Cambridge Bay Soil & Water Treatment Facility

2020 Annual Report

Nunavut Water Board Licence 1BR-CST1723

2020 Annual Report

Cambridge Bay SWTF 2020 Annual Report
Version Number: V.1.0

March 31, 2021

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EXECUTIVE SUMMARY

The Kitikmeot Environmental Ltd. (KEL) soil and water treatment facility was licensed in 2017 by the Nunavut Water Board under water licence number 1BR-CST1723 and construction of the facility was completed in October 2017.

The facility consists of one soil treatment cell for the receipt of soil contaminated with petroleum hydrocarbons, one cell for the receipt of contaminated snow and water along with one cell for the storage of containerized hazardous waste material. The soil treatment cell dimensions are approximately 35 meters by 49 meters. The water cell and hazardous water storage cell dimensions are approximately 14 meters by 16 meters. The water cell is designed with a capacity of 170 cubic meters. In 2020 a total of approximately 24 cubic meters of soil was deposited at the facility and will undergo treatment in 2021.

1.0 INTRODUCTION

Licensee:

Kitikmeot Environmental Ltd. (KEL)
PO Box 92, 10 Omilik Road
Cambridge Bay, Nunavut
X0B 0C0

The Cambridge Bay Soil and Water Treatment Facility (the Facility) is operated under the Nunavut Water Board (NWB) water licence 1BR-CST1723 originally issued to Kitnuna Environmental Ltd. In 2019, Kitikmeot Environmental Ltd took over the operation. An "Application for Assignment" was submitted in April 2020 to the NWB, and approval was received on May 22, 2020.

This 2020 Annual Report serves to satisfy the requirements outlined in Part B, Item 1 of the water licence. A copy of the completed NWB Annual Reporting Form for 2020 can be found in Appendix C.

2.0 PART B, ITEM 1 – ANNUAL REPORT

a. The monthly and annual quantities of material deposited in the on-site Waste Management Facility:

Approximately 32 cubic meters of soil were received at the facility in 2020. These bags were emptied into a new pile on the soil pad.

Approximately 4 cubic meters of bagged (40 bags) hydrocarbon contaminated rags and absorbents were placed on the pad at the facility sometime during 2020. The materials were identified on August 4, 2020, as having been placed on the pad by Kitnuna Petroleum without KEL involvement or approval. The materials are being returned to Kitnuna Petroleum in 2021.

No snow or water was accepted at the facility in 2020.

Table 2-1: Quantity of Waste Deposited in 2020

Waste Description	Generator Name	Generator Site	Date Received	Volume
Soil	Raytheon Canada Limited	DND Storeroom, Cambridge Bay, NU, X0B 0C0	July 23, 2020	32 m^3
Bagged hydrocarbon contaminated rags and absorbents	Kitnuna Petroleum	10 Omilik Road, Cambridge Bay, NU	Unknown	4 m^3

b. Characterization of soils treated at the Facility

A soil treatment event began on September 21, 2020, and ended on September 24, 2020. This involved treatment by manual aeration using an excavator of soil piles P2, P5, and P6. On August 5, 2020 samples

were collected for piles P1, P2, P3, P4, P5, P6, P7, and P8 to characterize the soil and determine compliance with reuse criteria. Three of the soil piles (P1, P3, and P7) meet re-use criteria and the remaining piles contain hydrocarbon above re-use criteria. One soil pile has elevated pH levels (8.2 as compared to re-use criteria of 8). A request will be made in 2021 to treat the pH in the soil. The analytical results for this sampling event are included in Appendix B.

Soil Pile Number	Generator Name	Hydrocarbon Characterization	pH Characterization	Metals Characterization
1	Government of Nunavut Community and Government Services	Meets Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria
2	NSSI Tank Farm	Above Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria
3	Qulliq Energy Corporation	Meets Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria
4	Raytheon	Above Re-use Criteria	Above Re-use Criteria	Meets Re-use Criteria
5	Inukshuk	Above Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria
6	Kitnuna Projects	Above Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria
7	Qulliaq Energy Corporation	Meets Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria
8	Raytheon	Above Re-use Criteria	Meets Re-use Criteria	Meets Re-use Criteria

c. The monthly and annual quantities of any effluent discharge from the Facility

Approval to discharge effluent water from the Facility was granted by Mr. Baba Pedersen on August 24, 2020. Approximately 110m^3 of water was discharged on September 19-21, 2020. Correspondence approving the discharge can be found in Appendix A. A copy of the analytical can be found in Appendix B.

d. Waste backhauled to any Nunavut Community in 2020

No waste was backhauled to any Nunavut community in 2020.

e. GPS coordinates of all waste associated with the Project

The coordinates of the facility are 69°7.718' North and 105° 2.760 West.

f. Construction work, modification, and major maintenance work completed at the Facility

One of the groundwater monitoring wells, CST3, was damaged during the municipal construction of a road adjacent to the facility. The well was decommissioned and a new well designated CST3 was installed on August 5, 2021.

g. Tabular summaries for all data and information generated under the "Monitoring Program"

A monitoring event occurred on August 5, 2020. One well was observed to be damaged and the two remaining wells had insufficient water levels for sampling. As a result, no groundwater samples were taken in 2020.

Surface water samples were collected from SW1 (pond 1), SW2 (pond 2), and SW3 (standing water on the soil pad). Tabulated results are included in Appendix D.

h. Monitoring Program Data Analysis

Groundwater monitoring wells were installed in 2018 at locations surrounding the facility. The locations of these wells were established under Part K Item 1 of the water license. The requirements for the monitoring program were for one well to be installed upgradient of the Facility (CST-2) and two wells installed downgradient (CST-3, CST-4). The monitoring wells were installed by KEL on August 17-18, 2018.

Wells CST-3 and CST-4 were dry during the August sampling campaign. Upgradient well CST-2 was damaged and could not be sampled. A new monitoring well was installed in its' place. Due to all the monitoring wells being dry or damaged during the monitoring event that occurred, no groundwater samples were collected in 2020.

As per Part K Item 7 of the license, a Water Monitoring Plan (WMP) was created and submitted to the NWB on May 12, 2017. The WMP will be revised once the groundwater monitoring wells have been sampled for the first time in 2021.

i. Summary of Studies

No studies were requested by the board in 2020.

j. Unauthorized Discharges

No unauthorized discharges occurred in 2020.

k. Description of trenches or sumps excavated

No trenches or sumps were excavated in 2020.

l. Public consultation/participation report

No public consultations occurred in 2020.

m. Summary of Inspection Reports and Corrective Actions

No inspections or reports were prepared by an inspector in 2020.

n. Executive summary in English and in Inuktitut of all plans, reports, or studies conducted under this Licence

No reports or studies were conducted in 2020.

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o. Additional details as requested by the Board

No additional details were requested by the Board in 2020.

APPENDIX A

Appendix A Inspector Approval to Discharge

Renee White

From: Pedersen, Baba (AADNC/AANDC) <baba.pedersen@canada.ca>
Sent: August 24, 2020 9:47 AM
To: Katie Oliver
Cc: David Vanderkley
Subject: RE: Cambridge Bay STF - Discharge Approval Request

Hello Katie,
All looks well, go ahead and Decant whenever you are ready.
Koana,
Baba

Sent from my Bell Samsung device over Canada's largest network.

-------- Original message --------
From: Katie Oliver <koliver@kblenv.com>
Date: 2020-08-20 4:34 p.m. (GMT-07:00)
To: "Pedersen, Baba (AADNC/AANDC)" <baba.pedersen@canada.ca>
Cc: David Vanderkley <dvanderkley@kblenv.com>
Subject: Cambridge Bay STF - Discharge Approval Request

Hi Baba,

This email is seeking approval to discharge water from the facility under NWB Water Licence No. 1BR-CST1723.

The table below summarizes recent samples from standing water results from snow melt in the soil treatment area, the facility drum storage area and the retention pond. Supporting certificate of analysis from the laboratory is attached for reference.

Parameter	Guideline mg/L	Pond 1 (SW1)	Pond 2 (SW2)	Soil Treatment Area (SW3)
pH	6.0-9.0	7.91	7.95	8.22
TSS	50	2	<1	12
Oil and Grease	15	5.0	2.0	2.7
Total Lead	0.001	<0.0001	0.0001	0.0004
Benzene	0.37	<0.0005	<0.0005	<0.0005
Toluene	0.002	<0.0003	<0.0003	<0.0003
Ethylbenzene	0.09	<0.0005	<0.0005	<0.0005
Xylenes	0.18	<0.0005	<0.0005	<0.0005

Let me know if you have any questions,

Katie Oliver, MBA, CET, PMP

Manager, Environmental Consulting

m: 780.893.3305
p: 780.452.7779
f: 866.316.7991

3601, 75 Avenue
Leduc, AB T9E 0Z5

kblenv.com

APPENDIX B

Appendix B Laboratory Certificates of Analysis (COA)

AGAT Laboratories

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

CLIENT NAME: KBL ENVIRONMENTAL
17 CAMERON ROAD, PO BOX 1895
YELLOWKNIFE, NT X1A2N8
ATTENTION TO: Katie Oliver
PROJECT: 4300
AGAT WORK ORDER: 20E635709
SOIL ANALYSIS REVIEWED BY: Melinda Guay, Technical Reviewer
TRACE ORGANICS REVIEWED BY: Qiuhong Dong, Lab Technician A
DATE REPORTED: Aug 27, 2020
PAGES (INCLUDING COVER): 18
VERSION*: 5

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

*Notes

VERSION 5:Supersedes Version 3: pH Saturated Paste, Metals + Hg + Boron (Sat Paste) + Cr6 added to sample 1340774. 3SEP20 MGU

Supersedes version 2. pH (Saturated Paste) added to samples: 1340773, 1340780, 1340778, and 1340783 (Aug 24/20GH)

Supersedes version 1. Extended Metals added to samples: 1340773, 778, 779, 780, 781, 783, 784. pH (Saturated Paste) added to samples: 1340779, 781, 784. BTEX/F1-F4 added to samples: 1340779, 781, 784. (Aug 20/20GH)

AGAT Laboratories

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EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635709

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

CCME / Tier 1 Metals + Hg + Boron (Sat Paste) + Cr6 (soil)

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

		SAMPLE DESCRIPTION:		P1-200805	P4-200805-01	P4-200805-02	P3-200805-01	P3-200805-02	P7-200805-01	P7-200805-02
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05
Parameter	Unit	G / S	RDL	1340773	1340778	1340779	1340780	1340781	1340783	1340784
Antimony	mg/kg	20	0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5
Arsenic	mg/kg	17	0.5	2.8	2.9	2.8	2.8	3.0	1.8	4.6
Barium	mg/kg	750	0.5	30.0	61.4	50.7	28.7	50.2	35.6	41.6
Beryllium	mg/kg	5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (Saturated Paste)	mg/L	3.3	0.5	2.0	0.7	0.6	<0.5	0.6	<0.5	<0.5
Cadmium	mg/kg	1.4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	64	0.5	13.5	11.3	9.8	10.4	8.4	14.8	17.9
Chromium, Hexavalent	mg/kg	0.4	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cobalt	mg/kg	20	0.5	3.9	3.5	3.1	3.3	2.5	4.5	5.4
Copper	mg/kg	63	0.5	8.5	7.0	6.5	7.0	7.0	19.6	9.4
Lead	mg/kg	70	0.5	8.4	12.4	10.2	8.3	9.8	4.9	5.4
Mercury	mg/kg	6.6	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Molybdenum	mg/kg	4	0.5	0.9	0.5	0.5	0.5	<0.5	0.8	1.0
Nickel	mg/kg	45	0.5	8.9	7.3	7.1	6.5	5.3	11.8	10.8
Selenium	mg/kg	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	mg/kg	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	mg/kg	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	mg/kg	23	0.5	0.9	0.8	0.7	0.7	0.7	3.2	1.9
Vanadium	mg/kg	130	0.5	14.8	15.6	14.9	14.4	12.3	19.2	23.9
Zinc	mg/kg	250	1	13	15	10	5	15	25	21

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Alberta Tier 1 - Soil - Agricultural - Fine
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1340773-1340784 Results are based on the dry weight of the sample.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635709

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

CCME / Tier 1 Metals + Hg + Boron (Sat Paste) + Cr6 + pH (soil)

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

		SAMPLE DESCRIPTION:		P8-200805
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2020-08-05
Parameter	Unit	G / S	RDL	1340774
Antimony	mg/kg	20	0.5	<0.5
Arsenic	mg/kg	17	0.5	2.1
Barium	mg/kg	750	0.5	36.7
Beryllium	mg/kg	5	0.5	<0.5
Boron (Saturated Paste)	mg/L	3.3	0.5	<0.5
Cadmium	mg/kg	1.4	0.5	<0.5
Chromium	mg/kg	64	0.5	12.5
Chromium, Hexavalent	mg/kg	0.4	0.3	<0.3
Cobalt	mg/kg	20	0.5	2.0
Copper	mg/kg	63	0.5	4.8
Lead	mg/kg	70	0.5	6.1
Mercury	mg/kg	6.6	0.5	<0.5
Molybdenum	mg/kg	4	0.5	<0.5
Nickel	mg/kg	45	0.5	5.1
Selenium	mg/kg	1	0.5	<0.5
Silver	mg/kg	20	0.5	<0.5
Thallium	mg/kg	1	0.5	<0.5
Tin	mg/kg	5	0.5	<0.5
Uranium	mg/kg	23	0.5	0.6
Vanadium	mg/kg	130	0.5	12.8
Zinc	mg/kg	250	1	134
pH (Saturated Paste)	pH Units		N/A	7.63

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Alberta Tier 1 - Soil - Agricultural - Fine
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1340774 Results are based on the dry weight of the sample.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

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CANADA T6B 3P9
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FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635709

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Particle Size by Sieve

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

		SAMPLE DESCRIPTION:		P8-200805
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2020-08-05
Parameter	**Unit**	**G / S**	**RDL**	**1340774**
Sieve Analysis - 75 microns	%		1	89
Sieve Texture				Coarse

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340774 Value reported is amount of sample retained on a 75 micron sieve after wash with water and represents proportion by weight particles larger than indicated sieve size.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

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EDMONTON, ALBERTA
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FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635709

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Soil Analysis - pH Saturated Paste

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

		SAMPLE DESCRIPTION:		P1-200805	P4-200805-01	P4-200805-02	P3-200805-01	P3-200805-02	P7-200805-01	P7-200805-02
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05
Parameter	**Unit**	**G / S**	**RDL**	**1340773**	**1340778**	**1340779**	**1340780**	**1340781**	**1340783**	**1340784**
pH (Saturated Paste)	pH Units		N/A	7.81	8.20	7.24	7.84	7.19	7.42	7.18

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 20E635709

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Petroleum Hydrocarbons (BTEX/F1-F4) in Soil (CWS) (Methanol Field Stabilized)

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

		SAMPLE DESCRIPTION:		P1-200805	P8-200805	P2-200805	P5-200805-01	P4-200805-01	P4-200805-02	P3-200805-01	P3-200805-02
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05	2020-08-05
Parameter	**Unit**	**G / S**	**RDL**	**1340773**	**1340774**	**1340775**	**1340776**	**1340778**	**1340779**	**1340780**	**1340781**
Benzene	mg/kg		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	mg/kg		0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	0.07	<0.05
Ethylbenzene	mg/kg		0.01	<0.01	0.59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
m,p-Xylenes	mg/kg		0.05	<0.05	3.36	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	mg/kg		0.05	<0.05	2.17	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	mg/kg		0.05	<0.05	5.53	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
C6 - C10 (F1)	mg/kg		10	<10	60	<10	<10	<10	<10	<10	<10
C6 - C10 (F1 minus BTEX)	mg/kg		10	<10	50	<10	<10	<10	<10	<10	<10
C10 - C16 (F2)	mg/kg		10	130	1000	100	860	180	180	120	340
C16 - C34 (F3)	mg/kg		10	1120	7140	6590	6140	510	300	170	490
C34 - C50 (F4)	mg/kg		10	240	1620	1150	1380	90	50	<10	50
Gravimetric Heavy Hydrocarbons	mg/kg		1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Moisture Content	%		1	6	4	8	6	6	7	5	6
Surrogate	**Unit**	**Acceptable Limits**									
Toluene-d8 (BTEX)	%	60-140		94	92	91	93	94	102	94	101
Ethylbenzene-d10 (BTEX)	%	60-140		82	86	75	85	103	107	87	92
o-Terphenyl (F2-F4)	%	60-140		103	88	104	88	101	100	101	78

Certified By: Qiuhong Dong

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Certificate of Analysis

AGAT WORK ORDER: 20E635709

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Petroleum Hydrocarbons (BTEX/F1-F4) in Soil (CWS) (Methanol Field Stabilized)

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

		SAMPLE DESCRIPTION:		P6-200805	P7-200805-01	P7-200805-02
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2020-08-05	2020-08-05	2020-08-05
Parameter	**Unit**	**G / S**	**RDL**	**1340782**	**1340783**	**1340784**
Benzene	mg/kg		0.005	<0.005	<0.005	<0.005
Toluene	mg/kg		0.05	<0.05	<0.05	<0.05
Ethylbenzene	mg/kg		0.01	<0.01	<0.01	<0.01
m,p-Xylenes	mg/kg		0.05	<0.05	<0.05	<0.05
o-Xylene	mg/kg		0.05	<0.05	<0.05	<0.05
Xylenes	mg/kg		0.05	<0.05	<0.05	<0.05
C6 - C10 (F1)	mg/kg		10	<10	<10	<10
C6 - C10 (F1 minus BTEX)	mg/kg		10	<10	<10	<10
C10 - C16 (F2)	mg/kg		10	50	70	60
C16 - C34 (F3)	mg/kg		10	19900	340	80
C34 - C50 (F4)	mg/kg		10	2540	90	20
Gravimetric Heavy Hydrocarbons	mg/kg		1000	N/A	N/A	N/A
Moisture Content	%		1	8	29	30
Surrogate	**Unit**	**Acceptable Limits**				
Toluene-d8 (BTEX)	%	60-140		94	93	102
Ethylbenzene-d10 (BTEX)	%	60-140		83	95	128
o-Terphenyl (F2-F4)	%	60-140		101	95	91

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Petroleum Hydrocarbons (BTEX/F1-F4) in Soil (CWS) (Methanol Field Stabilized)

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-27

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340773-1340784 Results are based on the dry weight of the sample.
The C6-C10 (F1) fraction is calculated using toluene response factor.
The C10 - C16 (F2), C16 - C34 (F3), and C34 - C50 (F4) fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons (F4g) are not included in and cannot be added to the Total C6-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
Total C6 - C50 results are corrected for BTEX and PAH contributions (if requested).
Quality control data is available upon request.
Assistance in the interpretation of data is available upon request.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
The chromatogram returned to baseline by the retention time of nC50.
Extraction and holding times were met for this sample.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene.

Analysis performed at AGAT Edmonton (unless marked by *)

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Quality Assurance

CLIENT NAME: KBL ENVIRONMENTAL

AGAT WORK ORDER: 20E635709

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Soil Analysis

RPT Date: Aug 27, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
CCME / Tier 1 Metals + Hg + Boron (Sat Paste) + Cr6 (soil)															
Antimony	235	1371805	<0.5	<0.5	NA	< 0.5	82%	70%	130%	87%	80%	120%	90%	70%	130%
Arsenic	235	1371805	1.8	1.7	NA	< 0.5	101%	80%	120%	97%	80%	120%	91%	80%	120%
Barium	235	1371805	91.3	91.3	0.1%	< 0.5	107%	70%	130%	101%	80%	120%	109%	70%	130%
Beryllium	235	1371805	<0.5	0.5	NA	< 0.5	106%	70%	130%	122%	80%	120%	115%	70%	130%
Boron (Saturated Paste)	236	1340781	0.6	0.5	NA	< 0.5	91%	80%	120%				98%	80%	120%
Cadmium	235	1371805	<0.5	<0.5	NA	< 0.5	94%	70%	130%	98%	80%	120%	96%	70%	130%
Chromium	235	1371805	19.6	18.5	5.6%	< 0.5	104%	70%	130%	111%	80%	120%	94%	70%	130%
Chromium, Hexavalent	236	1371009	<0.3	<0.3	NA	< 0.3	89%	70%	130%	103%	80%	120%	101%	70%	130%
Cobalt	235	1371805	2.6	2.7	3.8%	< 0.5	104%	70%	130%	106%	80%	120%	103%	70%	130%
Copper	235	1371805	14.0	14.4	3.2%	< 0.5	92%	70%	130%	104%	80%	120%	106%	70%	130%
Lead	235	1371805	8.8	7.2	19.9%	< 0.5	100%	70%	130%	105%	80%	120%	100%	70%	130%
Mercury	235	1371805	<0.5	<0.5	NA	< 0.5	103%	70%	130%	94%	80%	120%	101%	70%	130%
Molybdenum	235	1371805	<0.5	<0.5	NA	< 0.5	97%	70%	130%	97%	80%	120%	98%	70%	130%
Nickel	235	1371805	7.9	7.8	0.7%	< 0.5	96%	70%	130%	106%	80%	120%	105%	70%	130%
Selenium	235	1371805	0.8	0.7	NA	< 0.5	100%	70%	130%	106%	80%	120%	102%	70%	130%
Silver	235	1371805	<0.5	<0.5	NA	< 0.5	96%	70%	130%	98%	80%	120%	97%	70%	130%
Thallium	235	1371805	<0.5	<0.5	NA	< 0.5	99%	70%	130%	103%	80%	120%	101%	70%	130%
Tin	235	1371805	2.2	1.1	NA	< 0.5	88%	70%	130%	96%	80%	120%	79%	70%	130%
Uranium	235	1371805	1.5	1.6	NA	< 0.5	98%	70%	130%	104%	80%	120%	102%	70%	130%
Vanadium	235	1371805	21.0	22.4	6.6%	< 0.5	102%	70%	130%	106%	80%	120%	104%	70%	130%
Zinc	235	1371805	59	63	6.6%	< 1	107%	70%	130%	115%	80%	120%	113%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
With multi element runs, a maximum of 10% for each QC parameter may fail to an absolute maximum of 10%

Soil Analysis - pH Saturated Paste															
pH (Saturated Paste)	236	1340781	7.19	7.21	0.3%	N/A	99%	90%	110%	NA			NA		

Comments: N/A: Not applicable

Soil Analysis - pH Saturated Paste															
pH (Saturated Paste)	239	1381969	6.98	7.07	1.3%	N/A	99%	90%	110%						

Comments: N/A: Not applicable

CCME / Tier 1 Metals + Hg + Boron (Sat Paste) + Cr6 + pH (soil)															
Antimony	247	1412454	< 0.5	< 0.5	NA	< 0.5	92%	70%	130%	96%	80%	120%	96%	70%	130%
Arsenic	247	1412454	5.6	5.4	3.6%	< 0.5	107%	80%	120%	98%	80%	120%	101%	80%	120%
Barium	247	1412454	44.9	42.4	5.7%	< 0.5	102%	70%	130%	109%	80%	120%	97%	70%	130%
Beryllium	247	1412454	< 0.5	< 0.5	NA	< 0.5	100%	70%	130%	123%	80%	120%	119%	70%	130%

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Quality Assurance

CLIENT NAME: KBL ENVIRONMENTAL

AGAT WORK ORDER: 20E635709

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Soil Analysis (Continued)

RPT Date: Aug 27, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Boron (Saturated Paste)	247	1408271	<0.5	<0.5	NA	< 0.5	81%	80%	120%				98%	80%	120%
Cadmium	247	1412454	< 0.5	< 0.5	NA	< 0.5	82%	70%	130%	103%	80%	120%	98%	70%	130%
Chromium	247	1412454	10.7	10.3	3.8%	< 0.5	92%	70%	130%	95%	80%	120%	104%	70%	130%
Chromium, Hexavalent	246	1340771	< 0.3	< 0.3	NA	< 0.3	104%	70%	130%	95%	80%	120%	100%	70%	130%
Cobalt	247	1412454	4.1	3.8	7.6%	< 0.5	107%	70%	130%	88%	80%	120%	101%	70%	130%
Copper	247	1412454	5.8	5.6	3.5%	< 0.5	102%	70%	130%	92%	80%	120%	92%	70%	130%
Lead	247	1412454	4.1	3.9	5.0%	< 0.5	106%	70%	130%	107%	80%	120%	99%	70%	130%
Mercury	247	1412454	< 0.5	< 0.5	NA	< 0.5	98%	70%	130%	95%	80%	120%	103%	70%	130%
Molybdenum	247	1412454	0.6	0.6	NA	< 0.5	101%	70%	130%	95%	80%	120%	102%	70%	130%
Nickel	247	1412454	10.0	9.6	4.1%	< 0.5	108%	70%	130%	91%	80%	120%	96%	70%	130%
Selenium	247	1412454	< 0.5	< 0.5	NA	< 0.5	95%	70%	130%	100%	80%	120%	101%	70%	130%
Silver	247	1412454	< 0.5	< 0.5	NA	< 0.5	98%	70%	130%	93%	80%	120%	93%	70%	130%
Thallium	247	1412454	< 0.5	< 0.5	NA	< 0.5	88%	70%	130%	104%	80%	120%	103%	70%	130%
Tin	247	1412454	< 0.5	< 0.5	NA	< 0.5	94%	70%	130%	103%	80%	120%	89%	70%	130%
Uranium	247	1412454	0.6	<0.5	NA	< 0.5	106%	70%	130%	113%	80%	120%	106%	70%	130%
Vanadium	247	1412454	13.5	12.7	6.1%	< 0.5	99%	70%	130%	93%	80%	120%	105%	70%	130%
Zinc	247	1412454	28	26	7.4%	< 1	110%	70%	130%	88%	80%	120%	82%	70%	130%
pH (Saturated Paste)	247	1408271	7.48	7.66	2.4%	N/A	99%	90%	110%						

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
With multi element runs, a maximum of 10% for each QC parameter may fail to an absolute maximum of 10%

Particle Size by Sieve

Sieve Analysis - 75 microns	246	1393819	38	38	1.0%	< 1	103%	80%	120%						

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Quality Assurance

CLIENT NAME: KBL ENVIRONMENTAL

AGAT WORK ORDER: 20E635709

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

Trace Organics Analysis

RPT Date: Aug 27, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Petroleum Hydrocarbons (BTEX/F1-F4) in Soil (CWS) (Methanol Field Stabilized)															
Benzene	2205	1340809	<0.005	<0.005	NA	< 0.005	117%	60%	140%	112%	60%	140%	107%	60%	140%
Toluene	2205	1340809	<0.05	<0.05	NA	< 0.05	111%	60%	140%	96%	60%	140%	93%	60%	140%
Ethylbenzene	2205	1340809	<0.01	<0.01	NA	< 0.01	94%	60%	140%	92%	60%	140%	87%	60%	140%
m,p-Xylenes	2205	1340809	<0.05	<0.05	NA	< 0.05	110%	60%	140%	93%	60%	140%	89%	60%	140%
o-Xylene	2205	1340809	<0.05	<0.05	NA	< 0.05	111%	60%	140%	87%	60%	140%	83%	60%	140%
Xylenes	2205	1340809	<0.05	<0.05	NA	< 0.05	111%	60%	140%	91%	60%	140%	92%	60%	140%
C6 - C10 (F1)	2205	1340809	<10	<10	NA	< 10	109%	60%	140%	86%	60%	140%	73%	60%	140%
C10 - C16 (F2)	1833	1340809	10	20	NA	< 10	115%	60%	140%	103%	60%	140%	89%	60%	140%
C16 - C34 (F3)	1833	1340809	30	30	NA	< 10	110%	60%	140%	101%	60%	140%	91%	60%	140%
C34 - C50 (F4)	1833	1340809	10	20	NA	< 10	126%	60%	140%	98%	60%	140%	87%	60%	140%
Moisture Content	1833	1340809	14	14	0.0%	< 1									

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
The sample spikes and dups are not from the same sample ID.

Petroleum Hydrocarbons (BTEX/F1-F4) in Soil (CWS) (Methanol Field Stabilized)															
Benzene	2435	1370942	<0.005	<0.005	NA	< 0.005	107%	60%	140%	94%	60%	140%	84%	60%	140%
Toluene	2435	1370942	0.70	0.67	4.0%	< 0.05	108%	60%	140%	88%	60%	140%	87%	60%	140%
Ethylbenzene	2435	1370942	0.02	0.02	NA	< 0.01	107%	60%	140%	88%	60%	140%	92%	60%	140%
m,p-Xylenes	2435	1370942	<0.05	<0.05	NA	< 0.05	108%	60%	140%	91%	60%	140%	100%	60%	140%
o-Xylene	2435	1370942	<0.05	<0.05	NA	< 0.05	106%	60%	140%	80%	60%	140%	91%	60%	140%
C6 - C10 (F1)	2435	1370942	<10	<10	NA	< 10	110%	60%	140%	110%	60%	140%	101%	60%	140%
C10 - C16 (F2)	1833	1340809	10	20	NA	< 10	115%	60%	140%	103%	60%	140%	89%	60%	140%
C16 - C34 (F3)	1833	1340809	30	30	NA	< 10	110%	60%	140%	101%	60%	140%	91%	60%	140%
C34 - C50 (F4)	1833	1340809	10	20	NA	< 10	126%	60%	140%	98%	60%	140%	87%	60%	140%
Moisture Content	1833	1340809	14	14	0.0%	< 1									

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
The sample spikes and dups are not from the same sample ID.

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QA Violation

CLIENT NAME: KBL ENVIRONMENTAL

AGAT WORK ORDER: 20E635709

PROJECT: 4300

ATTENTION TO: Katie Oliver

RPT Date: Aug 27, 2020

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
CCME / Tier 1 Metals + Hg + Boron (Sat Paste) + Cr6 (soil)											
Beryllium	1371805	P1-200805	106%	70%	130%	122%	80%	120%	115%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
With multi element runs, a maximum of 10% for each QC parameter may fail to an absolute maximum of 10%

CCME / Tier 1 Metals + Hg + Boron (Sat Paste) + Cr6 + pH (soil)											
Beryllium	1412454	P8-200805	100%	70%	130%	123%	80%	120%	119%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
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Method Summary

CLIENT NAME: KBL ENVIRONMENTAL

AGAT WORK ORDER: 20E635709

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Arsenic	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Barium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Beryllium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Boron (Saturated Paste)	INOR-171-6002, 171-6201	CARTER & GREGORICH 2007	ICP/OES
Cadmium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Chromium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP/MS
Chromium, Hexavalent	INOR-171-6215	ASA 20-4.3; REISENAUER 1982	SPECTROPHOTOMETER
Cobalt	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Copper	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Lead	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Mercury	INOR-171-6006, -6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Molybdenum	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Nickel	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Selenium	INORG-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Silver	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Thallium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Tin	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Uranium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Vanadium	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
Zinc	INOR-171-6006, INOR-171-6202	EPA SW 846-3050; SM 3125 B	ICP-MS
pH (Saturated Paste)	INOR-171-6206	SHEPPARD 2007; MILLER 2007	PH METER
Sieve Analysis - 75 microns	INOR-171-6009	KROETSCH 2007; SHEPPARD 2007	SIEVE

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Method Summary

CLIENT NAME: KBL ENVIRONMENTAL

AGAT WORK ORDER: 20E635709

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:OLS

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	ORG-170-5110/5140/5430/5440	EPA SW-846 8260	GC/MS
Toluene	ORG-170-5110/5140/5430/5440	EPA SW-846 8260	GC/MS
Ethylbenzene	ORG-170-5110/5140/5430/5440	EPA SW-846 8260	GC/MS
m,p-Xylenes	ORG-170-5110/5140/5430/5440	EPA SW-846 8260	GC/MS
o-Xylene	ORG-170-5110/5140/5430/5440	EPA SW-846 8260	GC/MS
Xylenes	ORG-170-5110/5140/5430/5440	EPA SW-846 8260	GC/MS
C6 - C10 (F1)	ORG-170-5110/5140/5430/5440	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	ORG-170-5110/5140/5430/5440	CCME Tier 1 Method	GC/FID
C10 - C16 (F2)	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
C16 - C34 (F3)	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
C34 - C50 (F4)	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
Moisture Content	LAB-175-4002	CCME Tier 1 Method	GRAVIMETRIC
Toluene-d8 (BTEX)	ORG-170-5110/5140/5430/5440	EPA SW-846 8260-S	GC/MS
Ethylbenzene-d10 (BTEX)	ORG-170-5110/5140/5430/5440	EPA SW-846 8260-S	GC/MS
o-Terphenyl (F2-F4)	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID

V2

AGAT Laboratories
2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: 19.3 °C
AGAT Job Number: 20EC035709
Date and Time: '20 AUG 10 14:49

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: KBL Environmental
Contact: Katie Oliver
Address: 1895 17 Cameron Rd
Phone: 780 893 3305 Fax:
LSD:
Client Project #: 4300
Sampled By: DLS

Report Information
1. Name: Katie Oliver
Email: KOliver@KBLenv.com
2. Name:
Email:
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☒ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Export

Invoice To Same Yes ☒ / No ☐
Company: KBL Environmental
Contact: KOliver@KBLenv.com
Address:
Phone: Fax:
PO/AFE#:
AGAT ID/Quote #:

Requirements *(Selection may impact detection limits)*
☒ CCME ☐ AB Tier 1 ☐ Alberta Surface Water
☐ Agricultural ☐ Agricultural ☐ Chronic
☒ Industrial ☐ Industrial ☐ Acute
☐ Residential/Park ☐ Residential/Park ☐ SK Notice of Site Condition
☐ Commercial ☐ Commercial ☐ Drinking Water
☐ FWAL ☐ Natural Area ☐ Other:
Is this part of the Alberta SRP program? ☐ YES ☐ NO (If yes, please fill below)
Application Number:
Grant Amount:
Well/Facility/Location ID:
UWI:

LABORATORY USE (LAB ID #)		SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES
1	340773	P1-200805		20/08/05		Only Run BTEX F1-F4	3	1	
2	0774	P8-200805				Then send us	1		
3	0775	P2-200805				Partial results,			
4	0776	P5-200805-01				Hold for other			
5	0777	P5-200805-02				Results			
6	0778	P4-200805-01							
7	0779	P4-200805-02							
8	0780	P3-200805-01							
9	0781	P3-200805-02							
10	0782	P6-200805							

Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☐ CCME/AB : BTEX/F1-F4 ☐ CCME/AB : BTEX/F1-F2	☐ BC: BTEX/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr^{6+}	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture	BTEX (F1-F4), pH (Saturated Paste)	Total Metals + Hg + Cr^{6+}					HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
										X	X					
										X	X					
										X	X					
										X	X					
										X	X					
										X	X					
										X	X					
										X	X					
										X	X					
										X	X					

Samples Relinquished By (Print Name and Sign): Darren Smythe — Date/Time: 20/08/05 — Samples Received By (Print Name and Sign): — Date/Time: 8/10/2020
Samples Relinquished By (Print Name and Sign): — Date/Time: — Samples Received By (Print Name and Sign): — Date/Time:
Samples Relinquished By (Print Name and Sign): — Date/Time: — Samples Received By (Print Name and Sign): — Date/Time:

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page ____ of ____
N°: AB 144394

AGAT Laboratories
2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number:
Date and Time: '20 AUG 10 14:49

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: KBL Environmental Ltd
Contact: Katie Oliver
Address: 1895 17 Cameron Rd
Phone: 7808933305 Fax:
LSD:
Client Project #: 4300
Sampled By: DLS

Report Information
1. Name: Katie Oliver
Email: KOliver@KBLenv.com
2. Name:
Email:
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☒ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Export

Invoice To Same Yes ☒ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:
AGAT ID/Quote #:

Requirements *(Selection may impact detection limits)*
☒ CCME ☐ AB Tier 1 ☐ Alberta Surface Water
☐ Agricultural ☐ Agricultural ☐ Chronic
☒ Industrial ☐ Industrial ☐ Acute
☐ Residential/Park ☐ Residential/Park ☐ SK Notice of Site Condition
☐ Commercial ☐ Commercial ☐ Drinking Water
☐ FWAL ☐ Natural Area ☐ Other:
Is this part of the Alberta SRP program? ☐ YES ☐ NO (If yes, please fill below)
Application Number:
Grant Amount:
Well/Facility/Location ID:
UWI:

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS: VIALS / JARS	BAGS	BOTTLES
1 0783	P7-200805-01	/	20/08/05	S	Only Run	3	1	
2 0784	P7-200805-02	/	" "	S	BTEX F1-FH,	3	1	
3					Hold for			
4					other Results			
5					after partial			
6					report.			
7								
8								
9								
10								

Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☐ CCME/AB : BTEX/F1-F4 ☐ CCME/AB : BTEX/F1-F2	☐ BC: BTEX/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr^{6+}	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture							HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
										BTEX F1-FH, PIY Saturated rate	Total metals + Hg, Cr^{6+}							
										X	X						
										X	X						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Darren Smyle	20/08/06		
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

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White Copy - AGAT

Page _____ of _____

N°: AB 144395

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: KBL Environmental

Courier: Canada North Prepaid Collect

Waybill# 518 - TCB - 37546569

Branch: [EDM] GP FN FM RD VAN LYD FSJ EST SASK Other:

If multiple sites were submitted at once: (Yes) No

Custody Seal Intact: Yes No (NA)

TAT: <24hr 24-48hr 48-72hr (Reg) Other

Cooler Quantity: 1

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes (No)

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry: /

Hydrocarbons: Earliest Expiry /

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES (NO) Precaution Taken:

Legal Samples: Yes (No)

International Samples: Yes (No)

Tape Sealed: Yes (No)

Coolant Used: Icepack Bagged Ice Free Ice Free Water (None)

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 14.3 + 14.8 + 14.8 = 14.3 °C

2 (Bottle/Jar)___+___+___=___°C

3 (Bottle/Jar)___+___+___=___°C

4 (Bottle/Jar)___+___+___=___°C

5 (Bottle/Jar)___+___+___=___°C

6 (Bottle/Jar)___+___+___=___°C

7 (Bottle/Jar)___+___+___=___°C

8 (Bottle/Jar)___+___+___=___°C

9 (Bottle/Jar)___+___+___=___°C

10 (Bottle/Jar)___+___+___=___°C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: 20EC35709

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other:

Account Project Manager: Mary Grace Ubera have they been notified of the above issues: (Yes) No

Whom spoken to: Mary Grace Date/Time: 10 Aug 20

CPM Initial

General Comments: Bag for 'P8-200805'(ID 0774) reads 'P9-200505', logged per COC

1 vial for 'P3-200805-02'(ID 0781C) has tap soil, assigned as duplicate

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020

518-YCB-37546569

518-YCB-37546569

NON NEGOTIABLE
AIR WAYBILL
(AIR CONSIGNMENT NOTE)
NON NÉGOTIABLE
LETTRE DE TRANSPORT
AÉRIEN

ISSUED BY / EMISE PAR: CANADIAN NORTH

Incorporated in Canada with limited liability - Compagnie Canadienne a responsabilite limitee

Copies 1, 2, 3 and faximiles of this Air Waybill and originals and have the same validity.
Les exemplaires 1 2 3 et faximille de cette lettre de transport aerien sont originaux et ont la même validité

Shipper's Name and Address / Nom et adresse de l'expediteur

Darren Smylie
Hold for pick up
CAMBRIDGE BAY
NUNAVUT, CANADA
X0B 0C0 587-223-9950

Shipper's Account Number / No de compte de l'expediteur

Consignee Name and Address / Nom et adresse du destinataire

AGAT Laboratories Ltd
6310 Roper Road NW
Edmonton
Alberta, CANADA
T6E 6S4 780 239 5170

Consignee Account Number / No de compte du destinataire

Received in good order and condition / Reçu en bon état et apparent

at / à _____ (Place / Lieu)

on / le _____ (Date / Time — Date / Heure)

_____ / _____
Print Name (Consignee) - Nom en lettres moulées (Destinataire) — Signature

Issuing Carrier's Agent Name and City / Nom et ville de l'agent du transporteur emetteur

Accounting Information / Renseignements comptables

53342

KBL ENVIRONMENTAL LTD
17 CAMERON RD
YELLOWKNIFE
NT CANADA X1A2P4
PO:

Agent's IATA Code / Code IATA de l'agent

Account Number / Numéro de compte

Airport of Departure / Aeroport de depart

YCB

Routing and destination

To / à	First carrier / premier transport	To / à	by / par	To / à	by / par
YEG	5T				

Currency / Monnaie	CHGS Code / Frais	WT / Poids-Val PPD payé	WT / Poids-Val COLL DO	Other / Autres PPD payé	Other / Autres COLL DO	Declared Value for Carriage / Valeur déclarée pour le transport	Declared value for Customs / Valeur déclarée pour la douane
CDN	PX	X		X		NDV	NCV

Airport of Destination / Aeroport de destination
EDMONTON INTL AB YEG

Flight Date / Vol Date

Delivery Company:

Pick-up Company:

Handling Information / Renseignements pour le traitement de l'expedition
KEEP IN A COOLER.

AS - (Actively Screened)

No. of Pieces / Nombre de colis RCP	Gross Weight / Poids brut	kg / lb	Rate Class / Classif. du tarif	Chargeable Weight / Poids de taxation	Rate / Charge / Tarif / Montant	Total	Nature and Quantity of Goods (inc. Dimensions or Volume) / Nature et quantité des marchandises
2	47	K	GEN	47	$6.90	$324.30	GENERAL - SOIL AND WATER SAMPLES
2	47					$324.30	

Prepaid / Porte paye
$324.30

Weight Charge / Taxation au poids

Collect / Port du

Valuation Charge / Taxation a la valeur

Tax / Taxe
$16.59

Total other Charges Due Agent / Total des autres frais dus a l'agent

Total other Charges Due Carrier / Total des autres frais dus au transporteur
$7.50

Total Prepaid / Total port paye
$348.39

Total collect / Total port du

Other Charges / Autres frais
CARGO SCREENING FEE - YZF = 7.50, GST = 16.59

GST/HST Reg# R868435561RT QST Reg# 1016752505

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations.
L'expéditeur certifie que les indications portées sur le présent document sont exactes et que dans la mesure ou une partie quelconque de l'expédition contient des marchandises dangereuses, cette partie de d'expédition est correctement denommée et bien préparée pour le transport par air conformément à la réglementation applicable.

_____ / _____
Print Name (Shipper) - Nom en lettres moulées (Expéditeur) — Signature

Executed on / Fait le: 06 Aug 2020 (Date) — YCB (Place) (Lieu) — 720195 (Nom De L'agent / Agent's Name)

For Carrier's use only at destination / Reserve au transporteur a destination

Charges at Desination / Frais à l'arrivée

Total Collect Charges / Total Du

Signature of Issuing Carrier or its Agent / Signature du transporteur emetteur ou de son agent

518-YCB-37546569

DELIVERY COPY - COPIE DE LIVRAISON

AGAT Laboratories

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD
3601 - 75TH AVENUE
LEDUC , AB T9E 0Z5
780-452-7779
ATTENTION TO: Katie Oliver
PROJECT: 4300
AGAT WORK ORDER: 20E635696
TRACE ORGANICS REVIEWED BY: Melinda Guay, Technical Reviewer
WATER ANALYSIS REVIEWED BY: Melinda Guay, Technical Reviewer
DATE REPORTED: Aug 17, 2020
PAGES (INCLUDING COVER): 22
VERSION*: 2

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

*Notes

VERSION 2:Supersedes Version 1: Additional Oil and Grease data for samples 1340799, 1340800, 1340801. 21AUG20 MGU

AGAT Laboratories

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EDMONTON, ALBERTA
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Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Oil and Grease in Water (FTIR)

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
Oil Content, Infrared	mg/L		0.2		5.0	2.0	2.7

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Petroleum Hydrocarbons (BTEX) in Water

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005
Surrogate	Unit	Acceptable Limits					
Toluene-d8 (BTEX)	%	60-140			104	104	104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340799-1340801 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene.
Extraction and holding times were met for this sample.
Sample is blank corrected.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

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EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Polyaromatic Hydrocarbon Analysis in Water FWAL

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
Naphthalene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
2-Methylnaphthalene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Quinoline	mg/L		0.0001		<0.0001	<0.0001	<0.0001
Acenaphthylene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Acenaphthene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Fluorene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Phenanthrene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Anthracene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Fluoranthene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Pyrene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Acridine	mg/L		0.00005		<0.00005	<0.00005	<0.00005
Benzo[a]anthracene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Chrysene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Benzo[b+j]fluoranthene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Benzo[k]fluoranthene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Benzo[a]pyrene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Indeno[1,2,3-cd]pyrene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Dibenzo[ah]anthracene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
Benzo[ghi]perylene	mg/L		0.00001		<0.00001	<0.00001	<0.00001
B[a]P TPE	mg/L		0.00001		0.00001	0.00001	0.00001
Sediment					NO	NO	NO
Surrogate	Unit	Acceptable Limits					
Naphthalene-d8	%	50-140			96	98	94
Pyrene-d10	%	50-140			99	92	90
p-Terphenyl-d14	%	50-140			118	117	113

Certified By:

AGAT Laboratories

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CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Polyaromatic Hydrocarbon Analysis in Water FWAL

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340799-1340801 Based on GC/MS target ion analysis.
Isomers Benzo(b)fluoranthene and Benzo(j)fluoranthene have the same GC retention time and are reported as the sum based on the Benzo(b)fluoranthene response.
B[a]P TPE is a calculated parameter. It is calculated according to the Alberta Tier 1 Soil and Groundwater remediation Guidelines, May 23, 2014. Note that if the analysis returns non-detects for a parameter, ½ the detection limit is entered into the formulas.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:

AGAT Laboratories

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Total Petroleum Hydrocarbon Analysis - Water

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
Total Purgeable Hydrocarbons	mg/L		0.1		<0.1	<0.1	<0.1
Total Extractable Hydrocarbons	mg/L		0.1		1.2	<0.1	<0.1
Total Petroleum Hydrocarbons	mg/L		0.1		1.2	<0.1	<0.1
Sediment					NO	NO	NO
Surrogate	Unit	Acceptable Limits					
Toluene-d8 (BTEX)	%	60-140			104	104	104
o-Terphenyl (TEH)	%	60-140			88	84	86

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340799-1340801 Total Purgeable Hydrocarbons (TPGH, n-C5 - n-C10); Purgeable compounds calculated based on toluene response.
Total Extractable Hydrocarbons (TEH, n-C10 - n-C32); Extractable compounds calculated based on the average of the n-C10, n-C16, and n-C34 which is also equal to the n-eicosane (n-C20) response.
Total Petroleum Hydrocarbons (TPH, n-C5 - n-C32) is a calculated parameter. The calculated value is the addition of n-C5 - n-C10 fraction (TPgH) and n-C10 - n-C32 fraction (TEH).
Sample is blank corrected.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Edmonton (unless marked by *)

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Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Metals - Total - Alberta Tier 1 with Mercury

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

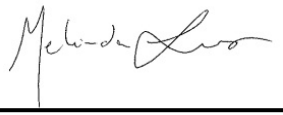
SAMPLE DESCRIPTION:				SW1-200805	SW2-200805	SW3-200805
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL	1340799	1340800	1340801
Total Aluminum	mg/L		0.004	0.051	0.045	0.192
Total Antimony	mg/L		0.001	<0.001	<0.001	<0.001
Total Arsenic	mg/L		0.001	<0.001	<0.001	0.001
Total Barium	mg/L		0.05	<0.05	<0.05	<0.05
Total Beryllium	mg/L		0.001	<0.001	<0.001	<0.001
Total Boron	mg/L		0.01	0.03	0.06	0.37
Total Cadmium	mg/L		0.000016	<0.000016	<0.000016	0.000038
Total Chromium	mg/L		0.001	<0.001	<0.001	<0.001
Total Cobalt	mg/L		0.001	<0.001	<0.001	<0.001
Total Copper	mg/L		0.001	0.001	0.001	0.003
Total Iron	mg/L		0.1	<0.1	<0.1	0.4
Total Lead	mg/L		0.0001	<0.0001	0.0001	0.0004
Total Manganese	mg/L		0.005	<0.005	<0.005	0.014
Total Mercury	mg/L		0.000005	<0.000005	<0.000005	<0.000005
Total Molybdenum	mg/L		0.001	<0.001	0.002	0.017
Total Nickel	mg/L		0.003	<0.003	<0.003	<0.003
Total Selenium	mg/L		0.0005	0.0007	<0.0005	0.0015
Total Silver	mg/L		0.00005	<0.00005	<0.00005	<0.00005
Total Sodium	mg/L		0.6	1.8	8.0	33.5
Total Thallium	mg/L		0.0005	<0.0005	<0.0005	<0.0005
Total Uranium	mg/L		0.001	<0.001	<0.001	0.003
Total Zinc	mg/L		0.01	<0.01	<0.01	<0.01

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340799-1340801 < - Values refer to Report Detection Limit.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Microbial Analysis - Total Coliforms

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
Total Coliforms (MPN)	MPN/100 mL		1		58	122	4

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

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AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Routine Chemistry Water Analysis

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
pH	pH Units		NA		7.91	7.95	8.22
p - Alkalinity (as CaCO3)	mg/L		5		<5	<5	<5
T - Alkalinity (as CaCO3)	mg/L		5		44	48	66
Bicarbonate	mg/L		5		53	58	80
Carbonate	mg/L		5		<5	<5	<5
Hydroxide	mg/L		5		<5	<5	<5
Electrical Conductivity	uS/cm		1		160	264	825
Fluoride	mg/L		0.05		<0.05	<0.05	<0.05
Chloride	mg/L		1		3	13	49
Nitrite	mg/L		0.05		<0.05	<0.05	<0.05
Nitrite-N	mg/L		0.02		<0.02	<0.02	<0.02
Nitrate	mg/L		0.5		<0.5	<0.5	<0.5
Nitrate-N	mg/L		0.02		<0.02	<0.02	<0.02
Nitrate+Nitrite - Nitrogen	mg/L		0.02		<0.02	<0.02	<0.02
Sulfate	mg/L		1		8	61	272
Dissolved Calcium	mg/L		0.3		11.5	21.0	69.3
Dissolved Magnesium	mg/L		0.2		5.1	10.4	43.3
Dissolved Sodium	mg/L		0.6		1.9	7.9	34.4
Dissolved Potassium	mg/L		0.6		<0.6	2.0	8.0
Dissolved Iron	mg/L		0.1		<0.1	<0.1	<0.1
Dissolved Manganese	mg/L		0.005		0.006	<0.005	0.006
Calculated TDS	mg/L		0.6		55.6	144	515
Sodium Adsorption Ratio	N/A				0.117	0.352	0.799
Hardness	mg CaCO3/L		1		50	95	351
Ion Balance	%		1		96	89	104

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AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Routine Chemistry Water Analysis

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1340799-1340801 < - Values refer to Report Detection Limits.

If sodium results in mg/L are less than detection, SAR is non-calculable and is reported as 0.

Analysis performed at AGAT Edmonton (unless marked by *)

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AGAT WORK ORDER: 20E635696

PROJECT: 4300

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Water Analysis

DATE RECEIVED: 2020-08-10

DATE REPORTED: 2020-08-17

				SAMPLE DESCRIPTION:	SW1-200805	SW2-200805	SW3-200805
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-08-05 02:00	2020-08-05 02:00	2020-08-05 02:00
Parameter	Unit	G / S	RDL		1340799	1340800	1340801
Total Suspended Solids	mg/L		1		2	<1	12
Biochemical Oxygen Demand	mg/L		2		<2	<2	<2

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

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Quality Assurance

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD
AGAT WORK ORDER: 20E635696
PROJECT: 4300
ATTENTION TO: Katie Oliver
SAMPLING SITE:
SAMPLED BY:DLS

Trace Organics Analysis

RPT Date: Aug 17, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Petroleum Hydrocarbons (BTEX) in Water															
Benzene	2425	1344720	< 0.0005	< 0.0005	NA	< 0.0005	103%	60%	140%	80%	60%	140%	121%	60%	140%
Toluene	2425	1344720	< 0.0003	< 0.0003	NA	< 0.0003	111%	60%	140%	87%	60%	140%	117%	60%	140%
Ethylbenzene	2425	1344720	< 0.0005	< 0.0005	NA	< 0.0005	119%	60%	140%	94%	60%	140%	114%	60%	140%
Xylenes	2425	1344720	< 0.0005	< 0.0005	NA	< 0.0005	116%	60%	140%	92%	60%	140%	111%	60%	140%
Total Petroleum Hydrocarbon Analysis - Water															
Total Purgeable Hydrocarbons	2425	1344720	<0.1	<0.1	NA	< 0.1	102%	60%	140%	107%	60%	140%	81%	60%	140%
Total Extractable Hydrocarbons	1824	1342116	3.2	3.2	0.0%	< 0.1	127%	60%	140%	102%	60%	140%	97%	60%	140%
Polyaromatic Hydrocarbon Analysis in Water FWAL															
Naphthalene	713	1342116	0.00013	0.00012	8.0%	< 0.00001	107%	50%	140%	100%	50%	140%	95%	50%	140%
2-Methylnaphthalene	713	1342116	0.00022	0.0002	9.5%	< 0.00001	98%	50%	140%	93%	50%	140%	90%	50%	140%
Quinoline	713	1342116	<0.0001	<0.0001	NA	< 0.0001	107%	50%	140%	99%	50%	140%	98%	50%	140%
Acenaphthylene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	125%	50%	140%	98%	50%	140%	97%	50%	140%
Acenaphthene	713	1342116	0.00026	0.00024	8.0%	< 0.00001	108%	50%	140%	93%	50%	140%	91%	50%	140%
Fluorene	713	1342116	0.00027	0.00025	7.7%	< 0.00001	116%	50%	140%	92%	50%	140%	93%	50%	140%
Phenanthrene	713	1342116	0.00054	0.00048	11.8%	< 0.00001	114%	50%	140%	96%	50%	140%	93%	50%	140%
Anthracene	713	1342116	0.00012	0.00011	8.7%	< 0.00001	124%	50%	140%	107%	50%	140%	107%	50%	140%
Fluoranthene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	114%	50%	140%	90%	50%	140%	90%	50%	140%
Pyrene	713	1342116	0.0007	0.00066	5.9%	< 0.00001	110%	50%	140%	92%	50%	140%	90%	50%	140%
Acridine	713	1342116	0.00291	0.00269	7.9%	< 0.00005	104%	50%	140%	96%	50%	140%	96%	50%	140%
Benzo[a]anthracene	713	1342116	0.00047	0.00045	4.3%	< 0.00001	123%	50%	140%	102%	50%	140%	100%	50%	140%
Chrysene	713	1342116	0.0005	0.0004	22.2%	< 0.00001	89%	50%	140%	92%	50%	140%	90%	50%	140%
Benzo[b+j]fluoranthene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	106%	50%	140%	89%	50%	140%	87%	50%	140%
Benzo[k]fluoranthene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	111%	50%	140%	92%	50%	140%	91%	50%	140%
Benzo[a]pyrene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	118%	50%	140%	95%	50%	140%	94%	50%	140%
Indeno[1,2,3-cd]pyrene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	114%	50%	140%	87%	50%	140%	86%	50%	140%
Dibenzo[ah]anthracene	713	1342116	<0.00001	<0.00001	NA	< 0.00001	98%	50%	140%	85%	50%	140%	83%	50%	140%
Benzo[ghi]perylene	713	1342116	0.00006	0.00006	0.0%	< 0.00001	114%	50%	140%	86%	50%	140%	84%	50%	140%
Oil and Grease in Water (FTIR)															
Oil Content, Infrared	737	1352840	34.0	29.4	14.5%	< 0.2	109%	80%	120%	109%	70%	130%	109%	70%	130%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
The sample spikes and dups are not from the same sample ID.

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Quality Assurance

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Trace Organics Analysis (Continued)

RPT Date: Aug 17, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Water Analysis

RPT Date: Aug 17, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Routine Chemistry Water Analysis															
pH	723	1343727	8.26	8.29	0.4%		100%	90%	110%						
p - Alkalinity (as CaCO3)	723	1343727	<5	<5	NA	< 5									
T - Alkalinity (as CaCO3)	723	1343727	118	120	1.7%	8	99%	80%	120%						
Bicarbonate	723	1343727	145	147	1.4%	9									
Carbonate	723	1343727	<5	<5	NA	< 5									
Hydroxide	723	1343727	<5	<5	NA	< 5									
Electrical Conductivity	723	1343727	234	243	3.8%	2	99%	90%	110%						
Fluoride	440	1343727	<0.05	<0.05	NA	< 0.05	100%	70%	130%	99%	80%	120%	96%	70%	130%
Chloride	440	1343727	1	1	NA	< 1	95%	70%	130%	96%	80%	120%	92%	70%	130%
Nitrite	440	1343727	<0.05	<0.05	NA	< 0.05	98%	70%	130%	96%	80%	120%	93%	70%	130%
Nitrate	440	1343727	<0.5	<0.5	NA	< 0.5	96%	70%	130%	97%	80%	120%	92%	70%	130%
Sulfate	440	1343727	1	1	NA	< 1	96%	70%	130%	97%	80%	120%	92%	70%	130%
Dissolved Calcium	226	1342533	24.8	24.7	0.4%	< 0.3	101%	70%	130%	105%	80%	120%	102%	70%	130%
Dissolved Magnesium	226	1342533	11.0	10.8	1.8%	< 0.2	111%	70%	130%	108%	80%	120%	108%	70%	130%
Dissolved Sodium	226	1342533	102	102	0.0%	< 0.6	100%	70%	130%	100%	80%	120%	89%	70%	130%
Dissolved Potassium	226	1342533	2.0	2.1	NA	< 0.6	98%	70%	130%	105%	80%	120%	101%	70%	130%
Dissolved Iron	226	1342533	<0.1	<0.1	NA	< 0.1	106%	70%	130%	103%	80%	120%	105%	70%	130%
Dissolved Manganese	226	1342533	0.021	0.021	NA	< 0.005	105%	70%	130%	103%	80%	120%	105%	70%	130%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.

pH has been analyzed past the recommended holding time of 15 minutes from sampling (field measurement ideal if more accurate data required)

Nitrate and Nitrite: The regulatory hold time for the analysis of nitrate and/or nitrite in water is 48 hours in Alberta and 72 hours in British Columbia.

Metals - Total - Alberta Tier 1 with Mercury															
Total Aluminum	227	1343713	0.104	0.095	8.8%	< 0.004	82%	70%	130%	129%	80%	120%	89%	70%	130%
Total Antimony	227	1343713	<0.001	<0.001	NA	< 0.001	95%	70%	130%	117%	80%	120%	107%	70%	130%
Total Arsenic	227	1343713	<0.001	<0.001	NA	< 0.001	87%	70%	130%	101%	80%	120%	94%	70%	130%
Total Barium	227	1343713	0.08	0.09	NA	< 0.05	92%	70%	130%	100%	80%	120%	88%	70%	130%
Total Beryllium	227	1343713	<0.001	<0.001	NA	< 0.001	101%	70%	130%	116%	80%	120%	80%	70%	130%
Total Boron	227	1343713	2.08	2.05	1.3%	< 0.01	123%	70%	130%	114%	80%	120%	108%	70%	130%
Total Cadmium	227	1343713	0.000960	0.00102	5.9%	< 0.000016	98%	70%	130%	101%	80%	120%	102%	70%	130%
Total Chromium	227	1343713	0.006	0.007	18.3%	< 0.001	95%	70%	130%	102%	80%	120%	101%	70%	130%
Total Cobalt	227	1343713	<0.001	<0.001	NA	< 0.001	91%	70%	130%	103%	80%	120%	98%	70%	130%
Total Copper	227	1343713	<0.001	<0.001	NA	< 0.001	91%	70%	130%	105%	80%	120%	93%	70%	130%
Total Iron	226	1343713	0.2	0.2	NA	< 0.1	109%	70%	130%	99%	80%	120%	99%	70%	130%
Total Lead	227	1343713	0.0003	0.0003	NA	< 0.0001	96%	70%	130%	104%	80%	120%	98%	70%	130%
Total Manganese	226	1343713	0.008	0.008	NA	< 0.005	107%	70%	130%	94%	80%	120%	95%	70%	130%
Total Mercury	245	1337615	<0.	<0.	NA	0.33	92%	80%	120%				98%	80%	120%

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Quality Assurance

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

Water Analysis (Continued)

RPT Date: Aug 17, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Molybdenum	227	1343713	0.427	0.449	5.1%	< 0.001	93%	70%	130%	97%	80%	120%	106%	70%	130%
Total Nickel	227	1343713	0.373	0.410	9.2%	< 0.003	88%	70%	130%	105%	80%	120%	92%	70%	130%
Total Selenium	227	1343713	0.0377	0.0398	5.3%	< 0.0005	87%	70%	130%	105%	80%	120%	104%	70%	130%
Total Silver	227	1343713	0.00014	0.00006	NA	< 0.00005	88%	70%	130%	99%	80%	120%	88%	70%	130%
Total Sodium	226	1343713	32.1	33.4	4.0%	< 0.6	97%	70%	130%	100%	80%	120%	107%	70%	130%
Total Thallium	227	1343713	<0.0005	<0.0005	NA	< 0.0005	93%	70%	130%	109%	80%	120%	97%	70%	130%
Total Uranium	227	1343713	0.004	0.004	NA	< 0.001	100%	70%	130%	102%	80%	120%	107%	70%	130%
Total Zinc	227	1343713	<0.01	<0.01	NA	< 0.01	85%	70%	130%	107%	80%	120%	86%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
With multi element runs, a maximum of 10% for each QC parameter may fail to an absolute maximum of 10%

Water Analysis

Total Suspended Solids	1344783	1344783	4	4	NA	< 1	91%	80%	120%
Biochemical Oxygen Demand	488	1343727	< 2	< 2	0.0%	< 2	115%	80%	120%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

Microbial Analysis - Total Coliforms

Total Coliforms (MPN)	2362	799	58	58	0.0%	< 1

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.

Certified By:

AGAT Laboratories

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
http://www.agatlabs.com

QA Violation

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

RPT Date: Aug 17, 2020

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
Metals - Total - Alberta Tier 1 with Mercury											
Total Aluminum	1343713	SW1-200805	82%	70%	130%	129%	80%	120%	89%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
With multi element runs, a maximum of 10% for each QC parameter may fail to an absolute maximum of 10%

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Method Summary

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Oil Content, Infrared	ORG-170-5200	Method 5520C	FTIR
Benzene	ORG-170-5110/5140/5430/5440	EPA SW846 8260	GC/MS
Toluene	ORG-170-5110/5140/5430/5440	EPA SW846 8260	GC/MS
Ethylbenzene	ORG-170-5110/5140/5430/5440	EPA SW846 8260	GC/MS
Xylenes	ORG-170-5110/5140/5430/5440	EPA SW846 8260	GC/MS
Toluene-d8 (BTEX)	ORG-170-5110/5140/5430/5440	EPA SW-846 8260-W	GC/MS
Naphthalene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
2-Methylnaphthalene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Quinoline	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Acridine	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo[a]anthracene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo[b+j]fluoranthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo[k]fluoranthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo[a]pyrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Indeno[1,2,3-cd]pyrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Dibenzo[ah]anthracene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo[ghi]perylene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Naphthalene-d8	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Pyrene-d10	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
p-Terphenyl-d14	ORG-170-5420/-5421	EPA SW-846 3510 & 8270	GC/MS
B[a]P TPE	ORG-170-5420		CALCULATION
Sediment	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Total Purgeable Hydrocarbons	ORG-170-5110/5140/5430/5440	EPA 624 & SW-846 3810	GC/FID
Total Extractable Hydrocarbons	ORG-170-5120/5300	AEC A108.0, EPA SW-846 3510	GC/FID
Total Petroleum Hydrocarbons	ORG-170-5300 & ORG-170-5130	EPA 624 & SW-846 3810/3510, AEC A108.0	GC/FID
Toluene-d8 (BTEX)	ORG-170-5110/5140/5430/5440	EPA 624 & SW-846 3810	GC/MS
o-Terphenyl (TEH)	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
Sediment	ORG-170-5300, 170-5120	CCME Tier 1 Method	GC/FID

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Method Summary

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Aluminum	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Antimony	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Arsenic	INOR-171-6201	SM 3030 E; SM 3125 B	ICP-MS
Total Barium	INOR-171-6201	SM 3030 E; SM 3125 B	ICP-MS
Total Beryllium	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP-MS
Total Boron	INOR-171-6201	SM 3030 E; SM 3125 B	ICP-MS
Total Cadmium	INOR-171-6201	SM 3030 E; SM 3125 B	ICP/MS
Total Chromium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Cobalt	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP-MS
Total Copper	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP-MS
Total Iron	INOR-171-6100, 171-6201	SM 3030 E; SM 3120 B	ICP/OES
Total Lead	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Manganese	INOR-171-6201	SM 3030 E; SM 3120 B	ICP/OES
Total Mercury	INOR-171-6202	SM 3112 B	CV/AFS
Total Molybdenum	INOR-171-6202	SM 3030 E; SM 3125 B	ICP/MS
Total Nickel	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Selenium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Silver	INO-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Sodium	INOR-171-6201	SM 3030 E; SM 3120 B TW	ICP/OES
Total Thallium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Uranium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Zinc	INORG-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Coliforms (MPN)	MIC 0205	SM 9223	INCUBATOR
pH	INOR-171-6205	SM 4500 H+	PH METER
p - Alkalinity (as CaCO3)	INOR-171-6205	SM 2320 B	TITRATION
T - Alkalinity (as CaCO3)	INOR-171-6205	SM 2320 B	TITRATION
Bicarbonate	INOR-171-6205	SM 2320 B	PC TITRATE
Carbonate	INOR-171-6205	SM 2320 B	PC TITRATE
Hydroxide	INOR-171-6205	SM 2320 B	TITRATION
Electrical Conductivity	INOR-171-6205	SM 2510 B	CONDUCTIVITY METER
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite-N	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrate-N	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate+Nitrite - Nitrogen	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Sulfate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INOR-171-6201	SM 3120 B	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120 B	ICP/OES
Dissolved Sodium	INOR-171-6201	SM 3120 B	ICP/OES
Dissolved Potassium	INST 0140	SM 3120 B	ICP/OES
Dissolved Iron	INOR-171-6201	SM 3120 B	ICP/OES
Dissolved Manganese	INOR-171-6201	SM 3120 B	ICP/OES
Calculated TDS		SM 1030E	CALCULATION
Sodium Adsorption Ratio		CARTER & GREGORICH 2007	ICP/OES
Hardness		SM 3120 B	ICP/OES

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Method Summary

CLIENT NAME: KBL ENVIRONMENTAL (AB) LTD

AGAT WORK ORDER: 20E635696

PROJECT: 4300

ATTENTION TO: Katie Oliver

SAMPLING SITE:

SAMPLED BY:DLS

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Ion Balance		SM 1030E	CALCULATION
Total Suspended Solids	INORG-171-6102	SM 2540 D	GRAVIMETRIC
Biochemical Oxygen Demand	MIC-171-7000	SM 5210 B	DISSOLVED OXYGEN PROBE

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: 13.0 °C
AGAT Job Number: 20E635696
Date and Time: '20 AUG 10 14:48

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: KBL Environmental
Contact: Katie Oliver
Address: 1895 17 Cameron Rd
Phone: ~~403~~ 780 913 3305 Fax:
LSD:
Client Project #: 4300
Sampled By: DLS

Report Information
1. Name: Katie Oliver
Email: KOliver@KBLenv.com
2. Name:
Email:
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☒ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required: 5 Business Days

Report Format
☐ Single sample per page
☒ Multiple samples per page
☒ Export Excel

Invoice To Same Yes ☒ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:
AGAT ID/Quote #:

Requirements *(Selection may impact detection limits)*
☒ CCME ☐ AB Tier 1 ☐ Alberta Surface Water
☐ Agricultural ☐ Agricultural ☐ Chronic
☒ Industrial ☐ Industrial ☐ Acute
☐ Residential/Park ☐ Residential/Park ☐ SK Notice of Site Condition
☐ Commercial ☐ Commercial ☐ Drinking Water
☐ FWAL ☐ Natural Area ☐ Other:
Is this part of the Alberta SRP program? ☐ YES ☒ NO (If yes, please fill below)
Application Number:
Grant Amount:
Well/Facility/Location ID:
UWI:

LABORATORY USE (LAB ID #)		SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS: VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☒ CCME/AB : BTEX/F1-F4 ☐ CCME/AB : BTEX/F1-F2	☐ BC: BTEX/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}	Water Metals: ☐ Dissolved ☒ Total ☒ Hg ☐ Cr^{6+}	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture	pH, Conductivity, TSS, Ammonia Nitrogen	Nitrate - Nitrite, Total Phenols, Sulphate	Total Hardness, Total Alkalinity, Sodium	Potassium, Magnesium, Calcium, Chloride	TPH, BODs, PAHs, Total Coliform	# BTEX	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	1340799	SW1-200805	/	2:00	W				17						X							X	X	X	X	X	X		
2	0800	SW2-200805	/	"	W				"						X							X	X	X	X	X	X		
3	0801	SW3-200805	/	"	W				"						X							X	X	X	X	X	X		
4	0802	CST2-200805 / DUP SW	/	"	W	Duplicate			"						X							X	X	X	X	X	X		
5																														
6																														
7																														
8																														
9																														
10																														

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Darren Smythe			8/10/2020

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page ____ of ____

N°: AB 144393

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: KBL Environmental

Courier: Canada North Prepaid Collect

Waybill# 578-TCB-37546569

Branch: [EDM] GP FN FM RD VAN LYD FSJ EST SASK Other:___

If multiple sites were submitted at once: (Yes) No

Custody Seal Intact: Yes No (NA)

TAT: <24hr 24-48hr 48-72hr (Reg) Other_____

Cooler Quantity: 1

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? (Yes) No

Inorganic Tests (Please Circle): (Mibi), (BOD), Nitrate/Nitrite, Turbidity, Color, Microtox, Ortho PO4, Tedlar Bag, Residual Chlorine, Chlorophyll*, Chloroamines*

Earliest Expiry: Aug 6/20 @ 8:00

Hydrocarbons: Earliest Expiry _____

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES (NO) Precaution Taken:_____

Legal Samples: Yes (No)

International Samples: Yes (No)

Tape Sealed: Yes (No)

Coolant Used: Icepack Bagged Ice Free Ice Free Water (None)

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 13.0 + 13.1 + 13.1 = 13.1 °C 2(Bottle/Jar)___+___+___=____°C

3 (Bottle/Jar)___+___+___=____°C 4 (Bottle/Jar)___+___+___=____°C

5 (Bottle/Jar)___+___+___=____°C 6 (Bottle/Jar)___+___+___=____°C

7 (Bottle/Jar)___+___+___=____°C 8 (Bottle/Jar)___+___+___=____°C

9 (Bottle/Jar)___+___+___=____°C 10 (Bottle/Jar)___+___+___=____°C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: 20EC35696

Samples Damaged: Yes (No) If YES why?

No Bubble Wrap Frozen Courier

Other: _____

Account Project Manager: Mary Grace Unera have they been notified of the above issues: (Yes) No

Whom spoken to: MaryGrace Date/Time: 11 Aug 20

CPM Initial_____

General Comments: Coliforms & BOD received expired, proceeding with analysis per client

Do not run CST2-200805/DupSW per Client

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020

518-YCB-37546569

518-YCB-37546569

Shipper's Name and Address
Nom et adresse de l'expediteur

Darren Smylie
Hold for pick up
CAMBRIDGE BAY
NUNAVUT, CANADA
X0B 0C0 587-223-9950

Shipper's Account Number
No de compte de l'expediteur

NON NEGOTIABLE
AIR WAYBILL
(AIR CONSIGNMENT NOTE)
NON NÉGOTIABLE
LETTRE DE TRANSPORT AÉRIEN

ISSUED BY:
EMISE PAR:

CANADIAN NORTH

Incorporated in Canada with limited liability - Compagnie Canadienne a responsabilite limitee

Copies 1, 2, 3 and faximilies of this Air Waybill and originals and have the same validity.
Les exemplaires 1 2 3 et faximille de cette lettre de transport aerien sont originaux et ont la même validité

Consignee Name and Address
Nom et adresse du destinataire

AGAT Laboratories Ltd
6310 Roper Road NW
Edmonton
Alberta, CANADA
T6E 6S4 780 239 5170

Consignee Account Number
No de compte du destinataire

Received in good order and condition
Reçu en bon état et apparent

at / a _____ (Place / Lieu)
on / le _____ (Date / Time Date / Heure)

_____ / _____
Print Name (Consignee) - Nom en lettres moulées (Destinataire) Signature

Issuing Carrier's Agent Name and City / Nom et ville de l'agent du transporteur emetteur

Accounting Information / Renseignements comptables

53342

KBL ENVIRONMENTAL LTD
17 CAMERON RD
YELLOWKNIFE
NT CANADA X1A2P4
PO:

Agent's IATA Code / Code IATA de l'agent

Account Number / Numero de compte

Airport of Departure / Aeroport de depart
YCB

Routing and destination

To / a	First carrier / premier transport	To / à	by / par	To / à	by / par
YEG	5T				

Currency Monnaie	CHGS Code Frais	WT / Poids-Val		Other/ Autres		Declared Value for Carriage Valeur déclarée pour le transport	Declared value for Customs Valeur déclarée pour le douane
		PPD payé	COLL Dû	PPD payé	COLL Dû		
CDN	PX	X		X		NDV	NCV

Airport of Destination / Aeroport de destination
EDMONTON INTL AB YEG

Flight Date / Vol Date

Delivery Company:

Pick-up Company:

Handling Information / Renseignements pour le traitement de l'expedition
KEEP IN A COOLER.

AS - (Actively Screened)

No. of Pieces Nombre de colis RCP	Gross Weight Poids brut		Rate Class / Classif. du tarif	Chargeable Weight Poids de taxation	Rate / Charge Tarif / Montant	Total	Nature and Quantity of Goods (inc. Dimensions or Volume) Nature et quantité des marchandises
2	47	K	GEN	47	$6.90	$324.30	GENERAL - SOIL AND WATER SAMPLES
2	47					$324.30	

Prepaid / Porte paye
Weight Charge Taxation au poids
$324.30

Collect / Port du

Valuation Charge Taxation a la valeur

Tax Taxe
$16.59

Total other Charges Due Agent Total des autres frais dus a l'agent

Total other Charges Due Carrier Total des autres frais dus au transporteur
$7.50

Total Prepaid / Total port paye
$348.39

Total collect / Total port du

Other Charges / Autres frais
CARGO SCREENING FEE - YZF = 7.50, GST = 16.59

GST/HST Reg# R868435561RT QST Reg# 1016752505

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations.
L'expéditeur certifie que les indications portées sur le présent document sont exactes et que dans la mesure ou une partie quelconque de l'expédition contient des marchandises dangereuses, cette partie de d'expédition est correctement dénommée et bien préparée pour le transport par air conformément à la réglementation applicable.

_____ / _____
Print Name (Shipper) - Nom en lettres moulées (Expéditeur) Signature

Executed on / Fait le: 06 Aug 2020 (Date) (Date)
YCB (Place) (Lieu)
720195 Nom De L'agent / Agent's Name

For Carrier's use only at destination
Reserve au transporteur a destination

Charges at Desination / Frais à l'arrivée

Total Collect Charges / Total Du

Signature of Issuing Carrier or its Agent / Signature du transporteur emetteur ou de son agent

518-YCB-37546569

DELIVERY COPY - COPIE DE LIVRAISON

APPENDIX C

Appendix C Nunavut Water Board Annual Reporting Form

NWB Annual Report **Year being reported:** Select 2020

License No: 1BR-CST1723 **Issued Date:** March 23, 2017
Expiry Date: March 22, 2023

Project Name: Cambridge Bay Soil and Water Treatment Facility Project

Licensee: Kitikmeot Environmental Ltd.

Mailing Address: P.O. Box 92, OMILIK Cambridge Bay, NU, X0B 0C0

Name of Company filing Annual Report (if different from Name of Licensee please clarify relationship between the two entities, if applicable):

Kitikmeot Environmental Ltd.

General Background Information on the Project (*optional):

Licence Requirements: the licensee must provide the following information in accodance with

Part B Item 1

A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.

Water Source(s):

Water Quantity:

	Quantity Allowable Domestic (cu.m)
	Actual Quantity Used Domestic (cu.m)
	Quantity Allowable Drilling (cu.m)
	Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

- ☐ Solid Waste Disposal
- ☐ Sewage
- ☐ Drill Waste
- ☐ Greywater
- ☐ Hazardous
- ☑ Other: Soil and water treatment facility

Additional Details:

Please refer to 2020 Annual Report

A list of unauthorized discharges and a summary of follow-up actions taken.

Spill No.: NA (as reported to the Spill Hot-line)
Date of Spill:
Date of Notification to an Inspector:
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

Revisions to the Spill Contingency Plan

SCP submitted and approved - no revision required or proposed

Additional Details:

Revisions to the Abandonment and Restoration Plan

AR plan submitted and approved - no revision required or proposed

Additional Details:

Progressive Reclamation Work Undertaken

Additional Details (i.e., work completed and future works proposed)

Results of the Monitoring Program including:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;

Details attached

Additional Details:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;

Details attached

Additional Details:

Results of any additional sampling and/or analysis that was requested by an Inspector

No additional sampling requested by an Inspector or the Board

Additional Details: (date of request, analysis of results, data attached, etc)

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

No additional sampling requested by an Inspector or the Board

Additional Details: (Attached or provided below)

Any responses or follow-up actions on inspection/compliance reports

No inspection and/or compliance report issued by INAC

Additional Details: (Dates of Report, Follow-up by the Licensee)

Any additional comments or information for the Board to consider

Date Submitted:	March 31, 2021	
Submitted/Prepared by:	Katie Oliver	
Contact Information:	**Tel:**	780.452.7779
	Fax:	866.316.7991
	email:	koliver@kblenv.com

APPENDIX D

Appendix D Tabulated Results of Monitoring Program

Table 1: Soil Characterization Data – Petroleum Hydrocarbon Parameters
Client: KEL
Project: Remediation
KEL File #: 4300

Sampling Information			Physical		Volatile Organic Compounds				Petroleum Hydrocarbons			
Sample ID	Lab ID	Date	Moisture	pH	Benzene	Toluene	Ethylbenzene	Xylenes (Total)	F1-BTEX (C6-C10)	F2 (>C10-C16)	F3 (C16-C34)	F4 (C34-C50)
-	-	dd-mmm-yy	%	pH	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CCME Soil Quality Guidelines					0.03	0.37	0.082	11	-	-	-	-
CCME CWS for PHC					-	-	-	-	30	150	300	2800
Soil Sampling Locations												
SS1	RR3328	01-Aug-17	4.4	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
SS2	RR3329	01-Aug-17	2.6	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
SS3	RR3330	01-Aug-17	2.2	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
SS4	RR3331	01-Aug-17	9.2	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
SS5	RR3332	01-Aug-17	3.9	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
SS6	RR3333	01-Aug-17	4.1	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
Dup (SS7)	RR3334	01-Aug-17	2.8	-	<0.005	<0.02	<0.01	<0.04	<10	<10	<50	<50
Quality Assurance RPD			37.68%		--	--	--	--	--	--	--	--
BG	RR3337	01-Aug-17	62	-	<0.013	<0.05	<0.25	<0.1	<25	<26	140	<130
SS-1-062218	L2118160-3	22-Jun-18	15.6	-	<0.0050	<0.050	<0.010	<0.10	<10	<20	32	<20
P1-200805	1340773	05-Aug-20	6	-	<0.005	<0.05	<0.01	<0.05	<10	130	1120	240
P8-200805	1340774	05-Aug-20	4	-	<0.005	0.06	0.59	5.53	50	1000	7140	1620
P2-200805	1340775	05-Aug-20	8	-	<0.005	<0.05	<0.01	<0.05	<10	100	6590	1150
P5-200805-01	1340776	05-Aug-20	6	-	<0.005	<0.05	<0.01	<0.05	<10	860	6140	1380
P4-200805-01	1340778	05-Aug-20	6	-	<0.005	<0.05	<0.01	<0.05	<10	180	510	90
P4-200805-02	1340779	05-Aug-20	7	7.24	<0.005	<0.05	<0.01	<0.05	<10	180	300	50
P3-200805-01	1340780	05-Aug-20	5	-	<0.005	0.07	<0.01	<0.05	<10	120	170	<10
P3-200805-02	1340781	05-Aug-20	6	7.19	<0.005	<0.05	<0.01	<0.05	<10	340	490	50
P6-200805	1340782	05-Aug-20	8	-	<0.005	<0.05	<0.01	<0.05	<10	50	19900	2540
P7-200805-01	1340783	05-Aug-20	29	-	<0.005	<0.05	<0.01	<0.05	<10	70	340	90
P7-200805-02	1340784	05-Aug-20	30	7.18	<0.005	<0.05	<0.01	<0.05	<10	60	80	20

Legend

mbgs	metres below ground surface
mg/kg	milligrams per kilogram
Duplicate	Blind field duplicate sample
RPD	relative percent difference (-- indicates incalculable as below detection limits)

Applicable Guidelines

- *Canadian Environmental Quality Guidelines* (CCME Soil Quality Guidelines; CCME, 1998-2014); residential/parkland land use, coarse-grained surface soil
- *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil* (CCME CWS for PHC; CCME, 2008); residential/parkland land use, coarse-grained surface soil

Notes

- Parameters not measured and absence of applicable guideline indicated by "-"
- Analytical data reported by Maxxam Analytics (Work Order #: B766031)
- Exceedance of applicable guidelines or background conditions indicated by shading; where multiple guidelines apply, the most stringent guideline was used
- Detection limits raised for Sample BG due to high moisture content, sample contains = > 50% moisture

KEL

Table 2: Soil Characterization Data – Total Metals
Client: KEL
Project: Remediation
KEL File #: 4300

Sampling Information			Total Metals																				
Sample ID	Lab ID	Date	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Boron (B), soluble (hot wate	Cadmium (Cd)	Chromium (Cr), Total	Chromium (Cr6), Hexavalent	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Thallium (Tl)	Tin (Sn)	Uranium (U)	Vanadium (V)	Zinc (Zn)
-	-	dd-mmm-yy	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CCME Soil Quality Guidelines			20	12	500	4	-	10	64	0.4	50	63	140	6.6	10	45	1	40	1	50	23	130	200
Soil Sampling Locations																							
SS1	RR3328	01-Aug-17	<0.5	2.2	47	<0.4	0.23	<0.05	7.5	<0.08	2.8	6.1	4.3	<0.05	<0.4	5.8	<0.5	<0.2	<0.1	<1	0.49	13	<10
SS2	RR3329	01-Aug-17	<0.5	2.4	73	<0.4	0.25	<0.05	18	<0.08	2.9	5.8	4.8	<0.05	<0.56	11	<0.5	<0.2	<0.1	<1	0.56	13	<10
SS3	RR3330	01-Aug-17	<0.5	2.0	54	<0.4	<0.10	<0.05	14	<0.08	2.8	5.8	4.2	<0.05	0.44	9.2	<0.5	<0.2	<0.1	<1	0.48	13	<10
SS4	RR3331	01-Aug-17	<0.5	4.3	83	<0.4	1.7	<0.05	5.2	<0.08	2.2	1.8	5.1	<0.05	0.91	9.1	<0.5	<0.2	<0.1	<1	0.77	12	<10
SS5	RR3332	01-Aug-17	<0.5	2.4	40	<0.4	0.3	<0.05	25	<0.08	2.9	6.3	4.6	<0.05	0.83	13	<0.5	<0.2	<0.1	<1	0.63	14	<10
SS6	RR3333	01-Aug-17	<0.5	2.1	62	<0.4	0.21	<0.05	10	<0.08	2.7	5.6	4.1	<0.05	0.42	7.2	<0.5	<0.2	<0.1	<1	0.65	12	<10
Dup (SS7)	RR3334	01-Aug-17	<0.5	1.9	42	<0.4	0.13	<0.05	8.5	<0.08	2.7	5.6	4.1	<0.05	<0.4	7.2	<0.5	<0.2	<0.1	<1	0.50	12	<10
Quality Assurance RPD			--	10.00%	38.46%	--	47.06%	--	16.22%	--	0.00%	0.00%	0.00%	--	--	0.00%	--	--	--	--	26.09%	0.00%	--
BG	RR3335	01-Aug-17	<1	2.8	230	<0.8	7.2	0.25	13	<0.21	3.6	11	6.8	<0.1	0.96	11	<1	<0.4	<0.2	<2	4.4	17	38
P1-200805	1340773	05-Aug-20	<0.5	2.8	30.0	<0.5	2.0	<0.5	13.5	<0.3	3.9	8.5	8.4	<0.5	0.9	8.9	<0.5	<0.5	<0.5	<0.5	0.9	14.8	13.00
P4-200805-01	1340778	05-Aug-20	<0.5	2.9	61.4	<0.5	0.7	<0.5	11.3	<0.3	3.5	7.0	12.4	<0.5	0.5	7.3	<0.5	<0.5	<0.5	<0.5	0.8	15.6	15.00
P4-200805-02	1340779	05-Aug-20	<0.5	2.8	50.7	<0.5	0.6	<0.5	9.8	<0.3	3.1	6.5	10.2	<0.5	0.5	7.1	<0.5	<0.5	<0.5	<0.5	0.7	14.9	10.00
P3-200805-01	1340780	05-Aug-20	<0.5	2.8	28.7	<0.5	<0.5	<0.5	10.4	<0.3	3.3	7.0	8.3	<0.5	0.5	6.5	<0.5	<0.5	<0.5	<0.5	0.7	14.4	5.00
P3-200805-02	1340781	05-Aug-20	1.1	3.0	50.2	<0.5	0.6	<0.5	8.4	<0.3	2.5	7.0	9.8	<0.5	<0.5	5.3	<0.5	<0.5	<0.5	<0.5	0.7	12.3	15.00
P7-200805-01	1340783	05-Aug-20	<0.5	1.8	35.6	<0.5	<0.5	<0.5	14.8	<0.3	4.5	19.6	4.9	<0.5	0.8	11.8	<0.5	<0.5	<0.5	<0.5	3.2	19.2	25.00
P7-200805-02	1340784	05-Aug-20	<0.5	4.6	41.6	<0.5	<0.5	<0.5	17.9	<0.3	5.4	9.4	5.4	<0.5	1.0	10.8	<0.5	<0.5	<0.5	<0.5	1.9	23.9	21.00

Legend

mbgs	metres below ground surface
mg/kg	milligrams per kilogram
Duplicate	Blind field duplicate sample
RPD	relative percent difference (-- indicates incalculable as below detection limits)

Applicable Guidelines

- *Canadian Environmental Quality Guidelines* (CCME Soil Quality Guidelines; CCME, 1998-2014); residential/parkland, coarse-grained surface soil

Notes

- Parameters not measured and absence of applicable guideline indicated by "-"
- Analytical data reported by Maxxam Analytics (Work Order #: B766031)
- Exceedance of applicable guidelines or background conditions indicated by shading; where multiple guidelines apply, the most stringent guideline was used

Table 3: Surface Water Characterization Data - Petroleum Hydrocarbons, Elements, Misc. Organics and Inorganic Parameters
Client: KEL
Project: Facility operations
KEL File #: 4300

Sampling Information				Volatile Organic Compounds				Petroleum Hydrocarbons							Misc. Organic				Misc. Inorganics		
Sample ID	Lab ID	Location	Date	Benzene	Toluene	Ethylbenzene	Xylenes (Total)	F1-BTEX (C6-C10)	F2 (C10-C16)	F3 (C16-34)	F4 (C34-50)	Total Purgeable Hydrocarbons	Total Extractable Hydrocarbons	Total Petroleum Hydrocarbons	Extractable Oil and Grease	Total Extractables C11 to C22	Total Extractables C23-C60	Total Coliforms	pH	Total Suspended Solids	Biochemical Oxygen Demand
-	-		dd-mmm-yy	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100 mL	-	mg/L	mg/L
Federal Interim Groundwater Quality Guidelines for Federal Contamianted Sites; Novembe				0.37	0.002	0.09	-	-	-	-	-	-	-	-	-	-	-		6.5-9.0	-	
Surface Water Monitoring Locations																					
SW1	RR3335	-	01-Aug-17	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.1	-	-	-	-	-	2	2	2	-	8.52	4.7	-
SW2	RR3336	-	01-Aug-17	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.1	-	-	-	-	-	<2	<2	<2	-	8.46	6.0	-
POND-062218	L2118160-1	POND	22-Jun-18	<0.00050	<0.00050	<0.00050	0.00225	<0.10	0.87	0.88	<0.25	-	-	-	<2	-	-	-	7.67	18.3	-
STF-062218	L2118160-2	STF	22-Jun-18	<0.00050	0.00051	0.00073	0.00392	<0.10	1.51	0.64	<0.25	-	-	-	<2	-	-	-	7.76	53.2	-
CST-1	L2149691-1	CST-1	18-Aug-18	<0.00050	<0.00045	<0.00050	<0.00075	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	-	7.95	<3.0	-
POND 1	WK9701	CST-1	04-Sep-19	<0.00040	<0.00040	<0.00040	<0.00080	<0.100	<0.10	<0.10	<0.20	-	-	-	-	<0.20	<0.20	-	7.79	<1.0	-
POND 2	WK9702	CST-1	04-Sep-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.100	<0.10	<0.10	<0.20	-	-	-	-	<0.20	<0.20	-	7.85	1.3	-
SW1-200805	1340799	-	05-Aug-20	<0.0005	<0.0003	<0.0005	<0.0005	-	-	-	-	<0.1	1.2	1.2	5	-	-	58	-	2	<2
SW2-200805	1340800	-	02-Aug-20	<0.0005	<0.0003	<0.0005	<0.0005	-	-	-	-	<0.1	<0.1	<0.1	2	-	-	122	-	<1	<2
SW3-200805	1340801	-	05-Aug-20	<0.0005	<0.0003	<0.0005	<0.0005	-	-	-	-	<0.1	<0.1	<0.1	2.7	-	-	4	-	12	<2

Table 3: Surface Water Characterization - Polycyclic Aromatic Hydrocarbons
Client: KEL
Project: Facility Operations
KEL File #: 4300

Sampling Information				Polycyclic Aromatic Hydrocarbons (PAH)																			Inorganic
Sample ID	Lab ID	Location	Date	Naphthalene	2-Methylnaphthalene	Quinoline	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Acridine	Benzo[a]anthracene	Chrysene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	Dibenzo[ah]anthracene	Benzo[ghi]perylene	B[a]P TPE	Sediment
-	-		dd-mmm-yy	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Federal Interim Groundwater Quality Guidelines for Federal Contamianted Sites, November 2012; Table 3, Tier 1 Lowest Guideline for Commercial and Industrial Land Use				0.0011	0.18	-	0.046	0.0058	0.003	0.0004	0.000012	0.00004	0.000025	-	0.000018	0.0001	0.00048	0.00048	0.00001	0.00021	0.00026	0.00017	-	-
Surface Water Monitoring Locations																							
SW1-200805	1340799		05-Aug-20	<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	NO
SW2-200805	1340800		05-Aug-20	<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	NO
SW3-200805	1340801		05-Aug-20	<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	NO

Table 3: Surface Water Characterization Data - Total and Dissolved Metals
Client: KEL
Project: Facility operations
KEL File #: 4300

Sampling Information				Total Metals																				Dissolved Metals	
Sample ID	Lab ID	Location	Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Zinc	Dissolved Lead (Pb)	Total Lead (Pb)
-	-		dd-mmm-yy	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites; November 2012; Table 3, Tier 1 Lowest Guideline for Commercial and Industrial Land Use				0.1	2	0.005	0.5	0.0053	0.5	0.000017	0.001	0.05	0.002	0.3	0.001	0.2	0.000026	0.073	0.025	0.001	0.00025	-	0.0008	0.01	0.01	0.007	0.007
Surface Water Monitoring Locations																											
SW1	RR3335		01-Aug-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002
SW2	RR3336		01-Aug-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002	<0.0002
CST-1	L2149691-1	CST-1	18-Aug-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000062
POND 1	WK9701	CST-1	04-Sep-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00020	<0.00020
POND 2	WK9702	CST-1	04-Sep-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00020	<0.00020
SW1-200805	1340799	-	05-Aug-20	0.051	<0.001	<0.001	<0.05	<0.001	0.03	<0.000016	<0.001	<0.001	0.001	<0.1	<0.0001	<0.005	<0.000005	<0.001	<0.003	0.0007	<0.00005	1.8	<0.0005	<0.001	<0.01	-	-
SW2-200805	1340800	-	05-Aug-20	0.045	<0.001	<0.001	<0.05	<0.001	0.06	<0.000016	<0.001	<0.001	0.001	<0.1	0.0001	<0.005	<0.000005	0.002	<0.003	<0.0005	<0.00005	8	<0.0005	<0.001	<0.01	-	-
SW3-200805	1340801	-	05-Aug-20	0.192	<0.001	0.001	<0.005	<0.001	0.37	0.000038	<0.001	<0.001	0.003	0.4	0.0004	0.014	<0.000005	0.017	<0.003	0.0015	<0.00005	33.5	<0.0005	0.003	<0.01	-	-

Table 3: Surface Water Characterization Data - Routine Water Chemistry Data
Client: KEL
Project: Facility operations
KEL File #: 4300

Sampling Information				Routine Water Chemistry Analysis																						
Sample ID	Lab ID	Location	Date	pH	p - Alkalinity (as CaCO3)	t - Alkalinity (as CaCO3)	Bicarbonate	Carbonate	Hydroxide	Electrical Conductivity	Fluoride	Chloride	Nitrite	Nitrite-N	Nitrate	Nitrate-N	Nitrate+Nitrite-Nitrogen	Sulfate	Dissolved Calcium	Dissolved Magnesium	Dissolved Sodium	Dissolved Potassium	Dissolved Iron	Dissolved Manganese	Calculated TDS	Sodium Adsorption Ratio	Hardness
-	-		dd-mmm-yy	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	N/A	mg CaCO3/L
Federal Interim Groundwater Quality Guidelines for Federal Contaminanted Sites; November 2012; Table 3, Tier 1 Lowest Guideline for Commercial and Industrial Land Use				6.5 - 9	-	-	-	-	-	-	0.12	100	-	0.06	13	-	100	100	-	-	-	-	-	-	3000	-	-
Surface Water Monitoring Locations																										
SW1-200805	1340799	-	05-Aug-20	7.91	<5	44	53	<5	<5	160	<0.05	3	<0.05	<0.02	<0.5	<0.02	<0.02	8	11.5	5.1	1.9	<0.6	<0.1	0.006	55.6	0.117	50
SW2-200805	1340800	-	05-Aug-20	7.95	<5	48	58	<5	<5	264	<0.05	13	<0.05	<0.02	<0.5	<0.02	<0.02	61	21	10.4	7.9	2	<0.1	<0.005	144	0.352	95
SW3-200805	1340801	-	05-Aug-20	8.22	<	66	80	<5	<5	825	<0.05	49	<0.05	<0.02	<0.5	<0.02	<0.02	272	69.3	43.3	34.4	8	<0.1	0.006	515	0.799	351