

KBL Environmental Ltd.

Soil Treatment Facility
Inuvik, Northwest Territories



2018 Annual Report

Submitted To: Gwich'in Land and Water Board
P.O. Box 2018
Inuvik, NT X0E 0T0
Licence Number: G17L1-002
V1

March 27, 2019

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1.0 INTRODUCTION

1.1. Project Information

Licensee:

KBL Environmental Ltd.

Corporate Office:

17 Cameron Road

P.O. Box 1895

Yellowknife, NT X1A 2P4

Project Location:

Town of Inuvik Solid Waste Disposal Facility

Lot 65, Group 1355, CLSR 611339

Inuvik, Northwest Territories

KBL Environmental Ltd.'s (KBL) Inuvik Soil Treatment Facility (STF) received Water Licence G17L1-002 on July 25, 2017. Construction and operations have not commenced. It is anticipated that construction will begin in Spring of 2020.

1.2. Purpose

This document fulfills annual reporting requirements under Part B (6) and Schedule 1 of Water Licence G17L1-002.

2.0 LICENCE SCHEDULE 1 – ANNUAL WATER LICENCE REPORT REQUIREMENTS

2.1. Schedule 1 Item 1a: The generator, carrier, volume, and analytical results of soil and snow accepted at the Inuvik Soil Treatment Facility

No soil or snow has been accepted at the facility in 2018 as the facility has not yet been constructed.

2.2. Schedule 1 Item 1b: The generator, carrier, volume, and analytical results of soil and snow refused at the Inuvik Soil Treatment Facility

No soil or snow has been accepted at the facility in 2018 as the facility has not yet been constructed

2.3. Schedule 1 Item 1c: The generator, carrier, volume, and analytical results of soil and snow refused removed from the Inuvik Soil Treatment Facility

No soil or snow has been accepted at the facility in 2018 as the facility has not yet been constructed

2.4. Schedule 1 Item 1d: The monthly and annual quantities in cubic meters of all effluent discharged from the Water Retention Pond and Water Holding Tanks

No effluent was discharged from the Water Retention Pond or Water Holding Tanks in 2017 as the facility has not yet been constructed.

2.5. Schedule 1 Item 1e: The generator, carrier, volume, and analytical results of soil and snow refused removed from the Inuvik Soil Treatment Facility

Not Applicable – The facility has yet to be constructed.

2.6. Schedule 1 Item 1f: A description and volume or quantity of process additives used, with SDS provided

No additives were used in 2017 as the facility has yet to be constructed.

2.7. Schedule 1 Item 1g: Discharge location(s) and effluent quality test results (raw and summarized data)

There were no discharge events or effluent quality testing in 2017 as the facility has yet to be constructed.

2.8. Schedule 1 Item 1h: Tabular summaries of all data generated under the Surveillance Network Program (SNP) in accordance with Part 2, Item 3, and Annex A of this licence

Please refer to Appendix A: Tabular summaries of all data generated under the Surveillance Network Program (SNP).

2.9. Schedule 1 Item 1i: Details and results of the Environmental Monitoring Program, in accordance with Part E, Item 6, and Schedule 2 of this Licence

As the facility has not been constructed yet, KBL would like to do another season of monitoring prior to setting the Action Levels and updating the Environmental Monitoring Program for the Inuvik facility.

2.10. Schedule 1 Item j: Laboratory reports for all samples collected for the Surveillance Network Program, attached as an appendix.

Please refer to Appendix B: Laboratory reports for the Surveillance Network Program

2.11. Schedule 1 Item k: For parameters that exhibit on-going or recurring exceedances of compliance criteria, provide:

- i. **additional data analysis**
- ii. **a comparison to monitoring data from previous years to detect trends or patterns; and**
- iii. **a review of field conditions in order to explain results**

Not Applicable – There was only baseline monitoring done in 2018 and the facility is not yet constructed.

2.12. Schedule 1 Item l: A summary of Construction activities conducted in accordance with Part F of this Licence

No construction activities took place in 2018.

2.13. Schedule 1 Item m: A summary of Modification activities and major maintenance work conducted on the Inuvik Soil Treatment Facility; including all associated structures, in accordance with Part G of this Licence

No modifications or major maintenance work took place in 2018 as the facility has not been constructed.

2.14. Schedule 1 Item n: A list and description of all Unauthorized Discharges that occurred during the previous calendar year, including the day, NWT spill number, volume, location, and summary of the circumstances and follow-up actions taken, and the status (i.e. open or closed), in accordance with the reporting requirements referred to in Part H of the Licence

There were no Unauthorized Discharges in 2018, the facility has not yet been constructed.

2.15. An outline of any spill training and communications exercises carried out during the previous calendar year

No spill training or communications exercises were conducted in 2018 as the facility is not yet constructed.

2.16. Schedule 1 Item p: A summary of any closure and reclamation work completed during the year and an outline of any work anticipated for the next year

No closure or reclamation work was completed during 2018 and no closure or reclamation work is anticipated in 2019.

2.17. Schedule 1 Item q: A summary of any studies requested by the Board that relate to Waste disposal or Reclamation, and brief description of any future studies planned

No studies were requested by the Board in 2018 relating to Waste disposal or Reclamation. There are no future studies planned at this time.

2.18. Schedule 1 Item r: A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an inspector

Not Applicable – The facility has not been constructed

2.19. Schedule 1 Item s: A summary of any updates or revisions to the Engagement Plan, Spill Contingency Plan, Waste Management Plan, Operation & Maintenance Plan, Environmental Monitoring Program, and Closure and Reclamation Plan

No plans were updated in 2018 as the facility is not yet constructed.

2.20. Schedule 1 Item t: Any other details on waste disposal, operating procedures, construction, modifications, maintenance work, or other topics, requested by the Board on or before November 1 of the year being reported.

Not Applicable

APPENDIX A

Tabular Summaries of all data generated under the Surveillance Network Program

Appendix A: Tabular summaries of all data generated under the Surveillance Network Program for Inuvik Soil Treatment Facility (GL17L1-002)

SNP 0037-1: Water Retention Pond

Not Applicable - The facility has not been constructed.

SNP 0037-2: Water Holding Tank

Not Applicable - The facility has not been constructed.

SNP 0037-3: Drainage Ditch (TBD)

Not Applicable - The facility has not been constructed.

SNP 0037-8: Surface Water Monitoring (TBD)

Not Applicable - The facility has not been constructed.

SNP 0037-4 (North-East)

Monitoring well was checked and found to be dry during both the spring and fall sampling events.

SNP 0037-5 (South-East)

Parameters	Units	Oct 5, 2018
Field Parameters		
Groundwater Level (mbgs)	mbgs	-
Field pH	pH unit	7.1
Field Electrical Conductivity	µS/cm	4.06
Temperature	°C	1.4
Dissolved Oxygen	mg/L	-
Total Petroleum Hydrocarbons		
Benzene	mg/L	<0.00050
Toluene	mg/L	<0.00050
Ethylbenzene	mg/L	<0.00050
Xylene	mg/L	<0.00071
F1 (C6 – C10)	mg/L	<0.10
F2 (>C10 – C16)	mg/L	<0.10
F3 (>C16 – C34)	mg/L	<0.25
F4 (>C34 – C50)	mg/L	<0.25
Extractable Petroleum Hydrocarbons (EPH)	mg/L	-
Total Metals		
Aluminum	mg/L	2.13
Arsenic	mg/L	0.00505

Parameters	Units	Oct 5, 2018
Beryllium	mg/L	0.00015
Boron	mg/L	1.60
Cadmium	mg/L	0.000298
Chromium	mg/L	0.00471
Cobalt	mg/L	0.00425
Copper	mg/L	0.00724
Iron	mg/L	5.50
Lead	mg/L	0.00289
Manganese	mg/L	1.41
Mercury	mg/L	<0.0000050
Molybdenum	mg/L	0.000501
Nickel	mg/L	0.0158
Selenium	mg/L	0.000397
Silver	mg/L	0.000049
Strontium	mg/L	2.28
Vanadium	mg/L	0.00893
Zinc	mg/L	0.0240
General Chemistry		
Chemical Oxygen Demand (COD)	mg/L	54
Oil and Grease	mg/L	<2.0
pH	pH Unit	8.25
Total Suspended Solid (TSS)	mg/L	138

SNP 0037-6 (South)

Parameters	Units	Oct 5, 2018
Field Parameters		
Groundwater Level (mbgs)	mbgs	-
Field pH	pH unit	7.8
Field Electrical Conductivity (µS/cm)	µS/cm	4.26
Temperature (°C)	°C	3.1
Dissolved Oxygen (mg/L)	mg/L	-

Parameters	Units	Oct 5, 2018
Total Petroleum Hydrocarbons		
Benzene	mg/L	<0.00050
Toluene	mg/L	<0.00050
Ethylbenzene	mg/L	<0.00050
Xylene	mg/L	<0.00071
F1	mg/L	<0.10
F2	mg/L	<0.10
F3	mg/L	0.43
F4	mg/L	<0.25
Extractable Petroleum Hydrocarbons (EPH)	mg/L	-
Total Metals		
Aluminum	mg/L	3.87
Arsenic	mg/L	0.0225
Beryllium	mg/L	0.00022
Boron	mg/L	0.397
Cadmium	mg/L	0.000346
Chromium	mg/L	0.00899
Cobalt	mg/L	0.0103
Copper	mg/L	0.0122
Iron	mg/L	22.4
Lead	mg/L	0.0151
Manganese	mg/L	5.66
Mercury	mg/L	0.0000685
Molybdenum	mg/L	0.00171
Nickel	mg/L	0.0278
Selenium	mg/L	0.000941
Silver	mg/L	0.000291
Strontium	mg/L	2.41
Vanadium	mg/L	0.0183
Zinc	mg/L	0.0495

Parameters	Units	Oct 5, 2018
General Chemistry		
Chemical Oxygen Demand (COD)	mg/L	26
Oil and Grease	mg/L	<2.0
pH	pH Units	7.94
Total Suspended Solid (TSS)	mg/L	1,280

SNP 0037-7 (South-West)

Parameters	Units	Oct 5, 2018	Oct 5, 2018 Dup
Field Parameters			
Groundwater Level (mbgs)	mbgs	-	
Field pH	pH unit	7.5	
Field Electrical Conductivity (μ S/cm)	μ S/cm	5.49	
Temperature ($^{\circ}$ C)	$^{\circ}$ C	1.1	
Dissolved Oxygen (mg/L)	mg/L	-	
Total Petroleum Hydrocarbons			
Benzene	mg/L	0.0128	0.0121
Toluene	mg/L	0.0111	0.0105
Ethylbenzene	mg/L	0.00901	0.0102
Xylene	mg/L	0.0151	0.0151
F1	mg/L	<0.10	<0.10
F2	mg/L	0.82	0.76
F3	mg/L	0.42	0.32
F4	mg/L	<0.25	<0.25
Extractable Petroleum Hydrocarbons (EPH)	mg/L	-	-
Total Metals			
Aluminum	mg/L	0.646	0.622
Arsenic	mg/L	0.0119	0.0118
Beryllium	mg/L	<0.00010	<0.00010
Boron	mg/L	3.98	3.93
Cadmium	mg/L	0.0000772	0.0000709

Parameters	Units	Oct 5, 2018	Oct 5, 2018 Dup
Chromium	mg/L	0.00532	0.00539
Cobalt	mg/L	0.00186	0.00175
Copper	mg/L	0.00336	0.00372
Iron	mg/L	33.5	34.2
Lead	mg/L	0.00860	0.00847
Manganese	mg/L	2.35	2.38
Mercury	mg/L	<0.0000050	<0.0000050
Molybdenum	mg/L	0.000655	0.000614
Nickel	mg/L	0.0156	0.0154
Selenium	mg/L	0.00124	0.00117
Silver	mg/L	0.000030	0.000036
Strontium	mg/L	1.63	1.59
Vanadium	mg/L	0.0202	0.0209
Zinc	mg/L	0.102	0.105
General Chemistry			
Chemical Oxygen Demand (COD)	mg/L	433	
Oil and Grease	mg/L	<2.0	<5.0
pH	pH Unit	7.90	7.72
Total Suspended Solid (TSS)	mg/L	184	201

APPENDIX B

Laboratory reports for the Surveillance Network Program



KBL Environmental Ltd.
ATTN: Josh Foster
PO Box 1895
17 Cameron Road
Yellowknife NT X1A 2P4

Date Received: 06-OCT-18
Report Date: 23-OCT-18 16:46 (MT)
Version: FINAL

Client Phone: 780-289-9090

Certificate of Analysis

Lab Work Order #: L2177196
Project P.O. #: NOT SUBMITTED
Job Reference: INUVIK STF
C of C Numbers: 15-584833
Legal Site Desc:

Harman Bhullar
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 9450 17 Avenue NW, Edmonton, AB T6N 1M9 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2177196-1 water 05-OCT-18 SNP0037-5-100518	L2177196-2 water 05-OCT-18 SNP0037-6-100518	L2177196-3 water 05-OCT-18 SNP0037-7-100518	L2177196-4 water 05-OCT-18 SNP0037-A-100518
Grouping	Analyte				
WATER					
Physical Tests	pH (pH)	8.25	7.94	7.90	7.72
	Total Suspended Solids (mg/L)	138	1280 ^{DLHC}	184 ^{DLHC}	201 ^{DLHC}
Total Metals	Aluminum (Al)-Total (mg/L)	2.13	3.87	0.646	0.622
	Antimony (Sb)-Total (mg/L)	0.00040	0.00079	0.00106	0.00103
	Arsenic (As)-Total (mg/L)	0.00505	0.0225	0.0119	0.0118
	Barium (Ba)-Total (mg/L)	0.0865	0.194	0.549	0.558
	Beryllium (Be)-Total (mg/L)	0.00015	0.00022	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	0.000060	0.000070	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	1.60	0.397	3.98	3.93
	Cadmium (Cd)-Total (mg/L)	0.000298	0.000346	0.0000772	0.0000709
	Calcium (Ca)-Total (mg/L)	464	434	316	316
	Cesium (Cs)-Total (mg/L)	0.000423	0.000893	0.000091	0.000088
	Chromium (Cr)-Total (mg/L)	0.00417	0.00899	0.00532	0.00539
	Cobalt (Co)-Total (mg/L)	0.00425	0.0103	0.00186	0.00175
	Copper (Cu)-Total (mg/L)	0.00724	0.0122	0.00336	0.00372
	Iron (Fe)-Total (mg/L)	5.50	22.4	33.5	34.2
	Lead (Pb)-Total (mg/L)	0.00289	0.0151	0.00860	0.00847
	Lithium (Li)-Total (mg/L)	0.0290	0.228	0.0572	0.0542
	Magnesium (Mg)-Total (mg/L)	260	819	241	241
	Manganese (Mn)-Total (mg/L)	1.41	5.66	2.35	2.38
	Mercury (Hg)-Total (mg/L)	<0.0000050	0.0000685	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000501	0.00171	0.000655	0.000614
	Nickel (Ni)-Total (mg/L)	0.0158	0.0278	0.0156	0.0154
	Phosphorus (P)-Total (mg/L)	0.270	0.755	0.987	1.06
	Potassium (K)-Total (mg/L)	8.20	10.9	38.5	38.3
	Rubidium (Rb)-Total (mg/L)	0.00572	0.0136	0.0135	0.0137
	Selenium (Se)-Total (mg/L)	0.000397	0.000941	0.00124	0.00117
	Silicon (Si)-Total (mg/L)	6.84	9.15	11.6	11.5
Silver (Ag)-Total (mg/L)	0.000049	0.000291	0.000030	0.000036	
Sodium (Na)-Total (mg/L)	103	161	517	526	
Strontium (Sr)-Total (mg/L)	2.28	2.41	1.63	1.59	
Sulfur (S)-Total (mg/L)	779	1470	23.6	24.2	
Tellurium (Te)-Total (mg/L)	0.00052	0.00065	0.00040	0.00030	
Thallium (Tl)-Total (mg/L)	0.000100	0.000868	0.000015	0.000012	
Thorium (Th)-Total (mg/L)	0.00208	0.00191	0.00015	0.00016	
Tin (Sn)-Total (mg/L)	0.00042	0.00031	0.00324	0.00383	
Titanium (Ti)-Total (mg/L)	0.0215	0.0473	0.0105	0.0102	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2177196-1 water 05-OCT-18 SNP0037-5-100518	L2177196-2 water 05-OCT-18 SNP0037-6-100518	L2177196-3 water 05-OCT-18 SNP0037-7-100518	L2177196-4 water 05-OCT-18 SNP0037-A-100518
Grouping	Analyte				
WATER					
Total Metals	Tungsten (W)-Total (mg/L)	<0.00010	<0.00010	0.00018	0.00018
	Uranium (U)-Total (mg/L)	0.00171	0.00736	0.000212	0.000186
	Vanadium (V)-Total (mg/L)	0.00893	0.0183	0.0202	0.0209
	Zinc (Zn)-Total (mg/L)	0.0240	0.0495	0.102	0.105
	Zirconium (Zr)-Total (mg/L)	0.00185	0.00171	0.00298	0.00379
Aggregate Organics	Chemical Oxygen Demand (mg/L)	54	26	433 ^{DLHC}	
	Oil & Grease-(IR) (mg/L)	<2.0 ^{DLIS}	<2.0 ^{DLIS}	<2.0 ^{DLIS}	<5.0 ^{DLIS}
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050	0.0128 ^{RRV}	0.0121 ^{RRV}
	EthylBenzene (mg/L)	<0.00050	<0.00050	0.00901 ^{RRV}	0.0102 ^{RRV}
	Styrene (mg/L)	<0.00050	<0.00050	0.00100 ^{RRV}	0.00096 ^{RRV}
	Toluene (mg/L)	<0.00050	<0.00050	0.0111 ^{RRV}	0.0105 ^{RRV}
	o-Xylene (mg/L)	<0.00050	<0.00050	0.00625 ^{RRV}	0.00629 ^{RRV}
	m+p-Xylene (mg/L)	<0.00050	<0.00050	0.00887 ^{RRV}	0.00884 ^{RRV}
	Xylenes (mg/L)	<0.00071	<0.00071	0.0151 ^{RRV}	0.0151 ^{RRV}
	F1(C6-C10) (mg/L)	<0.10	<0.10	<0.10	<0.10
	F1-BTEX (mg/L)	<0.10	<0.10	<0.10	<0.10
	Surrogate: 4-Bromofluorobenzene (SS) (%)	93.0	96.8	95.7	90.2
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	113.3	108.9	93.9	104.2
	Surrogate: 1,4-Difluorobenzene (SS) (%)	98.0	97.7	98.9	101.4
	Hydrocarbons	F2 (>C10-C16) (mg/L)	<0.10	<0.10	0.82
F3 (C16-C34) (mg/L)		<0.25	0.43	0.42	0.32
F4 (C34-C50) (mg/L)		<0.25	<0.25	<0.25	<0.25
Surrogate: 2-Bromobenzotrifluoride (%)		98.0	100.4	101.4	106.5

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Chemical Oxygen Demand	MS-B	L2177196-1, -2
Matrix Spike	Aluminum (Al)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Boron (B)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Iron (Fe)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Manganese (Mn)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Potassium (K)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Silicon (Si)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Total	MS-B	L2177196-1, -2, -3, -4
Matrix Spike	Sulfur (S)-Total	MS-B	L2177196-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLIS	Detection Limit Adjusted: Insufficient Sample
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTXS,F1-ED	Water	BTEX, Styrene and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
COD-T-COL-ED	Water	Chemical Oxygen Demand	APHA 5220 D-Micro Colorimetry
This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.			
F2,F3,F4-ED	Water	F2, F3, F4	EPA 3510/CCME PHC CWS-GC-FID
Water samples are spiked with 2-BBTF surrogate, and extracted by reciprocal action shaker for 30 minutes using a single micro-extraction with 2 mL hexane. After extraction, hexane extracts are dispensed into GC vials for GC-FID analysis.			
HG-T-CVAA-ED	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
OGG-IR-ED	Water	Oil & Grease-(IR)	APHA 5520 C-Liq-Liq Extraction Infrared
PH-ED	Water	pH	APHA 4500 H-Electrode
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

15-584833

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

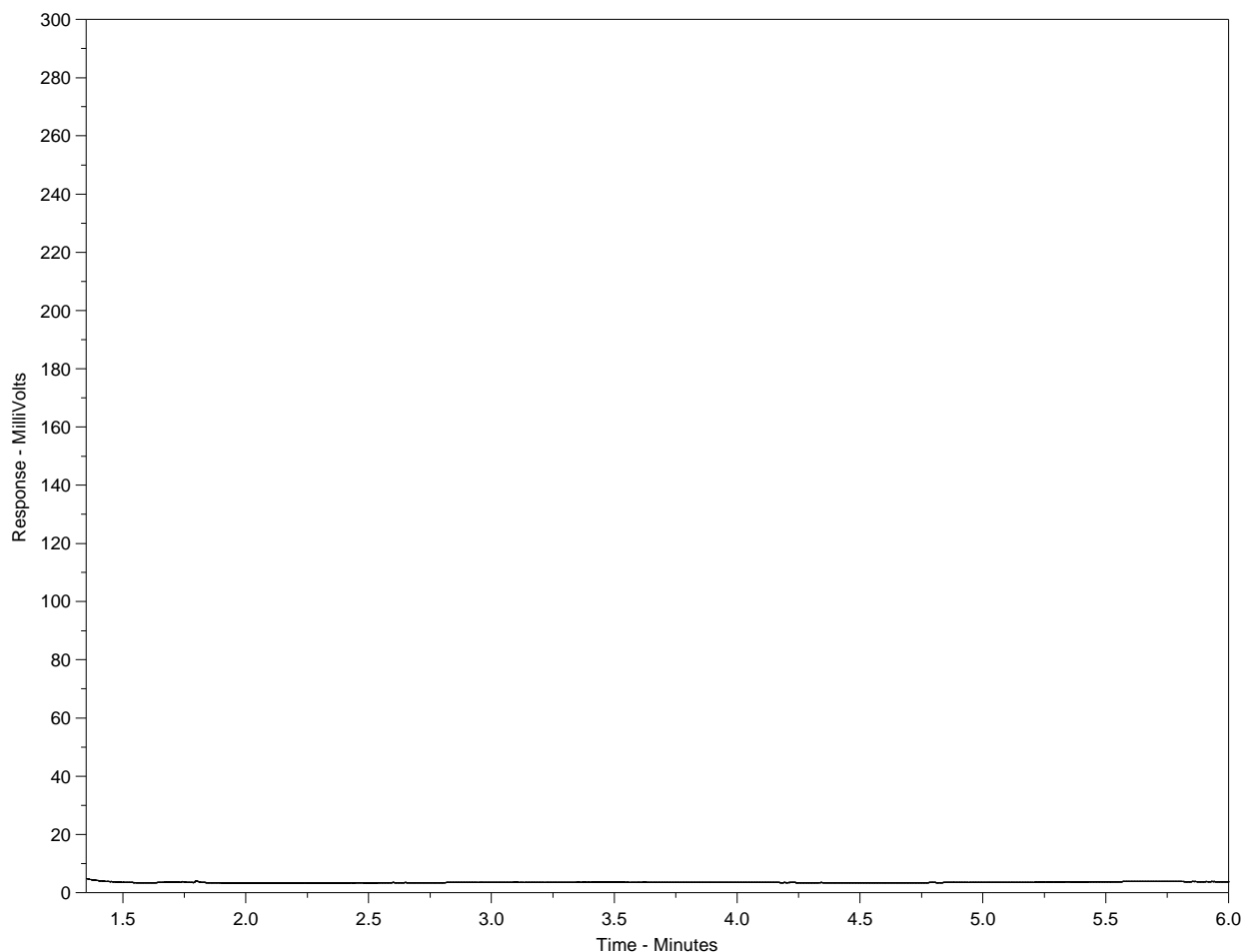
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Hydrocarbon Distribution Report



ALS Sample ID: L2177196-1
 Client ID: SNP0037-5-100518



← F2 →		← F3 →		← F4 →		← F4 →	
nC10	nC16			nC34		nC50	
174°C	287°C			481°C		575°C	
346°F	549°F			898°F		1067°F	
← Gasoline →				← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →							

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

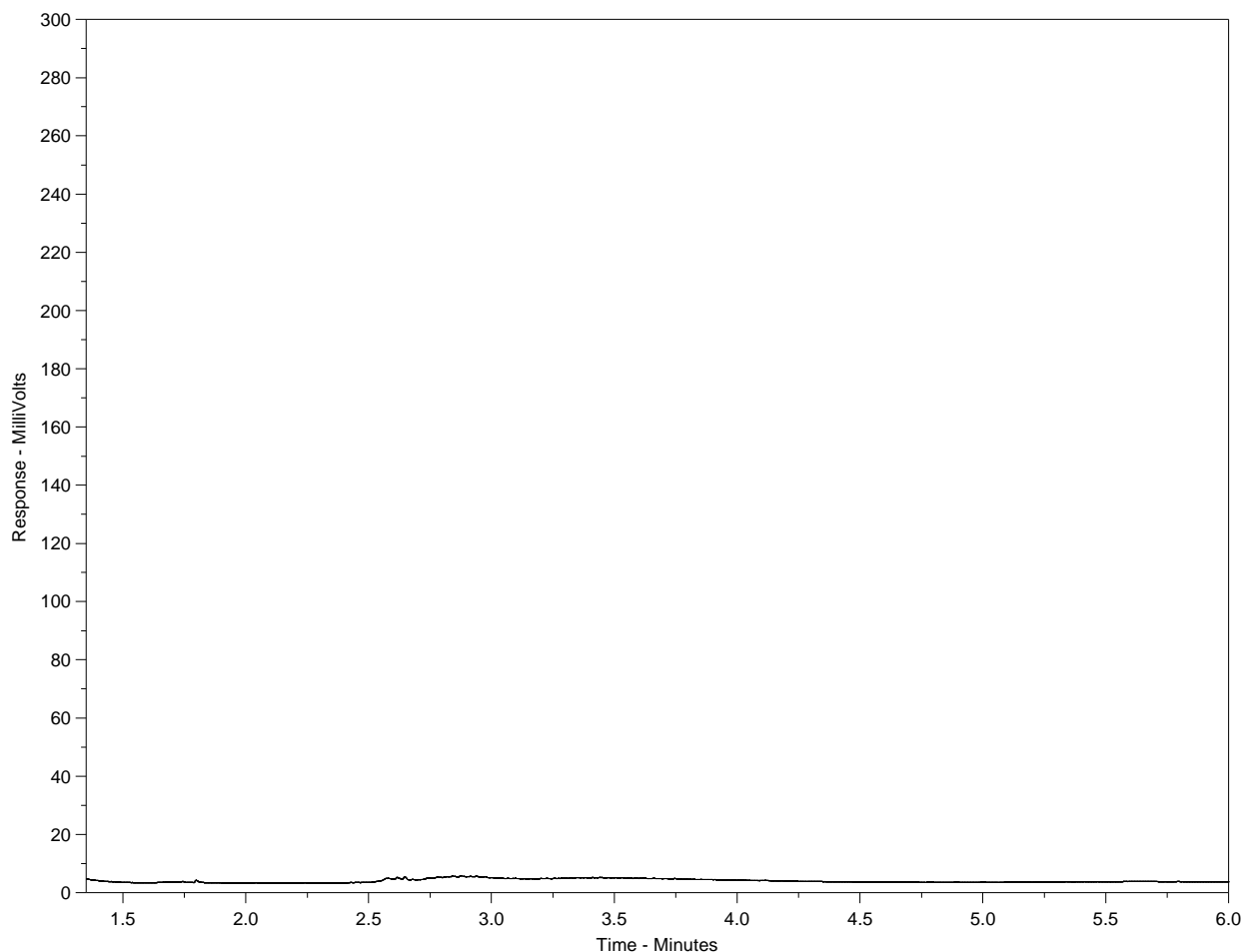
Note:

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report



ALS Sample ID: L2177196-2
 Client ID: SNP0037-6-100518



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16		nC34		nC50	
174°C	287°C		481°C		575°C	
346°F	549°F		898°F		1067°F	
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →				
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

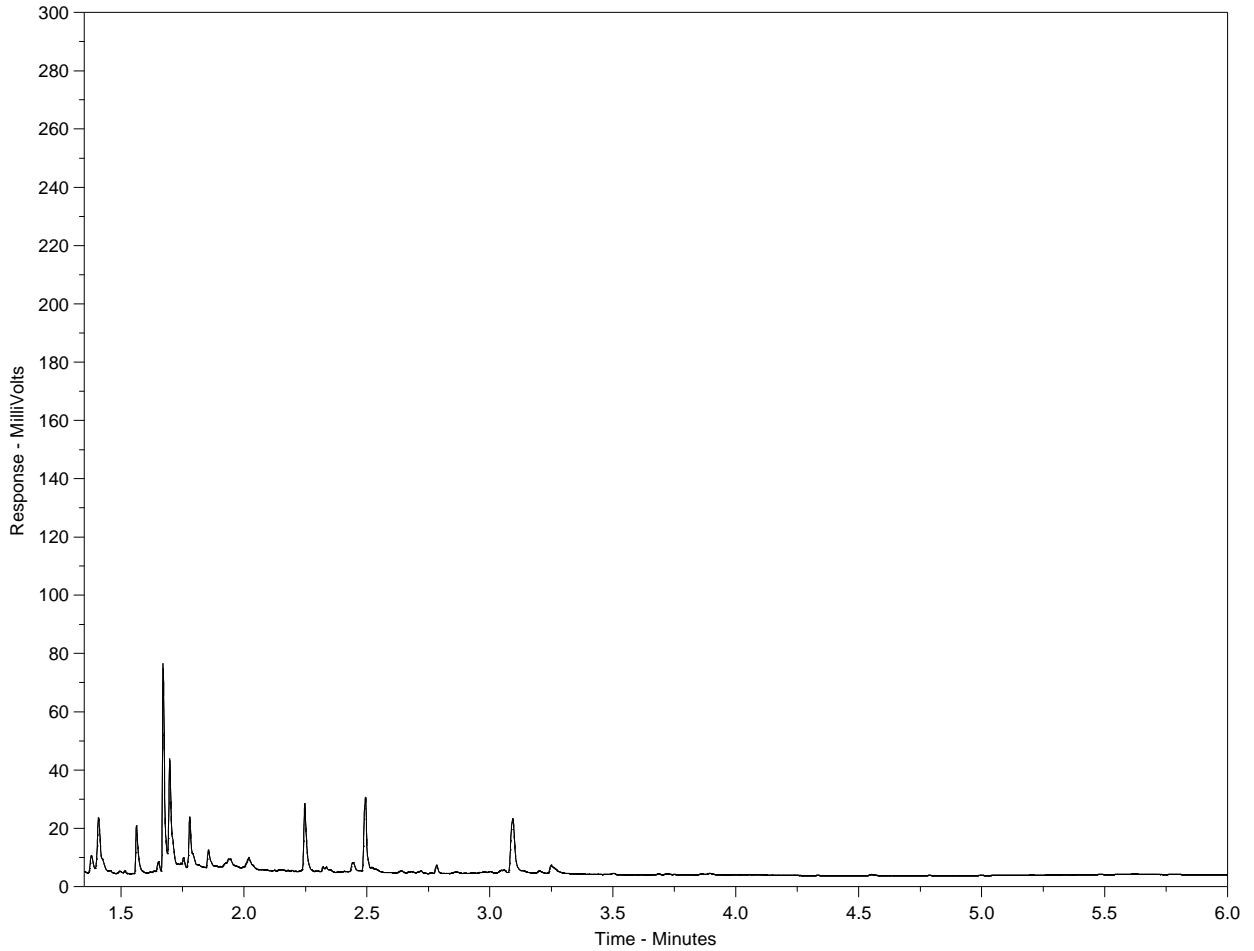
Note:

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report



ALS Sample ID: L2177196-3
 Client ID: SNP0037-7-100518



← F2 →		← F3 →		← F4 →		← F4 →	
nC10	nC16	nC34	nC50				
174°C	287°C	481°C	575°C				
346°F	549°F	898°F	1067°F				
← Gasoline →		← Motor Oils/ Lube Oils/ Grease →					
← Diesel/ Jet Fuels →							

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

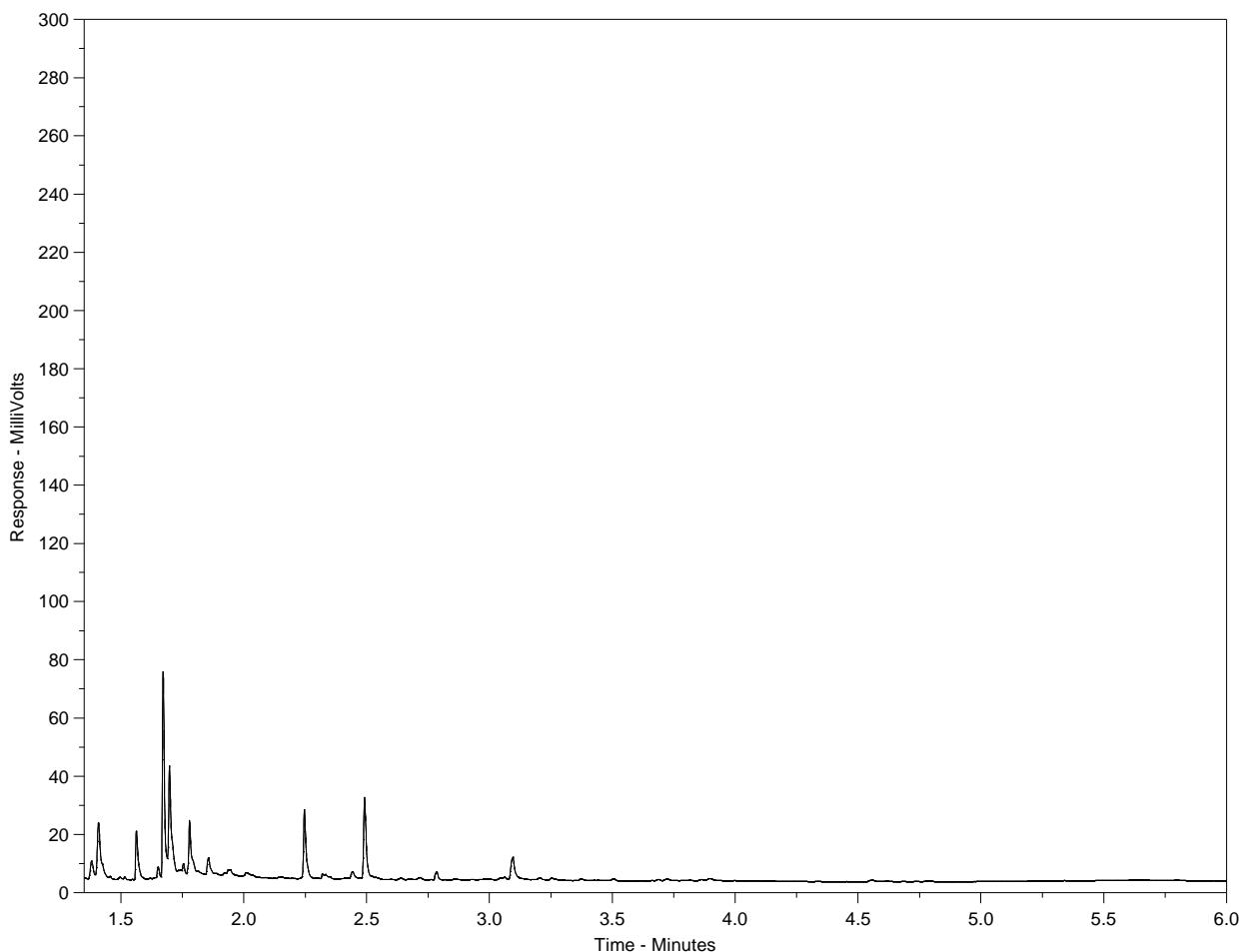
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note:
 This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report



ALS Sample ID: L2177196-4
 Client ID: SNP0037-A-100518



← F2 →		← F3 →		← F4 →		← F4 →	
nC10	nC16		nC34		nC50		
174°C	287°C		481°C		575°C		
346°F	549°F		898°F		1067°F		
← Gasoline →				← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →							

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note:
 This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.



ALS Environmental
www.alsglobal.com

P/A Ice/Ice
P/A free water

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2177196-COFC

COC Number: 15 - 584833

Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution			Select Service Level Below - Please confirm all EAP TATs with your AM - surcharges will apply														
Company: KBL Environmental		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply														
Contact: Josh Foster		Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO			PROPERTY (Business Copy)	4 day [P4] <input type="checkbox"/>			EMERGENCY	1 Business day [E1] <input type="checkbox"/>									
Phone: 780.289.2000		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked				3 day [P3] <input type="checkbox"/>				Same Day, Weekend or Statutory holiday [E0] <input type="checkbox"/>									
Company address below will appear on the final report		Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX				2 day [P2] <input type="checkbox"/>													
Street: 17 Cameron Rd.		Email 1 or Fax: jfoster@kblenv.com			Data and Time Required for all EAP TATs:														
City/Province: Yellowknife NT		Email 2			For tests that can not be performed according to the service level selected, you will be contacted.														
Postal Code:		Email 3			Analysis Request														
Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below														
Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			Total Metals	BTEX FI-FY	COD	EPH	TSS	OTG	PH	Number of Containers							
Company:		Email 1 or Fax																	
Contact:		Email 2																	
Project Information		Oil and Gas Required Fluids (client use)																	
ALS Account # / Quote #:		AFE/Cost Center: PO#																	
Job #: INUVIK STE		Major/Minor Code: Routing Code:																	
PO / AFE:		Requisitioner:																	
LSD:		Location:																	
ALS Lab Work Order # (lab use only): L2177196		ALS Contact:		Sampler:															
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type															
	SNP0037-5-100518	05-Oct-18		GW	X	X	X	X	X	X	12								
	SNP0037-6-100518	↓		↓	X	X	X	X	X	X	12								
	SNP0037-7-100518	↓		↓	X	X	X	X	X	X	12								
	SNP0037-A-100518	05-Oct-18		GW	X	X		X	X	X	6								
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)			SAMPLE CONDITION AS RECEIVED (lab use only)														
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>														
Are samples for human drinking water use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>														
					Cooling Initiated <input checked="" type="checkbox"/>														
					INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C										
					6.2														
SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)													
Released by: J Foster		Date: 05/18	Time:	Received by: AL		Date: 05/18	Time: 2:00	Received by:		Date:	Time:								

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.