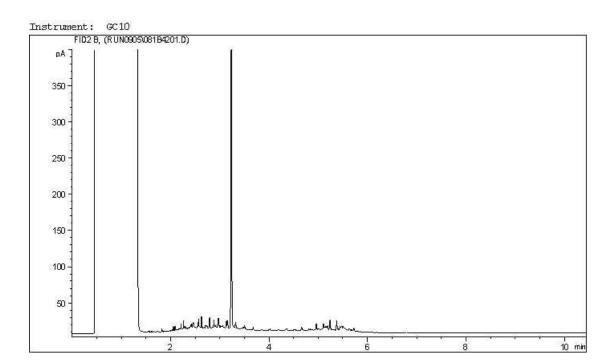
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

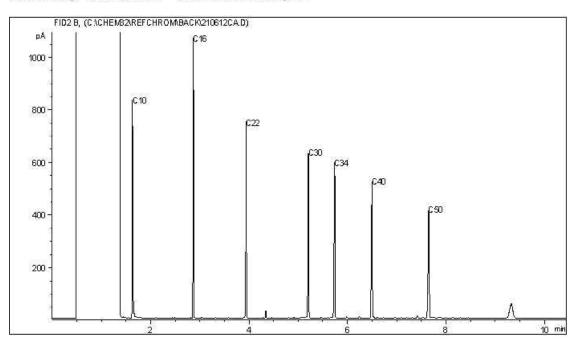
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-52-03

## **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+

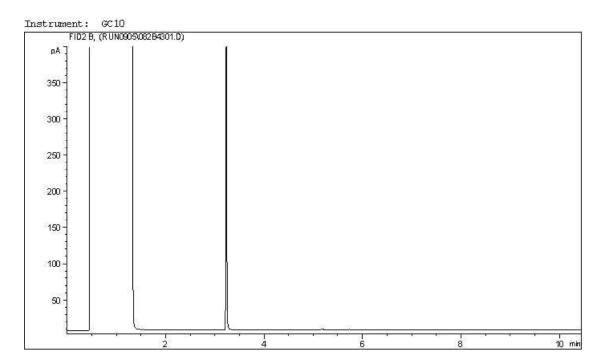
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

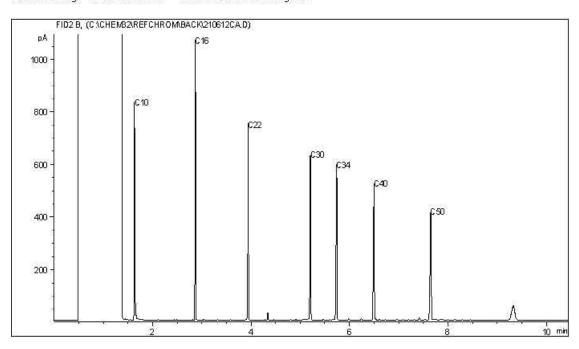
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-52-05

## **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+

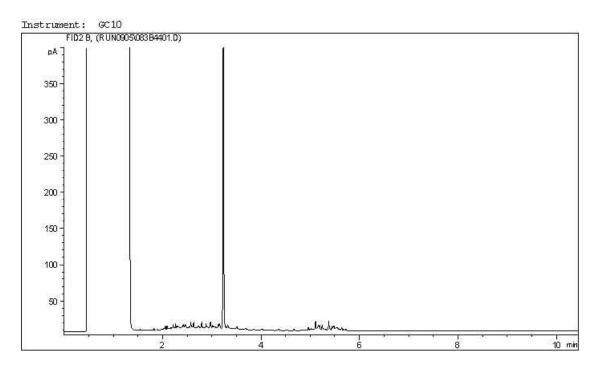
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

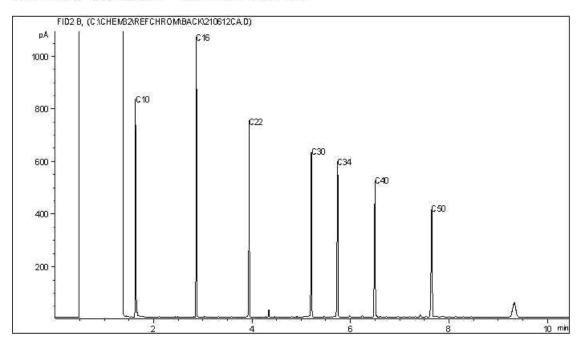
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP V

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



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

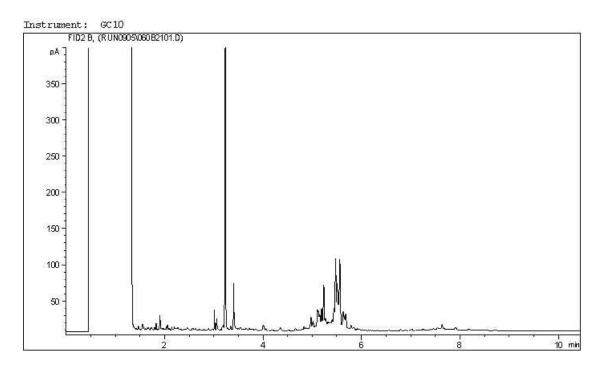
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

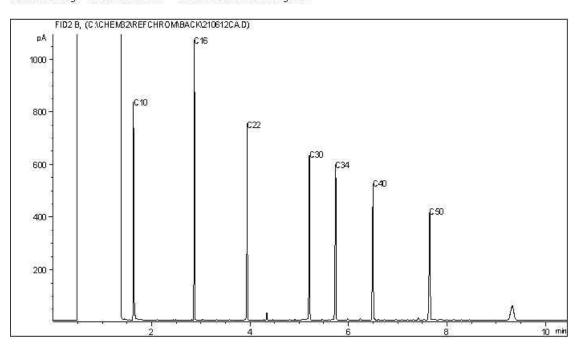
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP W

## 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+

BV Labs Job #: C164989 Report Date: 2021/09/15

BV Labs Sample: AFC387 Lab-Dup

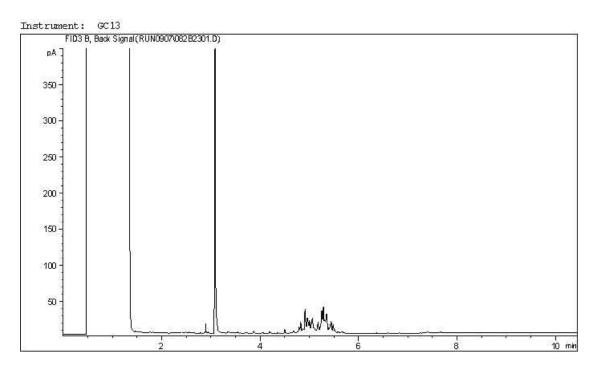
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

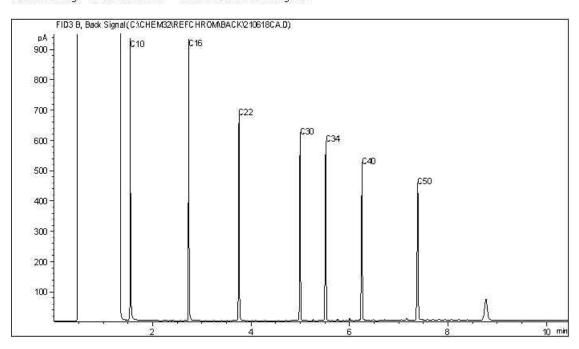
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP W

## 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+

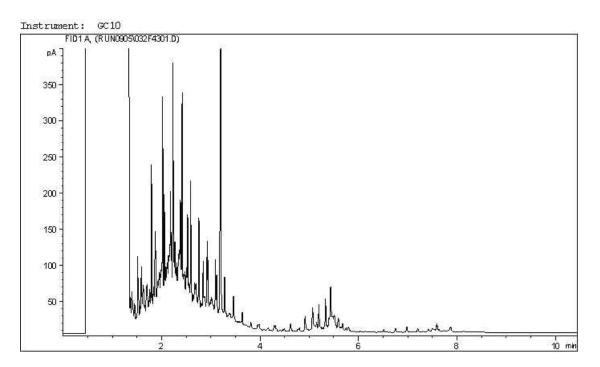
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

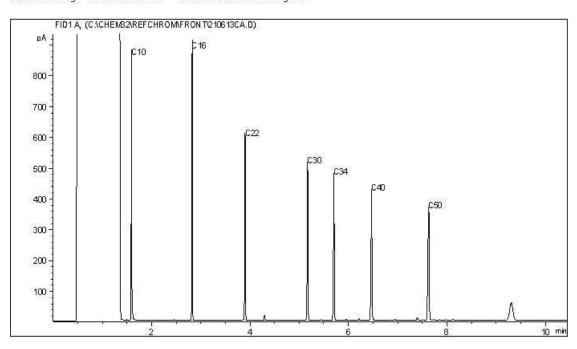
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP X

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



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

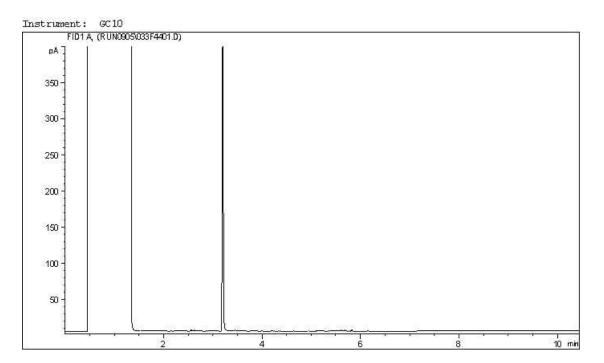
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

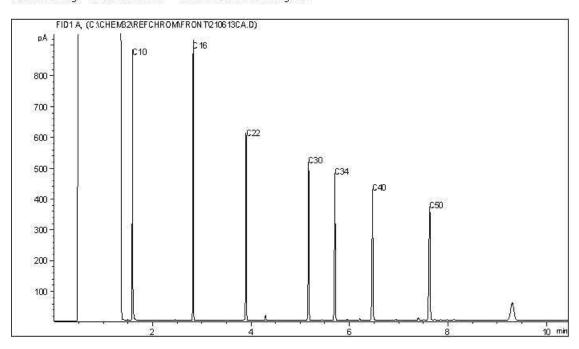
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP Y

## **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+

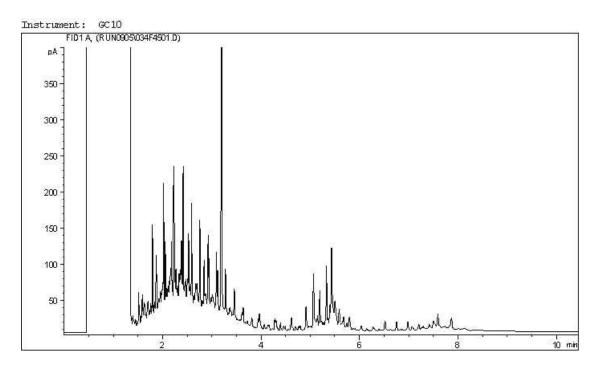
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

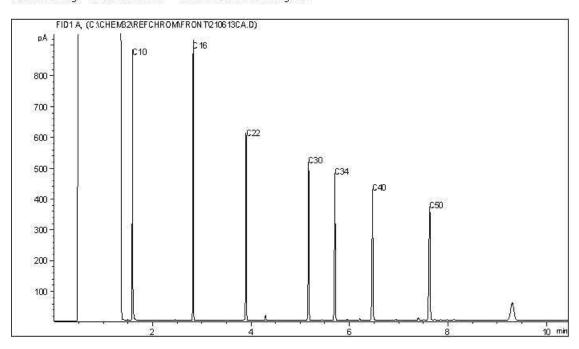
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-22-02

## **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 DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell		Sampling Date: August 23, 2021				
Golder Project Number:	20368099	9-6000-100	1	Laboratory: Bureau Veritas Edmonton			
,			•	J			
Lab Submission Number:	C164989		-				
Was the Cooler Received at the la 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 wer	e samples able when tracted wi statistica r the requ	documente they reache thin hold tin I control in tested analy	ed and keped lab?: mes?: CoA?: rsis?	ot?	Yes           Yes           Yes           No           Yes           Yes           Yes		
Are All Laboratory QC Within Ac	ceptance	Criteria (Y	es, No, N	ot Applicable)?			
	Yes	No	NA		Comments		
Surrogate Recovery	X			Matrix spike reco	overy for F2 (56%) and F3A (C16-C22)		
Method Blank Concentration	X				acceptance criteria of (60-140%).		
Laboratory Duplicate RPD	X				poratory QC results are within		
Matrix Spike Recovery	Č , Č						
Blank Spike Recovery	X						
Are All Field QC Samples Within Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Alert Lin Yes	No X	NA X X	Samples TP21-30 for toluene (108% exceed the alert 1	Comments 6-05 and DUP W exceed the alert limit 6). Samples TP21-38-05 and DUP X imits for ethylbenzene (116%), total		
				xylenes (102%) a	and F1 (C6-C10) - BTEX (84%).		
Is data considered reliable (Yes/N If answer is "No" or "Suspect", de	scribe and		ntionale:	Suspect	-		
Please see QA/QC appendix for do	etans						
Data Reviewed by (Print): Date:		lbert er 20, 2021		Data Reviewed by	(Signature): Onita Calbert		



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001 Site#: CKD Landfill Management Your C.O.C. #: 644511-74-01

**Attention: AURELIE BELLAVANCE** 

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

Report Date: 2021/09/11

Report #: R3070099 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C165063 Received: 2021/09/01, 08:00

Sample Matrix: Soil # Samples Received: 7

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	5	N/A	2021/09/09	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	2	N/A	2021/09/10	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	7	N/A	2021/09/10		Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	6	2021/09/08	2021/09/09	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	1	2021/09/08	2021/09/10	AB SOP-00036	CCME PHC-CWS m
Moisture (1)	7	N/A	2021/09/09	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.

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.



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001 Site#: CKD Landfill Management Your C.O.C. #: 644511-74-01

**Attention: AURELIE BELLAVANCE** 

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

Report Date: 2021/09/11

Report #: R3070099 Version: 1 - Final

# **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C165063

Received: 2021/09/01, 08:00

reported using validated cold solvent extraction instead of Soxhlet extraction.

**Encryption Key** 



Bureau Veritas

11 Sep 2021 11:06:14

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

This report has been generated and distributed using a secure automated process.

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

Sampler Initials: AB

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

		<u>.</u>	=.	<u>.</u>	<u>.</u>				_
BV Labs ID		AFC794	AFC795	AFC796	AFC797	AFC798	AFC799		
Sampling Date		2021/08/30	2021/08/30	2021/08/30	2021/08/30	2021/08/30	2021/08/30		
Jamping Date		09:20	09:22	09:29	09:38	09:39	09:40		
COC Number		644511-74-01	644511-74-01	644511-74-01	644511-74-01	644511-74-01	644511-74-01		
	UNITS	TP21-115-01	TP21-115-03	TP21-115-06	TP21-116-02	TP21-116-04	TP21-116-06	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	34	<10	<10	10	A345019
F3 (C16-C34 Hydrocarbons)	mg/kg	64	150	<50	150	<50	<50	50	A345019
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	<50	50	A345019
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A345019
Physical Properties									
Moisture	%	9.8	15	15	8.7	4.7	19	0.30	A345076
Volatiles	•	•	-	•	•	•	•	•	-
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A340815
Field Preserved Volatiles						•			
Benzene	mg/kg	<0.0050	<0.0050	0.016	<0.0050	<0.0050	<0.0050	0.0050	A346074
Toluene	mg/kg	<0.050	<0.050	<0.050	0.13	<0.050	<0.050	0.050	A346074
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	0.010	A346074
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A346074
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A346074
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A346074
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	99	101	97	97	96	97	N/A	A346074
4-Bromofluorobenzene (sur.)	%	98	97	101	100	98	101	N/A	A346074
D10-o-Xylene (sur.)	%	112	111	100	96	103	91	N/A	A346074
D4-1,2-Dichloroethane (sur.)	%	102	105	97	96	95	96	N/A	A346074
O-TERPHENYL (sur.)	%	94	108	85	87	99	99	N/A	A345019
RDL = Reportable Detection Li	mit	·		·	<u> </u>	·	<u> </u>		

RDL = Reportable Detection Limit

N/A = Not Applicable



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

Sampler Initials: AB

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

BV Labs ID		AFC800		
Sampling Date		2021/08/30		
		09:41		
COC Number		644511-74-01		
	UNITS	TP21-115-05	RDL	QC Batch
Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	A345019
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	A345019
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	A345019
Reached Baseline at C50	mg/kg	Yes	N/A	A345019
Physical Properties				
Moisture	%	5.9	0.30	A345076
Volatiles			-	
Xylenes (Total)	mg/kg	<0.045	0.045	A340815
F1 (C6-C10) - BTEX	mg/kg	<10	10	A340815
Field Preserved Volatiles	•			
Benzene	mg/kg	<0.0050	0.0050	A346074
Toluene	mg/kg	<0.050	0.050	A346074
Ethylbenzene	mg/kg	<0.010	0.010	A346074
m & p-Xylene	mg/kg	<0.040	0.040	A346074
o-Xylene	mg/kg	<0.020	0.020	A346074
F1 (C6-C10)	mg/kg	<10	10	A346074
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	95	N/A	A346074
4-Bromofluorobenzene (sur.)	%	100	N/A	A346074
D10-o-Xylene (sur.)	%	88	N/A	A346074
D4-1,2-Dichloroethane (sur.)	%	94	N/A	A346074
O-TERPHENYL (sur.)	%	105	N/A	A345019
RDL = Reportable Detection Lir	nit		3	
N/A = Not Applicable				



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

Sampler Initials: AB

# **GENERAL COMMENTS**

Each to	emperature is the	average of up to t	hree cooler temperatures taken at receipt
	Package 1	3.0°C	
Result	s relate only to th	e items tested.	



GOLDER ASSOCIATES LTD.

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

Sampler Initials: AB

# **QUALITY ASSURANCE REPORT**

04/06								
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A345019	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/09		101	%	60 - 140
		•	F2 (C10-C16 Hydrocarbons)	2021/09/09		92	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/09		95	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/09		97	%	60 - 140
A345019	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/09		102	%	60 - 140
		•	F2 (C10-C16 Hydrocarbons)	2021/09/09		93	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/09		94	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/09		96	%	60 - 140
A345019	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/09		104	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/09	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/09	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/09	<50		mg/kg	
A345019	GG3	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/09	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/09	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/09	NC		%	40
A345076	SVI	Method Blank	Moisture	2021/09/09	<0.30		%	
A345076	SVI	RPD	Moisture	2021/09/09	4.7		%	20
A346074	PKL	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/09		98	%	50 - 140
		mati m opine	4-Bromofluorobenzene (sur.)	2021/09/09		102	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/09		93	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/09		98	%	50 - 140
			Benzene	2021/09/09		91	%	50 - 140
			Toluene	2021/09/09		93	%	50 - 140
			Ethylbenzene	2021/09/09		99	%	50 - 140
			m & p-Xylene	2021/09/09		97	%	50 - 140
			o-Xylene	2021/09/09		101	%	50 - 140
			F1 (C6-C10)	2021/09/09		95	%	60 - 140
A346074	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/09		96	%	50 - 140
		opca Diam.	4-Bromofluorobenzene (sur.)	2021/09/09		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/09		90	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/09		95	%	50 - 140
			Benzene	2021/09/09		89	%	60 - 130
			Toluene	2021/09/09		92	%	60 - 130
			Ethylbenzene	2021/09/09		96	%	60 - 130
			m & p-Xylene	2021/09/09		98	%	60 - 130
			o-Xylene	2021/09/09		103	%	60 - 130
			F1 (C6-C10)	2021/09/09		94	%	60 - 140
A346074	PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/09		97	%	50 - 140
		metriod Blank	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		96	%	50 - 140
			Benzene	2021/09/09	<0.0050	30	mg/kg	50 1.0
			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	
A346074	PKL	RPD	Benzene	2021/09/09	NC		///g/kg %	50
, 13-1007-	i IXL	0	Toluene	2021/09/09	NC		%	50
			Ethylbenzene	2021/09/09	NC		%	50
			m & p-Xylene	2021/09/09	NC		%	50



Client Project #: 20368099-6000-1001 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
			F1 (C6-C10)	2021/09/09	NC		%	30

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).



Client Project #: 20368099-6000-1001 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:

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

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

Meranica felk

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.

Page 9 of 16

Page ∫of CHAIN OF CUSTODY RECORD	Laboratory Use Only:	BV Labs Job #: Bottle Order #:	774711		COC #: Project Manager:	Carmen McKay		Turnaround Time (TAT) Required:	Please provide advance notice for rush projects	(will be applied if Rush TAT is not specified):	Stationard TRT - 5-1 Working days for most basis Please note: Standard TAT for certain tests are > 5 days - contact your Project Managar for Please	Job Specific Rush TAT (if applies to entire submission)	Date Required:	(call lab for #)	# of Bottles Comments			Received in Yellowknife	By: J. Wally	SFP <b>n1</b> 2021		Temp: 4 4 !		Jak 55 - 56-271			Custody Seal Infact on Co	2.4/3.4/3.2 Mayes No	RE AVAILABLE FOR VIEWING AT 1 White BV Labs Yellow Client   C & - \( \)
CHA	RMATION:		000-1001	20368099-6000-1001					å		% € €	əld	Mate Sam	bəti	HA9											# jars used and	not submitted Time Sensitive	21/08/20 13:00	ANCE OF OUR TERMS WHICH AR
	PROJECT INFORMATION:	C00480	20368099-7000-100	368089-6				SPECIFIC)	(11	A/∃N	100)		Wate M be													Time		01:3	AND ACCEPT
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139		Ouotation #	P.O. #	Project:	Project Name:	Site #	Sampled By:	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		(u	ing F Sariur	en.	T) no	actic	tλx∃											Date: (YY/MM/DD)	20/128	20/ Da	NT IS ACKNO
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Bureau Veritas Laboratories 4000 19st N.E., Catgary, Alberta Canada T.2E 6P8 Teit (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvlabs.com		Company Name: #6340 GOLDER ASSOCIATES LTD	Aurelie E	2800, 70	CALGAF	(403) 299-5600	abellava	structions		snelldgy & golder. 10m	de	770		W LABS	Time Sampled	07:20	7:22	9:29	9:33	1:39	04:40	14:6						7	STANDARD TI
3) 291-3077		any Name:	ion:					Special Instructions		day	facility code	413595		VERY TO B	-	202 O	00	09	09	60	200	90				Time		13:00	O BV LABS' RECORD. AN
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Bureau Veri 4000 19st N	INVOICE TO:	SSOCIA	/BLE	eet SW	2W2	t: 1167	yableinvo							300L ( < 10	Sample	1P21-115-0	[P21-15-03	30-211-1297	7021-116	P21-116	7121-116	TP21-115				ature/Print)	2		VORK SUBMI ER TO ENSUI SAMPLE REC
	INV	LDER A	TS PAY	-2nd Str	/ AB T2F	6100 Ex	countspa							BE KEPT (		17	11	77	77	12	7	12				BY: (Signa	PETER		J WRITING, V JDITIONS. RELINQUISH AYS AFTER
		#254 GOLDER ASSOCIATES LTD.	ACCOUNTS PAYABLE	2800, 700 -2nd Street SW	CALGARY AB T2P 2W2	(905) 567-6100 Ext: 1167	canadaaccountspayableinvoices@golder.com							SAMPLES MUST BE KEPT COOL ( < 10°C.) FROM TIME OF SAMPLING UNTIL-DELIVERY TO BY	code Label						,	_				* RELINQUISHED BY: (Signature/Print)	1		GREED TO II MS-AND-CON ITY OF THE I
BUREAU VERITAS		- 52		101	O	50	١٥	Regulatory Criteria:	ATI	CCME	Other			SAME	Sample Barcode Label	MA										· RELI	N		WWW.BAS OTHERWAS AGREED FOR WITTING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY WWW.BYLABS COMPTEMS.AJULCONDITIONS.  1 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 ANNLYTICAL TAT DELINS.  " ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER.
D G		Company Name:	Attention	Address:		Tel:	Email.	Regult						ų.		1	1	1	1	A	4	1	00	б	10				* UNLESS O WWW.BVLA * IT IS THE R ** ALL SAMP

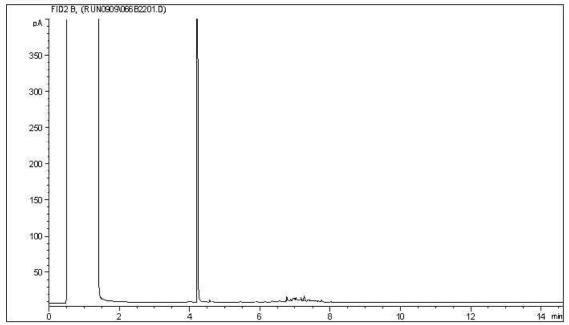
BV Labs Job #: C165063 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/11 Client Project #: 20368099-6000-1001 BV Labs Sample: AFC794 Client ID: TP21-115-01

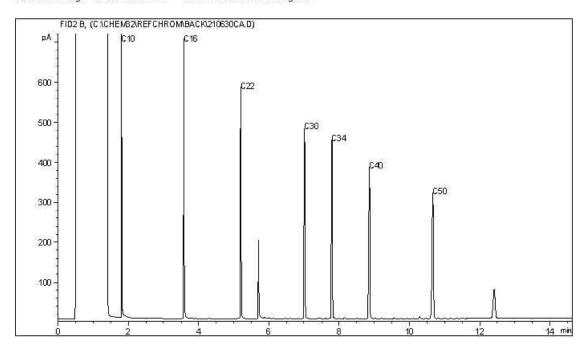
Client ID. 1721-113-0

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

Instrument: GC12



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+

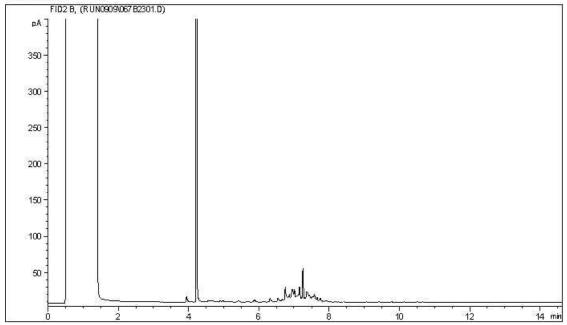
 ${\tt GOLDER\ ASSOCIATES\ LTD.}$ 

Client Project #: 20368099-6000-1001

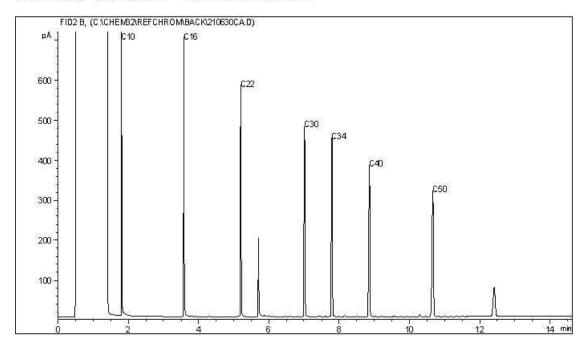
Client ID: TP21-115-03

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

Instrument: GC12



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

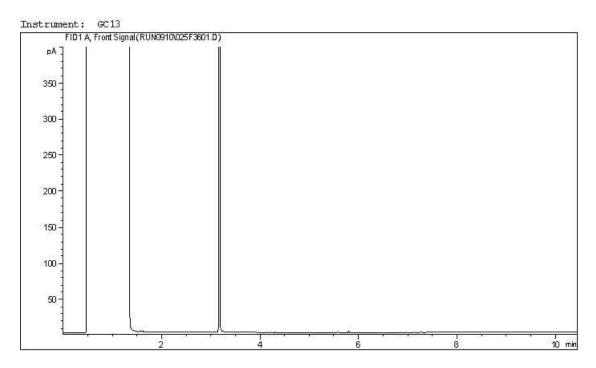
 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

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

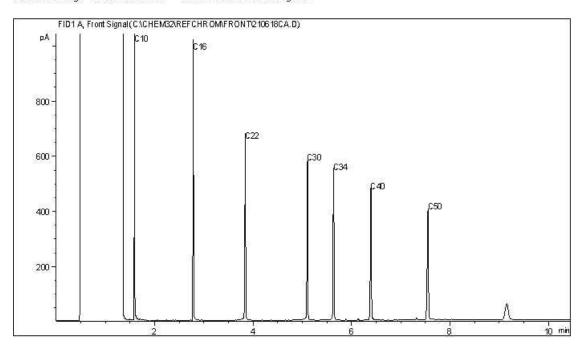
BV Labs Job #: C165063 GOLDER ASSOCIATES LTD.

CCME Hydrocarbons (F2-F4 in soil) Chromatogram

#### content to the content of the conten



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+

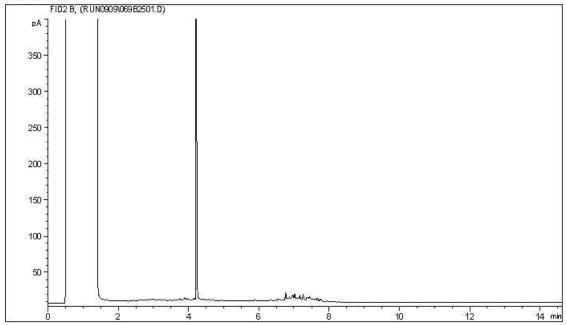
BV Labs Job #: C165063 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/11 Client Project #: 20368099-6000-1001 BV Labs Sample: AFC797

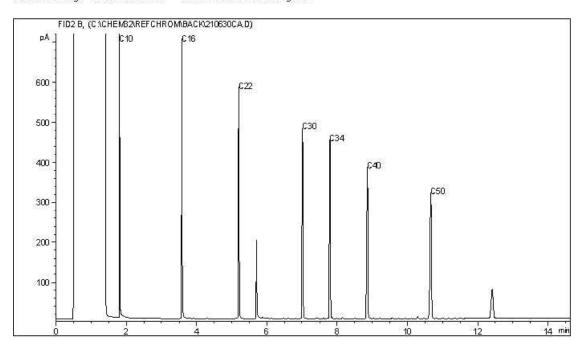
Client ID: TP21-116-02

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

Instrument: GC12



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

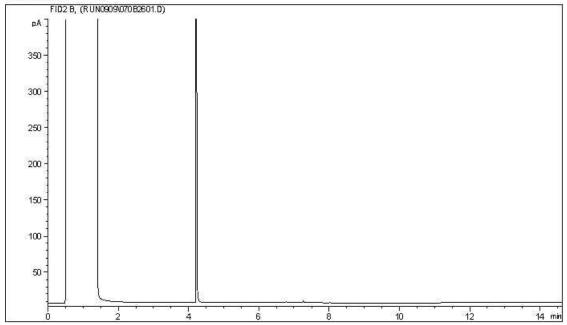
Gasoline: c4 - c12 Diesel: c8 - c22 Varsol: c8 - c12 Lubricating Oils: c20 - c40 c7 - c16 Crude Oils: c3 - c60+ Kerosene:

BV Labs Job #: C165063 Report Date: 2021/09/11 GOLDER ASSOCIATES LTD. Client Project #: 20368099-6000-1001

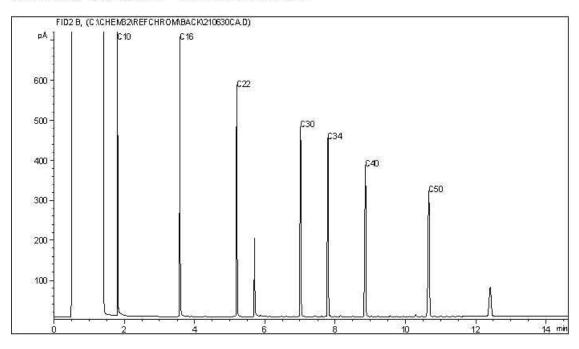
BV Labs Sample: AFC798 Client ID: TP21-116-04

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

Instrument: GC12



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

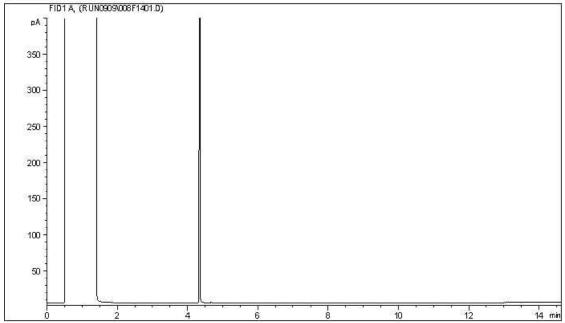
 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

BV Labs Job #: C165063 GOLDER ASSOCIATES LTD.

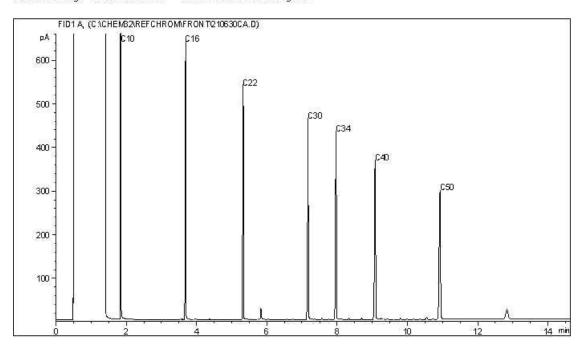
Report Date: 2021/09/11 Client Project #: 20368099-6000-1001 BV Labs Sample: AFC799 Client ID: TP21-116-06

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

Instrument: GC12



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

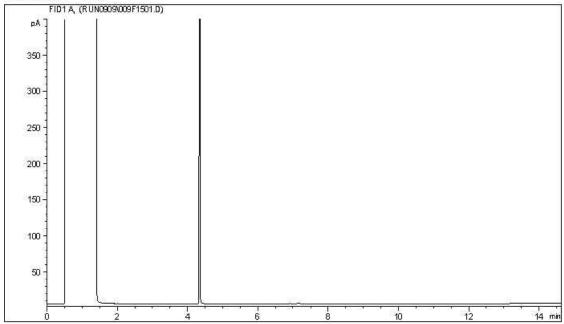
 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

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

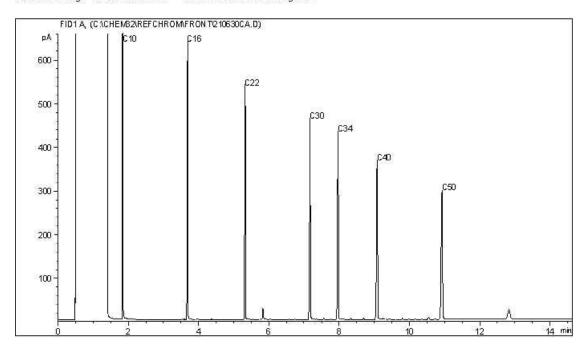
BV Labs Job #: C165063 GOLDER ASSOCIATES LTD.

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

Instrument: GC12



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 30, 2021
Golder Project Number:	20368099	-6000-100	1	Laboratory:	Bureau Veritas Edmonton
Lab Submission Number:	C165063				
Was the Cooler Received at the la Was proper chain of custody of th Were sample temperatures accepta Were all samples analyzed and ex Has lab warranted all tests were in Was sufficient sample provided for Has lab warranted all samples were	e samples able when tracted wit statistical or the reque	documente they reache thin hold tin control in ested analy	ed and keped lab?: mes?: CoA?: rsis?	ot?	Yes
Are All Laboratory QC Within Ac	cceptance (	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 Q0 acceptance criteri	Comments C results are within ia.
Are All Field QC Samples Within	Alert Lim	its (Yes, N	o, Not Ap	oplicable)?	
Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Yes	No	NA X X X	No field QC sam	Comments ples were collected.
Is data considered reliable (Yes/N If answer is "No" or "Suspect", de			ntionale:	Yes	-
Data Reviewed by (Print):  Date:		bert r 13, 2021		Data Reviewed by	(Signature): Onita Collect



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

Your C.O.C. #: 644255-02-01

Attention: PETER TAN
GOLDER ASSOCIATES LTD
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2021/09/20

Report #: R3074031 Version: 1 - Final

# **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C167904 Received: 2021/09/10, 09:00

Sample Matrix: Water # Samples Received: 6

		Date	Date		
Analyses		Extracted	Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH (1)	2	N/A	2021/09/16	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	4	N/A	2021/09/15	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	4	N/A	2021/09/16		Auto Calc
Cadmium - low level CCME - Dissolved (1)	2	N/A	2021/09/20		Auto Calc
Cadmium - low level CCME (Total) (1)	2	N/A	2021/09/17		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	2	N/A	2021/09/17	AB SOP-00020	SM23-4500-CI/SO4-E m
Conductivity @25C (1)	2	N/A	2021/09/15	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	3	2021/09/15	2021/09/17	AB SOP-00037	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1, 2)	1	2021/09/15	2021/09/17	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Hardness (1)	2	N/A	2021/09/19		Auto Calc
Elements by ICP - Dissolved (1, 3)	2	N/A	2021/09/19	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	2	N/A	2021/09/18	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Total (1)	2	2021/09/17	2021/09/18	AB SOP-00014 / AB SOP- 00042	EPA 6010d R5 m
Elements by ICPMS - Dissolved (1, 3)	2	N/A	2021/09/17	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Total (1)	2	2021/09/17	2021/09/17	AB SOP-00014 / AB SOP- 00043	EPA 6020b R2 m
Ion Balance (1)	2	N/A	2021/09/19		Auto Calc
Nitrate and Nitrite (1)	2	N/A	2021/09/14		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	2	N/A	2021/09/14	AB SOP-00091	SM 23 4500 NO3m
Nitrate (as N) (1)	2	2021/09/13	2021/09/14		Auto Calc
Benzo[a]pyrene Equivalency (1, 4)	3	N/A	2021/09/16		Auto Calc
PAH in Water by GC/MS (1)	3	2021/09/15	2021/09/16	AB SOP-00037 / AB SOP- 00003	EPA 3510C/8270E m
Total LMW, HMW, Total PAH Calc (1)	3	N/A	2021/09/16		Auto Calc
pH @25°C (1, 5)	2	N/A	2021/09/16	AB SOP-00005	SM 23 4500-H+B m
Total Dissolved Solids (Calculated) (1)	2	N/A	2021/09/19		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.



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

Your C.O.C. #: 644255-02-01

**Attention: PETER TAN GOLDER ASSOCIATES LTD** 16820-107 AVE EDMONTON, AB

CANADA

T5P 4C3

Report Date: 2021/09/20

Report #: R3074031 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

### BV LABS JOB #: C167904 Received: 2021/09/10. 09:00

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**



20 Sep 2021 16:57:32

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

\_\_\_\_\_\_

This report has been generated and distributed using a secure automated process.

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

Sampler Initials: PT

# **RESULTS OF CHEMICAL ANALYSES OF WATER**

BV Labs ID		AFU653	AFU654			AFU655		
Sampling Date		2021/09/01 16:30	2021/09/01 16:30			2021/09/01 16:30		
COC Number		644255-02-01	644255-02-01			644255-02-01		
	UNITS	SW21-01	DUP A	RDL	QC Batch	FIELD BLANK	RDL	QC Batch
Elements								
Dissolved Cadmium (Cd)	ug/L	<0.020	<0.020	0.020	A349986			
Total Cadmium (Cd)	ug/L	0.068	0.063	0.020	A349380			
Polycyclic Aromatics								
Low Molecular Weight PAH's	ug/L	<0.20	<0.20	0.20	A350553	<0.20	0.20	A350553
High Molecular Weight PAH`s	ug/L	<0.050	<0.050	0.050	A350553	<0.050	0.050	A350553
Total PAH	ug/L	<0.20	<0.20	0.20	A350553	<0.20	0.20	A350553
RDL = Reportable Detection Limit								



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

Sampler Initials: PT

# **RESULTS OF CHEMICAL ANALYSES OF WATER**

BV Labs ID		AFU656	AFU657		
Sampling Date		2021/09/06 09:00	2021/09/06 09:00		
COC Number		644255-02-01	644255-02-01		
	UNITS	SW21-01	DUP A	RDL	QC Batch
Calculated Parameters					
Hardness (CaCO3)	mg/L	150	140	0.50	A350436
Ion Balance (% Difference)	%	0.90	4.9	N/A	A350466
Dissolved Nitrate (N)	mg/L	<0.010	<0.010	0.010	A350424
Dissolved Nitrate (NO3)	mg/L	<0.044	<0.044	0.044	A350438
Dissolved Nitrite (NO2)	mg/L	<0.033	<0.033	0.033	A350438
Calculated Total Dissolved Solids	mg/L	210	210	10	A350440
Misc. Inorganics					
Conductivity	uS/cm	390	380	2.0	A351277
рН	рН	8.12	8.01	N/A	A351276
Anions					
Alkalinity (PP as CaCO3)	mg/L	<1.0	<1.0	1.0	A351273
Alkalinity (Total as CaCO3)	mg/L	100	110	1.0	A351273
Bicarbonate (HCO3)	mg/L	130	140	1.0	A351273
Carbonate (CO3)	mg/L	<1.0	<1.0	1.0	A351273
Hydroxide (OH)	mg/L	<1.0	<1.0	1.0	A351273
Dissolved Chloride (CI)	mg/L	33	31	1.0	A356082
Dissolved Sulphate (SO4)	mg/L	45	45	1.0	A356082
Nutrients					
Dissolved Nitrite (N)	mg/L	<0.010	<0.010	0.010	A351384
Dissolved Nitrate plus Nitrite (N)	mg/L	<0.010	<0.010	0.010	A351384
RDL = Reportable Detection Limit					
N/A = Not Applicable					



GOLDER ASSOCIATES LTD

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

Sampler Initials: PT

# PETROLEUM HYDROCARBONS (CCME)

					AFU654	AFU655		
	2021/08/30			2021/09/01	2021/09/01	2021/09/01		
	11:55			16:30	16:30	16:30		
	644255-02-01			644255-02-01	644255-02-01	644255-02-01		
JNITS	P06-07	RDL	QC Batch	SW21-01	DUP A	FIELD BLANK	RDL	QC Batch
mg/L	<0.21 (1)	0.21	A349747	<0.10	<0.10	<0.10	0.10	A352602
mg/L				<0.10	<0.10	<0.10	0.10	A352602
mg/L				<0.20	<0.20	<0.20	0.20	A352602
%				100	100	104		A352602
%	99		A349747					
n	mg/L mg/L mg/L	11:55 644255-02-01 INITS P06-07 mg/L <0.21 (1) mg/L mg/L %	11:55   644255-02-01   Finite   644255-02-01   Finite	11:55   G44255-02-01   INITS   P06-07   RDL   QC Batch   Mg/L   G0.21 (1)   G1   G1   G1   G1   G1   G1   G1	11:55	11:55	11:55	11:55

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



GOLDER ASSOCIATES LTD

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

Sampler Initials: PT

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

BV Labs ID		AFU653	AFU654	AFU655		
Sampling Date		2021/09/01	2021/09/01	2021/09/01		
Sampling Date		16:30	16:30	16:30		
COC Number		644255-02-01	644255-02-01	644255-02-01		
	UNITS	SW21-01	DUP A	FIELD BLANK	RDL	QC Batch
Polycyclic Aromatics						
B[a]P TPE Total Potency Equivalents	ug/L	<0.010	<0.010	<0.010	0.010	A350439
Acenaphthene	ug/L	<0.10	<0.10	<0.10	0.10	A352619
Acenaphthylene	ug/L	<0.10	<0.10	<0.10	0.10	A352619
Acridine	ug/L	<0.040	<0.040	<0.040	0.040	A352619
Anthracene	ug/L	<0.010	<0.010	<0.010	0.010	A352619
Benzo(a)anthracene	ug/L	<0.0085	<0.0085	<0.0085	0.0085	A352619
Benzo(b&j)fluoranthene	ug/L	<0.0085	<0.0085	<0.0085	0.0085	A352619
Benzo(k)fluoranthene	ug/L	<0.0085	<0.0085	<0.0085	0.0085	A352619
Benzo(g,h,i)perylene	ug/L	<0.0085	<0.0085	<0.0085	0.0085	A352619
Benzo(c)phenanthrene	ug/L	<0.050	<0.050	<0.050	0.050	A352619
Benzo(a)pyrene	ug/L	<0.0075	<0.0075	<0.0075	0.0075	A352619
Benzo(e)pyrene	ug/L	<0.050	<0.050	<0.050	0.050	A352619
Chrysene	ug/L	<0.0085	<0.0085	<0.0085	0.0085	A352619
Dibenz(a,h)anthracene	ug/L	<0.0075	<0.0075	<0.0075	0.0075	A352619
Fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	A352619
Fluorene	ug/L	<0.050	<0.050	<0.050	0.050	A352619
Indeno(1,2,3-cd)pyrene	ug/L	<0.0085	<0.0085	<0.0085	0.0085	A352619
1-Methylnaphthalene	ug/L	<0.10	<0.10	<0.10	0.10	A352619
2-Methylnaphthalene	ug/L	<0.10	<0.10	<0.10	0.10	A352619
Naphthalene	ug/L	<0.10	<0.10	<0.10	0.10	A352619
Phenanthrene	ug/L	<0.050	<0.050	<0.050	0.050	A352619
Perylene	ug/L	<0.050	<0.050	<0.050	0.050	A352619
Pyrene	ug/L	<0.020	<0.020	<0.020	0.020	A352619
Quinoline	ug/L	<0.20	<0.20	<0.20	0.20	A352619
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	120	110	110		A352619
D8-ACENAPHTHYLENE (sur.)	%	104	95	97		A352619
D8-NAPHTHALENE (sur.)	%	90	81	86		A352619
TERPHENYL-D14 (sur.)	%	147 (1)	118	140 (1)		A352619
1						

RDL = Reportable Detection Limit

<sup>(1)</sup> Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



**GOLDER ASSOCIATES LTD** 

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

Sampler Initials: PT

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

BV Labs ID		AFU653	AFU654			AFU656	AFU657		
		2021/09/01	2021/09/01			2021/09/06	2021/09/06		
Sampling Date		16:30	16:30			09:00	09:00		
COC Number		644255-02-01	644255-02-01			644255-02-01	644255-02-01		
	UNITS	SW21-01	DUP A	RDL	QC Batch	SW21-01	DUP A	RDL	QC Batch
Elements		·			·	•			
Dissolved Aluminum (Al)	mg/L	0.016	0.015	0.0030	A351227				
Total Aluminum (AI)	mg/L	2.2	1.1 (1)	0.0030	A356008				
Dissolved Antimony (Sb)	mg/L	<0.00060	<0.00060	0.00060	A351227				
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	0.00060	A356008				
Dissolved Arsenic (As)	mg/L	0.00079	0.00076	0.00020	A351227				
Total Arsenic (As)	mg/L	0.0020	0.0019	0.00020	A356008				
Dissolved Barium (Ba)	mg/L	0.097	0.10	0.010	A354608				
Total Barium (Ba)	mg/L	0.14	0.13	0.010	A356061				
Dissolved Beryllium (Be)	mg/L	<0.0010	<0.0010	0.0010	A351227				
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	0.0010	A356008				
Dissolved Boron (B)	mg/L	0.020	0.021	0.020	A354608				
Total Boron (B)	mg/L	0.029	0.026	0.020	A356061				
Dissolved Calcium (Ca)	mg/L	32	33	0.30	A354608				
Total Calcium (Ca)	mg/L	35	34	0.30	A356061				
Dissolved Chromium (Cr)	mg/L	0.0013	0.0014	0.0010	A351227				
Total Chromium (Cr)	mg/L	0.0036	0.0030	0.0010	A356008				
Dissolved Cobalt (Co)	mg/L	<0.00030	<0.00030	0.00030	A351227				
Total Cobalt (Co)	mg/L	0.0012	0.00085	0.00030	A356008				
Dissolved Copper (Cu)	mg/L	0.0027	0.0027	0.00020	A351227				
Total Copper (Cu)	mg/L	0.0045	0.0038	0.00020	A356008				
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	0.060	A354608				
Total Iron (Fe)	mg/L	2.6	2.0	0.060	A356061				
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	0.00020	A351227				
Total Lead (Pb)	mg/L	0.0015	0.0012	0.00020	A356008				
Dissolved Lithium (Li)	mg/L	<0.020	<0.020	0.020	A354608				
Total Lithium (Li)	mg/L	<0.020	<0.020	0.020	A356061			_	
Dissolved Magnesium (Mg)	mg/L	14	14	0.20	A354608				
Total Magnesium (Mg)	mg/L	15	15	0.20	A356061				
Dissolved Manganese (Mn)	mg/L	0.0073	0.016	0.0040	A354608				
Total Manganese (Mn)	mg/L	0.072	0.062	0.0040	A356061				
Dissolved Molybdenum (Mo)	mg/L	0.0027	0.0027	0.00020	A351227				
RDI - Reportable Detection Lie	mit								

RDL = Reportable Detection Limit

<sup>(1)</sup> Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.



**GOLDER ASSOCIATES LTD** 

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

Sampler Initials: PT

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

DV Laba ID		AFLICES	A FLICE A			AFLICEC	AFLICE 7		
BV Labs ID		AFU653	AFU654			AFU656	AFU657		
Sampling Date		2021/09/01 16:30	2021/09/01 16:30			2021/09/06 09:00	2021/09/06 09:00		
COC Number		644255-02-01	644255-02-01			644255-02-01	644255-02-01		
	UNITS	SW21-01	DUP A	RDL	QC Batch	SW21-01	DUP A	RDL	QC Batch
Total Molybdenum (Mo)	mg/L	0.0025	0.0026	0.00020	A356008				
Dissolved Nickel (Ni)	mg/L	0.0026	0.0027	0.00050	A351227				
Total Nickel (Ni)	mg/L	0.0056	0.0047	0.00050	A356008				
Dissolved Phosphorus (P)	mg/L	<0.10	<0.10	0.10	A354608				
Total Phosphorus (P)	mg/L	<0.10	<0.10	0.10	A356061				
Dissolved Potassium (K)	mg/L	0.78	0.87	0.30	A354608				
Total Potassium (K)	mg/L	1.1	1.0	0.30	A356061				
Dissolved Selenium (Se)	mg/L	0.00038	0.00032	0.00020	A351227				
Total Selenium (Se)	mg/L	0.00046	0.00033	0.00020	A356008				
Dissolved Silicon (Si)	mg/L	0.31	0.36	0.10	A354608				
Total Silicon (Si)	mg/L	2.0	1.5	0.10	A356061				
Dissolved Silver (Ag)	mg/L	<0.00010	<0.00010	0.00010	A351227				
Total Silver (Ag)	mg/L	<0.00010	<0.00010	0.00010	A356008				
Dissolved Sodium (Na)	mg/L	19	20	0.50	A354608				
Total Sodium (Na)	mg/L	19	19	0.50	A356061				
Dissolved Strontium (Sr)	mg/L	0.24	0.25	0.020	A354608				
Total Strontium (Sr)	mg/L	0.24	0.24	0.020	A356061				
Dissolved Sulphur (S)	mg/L	17	17	0.20	A354608				
Total Sulphur (S)	mg/L	15	15	0.20	A356061				
Dissolved Thallium (TI)	mg/L	<0.00020	<0.00020	0.00020	A351227				
Total Thallium (TI)	mg/L	<0.00020	<0.00020	0.00020	A356008				
Dissolved Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	A351227				
Total Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	A356008				
Dissolved Titanium (Ti)	mg/L	<0.0010	<0.0010	0.0010	A351227				
Total Titanium (Ti)	mg/L	0.047	0.034 (1)	0.0010	A356008				
Dissolved Uranium (U)	mg/L	0.0010	0.0010	0.00010	A351227				
Total Uranium (U)	mg/L	0.0012	0.0011	0.00010	A356008			· · · · · · · · · · · · · · · · · · ·	
Dissolved Vanadium (V)	mg/L	<0.0010	<0.0010	0.0010	A351227				
Total Vanadium (V)	mg/L	0.0055	0.0042	0.0010	A356008				
Dissolved Zinc (Zn)	mg/L	0.0041	0.0073	0.0030	A351227				
Total Zinc (Zn)	mg/L	0.015	0.012	0.0030	A356008				

RDL = Reportable Detection Limit

(1) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.



Report Date: 2021/09/20

GOLDER ASSOCIATES LTD

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

Sampler Initials: PT

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

BV Labs ID		AFU653	AFU654			AFU656	AFU657		
Sampling Date		2021/09/01 16:30	2021/09/01 16:30			2021/09/06 09:00	2021/09/06 09:00		
COC Number		644255-02-01	644255-02-01			644255-02-01	644255-02-01		
	UNITS	SW21-01	DUP A	RDL	QC Batch	SW21-01	DUP A	RDL	QC Batch
Lab Filtered Elements									
Dissolved Calcium (Ca)	mg/L					35	34	0.30	A354759
Dissolved Iron (Fe)	mg/L					0.085	0.076	0.060	A354759
Dissolved Magnesium (Mg)	mg/L					15	14	0.20	A354759
Dissolved Manganese (Mn)	mg/L					0.0067	<0.0040	0.0040	A354759
Dissolved Potassium (K)	mg/L					0.99	0.94	0.30	A354759
Dissolved Sodium (Na)	mg/L					20	19	0.50	A354759
RDL = Reportable Detection Lir	nit				•		•		



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

Sampler Initials: PT

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

BV Labs ID		AFU651		AFU653	AFU654	AFU655		
Sampling Date		2021/08/30		2021/09/01	2021/09/01	2021/09/01		
Sampling Date		11:55		16:30	16:30	16:30		
COC Number		644255-02-01		644255-02-01	644255-02-01	644255-02-01		
	UNITS	P06-07	QC Batch	SW21-01	DUP A	FIELD BLANK	RDL	QC Batch
Volatiles								
Benzene	mg/L	<0.00040	A352650	<0.00040	<0.00040	<0.00040	0.00040	A352650
Toluene	mg/L	0.0082	A352650	<0.00040	<0.00040	<0.00040	0.00040	A352650
Ethylbenzene	mg/L	<0.00040	A352650	<0.00040	<0.00040	<0.00040	0.00040	A352650
m & p-Xylene	mg/L	<0.00080	A352650	<0.00080	<0.00080	<0.00080	0.00080	A352650
o-Xylene	mg/L	0.00079	A352650	<0.00040	<0.00040	<0.00040	0.00040	A352650
Xylenes (Total)	mg/L	<0.00089	A350769	<0.00089	<0.00089	<0.00089	0.00089	A350435
F1 (C6-C10) - BTEX	mg/L	<0.10	A350769	<0.10	<0.10	<0.10	0.10	A350435
F1 (C6-C10)	mg/L	<0.10	A352650	<0.10	<0.10	<0.10	0.10	A352650
Surrogate Recovery (%)	•	•	•	•	•	•	=	
1,4-Difluorobenzene (sur.)	%	101	A352650	103	101	104		A352650
4-Bromofluorobenzene (sur.)	%	97	A352650	100	94	98		A352650
D4-1,2-Dichloroethane (sur.)	%	98	A352650	100	98	103		A352650
RDL = Reportable Detection Li	mit							



Client Project #: 20368099-6000-1001 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	4.3°C
Package 2	5.3°C
Package 3	5.7°C
Package 4	3.0°C
Package 5	3.3°C
Package 6	3.3°C
Package 7	1.7°C
Package 8	2.7°C

Sample AFU651 [P06-07]: Sample was analyzed past method specified hold time for BTEX/F1 in Water by HS GC/MS/FID. Sample was analyzed past method specified hold time for CCME Hydrocarbons in Water (F2; C10-C16).

Sample AFU656 [SW21-01]: Sample was analyzed past method specified hold time for NO2 (N); NO2 (N) + NO3 (N) in Water. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample AFU657 [DUP A]: Sample was analyzed past method specified hold time for NO2 (N); NO2 (N) + NO3 (N) in Water. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

#### PETROLEUM HYDROCARBONS (CCME) Comments

Sample AFU651 [P06-07] CCME Hydrocarbons in Water (F2; C10-C16): Sample required decanting due to inappropriate sample container.

Results relate only to the items tested.



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

Sampler Initials: PT

# **QUALITY ASSURANCE REPORT**

01/06			QUALITI ASSURA					
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A349747	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/16	value	104	%	60 - 140
A343747	003	Watrix Spike	F2 (C10-C16 Hydrocarbons)	2021/09/16		103	%	60 - 140
A349747	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/16		110	%	60 - 140
A343747	003	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2021/09/16		110	%	60 - 140
A349747	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/16		104	%	60 - 140
A343747	003	Method Blank	F2 (C10-C16 Hydrocarbons)	2021/09/16	<0.10	104	mg/L	00 - 140
A349747	GG3	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/16	NC		111g/L %	30
A351227	LQ1	Matrix Spike	Dissolved Aluminum (Al)	2021/09/19	NC	89	%	80 - 120
A331227	LQI	Matrix Spike	Dissolved Antimony (Sb)	2021/09/19		116	%	80 - 120
			Dissolved Artimony (35)  Dissolved Arsenic (As)	2021/09/19		102	%	80 - 120
			Dissolved Arsellic (As)  Dissolved Beryllium (Be)	2021/09/19		114	%	80 - 120
			Dissolved Chromium (Cr)	2021/09/19		103	%	80 - 120
			Dissolved Cobalt (Co)	2021/09/19		103	%	80 - 120
			Dissolved Copper (Cu)	2021/09/19		98	%	80 - 120
			Dissolved Copper (Cu)  Dissolved Lead (Pb)	2021/09/19		102	%	80 - 120
			Dissolved Lead (FB)  Dissolved Molybdenum (Mo)	2021/09/19		111	%	80 - 120
			Dissolved Nickel (Ni)	2021/09/19		102	%	80 - 120
			Dissolved Nicker (Ni)  Dissolved Selenium (Se)	2021/09/19		102	%	80 - 120
			Dissolved Silver (Ag)	2021/09/19		107	%	80 - 120
			Dissolved Silver (Ag)  Dissolved Thallium (TI)	2021/09/19		100	%	80 - 120
			Dissolved Triallidin (Tr) Dissolved Tin (Sn)	2021/09/19		113	%	80 - 120
			Dissolved Titr (Sit)  Dissolved Titanium (Ti)	2021/09/19		108	%	80 - 120
			Dissolved Tranium (T)  Dissolved Uranium (U)	2021/09/19		108	%	80 - 120
			Dissolved Granium (G)  Dissolved Vanadium (V)	2021/09/19		104	%	80 - 120
			Dissolved Variation (V)  Dissolved Zinc (Zn)	2021/09/19		107	%	80 - 120
A351227	LQ1	Spiked Blank	Dissolved Aluminum (AI)	2021/09/19		113	%	80 - 120
A331227	LQI	эрікей біалк	Dissolved Antimony (Sb)	2021/09/17		110	%	80 - 120
			Dissolved Aritimony (3b)  Dissolved Arsenic (As)	2021/09/17		96	%	80 - 120
			Dissolved Alseriic (As)  Dissolved Beryllium (Be)	2021/09/17		103	%	80 - 120
			Dissolved Berymum (Be)  Dissolved Chromium (Cr)	2021/09/17		98	%	80 - 120
			Dissolved Circumum (Cr)  Dissolved Cobalt (Co)	2021/09/17		95	%	80 - 120
			Dissolved Copper (Cu)	2021/09/17		96	%	80 - 120
			Dissolved Copper (Cu)  Dissolved Lead (Pb)	2021/09/17		93	%	80 - 120
			Dissolved Lead (FB)  Dissolved Molybdenum (Mo)	2021/09/17		102	%	80 - 120
			• • • •	• •		93	%	
			Dissolved Nickel (Ni)	2021/09/17				80 - 120
			Dissolved Selenium (Se) Dissolved Silver (Ag)	2021/09/17 2021/09/17		101 98	% %	80 - 120 80 - 120
			Dissolved Silver (Ag) Dissolved Thallium (TI)	2021/09/17		98 91		80 - 120 80 - 120
			Dissolved Triallidif (Tr)  Dissolved Tin (Sn)				%	80 - 120 80 - 120
			` '	2021/09/17		104	%	
			Dissolved Titanium (Ti)	2021/09/17		105	%	80 - 120
			Dissolved Variations (V)	2021/09/17		98	%	80 - 120
			Dissolved Vanadium (V)	2021/09/17		98	%	80 - 120
4254227	1.01	Markle and Diameter	Dissolved Zinc (Zn)	2021/09/17	-0.0020	102	%	80 - 120
A351227	LQ1	Method Blank	Dissolved Antimony (Sh)	2021/09/17	<0.0030		mg/L	
			Dissolved Arcania (As)	2021/09/17	<0.00060		mg/L	
			Dissolved Arsenic (As)	2021/09/17	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2021/09/17	<0.0010		mg/L	
			Dissolved Chalt (Co)	2021/09/17	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2021/09/17	<0.00030		mg/L	
			Dissolved Copper (Cu)	2021/09/17	<0.00020		mg/L	
			Dissolved Lead (Pb)	2021/09/17	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2021/09/17	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2021/09/17	<0.00050		mg/L	



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

Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Selenium (Se)	2021/09/17	<0.00020		mg/L	
			Dissolved Silver (Ag)	2021/09/17	<0.00010		mg/L	
			Dissolved Thallium (TI)	2021/09/17	<0.00020		mg/L	
			Dissolved Tin (Sn)	2021/09/17	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2021/09/17	< 0.0010		mg/L	
			Dissolved Uranium (U)	2021/09/17	<0.00010		mg/L	
			Dissolved Vanadium (V)	2021/09/17	< 0.0010		mg/L	
			Dissolved Zinc (Zn)	2021/09/17	<0.0030		mg/L	
A351227	LQ1	RPD	Dissolved Aluminum (AI)	2021/09/19	NC		%	20
			Dissolved Antimony (Sb)	2021/09/19	NC		%	20
			Dissolved Arsenic (As)	2021/09/19	1.6		%	20
			Dissolved Beryllium (Be)	2021/09/19	NC		%	20
			Dissolved Chromium (Cr)	2021/09/19	NC		%	20
			Dissolved Cobalt (Co)	2021/09/19	NC		%	20
			Dissolved Copper (Cu)	2021/09/19	NC		%	20
			Dissolved Lead (Pb)	2021/09/19	NC		%	20
			Dissolved Molybdenum (Mo)	2021/09/19	4.2		%	20
			Dissolved Nickel (Ni)	2021/09/19	6.8		%	20
			Dissolved Selenium (Se)	2021/09/19	NC		%	20
			Dissolved Silver (Ag)	2021/09/19	NC		%	20
			Dissolved Thallium (TI)	2021/09/19	NC		%	20
			Dissolved Tin (Sn)	2021/09/19	NC		%	20
			Dissolved Titanium (Ti)	2021/09/19	NC		%	20
			Dissolved Uranium (U)	2021/09/19	4.3		%	20
			Dissolved Vanadium (V)	2021/09/19	NC		%	20
			Dissolved Zinc (Zn)	2021/09/19	NC		%	20
A351273	IK0	Spiked Blank	Alkalinity (Total as CaCO3)	2021/09/16		94	%	80 - 120
A351273	IKO	Method Blank	Alkalinity (PP as CaCO3)	2021/09/16	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2021/09/16	<1.0		mg/L	
			Bicarbonate (HCO3)	2021/09/16	<1.0		mg/L	
			Carbonate (CO3)	2021/09/16	<1.0		mg/L	
			Hydroxide (OH)	2021/09/16	<1.0		mg/L	
A351273	IKO	RPD	Alkalinity (PP as CaCO3)	2021/09/16	NC		%	20
			Alkalinity (Total as CaCO3)	2021/09/16	2.2		%	20
			Bicarbonate (HCO3)	2021/09/16	2.2		%	20
			Carbonate (CO3)	2021/09/16	NC		%	20
			Hydroxide (OH)	2021/09/16	NC		%	20
A351276	IK0	Spiked Blank	pH	2021/09/15		100	%	97 - 103
A351276	IKO	RPD	pH	2021/09/16	0.059		%	N/A
A351277	IK0	Spiked Blank	Conductivity	2021/09/14		101	%	90 - 110
A351277	IKO	Method Blank	Conductivity	2021/09/14	<2.0		uS/cm	
A351277	IKO	RPD	Conductivity	2021/09/15	0.42		%	10
A351384	JFH	Matrix Spike	Dissolved Nitrite (N)	2021/09/14		98	%	80 - 120
, 100100 .	3	man mopilic	Dissolved Nitrate plus Nitrite (N)	2021/09/14		105	%	80 - 120
A351384	JFH	Spiked Blank	Dissolved Nitrite (N)	2021/09/14		104	%	80 - 120
		- p - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Dissolved Nitrate plus Nitrite (N)	2021/09/14		105	%	80 - 120
A351384	JFH	Method Blank	Dissolved Nitrite (N)	2021/09/14	<0.010		mg/L	
552567	J. 1.1		Dissolved Nitrate plus Nitrite (N)	2021/09/14	<0.010		mg/L	
A351384	JFH	RPD	Dissolved Nitrate plus Withte (N)	2021/09/14	NC		/// // // // // // // // // // // // //	20
551504	3111	5	Dissolved Nitrate (N)  Dissolved Nitrate plus Nitrite (N)	2021/09/14	NC		%	20
A352602	GG3	Matrix Spike [AFU653-03]	O-TERPHENYL (sur.)	2021/09/17	IVC	102	% %	60 - 140
MJJZUUZ	003	Matrix Spike [Al 0033-03]	F2 (C10-C16 Hydrocarbons)	2021/09/17		102	% %	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/17		104	% %	60 - 140
			13 (CIO-C34 Hyurocarbons)	2021/03/17		101	/0	00 - 14



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Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limit
			F4 (C34-C50 Hydrocarbons)	2021/09/17		99	%	60 - 140
A352602	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/17		97	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/17		99	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/17		101	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/17		97	%	60 - 140
A352602	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/17		104	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/17	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2021/09/17	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2021/09/17	<0.20		mg/L	
A352602	GG3	RPD [AFU655-01]	F2 (C10-C16 Hydrocarbons)	2021/09/17	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2021/09/17	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2021/09/17	NC		%	30
A352619	JU2	Matrix Spike	D10-ANTHRACENE (sur.)	2021/09/16		125	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2021/09/16		111	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/16		84	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/16		173 (1)	%	50 - 130
			Acenaphthene	2021/09/16		111	%	50 - 130
			Acenaphthylene	2021/09/16		109	%	50 - 130
			Acridine	2021/09/16		77	%	50 - 130
			Anthracene	2021/09/16		94	%	50 - 130
			Benzo(a)anthracene	2021/09/16		110	%	50 - 130
			Benzo(b&j)fluoranthene	2021/09/16		104	%	50 - 130
			Benzo(k)fluoranthene	2021/09/16		98	%	50 - 130
			Benzo(g,h,i)perylene	2021/09/16		84	%	50 - 130
			Benzo(c)phenanthrene	2021/09/16		126	%	50 - 130
			Benzo(a)pyrene	2021/09/16		99	%	50 - 130
			Benzo(e)pyrene	2021/09/16		102	%	50 - 130
			Chrysene	2021/09/16		124	%	50 - 130
			Dibenz(a,h)anthracene	2021/09/16		81	%	50 - 130
			Fluoranthene	2021/09/16		116	%	50 - 130
			Fluorene	2021/09/16		121	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/09/16		90	%	50 - 130
			1-Methylnaphthalene	2021/09/16		80	%	50 - 13
			2-Methylnaphthalene	2021/09/16		96	%	50 - 13
			Naphthalene	2021/09/16		93	%	50 - 130
			Phenanthrene	2021/09/16		116	%	50 - 130
			Perylene	2021/09/16		86	%	50 - 130
			Pyrene	2021/09/16		115	%	50 - 130
			Quinoline	2021/09/16		97	%	50 - 130
A352619	JU2	Spiked Blank	D10-ANTHRACENE (sur.)	2021/09/16		120	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2021/09/16		106	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/16		88	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/16		151 (1)	%	50 - 130
			Acenaphthene	2021/09/16		93	%	50 - 130
			Acenaphthylene	2021/09/16		94	%	50 - 130
			Acridine	2021/09/16		74	%	50 - 130
			Anthracene	2021/09/16		80	%	50 - 130
			Benzo(a)anthracene	2021/09/16		97	%	50 - 130
			Benzo(b&j)fluoranthene	2021/09/16		94	%	50 - 130
			Benzo(k)fluoranthene	2021/09/16		81	%	50 - 130
			Benzo(g,h,i)perylene	2021/09/16		80	% %	50 - 130
			Benzo(g)n,n)peryiene Benzo(c)phenanthrene	2021/09/16		116	% %	50 - 130
			Benzo(c)phenanthrene Benzo(a)pyrene	2021/09/16		90	% %	50 - 130



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Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(e)pyrene	2021/09/16		93	%	50 - 130
			Chrysene	2021/09/16		111	%	50 - 130
			Dibenz(a,h)anthracene	2021/09/16		76	%	50 - 130
			Fluoranthene	2021/09/16		100	%	50 - 130
			Fluorene	2021/09/16		100	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/09/16		87	%	50 - 130
			1-Methylnaphthalene	2021/09/16		71	%	50 - 130
			2-Methylnaphthalene	2021/09/16		86	%	50 - 130
			Naphthalene	2021/09/16		88	%	50 - 130
			Phenanthrene	2021/09/16		96	%	50 - 130
			Perylene	2021/09/16		79	%	50 - 130
			Pyrene	2021/09/16		100	%	50 - 130
			Quinoline	2021/09/16		90	%	50 - 130
352619	JU2	Method Blank	D10-ANTHRACENE (sur.)	2021/09/16		115	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2021/09/16		100	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/16		77	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/16		152 (1)	%	50 - 130
			Acenaphthene	2021/09/16	<0.10		ug/L	
			Acenaphthylene	2021/09/16	<0.10		ug/L	
			Acridine	2021/09/16	<0.040		ug/L	
			Anthracene	2021/09/16	<0.010		ug/L	
			Benzo(a)anthracene	2021/09/16	<0.0085		ug/L	
			Benzo(b&j)fluoranthene	2021/09/16	<0.0085		ug/L	
			Benzo(k)fluoranthene	2021/09/16	<0.0085		ug/L	
			Benzo(g,h,i)perylene	2021/09/16	<0.0085		ug/L	
			Benzo(c)phenanthrene	2021/09/16	<0.050		ug/L	
			Benzo(a)pyrene	2021/09/16	<0.0075		ug/L	
			Benzo(e)pyrene	2021/09/16	<0.050		ug/L	
			Chrysene	2021/09/16	<0.0085		ug/L	
			Dibenz(a,h)anthracene	2021/09/16	<0.0075		ug/L	
			Fluoranthene	2021/09/16	<0.010		ug/L	
			Fluorene	2021/09/16	<0.050		ug/L	
			Indeno(1,2,3-cd)pyrene	2021/09/16	<0.0085		ug/L	
			1-Methylnaphthalene	2021/09/16	<0.10		ug/L	
			2-Methylnaphthalene	2021/09/16	<0.10		ug/L	
			Naphthalene	2021/09/16	<0.10		ug/L	
			Phenanthrene	2021/09/16	<0.050		ug/L	
			Perylene	2021/09/16	<0.050		ug/L	
			Pyrene	2021/09/16	<0.020		ug/L	
			Quinoline	2021/09/16	<0.20		ug/L	
352619	JU2	RPD [AFU655-01]	Acenaphthene	2021/09/16	NC		%	30
332013	102	N D [A 0005-01]	Acenaphthylene	2021/09/16	NC		%	30
			Acridine	2021/09/16	NC		%	30
			Anthracene	2021/09/16	NC		%	30
			Benzo(a)anthracene	2021/09/16	NC		% %	30
			Benzo(b&j)fluoranthene	2021/09/16	NC		% %	30
			Benzo(k)fluoranthene	2021/09/16	NC		% %	30
			Benzo(k)huoranthene Benzo(g,h,i)perylene		NC NC		% %	30 30
				2021/09/16				30 30
			Benzo(c)phenanthrene	2021/09/16	NC NC		%	
			Benzo(a)pyrene	2021/09/16	NC NC		%	30
			Benzo(e)pyrene	2021/09/16	NC		%	30
			Chrysene	2021/09/16	NC		%	30
			Dibenz(a,h)anthracene	2021/09/16	NC		%	30



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Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Fluoranthene	2021/09/16	NC		%	30
			Fluorene	2021/09/16	NC		%	30
			Indeno(1,2,3-cd)pyrene	2021/09/16	NC		%	30
			1-Methylnaphthalene	2021/09/16	NC		%	30
			2-Methylnaphthalene	2021/09/16	NC		%	30
			Naphthalene	2021/09/16	NC		%	30
			Phenanthrene	2021/09/16	NC		%	30
			Perylene	2021/09/16	NC		%	30
			Pyrene	2021/09/16	NC		%	30
			Quinoline	2021/09/16	NC		%	30
A352650	DO1	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/15		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/15		101	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/15		101	%	50 - 140
			Benzene	2021/09/15		100	%	50 - 140
			Toluene	2021/09/15		101	%	50 - 140
			Ethylbenzene	2021/09/15		97	%	50 - 140
			m & p-Xylene	2021/09/15		101	%	50 - 140
			o-Xylene	2021/09/15		99	%	50 - 140
			F1 (C6-C10)	2021/09/15		86	%	60 - 140
A352650	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/15		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/15		100	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/15		97	%	50 - 140
			Benzene	2021/09/15		101	%	60 - 130
			Toluene	2021/09/15		102	%	60 - 130
			Ethylbenzene	2021/09/15		99	%	60 - 130
			m & p-Xylene	2021/09/15		102	%	60 - 130
			o-Xylene	2021/09/15		100	%	60 - 130
			F1 (C6-C10)	2021/09/15		101	%	60 - 140
A352650	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/15		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/15		98	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/15		100	%	50 - 140
			Benzene	2021/09/15	<0.00040		mg/L	
			Toluene	2021/09/15	<0.00040		mg/L	
			Ethylbenzene	2021/09/15	<0.00040		mg/L	
			m & p-Xylene	2021/09/15	<0.00080		mg/L	
			o-Xylene	2021/09/15	<0.00040		mg/L	
			F1 (C6-C10)	2021/09/15	<0.10		mg/L	
A352650	DO1	RPD	Benzene	2021/09/15	1.0		%	30
			Toluene	2021/09/15	2.5		%	30
			Ethylbenzene	2021/09/15	NC		%	30
			m & p-Xylene	2021/09/15	0.90		%	30
			o-Xylene	2021/09/15	25		%	30
			F1 (C6-C10)	2021/09/15	NC		%	30
A354608	JAB	Matrix Spike	Dissolved Barium (Ba)	2021/09/18		103	%	80 - 120
		r	Dissolved Boron (B)	2021/09/18		111	%	80 - 120
			Dissolved Calcium (Ca)	2021/09/18		95	%	80 - 120
			Dissolved Iron (Fe)	2021/09/18		98	%	80 - 120
			Dissolved Lithium (Li)	2021/09/18		94	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/18		96	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/18		95	%	80 - 120
			Dissolved Phosphorus (P)	2021/09/18		112	%	80 - 120
			Dissolved Potassium (K)	2021/09/18		99	%	80 - 120
			Dissolved Fotassidin (K)  Dissolved Silicon (Si)	2021/09/18		98	%	80 - 120



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Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
		··	Dissolved Sodium (Na)	2021/09/18		95	%	80 - 120
			Dissolved Strontium (Sr)	2021/09/18		102	%	80 - 120
			Dissolved Sulphur (S)	2021/09/18		113	%	80 - 120
A354608	JAB	Spiked Blank	Dissolved Barium (Ba)	2021/09/18		108	%	80 - 120
		•	Dissolved Boron (B)	2021/09/18		112	%	80 - 120
			Dissolved Calcium (Ca)	2021/09/18		98	%	80 - 120
			Dissolved Iron (Fe)	2021/09/18		99	%	80 - 120
			Dissolved Lithium (Li)	2021/09/18		94	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/18		98	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/18		96	%	80 - 120
			Dissolved Phosphorus (P)	2021/09/18		111	%	80 - 120
			Dissolved Potassium (K)	2021/09/18		99	%	80 - 120
			Dissolved Silicon (Si)	2021/09/18		107	%	80 - 120
			Dissolved Sodium (Na)	2021/09/18		95	%	80 - 120
			Dissolved Strontium (Sr)	2021/09/18		103	%	80 - 120
			Dissolved Sulphur (S)	2021/09/18		111	%	80 - 120
A354608	JAB	Method Blank	Dissolved Barium (Ba)	2021/09/19	< 0.010		mg/L	
			Dissolved Boron (B)	2021/09/19	<0.020		mg/L	
			Dissolved Calcium (Ca)	2021/09/19	<0.30		mg/L	
			Dissolved Iron (Fe)	2021/09/19	<0.060		mg/L	
			Dissolved Lithium (Li)	2021/09/19	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2021/09/19	<0.20		mg/L	
			Dissolved Manganese (Mn)	2021/09/19	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2021/09/19	<0.10		mg/L	
			Dissolved Potassium (K)	2021/09/19	<0.30		mg/L	
			Dissolved Silicon (Si)	2021/09/19	<0.10		mg/L	
			Dissolved Sodium (Na)	2021/09/19	<0.50		mg/L	
			Dissolved Strontium (Sr)	2021/09/19	<0.020		mg/L	
			Dissolved Sulphur (S)	2021/09/19	<0.20		mg/L	
A354608	JAB	RPD	Dissolved Barium (Ba)	2021/09/19	7.6		%	20
1334000	JAD	III D	Dissolved Boron (B)	2021/09/19	NC		%	20
			Dissolved Boron (B)  Dissolved Calcium (Ca)	2021/09/19	0.86		%	20
			Dissolved Calcium (Ca)  Dissolved Iron (Fe)	2021/09/19	1.7		%	20
			Dissolved Holl (1e)  Dissolved Lithium (Li)	2021/09/19	2.6		%	20
			Dissolved Lithium (Li)  Dissolved Magnesium (Mg)	2021/09/19	0.36		%	20
			Dissolved Magnesium (Mg)  Dissolved Manganese (Mn)	2021/09/19	1.4		%	20
			Dissolved Mangariese (Min)  Dissolved Phosphorus (P)	2021/09/19	3.0		%	20
			Dissolved Priosphorus (F)	2021/09/19	2.3		%	20
			Dissolved Fotassium (K)  Dissolved Silicon (Si)	2021/09/19	1.4		%	20
			Dissolved Silicon (Si)  Dissolved Sodium (Na)	2021/09/19	0.72		%	20
			Dissolved Strontium (Sr)	2021/09/19	0.72		% %	20
			Dissolved Strontium (SI)	2021/09/19	NC		% %	20
A 2 E 4 7 E O	JAB	Matrix Spike	• • • •		INC	NC		80 - 120
A354759	JAB	імаціх зріке	Dissolved Ison (Ca)	2021/09/18 2021/09/18		NC NC	%	
			Dissolved Iron (Fe)				%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/18		93 93	% %	80 - 120 80 - 120
			Dissolved Manganese (Mn)	2021/09/18 2021/09/18			% %	
			Dissolved Potassium (K)	2021/09/18		94		80 - 120
A 2 E 4 7 E O	IAD	Childad Bland	Dissolved Sodium (Na)			90	%	80 - 120 80 - 120
4554/59	JAR	эрікей віапк						
			• ,	• •				80 - 120
				• •				80 - 120
			5 , ,					80 - 120 80 - 120
A354759	JAB	Spiked Blank	Dissolved Calcium (Ca) Dissolved Iron (Fe) Dissolved Magnesium (Mg) Dissolved Manganese (Mn) Dissolved Potassium (K)	2021/09/18 2021/09/18 2021/09/18 2021/09/18 2021/09/18		95 102 96 97 97	% % % %	



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QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Sodium (Na)	2021/09/18		93	%	80 - 120
A354759	JAB	Method Blank	Dissolved Calcium (Ca)	2021/09/18	<0.30		mg/L	
			Dissolved Iron (Fe)	2021/09/18	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2021/09/18	<0.20		mg/L	
			Dissolved Manganese (Mn)	2021/09/18	<0.0040		mg/L	
			Dissolved Potassium (K)	2021/09/18	<0.30		mg/L	
			Dissolved Sodium (Na)	2021/09/18	<0.50		mg/L	
A354759	JAB	RPD	Dissolved Calcium (Ca)	2021/09/18	2.6		%	20
			Dissolved Iron (Fe)	2021/09/18	2.4		%	20
			Dissolved Magnesium (Mg)	2021/09/18	2.5		%	20
			Dissolved Manganese (Mn)	2021/09/18	0.95		%	20
			Dissolved Potassium (K)	2021/09/18	0.60		%	20
			Dissolved Sodium (Na)	2021/09/18	0.80		%	20
A356008	PC5	Matrix Spike	Total Aluminum (AI)	2021/09/17		101	%	80 - 120
			Total Antimony (Sb)	2021/09/17		109	%	80 - 120
			Total Arsenic (As)	2021/09/17		98	%	80 - 120
			Total Beryllium (Be)	2021/09/17		106	%	80 - 120
			Total Chromium (Cr)	2021/09/17		99	%	80 - 120
			Total Cobalt (Co)	2021/09/17		98	%	80 - 120
			Total Copper (Cu)	2021/09/17		97	%	80 - 120
			Total Lead (Pb)	2021/09/17		100	%	80 - 120
			Total Molybdenum (Mo)	2021/09/17		109	%	80 - 120
			Total Nickel (Ni)	2021/09/17		97	%	80 - 120
			Total Selenium (Se)	2021/09/17		101	%	80 - 120
			Total Silver (Ag)	2021/09/17		104	%	80 - 120
			Total Thallium (TI)	2021/09/17		100	%	80 - 120
			Total Tin (Sn)	2021/09/17		107	%	80 - 120
			Total Titanium (Ti)	2021/09/17		103	%	80 - 120
			Total Uranium (U)	2021/09/17		102	%	80 - 120
			Total Vanadium (V)	2021/09/17		101	%	80 - 120
			Total Zinc (Zn)	2021/09/17		90	%	80 - 120
A356008	PC5	Spiked Blank	Total Aluminum (Al)	2021/09/17		113	%	80 - 120
		·	Total Antimony (Sb)	2021/09/17		115	%	80 - 120
			Total Arsenic (As)	2021/09/17		106	%	80 - 120
			Total Beryllium (Be)	2021/09/17		113	%	80 - 120
			Total Chromium (Cr)	2021/09/17		109	%	80 - 120
			Total Cobalt (Co)	2021/09/17		107	%	80 - 120
			Total Copper (Cu)	2021/09/17		109	%	80 - 120
			Total Lead (Pb)	2021/09/17		109	%	80 - 120
			Total Molybdenum (Mo)	2021/09/17		112	%	80 - 120
			Total Nickel (Ni)	2021/09/17		107	%	80 - 120
			Total Selenium (Se)	2021/09/17		111	%	80 - 120
			Total Silver (Ag)	2021/09/17		110	%	80 - 120
			Total Thallium (TI)	2021/09/17		107	%	80 - 120
			Total Tin (Sn)	2021/09/17		111	%	80 - 120
			Total Titanium (Ti)	2021/09/17		112	%	80 - 120
			Total Uranium (U)	2021/09/17		107	%	80 - 120
			Total Vanadium (V)	2021/09/17		108	%	80 - 120
			Total Zinc (Zn)	2021/09/17		108	%	80 - 120
A356008	PC5	Method Blank	Total Aluminum (Al)	2021/09/17	<0.0030	100	mg/L	55 120
	, 63	WICKING DIGITA	Total Antimony (Sb)	2021/09/17	<0.0030		mg/L	
			Total Artimony (5b)  Total Arsenic (As)	2021/09/17	<0.00080		mg/L	



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

Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Chromium (Cr)	2021/09/17	<0.0010		mg/L	
			Total Cobalt (Co)	2021/09/17	<0.00030		mg/L	
			Total Copper (Cu)	2021/09/17	<0.00020		mg/L	
			Total Lead (Pb)	2021/09/17	<0.00020		mg/L	
			Total Molybdenum (Mo)	2021/09/17	<0.00020		mg/L	
			Total Nickel (Ni)	2021/09/17	<0.00050		mg/L	
			Total Selenium (Se)	2021/09/17	<0.00020		mg/L	
			Total Silver (Ag)	2021/09/17	<0.00010		mg/L	
			Total Thallium (TI)	2021/09/17	<0.00020		mg/L	
			Total Tin (Sn)	2021/09/17	<0.0010		mg/L	
			Total Titanium (Ti)	2021/09/17	<0.0010		mg/L	
			Total Uranium (U)	2021/09/17	<0.00010		mg/L	
			Total Vanadium (V)	2021/09/17	<0.0010		mg/L	
			Total Zinc (Zn)	2021/09/17	<0.0030		mg/L	
356008	PC5	RPD [AFU654-01]	Total Aluminum (Al)	2021/09/17	37 (1)		%	20
			Total Antimony (Sb)	2021/09/17	NC		%	20
			Total Arsenic (As)	2021/09/17	7.8		%	20
			Total Beryllium (Be)	2021/09/17	NC		%	20
			Total Chromium (Cr)	2021/09/17	NC		%	20
			Total Cobalt (Co)	2021/09/17	8.5		%	20
			Total Copper (Cu)	2021/09/17	0.73		%	20
			Total Lead (Pb)	2021/09/17	5.6		%	20
			Total Molybdenum (Mo)	2021/09/17	1.3		%	20
			Total Nickel (Ni)	2021/09/17	14		%	20
			Total Selenium (Se)	2021/09/17	19		%	20
			Total Silver (Ag)	2021/09/17	NC		%	20
			Total Thallium (TI)	2021/09/17	NC		%	20
			Total Tin (Sn)	2021/09/17	NC		%	20
			Total Titanium (Ti)	2021/09/17	43 (1)		%	20
			Total Uranium (U)	2021/09/17	9.1		%	20
			Total Vanadium (V)	2021/09/17	5.4		%	20
			Total Zinc (Zn)	2021/09/17	0.41		%	20
356061	JAB	Matrix Spike [AFU653-01]	Total Barium (Ba)	2021/09/18		106	%	80 - 120
		, , ,	Total Boron (B)	2021/09/18		117	%	80 - 120
			Total Calcium (Ca)	2021/09/18		105	%	80 - 120
			Total Iron (Fe)	2021/09/18		NC	%	80 - 120
			Total Lithium (Li)	2021/09/18		99	%	80 - 120
			Total Magnesium (Mg)	2021/09/18		105	%	80 - 120
			Total Manganese (Mn)	2021/09/18		101	%	80 - 120
			Total Phosphorus (P)	2021/09/18		113	%	80 - 120
			Total Potassium (K)	2021/09/18		103	%	80 - 120
			Total Silicon (Si)	2021/09/18		128 (2)	%	80 - 120
			Total Sodium (Na)	2021/09/18		102	%	80 - 120
			Total Strontium (Sr)	2021/09/18		107	%	80 - 120
			Total Sulphur (S)	2021/09/18		120	%	80 - 120
356061	JAB	Spiked Blank	Total Barium (Ba)	2021/09/18		104	%	80 - 120
		- p= = - m	Total Boron (B)	2021/09/18		114	%	80 - 120
			Total Calcium (Ca)	2021/09/18		100	%	80 - 120
			Total Iron (Fe)	2021/09/18		103	% %	80 - 120
			Total Lithium (Li)	2021/09/18		98	% %	80 - 120
			Total Magnesium (Mg)	2021/09/18		98 101	% %	80 - 120
			Total Magnesium (Mg)  Total Manganese (Mn)	2021/09/18		99	% %	80 - 120 80 - 120



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

Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Potassium (K)	2021/09/18		102	%	80 - 120
			Total Silicon (Si)	2021/09/18		113	%	80 - 120
			Total Sodium (Na)	2021/09/18		97	%	80 - 120
			Total Strontium (Sr)	2021/09/18		105	%	80 - 120
			Total Sulphur (S)	2021/09/18		117	%	80 - 120
A356061	JAB	Method Blank	Total Barium (Ba)	2021/09/18	< 0.010		mg/L	
			Total Boron (B)	2021/09/18	<0.020		mg/L	
			Total Calcium (Ca)	2021/09/18	<0.30		mg/L	
			Total Iron (Fe)	2021/09/18	< 0.060		mg/L	
			Total Lithium (Li)	2021/09/18	<0.020		mg/L	
			Total Magnesium (Mg)	2021/09/18	<0.20		mg/L	
			Total Manganese (Mn)	2021/09/18	< 0.0040		mg/L	
			Total Phosphorus (P)	2021/09/18	<0.10		mg/L	
			Total Potassium (K)	2021/09/18	< 0.30		mg/L	
			Total Silicon (Si)	2021/09/18	< 0.10		mg/L	
			Total Sodium (Na)	2021/09/18	<0.50		mg/L	
			Total Strontium (Sr)	2021/09/18	<0.020		mg/L	
			Total Sulphur (S)	2021/09/18	<0.20		mg/L	
A356061	JAB	RPD [AFU654-01]	Total Barium (Ba)	2021/09/18	0.52		%	20
			Total Boron (B)	2021/09/18	5.3		%	20
			Total Calcium (Ca)	2021/09/18	0.97		%	20
			Total Iron (Fe)	2021/09/18	4.3		%	20
			Total Lithium (Li)	2021/09/18	NC		%	20
			Total Magnesium (Mg)	2021/09/18	0.17		%	20
			Total Manganese (Mn)	2021/09/18	1.4		%	20
			Total Phosphorus (P)	2021/09/18	NC		%	20
			Total Potassium (K)	2021/09/18	0.98		%	20
			Total Silicon (Si)	2021/09/18	3.3		%	20
			Total Sodium (Na)	2021/09/18	0.89		%	20
			Total Strontium (Sr)	2021/09/18	0.51		%	20
			Total Sulphur (S)	2021/09/18	1.6		%	20
A356082	BFE	Matrix Spike	Dissolved Chloride (CI)	2021/09/17		106	%	80 - 120
			Dissolved Sulphate (SO4)	2021/09/17		108	%	80 - 120
A356082	BFE	Spiked Blank	Dissolved Chloride (CI)	2021/09/17		103	%	80 - 120
			Dissolved Sulphate (SO4)	2021/09/17		97	%	80 - 120
A356082	BFE	Method Blank	Dissolved Chloride (CI)	2021/09/17	<1.0		mg/L	
			Dissolved Sulphate (SO4)	2021/09/17	<1.0		mg/L	
A356082	BFE	RPD	Dissolved Chloride (CI)	2021/09/17	18		%	20



Client Project #: 20368099-6000-1001 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
			Dissolved Sulphate (SO4)	2021/09/17	0.32		%	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 Client Project #: 20368099-6000-1001 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:

Enta
Gita Pokhrel, Laboratory Supervisor
Junzhi Gras
Janet Gao, B.Sc., QP, Supervisor, Organics
$\sim \Lambda_{\Delta}$

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

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

Coloniary Mathematical Coloniary Mathematic	The control of the	USTODY SEAL   TESM   COOLER   NO COOLER	
Company of the control of the cont	Company State   Company State   Company   Company State   Co	TEMP   S   NO   COOLER   D   S   S   NO   COOLER   D   S   S   S   S   S   S   S   S   S	01 / 10 / 10 / 10 / 10 / 10 / 10 / 10 /
ACTION OF STATE	Comparison	TEMP   S   TEMP   S   TEMP	
Company   Comp	Carrier   Carr	Yes   No Goder   1   2   3   Custom Sent   Temp   Yes   No Goder   Temp   Yes   Yes   No Goder   Temp   Yes   Yes   No Goder   Temp   Yes   Ye	
Control	Control   Cont	TEMP   COLER   COLER	
The control of the	150   150	TEMP   C   C   C   TEMP   C   C   TEMP   T   T   T   T   T   T   T   T   T	
Care Reserved   Care Reserve	Carrier State   Carrier Stat	TEMP   Q   Z   S   INTACT   TEMP   TEMP   Q   Z   S   INTACT   TEMP   TEMP   Q   Z   S   INTACT   TEMP   TEMP   Q   Z   INTACT   TEMP   Q   Z   INTACT   TEMP   TEMP   Q   Z   INTACT   TEMP   Q   Z   Z   Z   Z   Z   Z   INTACT   TEMP   Q   Z   Z   Z   Z   Z   Z   Z   Z   Z	
Control of Control o	Control   Cont	YES NO COUCEA D   1   2   3   ICE PRESENT   FEMP   FEMP   FREEENT   FEMP   CONCER D	
Control Plant   Control Plan	Control part   Time	TEMP	
Control	CANON SALE   CAN	TEMP   Q   Q   TEMP	
Carrier   Carr	Carresign   Carr	TEMP   1   2   3   GENERALT   TEMP	
Control State   Control Stat	Control Cont	TEMP   2   3   10E PRESENT   TEMP   2   3   10E PRESENT   TEMP	
Control of State   Control of	Control of State   Control of	FES NO COULER ID   2   2   3   10   10   10   10   10   10   10	
TEMP   18	TEMP   1   2   3   1   1   1   1   1   1   1   1   1	TEMP   2   2   S   W. ALT   TEMP	
Carrier   Carr	Carrier Service   Carrier Se	TEMP   2   5   UNACT   TEMP	
Canada selection   Canada sele	Carried National Carr	TEMP	
Carrier State   Carrier Stat	CASTODY SEAL   TEAM	TEMP   2   3   TEMP   3   TEMP   4   4   4   4   4   4   4   4   4	
Control   Cont	TEMP   CEPRESON   CE	TEMP   Z   S   PREENT   TEMP   TEMP	
TEMP   2   2   3	TEMP   CEPRESANT   TEMP   CEPRESANT   TEMP   COOCER   CEPRESANT   TEMP   T	TEMP   2   3   FREEEN   TEMP   TEMP	
CEPRESNIT   CEPR	CUSTODY SEAL   FEM   1	TEMP	
CASTON SEAL   FEST NO COORER   CASTON SEAL   FEST NO COORER   CASTON SEAL   FEST NO COOLER    CUSTODY SEAL   VES NO COUCEA   1 2 3 1 CLOSTODY SEAL   VES NO COUCEA   LOSTODY SEAL   LOSTODY SEAL   LOSTODY SEAL   LOSTOD	YES NO COOLERIO COOLERIO YES NO COOLERIO		
Problem   Prob	Price   Pric	CUSTODY SEAL YES NO COOLER	
CE PRESENT   CE	Marie   Mari		
CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   COLER	CEPRESENT   COOLER LO.   CEPRESENT   COOLER LO.   CEPRESENT   COOLER LO.   CEPRESENT   C		
CUSTOON SEAL   FIS NO GOOGRA   CUSTOON SEAL   YES NO GOOGRA   YES	CONTROL SEAL   FEST   CONTRACT	S division	
Preserve    PRESENT   TEMP   2   2   1   1   1   1   1   2   3   1   1   1   1   1   3   3   1   1	L Z 13 ICE PRESENT	And the same of the state of the same of t	
		TO COULTER ID TO THE NO	
	COLESION		
	CLESTOOT SEAL   TEAP   COLER LO   COLER LO   CLESTOOT SEAL   TEAP   TEAP   CLESTOOT SEAL   TEAP   TEAP   CLESTOOT SEAL   TEAP	I EMP 2 2 INFACT	
TEMP	TEMP	/ CEPRESENT	
No. 10   N		TES NO COCLER ID	
CLOSTODY SEAL   TEMP   1   2   5   HTTAGT   TEMP    CEPRESENT   CEPRESENT   TEMP   S   CEPRESENT   TEMP   TE	- A	The first which will be seen the property of t	
COOLER D    CUSTODY SEAL   TEMP   1	TEMP S		
PASSENT   TEMP   1 2 3   TEMP   TEM	Page 10   Page	1 2 9 ILE PRESENT	A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.
FEASIGN   FEAS		COULER ID COULER ID COOLER ID	
CESPRESENT   TEMP   1 2 3 1 167 PRESENT   TEMP	TEMP   17 3   IGENESSAT   TEMP   TE		
USTOOD SEAL   TES   NO COULER D   2   3   CLE PRESENT   FES   NO COOLER D	UDSTOOT SELL TES NO COOLERID CUSTOOT SEAL TES NO COOLERID  PRESENT   TEMP		
CODICION SECAL   YES   NO   CODICIS ID   CODICIS ID   PASSENT   YES   NO   CODICIS ID   YES   NO   CODICIS ID   YES   NO   CODICIS ID   YES   YE	PRIZECT YES NO (CONERID CUSTODY SEAL YES NO (CONERID PRIZECT)	1 2 3 ICE PRESENT	No the Principle of the Control of t
NTACT	PR5527	YES NO COULERID COSTODY SEAL YES NO COOLERID	
TEMP   1   2   3     TEMP		PR65EN_	
RECEIVED BY (SIGN & PRINT)  OATE (YYYY/MM/DD)	MALT TEMP INTACT	TEMP	
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DATE (YYYY/MM/DD)			
	DATE (YYYY/MM/DD)	DATE (YYYY/MM/DD)	
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# ADDITIONAL COOLER TEMPERATURE RECORD

CHAIN-OF-CUSTODY RECORD

Containing Containin		COOLEN UBSERVALIONS:	VALIONS:				MAXXAM JOB#:	•••				
O	CHAIN OF CUSTODY #		MCAL				* Discharge second			0	TO	5
O		CUSTODY SEAL	P #	COOLER IC	0		CUSTODY SEAL	YES	Н	COOLER ID		
O	1	PRESENT	>	- Marine	<	4	PRESENT	_		WINDS.		***********
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O		ICE PRESENT	_	-	1	2 3	ICE PRESENT	-	-		4	E .
O		CUSTODY SEAL		_			CUSTODY SEAL	YES	_	COOLER ID		
Of		PRESENT	1	-	-	-	PRESENT					L
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Column	of	ICE PRESENT			1	THE REAL PROPERTY.	ICE PRESENT	L			ercitus.	m
O	e.	CUSTODY SEAL	-	7			CUSTODY SEAL	YES	ON	COOLER ID		
O		PRESENT	1	7	-		PRESENT	-			_	L
O	-	INTACT	1	TEMP			INTACT		Ī	TEMP	***************************************	www
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O		ILE PRESEIVI	-		-	-	ICE PRESENT	_		ı	_	e .
O		CUSTODY SEAL	-1				CUSTODY SEAL	YES	ON	COOLER ID		
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CUSTODY SEAL   YES NO GOOLER   TEMP		ICE PRESENT		_	Hones	THE REAL PROPERTY.	ICE PRESENT			THE REAL PROPERTY.	-	Е
Of   PRESENT   TRAM	a	CUSTODY SEAL	_	Seaan			CUSTODY SEAL	YES	1	COOLER ID		
O	1	PRESENT			H	-	PRESENT	L	1			
Color   Colo		INTACT	_	TEMP		-21211	INTACT	-		TEMP	malue	Name of the last
Of		ICE PRESENT		1	-	to the last	ICE PRESENT		Ī	-	en co	m
Of		CUSTODY SEAL	-			The second second	CUSTODY SEAL	YES	7	COOLER ID	TO STATE OF THE PARTY OF THE PA	and annual section
of         INTACT         TEMP         5         I         I         1         2         3         ICCPRESENT         TEMP         1         2         3         ICCPRESENT		PRESENT	┢	-	-	ŀ	PRESENT	-	7		L	ŀ
of         Of         CEPRESENT         1         2         3         ICEPRESENT         1         2           of         Of         Of         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID         TEMP         1         2         3         CLSTODY SEAL         YES         NO         COOLER ID </td <td></td> <td>INTACT</td> <td>1</td> <td>TEMP</td> <td>N.</td> <td>7</td> <td>INTACT</td> <td>-</td> <td>T</td> <td>TEMP</td> <td>-</td> <td>ACCULA</td>		INTACT	1	TEMP	N.	7	INTACT	-	T	TEMP	-	ACCULA
of         PRESENT         YES NO COOLER D         COOLER D         COOLER D         TEMP         1         2         3         COOLER D         1         2         3         COOLER D         TEMP         1         2         3         COOLER D         TEMP         1         2         3         COOLER D         3         3         1         2         3		ICE PRESENT			)		ICE ODECENT	-		tonous	CHARLE	
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OF   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CEPRESENT   CUSTODY SEAL   VES   NO   COOLEN   D   COOLEN		PRESENT	,	annum.		MILLION .	PRESENT					and the
OF   COLEMB   COLEMB   OF   OF   OF   OF   OF   OF   OF   O		INTACT	,	-		-	INTACT	_		TEMP	e works	Vision
OF   PRESENT   TEMP   1 2 3   ICE PRESENT   TEMP		ICE PRESENT	`		_	-	ICE PRESENT	_		-	_	e
Of		CUSTODY SEAL	-	COOLER ID			CUSTODY SEAL	YES	-	OOLER ID		
of         INTACT         TEMP         1         2         3         INTACT         TEMP         1         2         A         INTACT         TEMP         1         2         A         INTACT         TEMP         1         2         3         ICCF PRESENT         TEMP         1         2         A         INTACT         TEMP         1         2         3         ICCF PRESENT         ICCF P	ı	PRESENT	\		L	-	PRESENT		Ī	L		L
of         of         1         2         3         ICEPRESENT         1         2           of         Of         PRESENT         YES NO GOOLER ID         TEMP		INTACT	1	TEMP	7	ECHE.	INTACT			TEMP	-	-
OF         CUSTODY SEAL         YES         NO COOLER ID         COOLER ID         YES NO COOLER ID           OF         INTACT         TEMP         1         2         3         ICE PRESENT         TEMP         1         2           RECEIVED BY (SIGN & PRINT)         DATE (YYYYY/MIM/DD)         TIIME (HH:MIM)	Jo	ICE PRESENT		Pippine Pippine	1 2		ICE PRESENT		Ī	- All	de sano	m
of         DATE (YYYY/MM/DD)         TIME (HH:MM)		CHSTODY SEAL	+	OLGO ID	-		CHETODY FEAT	Vec	~~~	1		- Commercial and
PRESENT TEMP 1 2 3 ICEPRESENT TEMP 1 2 3 ICEPRESENT TEMP 1 2 2 RECEIVED BY (SIGN & PRINT) DATE (YYYY/MM/DD) TIME (HH:MM)		COSTODY SEAL	-	COOLEK ID	The same of the sa		CUSTODY SEAL	YES	annelle .	DOLERID	Total Agency of Control	Contractor (ex
DATE (YYYY/MM/DD) TIME (HH:MM)		PRESENT		***************************************	Okcus	DEM:	PRESENT			conce	onne a	- Triabile
ICEPRESENT		INTACT		TEMP	Milana	ness and	INTACT			TEMP	Professor	estama.
DATE (YYYY/MM/DD) TIIN	jo	ICE PRESENT				-	ICE PRESENT			e-i	-	m
DATE (YYYY/MM/DD) TIN				DOMESTIC STREET, COLOR								
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Chain Of Custody Record

	Page of
Record	0

	Laboratory Use Only	BV Labs Job # Bottle Order #:	■ トなせりご	Chain		C#644255-02-01	Turnaround Time (TAT) Required	Please provide advance notice for rush projects		(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 such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	Job Specific Rush TAT (if applies to entire submission) Date Required:	on Number	(call lab for #)	# of Bottles		min. volume	Contain Maria		9	7	A LACTOR	too the work.				Lab Use Only	Custody Seal Intact	Yes	IN TERMS WHICH ARE AVAILABLE White: BV Labs Yellow: Citent
2-11-10-0		0046	303680997-7000-100	001-000-11-000			nested		Reg	(wil	Ple	Job	Rush		jo#	C				J. Similar Variable	By: Mecan o	9:00 KI	OEF 10 4021	Jemp:		_	Time # jars used and Time Constituted	024-1	UNLESS OTHERWISE AREA DOWN WITHING, WORK SUBMITTED ON THIS CHAIN OF CLISTOP IS STRAIDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CLISTOPY SUBMITTED ON THIS CHAIN OF CLISTOPY IS STRAIDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CLISTOPY OF CHAIN OF CLISTOPY OF CHAIN OF CLISTOPY OF CHAIN OF CHAIN OF CLISTOPY OF CHAIN OF CHAIN OF CLISTOPY OF CHAIN OF CHAIN OF CHAIN OF CLISTOPY OF CHAIN	THE STANDARTED GIVEN AND ACCEPTANCE OF OU
	VI . 1	OCCATION#	SIN		OO Site#	peter_tan@golder.com , PAD-€ \\(I, \Q, \lambda \lambd	Analysis Requested	50	רצ		av	TEX ;	L8 :	H :ME ater utin	CC Ws	>	>	>	>	>	á ×	>	<			tin the state of t	100	11/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1	SIGNING OF THIS CHAIN OF CUSTODY DOCLIME	AY RESULT IN ANALYTICAL TAT DELAYS.
Report Information	3418	FER TAN	2800, 700 - 2nd Street	CALCIARY, MG	(780) 483-3499 402739(456	peter_tan@golder.com _poe/\/	(	N\	N)	, Teter	ng War	Drinki d Filte	bed Fiel	als:	Me	: 55 M20 N	11:35 HZON	1630 MG WY V	1630 MON1 /		09:00 Hz.O N					RECEIVED BY: (Signatura/Drint)	- The Alicio I'm		3V LABS' STANDARD TERMS AND CONDITIONS.	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 AMALYTICAL TAT DELAYS.
	<i>y</i> ₽	Company Nam	Address		Phone	Email Special Inc	-	TOWACI I.	Shelldgregolder.com	La CITA 12d	TACILLY COLD	3se use the Drinking Water Chain of Custor	Samples must be kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \ from limp of summing in the kent cont / < 10°C \	i une of sampling until delivery to BV Labs	Date Sampled	MANG (21 11:	SOUND TO SOUND OF THE PARTY OF	1 Sept 21 16	1 Sept 1 16	1540+131	6 Sept 21 09	11				Date: (YY/MM/DD) Time	THOUSEN THE BE	21/09/04/11:30	N THIS CHAIN OF CUSTODY IS SUBJECT TO B	ACCURACY OF THE CHAIN OF CUSTODY REC
INVOICE TO:	#2045 GOLDER ASSOCIATES LTD	ACCOUNTS PAYABLE	16820-107 AVE		Fax:	of the second se		ルミン				Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form	Samples must be kent cool ( > 10°C)			P06-07	P19-06	10-12ms	DUPA	Field Black	Su21-01	Due A.	1			Y: (Signature/Print)	NO.TAN	8	SREED TO IN WRITING, WORK SUBMITTED OF BYLABS, COM/TERMS-AND-CONDITIONS	TY OF THE RELINQUISHER TO ENSURE THE A
	Company Name #20			,	Fmail	nulatory Crite	1					Note: )		* 10	Š	42	2 Z Z	m	4	>	S)	_	80	o	10	* RELINQUISHED BY: (Signature/Print)			* UNLESS OTHERWISE AC FOR VIEWING AT WWW.E	IT IS THE RESPONSIBILI

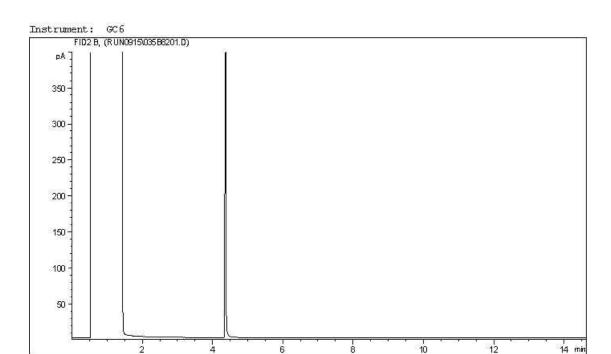
Bureau Veritas Canada (2019) Inc.

BV Labs Job #: C167904 GOLDER ASSOCIATES LTD

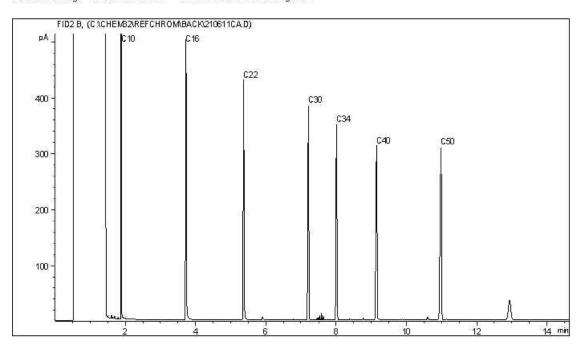
Report Date: 2021/09/20 BV Labs Sample: AFU651 Client Project #: 20368099-6000-1001

Client ID: P06-07

#### CCME Hydrocarbons in Water (F2; C10-C16) 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 #: C167904 **GOLDER ASSOCIATES LTD** Client Project #: 20368099-6000-1001

Report Date: 2021/09/20 BV Labs Sample: AFU653

Client ID: SW21-01

10

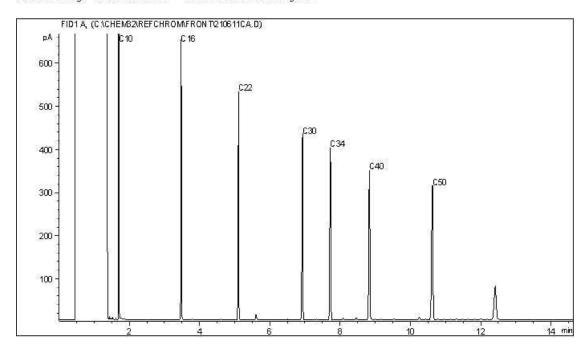
12

14 min

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

Instrument: GC6 FID1 A, (R UN0915/067F8201.D) pA ] 350 300 -250 -200 -150 -100 -50 -

Carbon Range Distribution - Reference Chromatogram



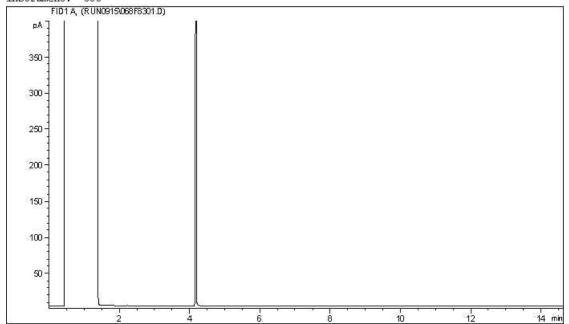
TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: c4 - c12 Diesel: c8 - c22 Varsol: c8 - c12 Lubricating Oils: c20 - c40 c7 - c16 Crude Oils: c3 - c60+ Kerosene:

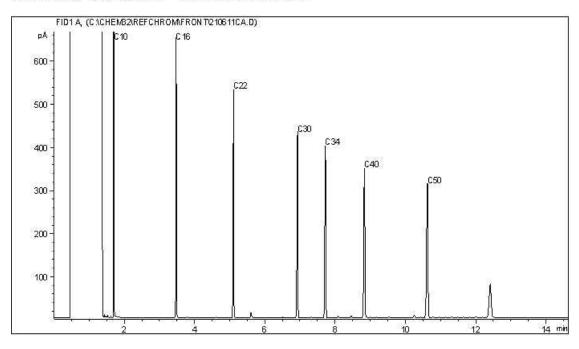
BV Labs Job #: C167904 GOLDER ASSOCIATES LTD

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

Instrument: GC6



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 #: C167904 Report Date: 2021/09/20

BV Labs Sample: AFU655

GOLDER ASSOCIATES LTD

Client Project #: 20368099-6000-1001

10

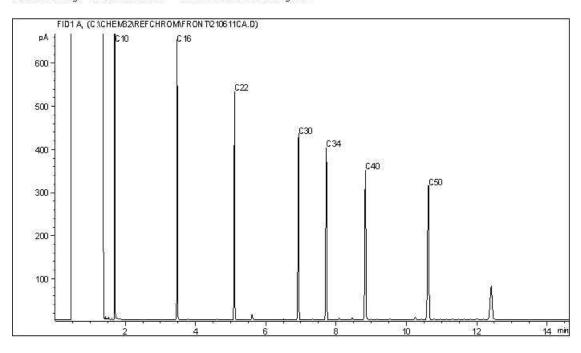
12

14 min

Client ID: FIELD BLANK

#### **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+

BV Labs Job #: C167904 GOLDER ASSOCIATES LTD

Report Date: 2021/09/20

BV Labs Sample: AFU655 Lab-Dup

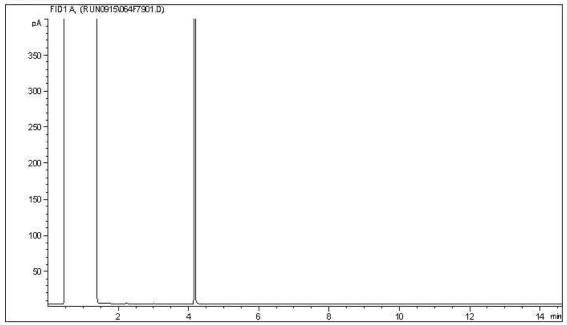
GOLDER ASSOCIATES LTD

Client Project #: 20368099-6000-1001

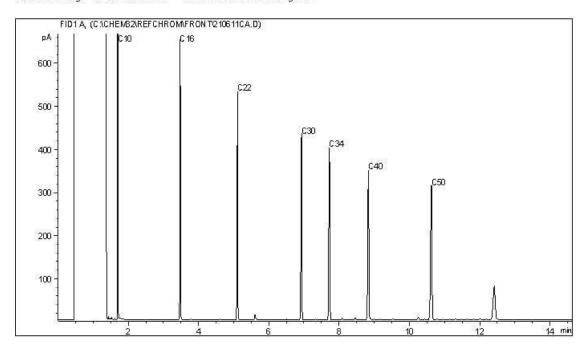
Client ID: FIELD BLANK

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

Instrument: GC6



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 Farewo	ell		-	Sampling Date:	August 30, September 1 and 6, 2021
Golder Project Number: 2	20368099	-6000-100	1	Laboratory:	Bureau Veritas Edmonton
	21 67004		-		
Lab Submission Number:	2167904		-		
Was the Cooler Received at the lab Was proper chain of custody of the Were sample temperatures accepta	samples ble when	documente they reach	ed and keped lab?:	•	Yes Yes Yes
Were all samples analyzed and ext					No
Has lab warranted all tests were in					Yes
Was sufficient sample provided for Has lab warranted all samples were	_	-		nace present?	Yes Yes
rias las warrance an samples were	unaryze	4 *************************************	ica neads <sub>i</sub>	pace present	
Are All Laboratory QC Within Ac	ceptance Yes	Criteria (Y No	es, No, N NA	ot Applicable)?	Comments
Surrogate Recovery	105	X	INA	All remaining lab	oratory QC results are within
Method Blank Concentration		X			ia, please see QA/QC
Laboratory Duplicate RPD		X		appendix.	
Matrix Spike Recovery		X			
Blank Spike Recovery		X			
Are All Field QC Samples Within		•		pplicable)?	
Field Blank Concentration	Yes X	No	NA	Samples SW21 0	Comments 1 and DUP A exceed the alert limit for
Trip Blank Concentration	Λ		X	*	67%). All remaining field QC
Field Duplicate RPD		X	Λ	samples are withi	
Tield Buplicate Id B		71	I	samples are with	ir arety inimus
Is data considered reliable (Yes/No If answer is "No" or "Suspect", des			ntionale:	Suspect	•
Please see QA/QC appendix for de	tails				
Data Reviewed by (Print):	Anita Col	bert	-	Data Reviewed by	(Signature): Ondo Collect
Date: _	Septembe	er 29, 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. #: 644511-71-01, 644511-72-01, 644511-78-01, 644511-77-01, 644511-75-01

Report Date: 2021/09/22

Report #: R3075223 Version: 2 - Revision

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

BV LABS JOB #: C167913 Received: 2021/09/10, 09:00

Sample Matrix: Soil # Samples Received: 49

# Jampies Neceived. 49					
		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	8	N/A	2021/09/16	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	41	N/A	2021/09/17	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	9	N/A	2021/09/17		Auto Calc
F1-BTEX (1)	40	N/A	2021/09/18		Auto Calc
Hexavalent Chromium (1, 3)	6	2021/09/17	2021/09/17	AB SOP-00063	SM 23 3500-Cr B m
CCME Hydrocarbons (F2-F4)+F3A/B in soil (1, 4)	2	2021/09/13	2021/09/16	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	23	2021/09/13	2021/09/16	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	24	2021/09/13	2021/09/17	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2/F2+F3B) in soil (1, 6)	2	N/A	2021/09/14		Auto Calc
Elements by ICPMS - Soils (1)	6	2021/09/17	2021/09/17	AB SOP-00001 / AB SOP- 00043	EPA 6020b R2 m
Moisture (1)	49	N/A	2021/09/14	AB SOP-00002	CCME PHC-CWS m
Nitrate-N (soluble) (1)	6	2021/09/13	2021/09/18		Auto Calc
Soluble Ions (1)	6	2021/09/17	2021/09/19	AB SOP-00033 / AB SOP- 00042	EPA 6010d R5 m
Soluble Paste (1)	6	2021/09/17	2021/09/17	AB SOP-00033	Carter 2nd ed 15.2 m
Soluble Boron Calculation (1)	6	N/A	2021/09/19		Auto Calc
Soluble Ions Calculation (1)	6	N/A	2021/09/22		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



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

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

**Territories** 

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

Your C.O.C. #: 644511-71-01, 644511-72-01, 644511-78-01, 644511-77-01, 644511-75-01

Report Date: 2021/09/22

Report #: R3075223 Version: 2 - Revision

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

# BV LABS JOB #: C167913

Received: 2021/09/10, 09:00

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. #: 644511-71-01, 644511-72-01, 644511-78-01, 644511-77-01, 644511-75-01

Report Date: 2021/09/22

Report #: R3075223 Version: 2 - Revision

# **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C167913 Received: 2021/09/10, 09:00

**Encryption Key** 

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.



Report Date: 2021/09/22

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		AFU721	AFU721	AFU722	AFU723	AFU724	AFU724		
Sampling Date		2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31		
Janipinig Date		09:41	09:41	09:42	09:45	09:42	09:42		
COC Number		644511-71-01	644511-71-01	644511-71-01	644511-71-01	644511-71-01	644511-71-01		
	UNITS	TP21-104-01	TP21-104-01 Lab-Dup	TP21-104-03	TP21-104-06	DUP NN	DUP NN Lab-Dup	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	31	N/A	23	<10	54	44	10	A350636
F3 (C16-C34 Hydrocarbons)	mg/kg	130	N/A	130	<50	170	150	50	A350636
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	N/A	<50	<50	<50	<50	50	A350636
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	Yes	Yes	Yes	N/A	A350636
Physical Properties								•	
Moisture	%	8.7	N/A	9.3	13	8.0	9.4	0.30	A350640
Volatiles	•								,
Xylenes (Total)	mg/kg	<0.045	N/A	<0.045	<0.045	<0.045	N/A	0.045	A350212
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	<10	<10	<10	N/A	10	A350212
Field Preserved Volatiles	•								,
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	0.0050	A351787
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	N/A	0.050	A351787
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	N/A	0.010	A351787
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	N/A	0.040	A351787
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	N/A	0.020	A351787
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	N/A	10	A351787
Surrogate Recovery (%)			-	•	•	•	•	·	,
1,4-Difluorobenzene (sur.)	%	104	102	103	103	105	N/A	N/A	A351787
4-Bromofluorobenzene (sur.)	%	96	99	97	98	96	N/A	N/A	A351787
D10-o-Xylene (sur.)	%	92	88	88	85	95	N/A	N/A	A351787
D4-1,2-Dichloroethane (sur.)	%	101	98	101	100	102	N/A	N/A	A351787
O-TERPHENYL (sur.)	%	78	N/A	83	90	91	87	N/A	A350636

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		AFU725	AFU726	AFU727	AFU728	AFU729	AFU730		
Sampling Date		2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31		
Jamping Date		10:00	10:03	10:11	10:03	09:32	10:23		
COC Number		644511-71-01	644511-71-01	644511-71-01	644511-71-01	644511-71-01	644511-71-01		
	UNITS	TP21-117-01	TP21-117-03	TP21-117-05	DUP 00	TP21-118-02	TP21-118-04	RDL	QC Batch
Ext. Pet. Hydrocarbon	•	·	•	•	•	•	•	•	
F2 (C10-C16 Hydrocarbons)	mg/kg	53	10	<10	<10	33	74	10	A350636
F3 (C16-C34 Hydrocarbons)	mg/kg	66	<50	<50	<50	98	1400	50	A350636
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	580	50	A350636
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A350636
Physical Properties									
Moisture	%	5.5	7.0	3.9	8.3	7.5	36	0.30	A350640
Volatiles	•	•		•		•	•	-	-
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	<0.045	0.053	0.045	A350212
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A350212
Field Preserved Volatiles	•	•		•		•	•		
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.019	0.0050	A351787
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	18	0.050	A351787
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A351787
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A351787
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.053	0.020	A351787
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	22	10	A351787
Surrogate Recovery (%)	•	•		•		•	•		
1,4-Difluorobenzene (sur.)	%	103	103	103	103	103	105	N/A	A351787
4-Bromofluorobenzene (sur.)	%	96	98	99	98	95	101	N/A	A351787
D10-o-Xylene (sur.)	%	85	92	87	91	91	84	N/A	A351787
D4-1,2-Dichloroethane (sur.)	%	103	104	102	100	103	103	N/A	A351787
O-TERPHENYL (sur.)	%	91	89	92	81	83	96	N/A	A350636
RDL - Reportable Detection Lie	mit	<del></del>	<del></del>		<u> </u>	<u> </u>			

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)

1		1		1	i	i	1		<del></del>
BV Labs ID		AFU731	AFU732	AFU733	AFU734	AFU735	AFU736		
Sampling Date		2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31		
		10:31	10:31	10:38	10:39	10:39	10:51		
COC Number		644511-72-01	644511-72-01	644511-72-01	644511-72-01	644511-72-01	644511-72-01		
	UNITS	TP21-118-06	DUP PP	TP21-119-01	TP21-119-03	DUP QQ	TP21-119-05	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	77	51	68	<10	10	A350636
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	160	200	180	<50	50	A350636
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	64	<50	<50	50	A350636
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A350636
Physical Properties								•	•
Moisture	%	14	15	8.8	14	13	4.1	0.30	A350640
Volatiles	•								
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	0.045	A350212
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A350212
Field Preserved Volatiles	•								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A351787
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.079	<0.050	0.050	A351787
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A351787
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A351787
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A351787
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A351787
Surrogate Recovery (%)	•	•		•			•	•	-
1,4-Difluorobenzene (sur.)	%	103	104	101	104	102	103	N/A	A351787
4-Bromofluorobenzene (sur.)	%	99	100	98	99	99	100	N/A	A351787
D10-o-Xylene (sur.)	%	90	97	87	91	95	88	N/A	A351787
D4-1,2-Dichloroethane (sur.)	%	107	107	110	105	101	102	N/A	A351787
O-TERPHENYL (sur.)	%	83	85	79	82	82	80	N/A	A350636
RDI = Reportable Detection Lir	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		AFU737	AFU738	AFU739	AFU740		AFU741		
Sampling Date		2021/08/31	2021/08/31	2021/08/31	2021/08/31		2021/08/31		
		10:55	10:57	10:57	11:03		09:42		
COC Number		644511-72-01	644511-72-01	644511-72-01	644511-72-01		644511-78-01		
	UNITS	TP21-120-02	TP21-120-04	DUP RR	TP21-120-06	QC Batch	TP21-104-05	RDL	QC Batch
Ext. Pet. Hydrocarbon	-	·		·	·		·	<u>·</u>	·
F2 (C10-C16 Hydrocarbons)	mg/kg	280	<10	<10	<10	A350636	14	10	A350638
F3 (C16-C34 Hydrocarbons)	mg/kg	280	81	<50	<50	A350636	230	50	A350638
F4 (C34-C50 Hydrocarbons)	mg/kg	71	<50	<50	<50	A350636	52	50	A350638
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	A350636	Yes	N/A	A350638
Physical Properties									
Moisture	%	34	5.2	5.0	5.0	A350640	15	0.30	A350639
Volatiles	•	•		•	•	-	•	•	•
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	A350212	<0.045	0.045	A350212
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	A350212	<10	10	A350212
Field Preserved Volatiles	•						•	•	•
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	A351787	<0.0050	0.0050	A351792
Toluene	mg/kg	0.10	<0.050	<0.050	<0.050	A351787	<0.050	0.050	A351792
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	A351787	<0.010	0.010	A351792
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	A351787	<0.040	0.040	A351792
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	A351787	<0.020	0.020	A351792
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	A351787	<10	10	A351792
Surrogate Recovery (%)	•	•		•	•		•	•	•
1,4-Difluorobenzene (sur.)	%	103	103	103	102	A351787	101	N/A	A351792
4-Bromofluorobenzene (sur.)	%	97	97	99	98	A351787	97	N/A	A351792
D10-o-Xylene (sur.)	%	106	96	86	88	A351787	96	N/A	A351792
D4-1,2-Dichloroethane (sur.)	%	101	98	103	101	A351787	93	N/A	A351792
O-TERPHENYL (sur.)	%	89	87	86	86	A350636	95	N/A	A350638
RDL = Reportable Detection Li	mit								

RDL = Reportable Detection Limit



Labs Job #: C167913 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		AFU741	AFU742		AFU743		AFU744		
Sampling Date		2021/08/31	2021/08/31		2021/08/31		2021/08/31		
Jamping Date		09:42	11:18		11:20		11:24		
COC Number		644511-78-01	644511-78-01		644511-78-01		644511-78-01		
	UNITS	TP21-104-05 Lab-Dup	TP21-121-01	QC Batch	TP21-121-03	QC Batch	TP21-121-05	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	100	A350638	43	A350638	15	10	A350638
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	280	A350638	360	A350638	340	50	A350638
F4 (C34-C50 Hydrocarbons)	mg/kg	N/A	<50	A350638	81	A350638	54	50	A350638
Reached Baseline at C50	mg/kg	N/A	Yes	A350638	Yes	A350638	Yes	N/A	A350638
Physical Properties									
Moisture	%	N/A	11	A350639	21	A350639	17	0.30	A350639
Volatiles									
Xylenes (Total)	mg/kg	N/A	<0.045	A350212	<0.045	A350557	<0.045	0.045	A350558
F1 (C6-C10) - BTEX	mg/kg	N/A	<10	A350212	<10	A350557	<10	10	A350558
Field Preserved Volatiles			•	•					
Benzene	mg/kg	<0.0050	<0.0050	A351792	<0.0050	A351792	<0.0050	0.0050	A351792
Toluene	mg/kg	<0.050	<0.050	A351792	0.57	A351792	<0.050	0.050	A351792
Ethylbenzene	mg/kg	<0.010	<0.010	A351792	<0.010	A351792	<0.010	0.010	A351792
m & p-Xylene	mg/kg	<0.040	<0.040	A351792	<0.040	A351792	<0.040	0.040	A351792
o-Xylene	mg/kg	<0.020	<0.020	A351792	<0.020	A351792	<0.020	0.020	A351792
F1 (C6-C10)	mg/kg	<10	<10	A351792	<10	A351792	<10	10	A351792
Surrogate Recovery (%)			•	•					
1,4-Difluorobenzene (sur.)	%	101	101	A351792	103	A351792	100	N/A	A351792
4-Bromofluorobenzene (sur.)	%	97	96	A351792	96	A351792	96	N/A	A351792
D10-o-Xylene (sur.)	%	93	87	A351792	97	A351792	101	N/A	A351792
D4-1,2-Dichloroethane (sur.)	%	94	95	A351792	96	A351792	94	N/A	A351792
O-TERPHENYL (sur.)	%	N/A	98	A350638	99	A350638	90	N/A	A350638

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		AFU744	AFU745		AFU746	AFU747	AFU748		
		2021/08/31	2021/08/31		2021/08/31	2021/08/31	2021/08/31		
Sampling Date		11:24	11:24		13:35	13:40	13:45		
COC Number		644511-78-01	644511-78-01		644511-78-01	644511-78-01	644511-78-01		
	UNITS	TP21-121-05 Lab-Dup	DUP SS	QC Batch	TP21-122-02	TP21-122-04	TP21-122-06	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	18	<10	A350638	30	<10	<10	10	A350637
F3 (C16-C34 Hydrocarbons)	mg/kg	320	<50	A350638	190	<50	<50	50	A350637
F4 (C34-C50 Hydrocarbons)	mg/kg	56	<50	A350638	59	<50	<50	50	A350637
Reached Baseline at C50	mg/kg	Yes	Yes	A350638	Yes	Yes	Yes	N/A	A350637
Physical Properties								•	•
Moisture	%	16	15	A350639	13	4.7	7.5	0.30	A350634
Volatiles									
Xylenes (Total)	mg/kg	N/A	<0.045	A350558	<0.045	<0.045	<0.045	0.045	A350558
F1 (C6-C10) - BTEX	mg/kg	N/A	<10	A350558	<10	<10	<10	10	A350558
Field Preserved Volatiles				-			•	ē	-
Benzene	mg/kg	N/A	<0.0050	A351792	<0.0050	<0.0050	<0.0050	0.0050	A351792
Toluene	mg/kg	N/A	<0.050	A351792	<0.050	<0.050	<0.050	0.050	A351792
Ethylbenzene	mg/kg	N/A	<0.010	A351792	<0.010	<0.010	<0.010	0.010	A351792
m & p-Xylene	mg/kg	N/A	<0.040	A351792	<0.040	<0.040	<0.040	0.040	A351792
o-Xylene	mg/kg	N/A	<0.020	A351792	<0.020	<0.020	<0.020	0.020	A351792
F1 (C6-C10)	mg/kg	N/A	<10	A351792	<10	<10	<10	10	A351792
Surrogate Recovery (%)	•	•	•	•	•	•	•	=	•
1,4-Difluorobenzene (sur.)	%	N/A	102	A351792	101	102	102	N/A	A351792
4-Bromofluorobenzene (sur.)	%	N/A	97	A351792	96	97	98	N/A	A351792
D10-o-Xylene (sur.)	%	N/A	93	A351792	84	91	95	N/A	A351792
D4-1,2-Dichloroethane (sur.)	%	N/A	95	A351792	96	95	94	N/A	A351792
O-TERPHENYL (sur.)	%	98	93	A350638	95	97	89	N/A	A350637

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



 Labs Job #: C167913
 GOLDER ASSOCIATES LTD.

 port Date: 2021/09/22
 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		AFU749	AFU750	AFU751	AFU752	AFU753	AFU754		
		2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31		
Sampling Date		13:45	14:07	14:08	14:08	14:13	14:25		
COC Number		644511-78-01	644511-78-01	644511-77-01	644511-77-01	644511-77-01	644511-77-01		
	UNITS	DUP TT	TP21-129-01	TP21-129-03	DUP UU	TP21-129-05	TP21-130-02	RDL	QC Batch
Ext. Pet. Hydrocarbon				•			•		-
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	74	10	16	<10	150	10	A350637
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	240	<50	60	<50	220	50	A350637
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	61	<50	<50	<50	<50	50	A350637
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A350637
Physical Properties									
Moisture	%	5.4	11	7.4	3.9	14	17	0.30	A350634
Volatiles									,
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	0.045	A350558
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A350558
Field Preserved Volatiles		•		•			•		,
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A351792
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A351792
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A351792
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A351792
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A351792
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A351792
Surrogate Recovery (%)		•		•			•		,
1,4-Difluorobenzene (sur.)	%	103	103	102	102	102	102	N/A	A351792
4-Bromofluorobenzene (sur.)	%	99	96	95	96	96	97	N/A	A351792
D10-o-Xylene (sur.)	%	91	91	95	94	92	103	N/A	A351792
D4-1,2-Dichloroethane (sur.)	%	95	97	94	92	95	94	N/A	A351792
O-TERPHENYL (sur.)	%	93	95	87	94	98	96	N/A	A350637
RDI = Reportable Detection Lir	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		AFU755	AFU756	AFU757	AFU758	AFU759	AFU760		
Sampling Date		2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31	2021/08/31		
Jamping Date		14:28	14:28	14:35	14:40	14:41	14:52		
COC Number		644511-77-01	644511-77-01	644511-77-01	644511-77-01	644511-77-01	644511-77-01		
	UNITS	TP21-130-04	DUP VV	TP21-130-06	TP21-131-01	TP21-131-03	TP21-131-05	RDL	QC Batch
Ext. Pet. Hydrocarbon	•	•		•	•	•	•	•	
F2 (C10-C16 Hydrocarbons)	mg/kg	130	160	24	120	140	<10	10	A350637
F3 (C16-C34 Hydrocarbons)	mg/kg	190	200	<50	230	170	<50	50	A350637
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	55	<50	<50	50	A350637
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A350637
Physical Properties									
Moisture	%	11	14	16	15	12	4.5	0.30	A350634
Volatiles	•		-	•		•	•	-	
Xylenes (Total)	mg/kg	<0.045	<0.045	0.15	<0.045	<0.045	<0.045	0.045	A350558
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A350558
Field Preserved Volatiles	•			•			•		
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A351792
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A351792
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A351792
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A351792
o-Xylene	mg/kg	<0.020	<0.020	0.15	<0.020	<0.020	<0.020	0.020	A351792
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A351792
Surrogate Recovery (%)	•			•			•		
1,4-Difluorobenzene (sur.)	%	103	102	103	101	103	103	N/A	A351792
4-Bromofluorobenzene (sur.)	%	97	97	96	97	94	98	N/A	A351792
D10-o-Xylene (sur.)	%	90	91	91	91	99	89	N/A	A351792
D4-1,2-Dichloroethane (sur.)	%	94	95	95	95	93	93	N/A	A351792
O-TERPHENYL (sur.)	%	98	92	94	95	92	92	N/A	A350637
RDL - Reportable Detection Lie	mit	<del></del>	<u> </u>		<u> </u>		<u> </u>		

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		AFU761		AFU762		AFU763		AFU764		
Sampling Date		2021/08/31 14:59		2021/08/31 15:04		2021/08/31 15:07		2021/08/31 15:15		
COC Number		644511-75-01		644511-75-01		644511-75-01		644511-75-01		
	UNITS	TP21-132-01	RDL	TP21-132-04	RDL	TP21-132-06	RDL	TP21-133-02	RDL	QC Batch
Ext. Pet. Hydrocarbon								•	•	
F2 (C10-C16 Hydrocarbons)	mg/kg	67	10	N/A	10	<10	10	3200	10	A350637
F3 (C16-C34 Hydrocarbons)	mg/kg	200	50	N/A	50	<50	50	550	50	A350637
F4 (C34-C50 Hydrocarbons)	mg/kg	50	50	N/A	50	<50	50	93	50	A350637
Reached Baseline at C50	mg/kg	Yes	N/A	N/A	N/A	Yes	N/A	Yes	N/A	A350637
Physical Properties										
Moisture	%	9.0	0.30	9.7	0.30	8.1	0.30	39	0.30	A350634
Volatiles		•	•	•	•	•	•	•	•	-
Xylenes (Total)	mg/kg	<0.045	0.045	0.076	0.045	<0.045	0.045	<0.094	0.094	A350558
F1 (C6-C10) - BTEX	mg/kg	<10	10	<12	12	<10	10	<21	21	A350558
Field Preserved Volatiles	•	•	=	•	•	•	•	•	•	•
Benzene	mg/kg	<0.0050	0.0050	<0.0050	0.0050	<0.0050	0.0050	<0.0080 (1)	0.0080	A351821
Toluene	mg/kg	<0.050	0.050	<0.050	0.050	<0.050	0.050	0.12 (2)	0.11	A351821
Ethylbenzene	mg/kg	<0.010	0.010	<0.010	0.010	<0.010	0.010	<0.012 (1)	0.012	A351821
m & p-Xylene	mg/kg	<0.040	0.040	0.076	0.040	<0.040	0.040	<0.085 (2)	0.085	A351821
o-Xylene	mg/kg	<0.020	0.020	<0.020	0.020	<0.020	0.020	<0.042 (2)	0.042	A351821
F1 (C6-C10)	mg/kg	<10	10	<12 (3)	12	<10	10	<21 (2)	21	A351821
Surrogate Recovery (%)	•					•				
1,4-Difluorobenzene (sur.)	%	100	N/A	89	N/A	90	N/A	91	N/A	A351821
4-Bromofluorobenzene (sur.)	%	99	N/A	120	N/A	122	N/A	120	N/A	A351821
D10-o-Xylene (sur.)	%	97	N/A	74	N/A	78	N/A	80	N/A	A351821
D4-1,2-Dichloroethane (sur.)	%	101	N/A	98	N/A	100	N/A	101	N/A	A351821
O-TERPHENYL (sur.)	%	92	N/A	N/A	N/A	93	N/A	102	N/A	A350637

RDL = Reportable Detection Limit

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

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

_				<u>.</u>		_	_	_	
BV Labs ID		AFU764			AFU765		AFU766		
Sampling Date		2021/08/31			2021/08/31		2021/08/31		
Jampinig Date		15:15			15:16		15:21		
COC Number		644511-75-01			644511-75-01		644511-75-01		
	UNITS	TP21-133-02 Lab-Dup	RDL	QC Batch	TP21-133-03	RDL	TP21-133-05	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	3400	10	A350637	N/A	10	<10	10	A350637
F3 (C16-C34 Hydrocarbons)	mg/kg	470	50	A350637	N/A	50	<50	50	A350637
F4 (C34-C50 Hydrocarbons)	mg/kg	81	50	A350637	N/A	50	<50	50	A350637
Reached Baseline at C50	mg/kg	Yes	N/A	A350637	N/A	N/A	Yes	N/A	A350637
Physical Properties									
Moisture	%	N/A	0.30	A350634	16	0.30	4.7	0.30	A350639
Volatiles									
Xylenes (Total)	mg/kg	N/A	0.094	A350558	<0.045	0.045	<0.045	0.045	A350558
F1 (C6-C10) - BTEX	mg/kg	N/A	21	A350558	<11	11	<16	16	A350558
Field Preserved Volatiles									
Benzene	mg/kg	N/A	0.0080	A351821	<0.0050	0.0050	<0.0050	0.0050	A351821
Toluene	mg/kg	N/A	0.11	A351821	<0.050	0.050	<0.050	0.050	A351821
Ethylbenzene	mg/kg	N/A	0.012	A351821	<0.010	0.010	<0.010	0.010	A351821
m & p-Xylene	mg/kg	N/A	0.085	A351821	<0.040	0.040	<0.040	0.040	A351821
o-Xylene	mg/kg	N/A	0.042	A351821	<0.020	0.020	<0.020	0.020	A351821
F1 (C6-C10)	mg/kg	N/A	21	A351821	<11 (1)	11	<16 (1)	16	A351821
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	N/A	N/A	A351821	90	N/A	90	N/A	A351821
4-Bromofluorobenzene (sur.)	%	N/A	N/A	A351821	120	N/A	120	N/A	A351821
D10-o-Xylene (sur.)	%	N/A	N/A	A351821	77	N/A	81	N/A	A351821
D4-1,2-Dichloroethane (sur.)	%	N/A	N/A	A351821	99	N/A	98	N/A	A351821
O-TERPHENYL (sur.)	%	101	N/A	A350637	N/A	N/A	95	N/A	A350637
PDI - Papartable Detection Lie	mit								

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) 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: PT

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

BV Labs ID		AFU767	AFU768		AFU769	AFU769		
Sampling Date		2021/08/31	2021/08/31		2021/08/31	2021/08/31		
Sampling Date		14:42	15:21		15:00	15:00		
COC Number		644511-75-01	644511-75-01		644511-75-01	644511-75-01		
	UNITS	TP21-131-04	TP21-133-06	QC Batch	TP21-132-03	TP21-132-03 Lab-Dup	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	32	<10	A350638	21	N/A	10	A350637
F3 (C16-C34 Hydrocarbons)	mg/kg	110	76	A350638	250	N/A	50	A350637
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A350638	80	N/A	50	A350637
Reached Baseline at C50	mg/kg	Yes	Yes	A350638	Yes	N/A	N/A	A350637
Physical Properties								
Moisture	%	6.9	15	A350639	34	31	0.30	A350634
Volatiles	•			•			-	
Xylenes (Total)	mg/kg	<0.045	<0.045	A350558	0.38	N/A	0.045	A350558
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A350558	15	N/A	10	A350558
Field Preserved Volatiles	•			•			-	
Benzene	mg/kg	<0.0050	<0.0050	A351821	<0.0050	N/A	0.0050	A351821
Toluene	mg/kg	<0.050	<0.050	A351821	<0.050	N/A	0.050	A351821
Ethylbenzene	mg/kg	<0.010	<0.010	A351821	0.033	N/A	0.010	A351821
m & p-Xylene	mg/kg	<0.040	<0.040	A351821	0.31	N/A	0.040	A351821
o-Xylene	mg/kg	<0.020	<0.020	A351821	0.068	N/A	0.020	A351821
F1 (C6-C10)	mg/kg	<10	<10	A351821	16	N/A	10	A351821
Surrogate Recovery (%)	•	•	-	•		•	-	•
1,4-Difluorobenzene (sur.)	%	90	91	A351821	92	N/A	N/A	A351821
4-Bromofluorobenzene (sur.)	%	119	119	A351821	120	N/A	N/A	A351821
D10-o-Xylene (sur.)	%	77	83	A351821	90	N/A	N/A	A351821
D4-1,2-Dichloroethane (sur.)	%	99	101	A351821	100	N/A	N/A	A351821
O-TERPHENYL (sur.)	%	91	101	A350638	96	N/A	N/A	A350637
RDI - Reportable Detection Lie	mit							

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Report Date: 2021/09/22

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 REGULATED METALS - SOILS (SOIL)**

BV Labs ID		AFU725	AFU726			AFU727	AFU727		
Sampling Date		2021/08/31 10:00	2021/08/31 10:03			2021/08/31 10:11	2021/08/31 10:11		
COC Number		644511-71-01	644511-71-01			644511-71-01	644511-71-01		
	UNITS	TP21-117-01	TP21-117-03	RDL	QC Batch	TP21-117-05	TP21-117-05 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Calculated Boron (B)	mg/kg	0.048	0.047	0.028	A349974	<0.033	N/A	0.033	A349974
Elements									
Hex. Chromium (Cr 6+)	mg/kg	<0.080	<0.080	0.080	A356105	<0.080	<0.080	0.080	A356383
Soluble Parameters									
Soluble Boron (B)	mg/L	0.17	0.17	0.10	A357683	<0.10	N/A	0.10	A357683
Saturation %	%	28	28	N/A	A354884	33	N/A	N/A	A354884
Soluble Sulphate (SO4)	mg/L	43	87	5.0	A357683	54	N/A	5.0	A357683
Elements									
Total Antimony (Sb)	mg/kg	<0.50	<0.50	0.50	A355882	<0.50	N/A	0.50	A355882
Total Arsenic (As)	mg/kg	5.1	4.8	1.0	A355882	3.6	N/A	1.0	A355882
Total Barium (Ba)	mg/kg	880	850	1.0	A355882	84	N/A	1.0	A355882
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.40	A355882	<0.40	N/A	0.40	A355882
Total Cadmium (Cd)	mg/kg	0.064	0.065	0.050	A355882	0.075	N/A	0.050	A355882
Total Chromium (Cr)	mg/kg	5.7	5.4	1.0	A355882	5.3	N/A	1.0	A355882
Total Cobalt (Co)	mg/kg	2.1	1.9	0.50	A355882	3.4	N/A	0.50	A355882
Total Copper (Cu)	mg/kg	5.2	4.7	1.0	A355882	5.0	N/A	1.0	A355882
Total Lead (Pb)	mg/kg	8.8	8.7	0.50	A355882	2.8	N/A	0.50	A355882
Total Mercury (Hg)	mg/kg	0.051	<0.050	0.050	A355882	<0.050	N/A	0.050	A355882
Total Molybdenum (Mo)	mg/kg	0.45	0.41	0.40	A355882	<0.40	N/A	0.40	A355882
Total Nickel (Ni)	mg/kg	4.8	4.4	1.0	A355882	9.5	N/A	1.0	A355882
Total Selenium (Se)	mg/kg	<0.50	<0.50	0.50	A355882	<0.50	N/A	0.50	A355882
Total Silver (Ag)	mg/kg	<0.20	<0.20	0.20	A355882	<0.20	N/A	0.20	A355882
Total Thallium (TI)	mg/kg	<0.10	<0.10	0.10	A355882	<0.10	N/A	0.10	A355882
Total Tin (Sn)	mg/kg	<1.0	<1.0	1.0	A355882	<1.0	N/A	1.0	A355882
Total Uranium (U)	mg/kg	0.32	0.33	0.20	A355882	0.30	N/A	0.20	A355882
T-+-1)////	mg/kg	12	12	1.0	A355882	12	N/A	1.0	A355882
Total Vanadium (V)	1116/116						,	_	

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 REGULATED METALS - SOILS (SOIL)**

BV Labs ID		AFU750		AFU751	AFU753		
Sampling Date		2021/08/31		2021/08/31	2021/08/31		
Jamping Date		14:07		14:08	14:13		
COC Number		644511-78-01		644511-77-01	644511-77-01		
	UNITS	TP21-129-01	RDL	TP21-129-03	TP21-129-05	RDL	QC Batch
Calculated Parameters							
Calculated Boron (B)	mg/kg	0.059	0.039	0.030	0.044	0.029	A349974
Elements			•			•	
Hex. Chromium (Cr 6+)	mg/kg	<0.080	0.080	<0.080	<0.080	0.080	A356105
Soluble Parameters	•						
Soluble Boron (B)	mg/L	0.15	0.10	0.10	0.15	0.10	A357683
Saturation %	%	39	N/A	29	29	N/A	A354884
Soluble Sulphate (SO4)	mg/L	58	5.0	27	94	5.0	A357683
Elements							
Total Antimony (Sb)	mg/kg	<0.50	0.50	<0.50	<0.50	0.50	A355882
Total Arsenic (As)	mg/kg	5.4	1.0	5.7	5.5	1.0	A355882
Total Barium (Ba)	mg/kg	790	1.0	89	66	1.0	A355882
Total Beryllium (Be)	mg/kg	<0.40	0.40	<0.40	<0.40	0.40	A355882
Total Cadmium (Cd)	mg/kg	0.10	0.050	0.077	0.070	0.050	A355882
Total Chromium (Cr)	mg/kg	21	1.0	5.0	6.4	1.0	A355882
Total Cobalt (Co)	mg/kg	3.2	0.50	3.6	3.6	0.50	A355882
Total Copper (Cu)	mg/kg	6.0	1.0	3.4	3.9	1.0	A355882
Total Lead (Pb)	mg/kg	10	0.50	2.9	2.9	0.50	A355882
Total Mercury (Hg)	mg/kg	<0.050	0.050	<0.050	<0.050	0.050	A355882
Total Molybdenum (Mo)	mg/kg	0.87	0.40	0.40	0.50	0.40	A355882
Total Nickel (Ni)	mg/kg	14	1.0	8.1	9.6	1.0	A355882
Total Selenium (Se)	mg/kg	<0.50	0.50	<0.50	<0.50	0.50	A355882
Total Silver (Ag)	mg/kg	<0.20	0.20	<0.20	<0.20	0.20	A355882
Total Thallium (TI)	mg/kg	<0.10	0.10	<0.10	<0.10	0.10	A355882
Total Tin (Sn)	mg/kg	<1.0	1.0	<1.0	<1.0	1.0	A355882
Total Uranium (U)	mg/kg	0.30	0.20	0.21	0.34	0.20	A355882
Total Vanadium (V)	mg/kg	16	1.0	10	11	1.0	A355882
Total Zinc (Zn)	mg/kg	26	10	23	26	10	A355882
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

# RESULTS OF CHEMICAL ANALYSES OF SOIL

BV Labs ID		AFU725	AFU726		AFU727		AFU750		
Sampling Date		2021/08/31 10:00	2021/08/31 10:03		2021/08/31 10:11		2021/08/31 14:07		
COC Number		644511-71-01	644511-71-01		644511-71-01		644511-78-01		
	UNITS	TP21-117-01	TP21-117-03	RDL	TP21-117-05	RDL	TP21-129-01	RDL	QC Batch
Calculated Parameters									
Soluble Nitrate (N)	mg/L	0.37	<0.20	0.20	<0.20	0.20	<0.20	0.20	A350563
Calculated Calcium (Ca)	mg/kg	5.2	9.0	0.42	22	0.50	21	0.59	A362522
Calculated Magnesium (Mg)	mg/kg	1.1	1.8	0.28	4.1	0.33	3.9	0.39	A362522
Calculated Sodium (Na)	mg/kg	4.7	5.3	0.70	6.7	0.83	7.3	0.98	A362522
Calculated Potassium (K)	mg/kg	2.0	2.5	0.36	5.3	0.43	1.5	0.51	A362522
Calculated Boron (B)	mg/kg	0.048	0.047	0.028	<0.033	0.033	0.059	0.039	A362522
Calculated Sulphate (SO4)	mg/kg	12	24	1.4	18	1.7	23	2.0	A362522
Calculated Nitrate (N)	mg/kg	0.10	<0.056	0.056	<0.066	0.066	<0.079	0.079	A362522
Calculated Nitrite (N)	mg/kg	0.12	<0.056	0.056	<0.066	0.066	<0.079	0.079	A362522
Calculated Total Nitrogen (N)	mg/kg	CALCERROR	CALCERROR	N/A	CALCERROR	N/A	CALCERROR	N/A	A362522

RDL = Reportable Detection Limit

BV Labs ID		AFU751		AFU753		
Sampling Date		2021/08/31 14:08		2021/08/31 14:13		
COC Number		644511-77-01		644511-77-01		
	UNITS	TP21-129-03	RDL	TP21-129-05	RDL	QC Batch
Calculated Parameters						
Soluble Nitrate (N)	mg/L	0.23	0.20	8.0	0.20	A350563
Calculated Calcium (Ca)	mg/kg	8.6	0.44	16	0.43	A362522
Calculated Magnesium (Mg)	mg/kg	2.0	0.29	3.5	0.29	A362522
Calculated Sodium (Na)	mg/kg	4.7	0.73	8.2	0.71	A362522
Calculated Potassium (K)	mg/kg	0.50	0.38	1.0	0.37	A362522
Calculated Boron (B)	mg/kg	0.030	0.029	0.044	0.029	A362522
Calculated Sulphate (SO4)	mg/kg	7.9	1.5	27	1.4	A362522
Calculated Nitrate (N)	mg/kg	0.066	0.059	2.3	0.057	A362522
Calculated Nitrite (N)	mg/kg	<0.059	0.059	0.067	0.057	A362522
Calculated Total Nitrogen (N)	mg/kg	CALCERROR	N/A	CALCERROR	N/A	A362522
RDL = Reportable Detection Li	mit					
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

### PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		AFU762	AFU762		AFU765		
Sampling Date		2021/08/31 15:04	2021/08/31 15:04		2021/08/31 15:16		
COC Number		644511-75-01	644511-75-01		644511-75-01		
	UNITS	TP21-132-04	TP21-132-04 Lab-Dup	QC Batch	TP21-133-03	RDL	QC Batch
Ext. Pet. Hydrocarbon				•			
F2 (C10-C16 Hydrocarbons)	mg/kg	14	32	A350635	120	10	A350635
F3 (C16-C34 Hydrocarbons)	mg/kg	100	N/A	A350561	240	71	A350562
F3A (C16-C22)	mg/kg	<50	72	A350635	61	50	A350635
F3B (C22-C34)	mg/kg	100 (1)	320 (2)	A350635	180	50	A350635
F2% (BIC)	mg/kg	NC	N/A	A350561	NC	N/A	A350562
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	130	A350635	70	50	A350635
Reached Baseline at C50	mg/kg	Yes	Yes	A350635	Yes	N/A	A350635
Surrogate Recovery (%)	•						
O-TERPHENYL (sur.)	%	102	105	A350635	99	N/A	A350635

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

- (1) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.
- (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

### **GENERAL COMMENTS**

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

Package 1	4.3°C
Package 2	5.3°C
Package 3	5.7°C
Package 4	3.0°C
Package 5	3.3°C
Package 6	3.3°C
Package 7	1.7°C
Package 8	2.3°C

Version #2: Report reissued in mg/kg unit for Sulphate and Nitrate data.

Results relate only to the items tested.



Report Date: 2021/09/22

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
A350634	ARV	Method Blank	Moisture	2021/09/14	<0.30		%	
A350634	ARV	RPD [AFU769-01]	Moisture	2021/09/14	8.3		%	20
A350635	EC0	Matrix Spike [AFU762-01]	O-TERPHENYL (sur.)	2021/09/16		96	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16		97	%	60 - 140
			F3A (C16-C22)	2021/09/16		110	%	60 - 140
			F3B (C22-C34)	2021/09/16		112	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/16		102	%	60 - 140
A350635	EC0	Spiked Blank	O-TERPHENYL (sur.)	2021/09/16		105	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16		104	%	60 - 140
			F3A (C16-C22)	2021/09/16		109	%	60 - 140
			F3B (C22-C34)	2021/09/16		105	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/16		106	%	60 - 140
A350635	EC0	Method Blank	O-TERPHENYL (sur.)	2021/09/16		111	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16	<10		mg/kg	
			F3A (C16-C22)	2021/09/16	<50		mg/kg	
			F3B (C22-C34)	2021/09/16	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/16	<50		mg/kg	
A350635	EC0	RPD [AFU762-01]	F2 (C10-C16 Hydrocarbons)	2021/09/16	NC		%	40
		, ,	F3A (C16-C22)	2021/09/16	36		%	40
			F3B (C22-C34)	2021/09/16	102 (1)		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/16	NC		%	40
A350636	EC0	Matrix Spike [AFU724-01]	O-TERPHENYL (sur.)	2021/09/16		74	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16		70	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/16		81	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/16		86	%	60 - 140
A350636	EC0	Spiked Blank	O-TERPHENYL (sur.)	2021/09/16		79	%	60 - 140
, 1330030	200	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2021/09/16		75 75	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/16		83	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/16		82	%	60 - 140
A350636	EC0	Method Blank	O-TERPHENYL (sur.)	2021/09/16		94	%	60 - 140
A330030	LCO	WECHOO DIAIR	F2 (C10-C16 Hydrocarbons)	2021/09/16	<10	34	mg/kg	00 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/16	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/16	<50		mg/kg	
A350636	EC0	RPD [AFU724-01]	F2 (C10-C16 Hydrocarbons)	2021/09/16	21		///g/kg %	40
A330030	ECU	KPD [AF0/24-01]	F3 (C16-C34 Hydrocarbons)	2021/09/16	13		% %	40 40
			F4 (C34-C50 Hydrocarbons)	2021/09/16	NC		% %	40
A350637	CAU	Matrix Chika [AFII764 01]	O-TERPHENYL (sur.)	2021/09/16	INC	100	% %	
A330037	CAU	Matrix Spike [AFU764-01]	` '			NC		60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16			%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/16		64	%	60 - 140
4250627	CALL	Cultinal Diami.	F4 (C34-C50 Hydrocarbons)	2021/09/16		77	%	60 - 140
A350637	CAU	Spiked Blank	O-TERPHENYL (sur.)	2021/09/16		101	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16		93	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/16		91	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/16		85	%	60 - 140
A350637	CAU	Method Blank	O-TERPHENYL (sur.)	2021/09/16		93	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/16	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/16	<50		mg/kg	
	_		F4 (C34-C50 Hydrocarbons)	2021/09/16	<50		mg/kg	
A350637	CAU	RPD [AFU764-01]	F2 (C10-C16 Hydrocarbons)	2021/09/16	4.9		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/16	15		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/16	14		%	40



BV Labs Job #: C167913 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/22 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
A350638	EC0	Matrix Spike [AFU744-01]	O-TERPHENYL (sur.)	2021/09/17		98	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/17		91	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/17		93	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/17		96	%	60 - 140
A350638	EC0	Spiked Blank	O-TERPHENYL (sur.)	2021/09/17		92	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/17		82	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/17		89	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/17		87	%	60 - 140
A350638	EC0	Method Blank	O-TERPHENYL (sur.)	2021/09/17		110	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/17	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/17	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/17	<50		mg/kg	
A350638	EC0	RPD [AFU744-01]	F2 (C10-C16 Hydrocarbons)	2021/09/17	21		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/17	3.1		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/17	3.1		%	40
A350639	SNA	Method Blank	Moisture	2021/09/14	<0.30		%	
A350639	SNA	RPD [AFU744-01]	Moisture	2021/09/14	1.2		%	20
A350640	SNA	Method Blank	Moisture	2021/09/14	<0.30		%	
A350640	SNA	RPD [AFU724-01]	Moisture	2021/09/14	16		%	20
A351787	DO1	Matrix Spike [AFU721-02]	1,4-Difluorobenzene (sur.)	2021/09/17	10	102	%	50 - 140
7.001707	501	Matrix Spike [/ ii 6/21 62]	4-Bromofluorobenzene (sur.)	2021/09/17		97	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/17		91	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/17		102	%	50 - 140
			Benzene	2021/09/17		99	%	50 - 140
			Toluene	2021/09/17		95	%	50 - 140
			Ethylbenzene	2021/09/17		95 97	% %	50 - 140
			•			95	% %	50 - 140
			m & p-Xylene	2021/09/17		95 95		50 - 140
			o-Xylene	2021/09/17			%	
A 2 E 4 7 O 7	DO1	Cultivad Dlamb	F1 (C6-C10)	2021/09/17		107	%	60 - 140
A351787	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/17		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/17		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/17		89	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/17		100	%	50 - 140
			Benzene	2021/09/17		92	%	60 - 130
			Toluene	2021/09/17		89	%	60 - 130
			Ethylbenzene	2021/09/17		92	%	60 - 130
			m & p-Xylene	2021/09/17		89	%	60 - 130
			o-Xylene	2021/09/17		89	%	60 - 130
			F1 (C6-C10)	2021/09/17		97	%	60 - 140
A351787	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/17		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/17		95	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/17		89	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/17		98	%	50 - 140
			Benzene	2021/09/17	<0.0050		mg/kg	
			Toluene	2021/09/17	<0.050		mg/kg	
			Ethylbenzene	2021/09/17	<0.010		mg/kg	
			m & p-Xylene	2021/09/17	<0.040		mg/kg	
			o-Xylene	2021/09/17	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/17	<10		mg/kg	
A351787	DO1	RPD [AFU721-02]	Benzene	2021/09/17	NC		%	50
			Toluene	2021/09/17	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
		. ,,	Ethylbenzene	2021/09/17	NC	,	%	50
			m & p-Xylene	2021/09/17	NC		%	50
			o-Xylene	2021/09/17	NC		%	50
			F1 (C6-C10)	2021/09/17	NC		%	30
A351792	RSU	Matrix Spike [AFU741-02]	1,4-Difluorobenzene (sur.)	2021/09/17		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/17		98	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/17		100	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/17		91	%	50 - 140
			Benzene	2021/09/17		78	%	50 - 140
			Toluene	2021/09/17		81	%	50 - 140
			Ethylbenzene	2021/09/17		85	%	50 - 140
			m & p-Xylene	2021/09/17		87	%	50 - 140
			o-Xylene	2021/09/17		85	%	50 - 140
			F1 (C6-C10)	2021/09/17		86	%	60 - 140
A351792	RSU	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/17		105	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/17		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/17		93	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/17		98	%	50 - 140
			Benzene	2021/09/17		73	%	60 - 130
			Toluene	2021/09/17		76	%	60 - 130
			Ethylbenzene	2021/09/17		77	%	60 - 130
			m & p-Xylene	2021/09/17		80	%	60 - 130
			o-Xylene	2021/09/17		81	%	60 - 130
			F1 (C6-C10)	2021/09/17		91	%	60 - 140
A351792	RSU	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/17		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/17		99	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/17		88	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/17		96	%	50 - 140
			Benzene	2021/09/17	<0.0050		mg/kg	
			Toluene	2021/09/17	< 0.050		mg/kg	
			Ethylbenzene	2021/09/17	< 0.010		mg/kg	
			m & p-Xylene	2021/09/17	<0.040		mg/kg	
			o-Xylene	2021/09/17	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/17	<10		mg/kg	
A351792	RSU	RPD [AFU741-02]	Benzene	2021/09/17	NC		%	50
			Toluene	2021/09/17	NC		%	50
			Ethylbenzene	2021/09/17	NC		%	50
			m & p-Xylene	2021/09/17	NC		%	50
			o-Xylene	2021/09/17	NC		%	50
			F1 (C6-C10)	2021/09/17	NC		%	30
A351821	JNG	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/16		90	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/16		118	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/16		76	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/16		96	%	50 - 140
			Benzene	2021/09/16		83	%	50 - 140
			Toluene	2021/09/16		81	%	50 - 140
			Ethylbenzene	2021/09/16		81	%	50 - 140
			m & p-Xylene	2021/09/16		79	%	50 - 140
			o-Xylene	2021/09/16		82	%	50 - 140
			F1 (C6-C10)	2021/09/16		109	%	60 - 140
A351821	JNG	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/16		89	%	50 - 140



BV Labs Job #: C167913 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/22 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
			4-Bromofluorobenzene (sur.)	2021/09/16		122	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/16		74	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/16		99	%	50 - 140
			Benzene	2021/09/16		75 74	%	60 - 130
			Toluene	2021/09/16		74	%	60 - 130
			Ethylbenzene	2021/09/16		76	%	60 - 130
			m & p-Xylene	2021/09/16		74	%	60 - 130
			o-Xylene	2021/09/16		76	%	60 - 130
			F1 (C6-C10)	2021/09/16		86	%	60 - 140
A351821	JNG	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/16		90	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/16		120	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/16		76	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/16		99	%	50 - 140
			Benzene	2021/09/16	<0.0050		mg/kg	
			Toluene	2021/09/16	<0.050		mg/kg	
			Ethylbenzene	2021/09/16	<0.010		mg/kg	
			m & p-Xylene	2021/09/16	<0.040		mg/kg	
			o-Xylene	2021/09/16	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/16	<10		mg/kg	
A351821	JNG	RPD	Benzene	2021/09/17	NC		%	50
			Toluene	2021/09/17	NC		%	50
			Ethylbenzene	2021/09/17	NC		%	50
			m & p-Xylene	2021/09/17	NC		%	50
			o-Xylene	2021/09/17	NC		%	50
			F1 (C6-C10)	2021/09/17	NC		%	30
A354884	LZ0	QC Standard	Saturation %	2021/09/17		101	%	75 - 125
A354884	LZ0	RPD	Saturation %	2021/09/17	0.94		%	12
A355882	PC5	Matrix Spike	Total Antimony (Sb)	2021/09/17		113	%	75 - 125
			Total Arsenic (As)	2021/09/17		103	%	75 - 125
			Total Barium (Ba)	2021/09/17		NC	%	75 - 125
			Total Beryllium (Be)	2021/09/17		114	%	75 - 125
			Total Cadmium (Cd)	2021/09/17		101	%	75 - 125
			Total Chromium (Cr)	2021/09/17		108	%	75 - 125
			Total Cobalt (Co)	2021/09/17		104	%	75 - 125
			Total Copper (Cu)	2021/09/17		104	%	75 - 125
			Total Lead (Pb)	2021/09/17		97	%	75 - 125
			Total Mercury (Hg)	2021/09/17		94	%	75 - 125
			Total Molybdenum (Mo)	2021/09/17		105	%	75 - 125
			Total Nickel (Ni)	2021/09/17		107	%	75 - 125
			Total Selenium (Se)	2021/09/17		109	%	75 - 125
			Total Silver (Ag)	2021/09/17		102	%	75 - 125
			Total Thallium (TI)	2021/09/17		94	%	75 - 125
			Total Tin (Sn)	2021/09/17		104	%	75 - 125
			Total Uranium (U)	2021/09/17		93	%	75 - 125
			Total Vanadium (V)	2021/09/17		121	%	75 - 125
			Total Zinc (Zn)	2021/09/17		112	%	75 - 125
A355882	PC5	QC Standard	Total Antimony (Sb)	2021/09/17		119	%	15 - 182
555002	. 03	a o standard	Total Arsenic (As)	2021/09/17		97	%	53 - 147
			Total Barium (Ba)	2021/03/17		88	%	80 - 119
			Total Cadmium (Cd)	2021/09/17		91	%	72 - 128
			Total Chromium (Cr)	2021/09/17		91	%	59 - 141



BV Labs Job #: C167913 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/22 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	1. **	06.7	Damanakan	Dei A. I. I	\	D	LINUTC	0011
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cobalt (Co)	2021/09/17		94	%	58 - 142
			Total Copper (Cu)	2021/09/17		100	%	83 - 117
			Total Lead (Pb) Total Molybdenum (Mo)	2021/09/17 2021/09/17		103 107	%	79 - 121 67 - 133
			, , ,				%	
			Total Nickel (Ni)	2021/09/17		100	%	79 - 121
			Total Silver (Ag)	2021/09/17		84	%	47 - 153
			Total Hranium (H)	2021/09/17		98	%	67 - 133
			Total Uranium (U)	2021/09/17		100	%	77 - 123
			Total Vanadium (V)	2021/09/17 2021/09/17		96	%	79 - 121
A355882	DCE	Cailead Blank	Total Zinc (Zn)			101 108	% %	79 - 121 80 - 120
4333662	PC5	Spiked Blank	Total Arconic (As)	2021/09/17 2021/09/17		97		
			Total Parium (Ra)				%	80 - 120
			Total Barium (Ba)	2021/09/17		90 105	%	80 - 120
			Total Beryllium (Be)	2021/09/17		105	%	80 - 120
			Total Charactives (Cr.)	2021/09/17		94	%	80 - 120
			Total Chromium (Cr)	2021/09/17		98	%	80 - 120
			Total Country (Co.)	2021/09/17		98	%	80 - 120
			Total Copper (Cu)	2021/09/17		100	%	80 - 120
			Total Manager (U.S.)	2021/09/17		91	%	80 - 120
			Total Melvid dayura (Max)	2021/09/17		92	%	80 - 120
			Total Molybdenum (Mo)	2021/09/17		97	%	80 - 120
			Total Nickel (Ni)	2021/09/17		96	%	80 - 120
			Total Silver (An)	2021/09/17		103	%	80 - 120
			Total Silver (Ag)	2021/09/17		95	%	80 - 120
			Total Thallium (TI)	2021/09/17		90	%	80 - 120
			Total Tin (Sn)	2021/09/17		94	%	80 - 120
			Total Uranium (U)	2021/09/17		88	%	80 - 120
			Total Vanadium (V)	2021/09/17		98	%	80 - 120
. 255002	DCE	Markle and Diameter	Total Zinc (Zn)	2021/09/17	-0.50	100	%	80 - 120
4355882	PC5	Method Blank	Total Antimony (Sb)	2021/09/17	<0.50		mg/kg	
			Total Arsenic (As)	2021/09/17	<1.0		mg/kg	
			Total Barium (Ba)	2021/09/17	<1.0		mg/kg	
			Total Beryllium (Be)	2021/09/17	<0.40		mg/kg	
			Total Cadmium (Cd)	2021/09/17	<0.050		mg/kg	
			Total Chromium (Cr)	2021/09/17	<1.0		mg/kg	
			Total Cobalt (Co)	2021/09/17	<0.50		mg/kg	
			Total Copper (Cu)	2021/09/17	<1.0		mg/kg	
			Total Lead (Pb)	2021/09/17	<0.50		mg/kg	
			Total Mercury (Hg)	2021/09/17	<0.050		mg/kg	
			Total Molybdenum (Mo)	2021/09/17	<0.40		mg/kg	
			Total Nickel (Ni)	2021/09/17	<1.0		mg/kg	
			Total Silver (As)	2021/09/17	<0.50		mg/kg	
			Total Silver (Ag)	2021/09/17	<0.20		mg/kg	
			Total Thallium (TI)	2021/09/17	<0.10		mg/kg	
			Total Hranium (H)	2021/09/17	<1.0		mg/kg	
			Total Uranium (U)	2021/09/17	<0.20		mg/kg	
			Total Vanadium (V)	2021/09/17	<1.0		mg/kg	
. 255022	D.C.E	222	Total Zinc (Zn)	2021/09/17	<10		mg/kg	20
4355882	PC5	RPD	Total Antimony (Sb)	2021/09/17	NC 0.75		%	30
			Total Arsenic (As)	2021/09/17	0.75		%	30
			Total Barium (Ba)	2021/09/17	1.4		%	35



Report Date: 2021/09/22

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
			Total Beryllium (Be)	2021/09/17	NC		%	30
			Total Cadmium (Cd)	2021/09/17	5.9		%	30
			Total Chromium (Cr)	2021/09/17	2.7		%	30
			Total Cobalt (Co)	2021/09/17	1.4		%	30
			Total Copper (Cu)	2021/09/17	2.4		%	30
			Total Lead (Pb)	2021/09/17	1.2		%	35
			Total Mercury (Hg)	2021/09/17	NC		%	35
			Total Molybdenum (Mo)	2021/09/17	NC		%	35
			Total Nickel (Ni)	2021/09/17	5.7		%	30
			Total Selenium (Se)	2021/09/17	NC		%	30
			Total Silver (Ag)	2021/09/17	NC		%	35
			Total Thallium (TI)	2021/09/17	NC		%	30
			Total Tin (Sn)	2021/09/17	NC		%	35
			Total Uranium (U)	2021/09/17	0.28		%	30
			Total Vanadium (V)	2021/09/17	1.4		%	30
			Total Zinc (Zn)	2021/09/17	0.38		%	30
A356105	BFE	Matrix Spike	Hex. Chromium (Cr 6+)	2021/09/17		91	%	75 - 125
356105	BFE	Spiked Blank	Hex. Chromium (Cr 6+)	2021/09/17		98	%	80 - 120
A356105	BFE	Method Blank	Hex. Chromium (Cr 6+)	2021/09/17	<0.080		mg/kg	
\356105	BFE	RPD	Hex. Chromium (Cr 6+)	2021/09/17	NC		%	35
356383	BFE	Matrix Spike [AFU727-03]	Hex. Chromium (Cr 6+)	2021/09/17		105	%	75 - 125
356383	BFE	Spiked Blank	Hex. Chromium (Cr 6+)	2021/09/17		100	%	80 - 120
\356383	BFE	Method Blank	Hex. Chromium (Cr 6+)	2021/09/17	<0.080		mg/kg	
\356383	BFE	RPD [AFU727-03]	Hex. Chromium (Cr 6+)	2021/09/17	NC		%	35
357683	JAB	Matrix Spike	Soluble Boron (B)	2021/09/19		96	%	75 - 125
357683	JAB	QC Standard	Soluble Sulphate (SO4)	2021/09/19		110	%	75 - 125
A357683	JAB	Spiked Blank	Soluble Boron (B)	2021/09/19		96	%	80 - 120
A357683	JAB	Method Blank	Soluble Boron (B)	2021/09/19	<0.10		mg/L	
			Soluble Sulphate (SO4)	2021/09/19	<5.0		mg/L	
A357683	JAB	RPD	Soluble Boron (B)	2021/09/19	21		%	30
			Soluble Sulphate (SO4)	2021/09/19	9.9		%	30

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) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.