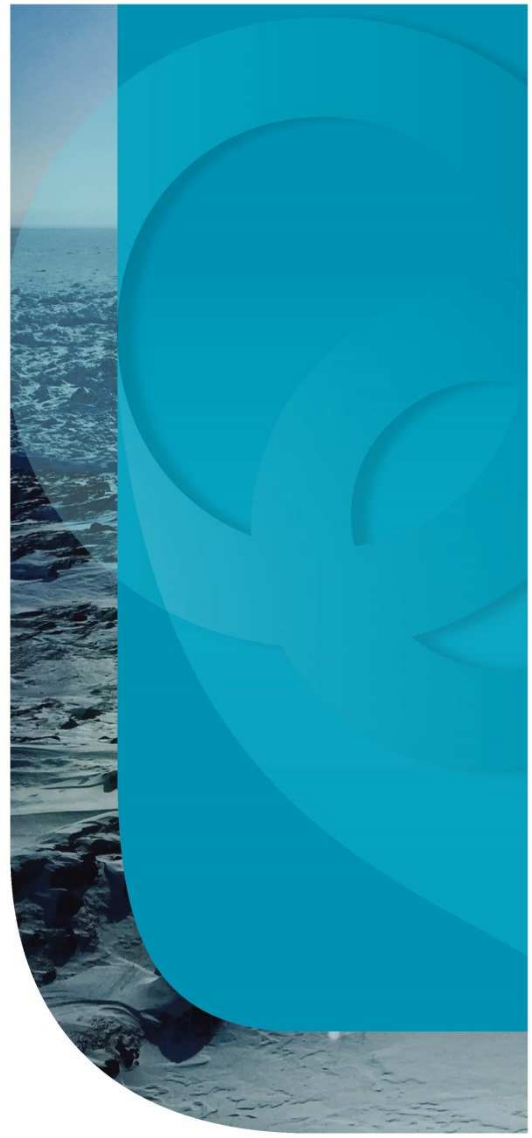

2017 WATER QUALITY MONITORING PROGRAM

IQALUIT INTERNATIONAL AIRPORT

FINAL REPORT

BOUYGUES-SINTRA DESIGN BUILD JOINT VENTURE

Mr. Olivier Walon
Project Director
Bouygues – Sintra Design Build Joint Venture - IIAIP
9975 de Châteauneuf Street, Locale B
Brossard, Quebec J4Z 3V6

November 28, 2017

O/Ref.: QE17-130-2

Confidential and privileged document

Qikiqtaaluk environmental

2017 Water Quality Monitoring Program

Iqaluit International Airport

FINAL REPORT

Privileged and confidential document presented to

BOUYGUES-SINTRA
DESIGN BUILD JOINT VENTURE

Prepared and verified by:

Jan Wollenberg, B.Sc., M.Sc.
Project Manager

Approved by:

Jennifer Godin
Project Director

Qikiqtaaluk environmental
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November 28, 2017

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LIST OF ABBREVIATIONS AND ACRONYMS

AIP	Arctic Infrastructure Partners Inc.
BOD_5	Biochemical oxygen demand over 5 days
BTEX	Benzene, toluene, ethylbenzene and xylenes
CALA	Canadian Association for Laboratory Accreditation
CCME	Canadian Council of Ministers of the Environment
DBJV	Design Build Joint Venture
EWPF	Environmental Waste Processing Facility
GPS	Global Positioning System
IIAIP	Iqaluit International Airport Improvement Project
MDDELCC	*Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques*
NWB	Nunavut Water Board
PAH	Polycyclic aromatic hydrocarbons
pH	Measure of acidity or alkalinity
QA/QC	Quality Assurance/Quality Control
RPD	Relative percent difference
TO&G	Total oil and grease
TPH	Total petroleum hydrocarbons
TSS	Total suspended solids
VOC	Volatile organic compounds
WQMP	Water Quality Monitoring Program

1. INTRODUCTION

1.1 Project

Arctic Infrastructure Partners Inc. (AIP) currently holds a water licence issued by the Nunavut Water Board (NWB) covering the operations for the Iqaluit International Airport Improvement Project (IIAIP). As a condition of the licence, a water quality monitoring program (WQMP) was established to ensure that the construction activities do not have an adverse effect on the waterbodies surrounding the airport. Qikiqtaaluk Environmental (QE) was retained to collect water samples from predefined monitoring points at Iqaluit International Airport and interpret the results. On June 5, 2017, QE submitted a quote for the 2017 construction season, and received approval from Design Build Joint Venture (DBJV) to proceed with the work on June 14, 2017. Sintra Inc. was responsible for coordinating the on-site work for the DBJV.

1.2 Objectives

The objectives of the WQMP are to ensure that the construction work does not adversely affect water quality at the Iqaluit International Airport through:

- The collection of water samples from the Site's entry and exit points, at the start and end of each construction season, as required by the NWB water licence;
- The collection of monthly water samples from the water extraction points in use throughout the construction season, as required by the NWB water licence;
- The analysis of water samples for the parameters requested by the NWB;
- The comparison of the results to the guideline values established by the NWB.

1.3 General Conditions and Limitations of the Study

The fieldwork was planned and executed based on the information available. The information included in this report is subject to the general conditions and limitations of the study, as described in Appendix A.

2. SITE AND SAMPLING LOCATIONS

The location of Iqaluit International Airport is presented in Figure 1 of Appendix B, whereas the sampling locations for the WQMP are presented in Figure 2.

Table 1, below, lists the approximate coordinates for each sampling location, along with the associated sampling frequency. The parameters analyzed as part of the WQMP are presented in Table 2, below. The Group 1 parameters apply to the pre- and post-construction season sampling, whereas the Group 2 parameters apply to the monthly sampling at the extraction points.

TABLE 1
Descriptions and Coordinates of Sampling Locations

Station ID	Station Description	Station Type	Station GPS Coordinates	Parameters	Sampling Frequency
IIA- 2	Point 1	Water extraction	63°45'16"N 68°32'54"W	Group 1 (refer to Table 2)	Twice annually (prior to construction activities and near the end of season): June 2017 September 2017
IIA-4.2	Point 4	Water extraction	63°45'20.57"N 68°32'5.22"W		
IIA-5	Carney Creek Upstream Project Area	Inflow to Site	63°45'45"N, 68°33'1"W		
IIA-6	Start of Inner Field Drainage Ditch	Inflow to Site	63°45'46"N, 68°33'59"W		
IIA-7	Carney Creek Downstream Project Area	Outflow from Site	63°45'19"N, 68°32'23"W		
IIA-8	Inner Field Ditch Downstream Project Area	Outflow from Site	63°45'9"N, 68°32'11"W		
IIA-9	Southern Inner Field Downstream Project Area	Outflow from Site	63°44'56"N, 68°31'57"W		
IIA- 2	Point 1	Water extraction	63°45'16"N 68°32'54"W	Group 2 (refer to Table 2)	Monthly: July 2017 August 2017
IIA-4.2	Point 4	Water extraction	63°45'20.57"N 68°32'5.22"W		

TABLE 2
Parameters Analyzed

Group 1 Parameters	Group 2 Parameters
TSS	TSS
TO&G (extraction points only)	TO&G
Total copper	TPH
Total iron	Propylene glycol
Total mercury	BTEX
Total zinc	pH
Total aluminum	Ethylene glycol
Total cobalt	PAH
Ethylene glycol	Arsenic
BOD_5	Total lead
TPH	
PAH	
BTEX	
Total cadmium	
Total chromium	
Total lead	
Total nickel	
Total phosphorous	
Total manganese	
Total arsenic	
Propylene glycol	
pH	

3. WORK PERFORMED AND METHODOLOGY

3.1 Summary of Work Performed

There are currently no standards for environmental sampling in Nunavut. As such, all fieldwork was conducted in accordance with the applicable guidelines established by the *MDDELCC*, the NWB, and the client's requirements.

The scope of work included the following tasks:

- Preparation of sample containers;
- Collection and shipment of surface water samples to an analytical laboratory;
- Chemical analysis of the water samples in accordance with the established analytical program;
- Preparation of a technical report detailing the findings of the sampling program.

3.2 Sampling Strategy

The sampling locations and the number of samples to be collected were established in the water licence application submitted to the NWB. Locations were carefully selected to provide an accurate overview of the water quality on Site.

3.2.1 Timeline of Work Performed

Sampling at the extraction points was carried out on June 17, July 22, August 21, and September 30, 2017.

Sampling at the stations located at the inflow to and outflow from the Site was carried out on June 17 and September 30, 2017. It should be noted that although construction ended in late August, QE was not notified until mid-September that construction activities had ceased. As such, the post-construction sampling campaign was carried out on September 30, 2017.

3.2.2 Work Preparation

Before beginning fieldwork, preparations included:

- Logistical coordination between the QE Project Manager and Technician, and the Client representatives on-site;
- Preparation of field equipment and materials.

3.3 Locating Sampling Points

Sampling points were located using the GPS coordinates provided in the NWB Licence.

3.4 Water Sampling

Water sampling was performed using a new container for each water sample collected. Each sample was transferred to the appropriate sample container, containing the necessary preservation agents, provided by the analytical laboratory.

3.5 Sample Containers and Sample Preservation

All samples collected were placed in jars and bottles provided by the analytical laboratory. Samples were labelled and stored in coolers with ice packs, also provided by the laboratory, to maintain them at a temperature of approximately 4°C until delivery at the laboratory. Samples were stored in a refrigerator at QE's EWPF. Samples were brought to First Air or Canadian North for transport air cargo to Ottawa, where they were collected by Caduceon Environmental Laboratories (Caduceon). Instructions were given to the air carriers to refrigerate the coolers containing the samples, while taking care to ensure they did not freeze. Waybill numbers were provided to the laboratory to ensure the samples could be collected from the transporter the morning following their arrival.

3.6 Laboratory Analyses

3.6.1 Analytical Program

The water quality analytical program and choice of parameters was based on the guidelines stipulated by the NWB.

Water samples collected during the fieldwork were delivered to the analytical laboratory as promptly as possible. The selected analytical laboratory was accredited by CALA for all analyses performed. Certificates of accreditation are available upon request. In addition, the analytical reports were verified and signed by a member of the Association of the Chemical Profession of Ontario.

The detection limits associated with each parameter analyzed are presented in Tables I through IV of Appendix C. Analytical methods are outlined in the certificates of analysis presented in Appendix D.

3.6.2 QA/QC Program

All projects completed by QE include a QA/QC program to verify the reliability, precision and accuracy of the fieldwork analytical results.

3.6.2.1 On-site

Several precautions were taken during the course of the fieldwork to eliminate the risk of contamination from equipment and sampling instruments, and to ensure effective and representative sampling. The precautions taken, particularly during collection, transport, identification, and preservation of samples included:

- The application of standardized work procedures through ongoing training of field technicians regarding the various standardized methods of sample collection and management;
- Development of a work plan and coordination of employees by management;
- Use of disposable nitrile gloves for each sample collected;

- Careful use and protection of the appropriate sampling containers and measuring instruments used during sample collection, transport and preservation;
- Precise identification and labelling of all samples shipped to the laboratory accompanied by a completed and signed chain of custody form;
- Preservation and storage of samples according to the standardized methods recommended by the *MDDELCC*;
- Shipment of samples to the laboratory as promptly as possible, within 24 hours of collection, where possible.

No field blanks were used during water sampling, as no significant external sources of contamination (dust, atmospheric emissions, VOCs, etc.) were identified in the vicinity of the Site sampling locations. No trip blanks were used, as all samples were preserved in hermetically sealed containers during transport between the Site and the laboratory.

3.6.2.2 At the Laboratory

Caduceon applies its own QA/QC program, in accordance with CALA requirements, so as to provide analytical results of the highest possible quality and reliability. This program includes, among others, the following elements:

- Laboratory blank;
- Laboratory duplicate;
- Control/reference samples;
- Certified reference materials;
- Sample spiking;
- Surrogates (organics).

A summary of the laboratory's internal QA/QC program is available upon request.

4. RESULTS

4.1 Chemical Analysis

Results are presented in table format in Appendix C. The complete laboratory certificates of analysis are presented in Appendix D.

4.1.1 Applicable Water Quality Criteria

The analytical results were compared to the guidelines stipulated in the water licence issued by NWB and to the CCME *Canadian Water Quality Guidelines for the Protection of Aquatic Life* when no guideline value was provided in the water licence.

4.2 QA/QC Program

4.2.1 Laboratory

The results of Caduceon's internal control measures are considered to be acceptable, and fall within CALA's suggested RPD for all analyses performed (laboratory blanks, laboratory duplicates, control/reference samples, certified reference materials, sample spiking and surrogates (organics)).

5. DATA INTERPRETATION

5.1 Water Extraction Points – Monthly Sampling

Water samples were collected in July and August 2017 from the 2 water extraction locations used during the 2017 construction season. The locations sampled were Points 1 and 4 (IIA-2 and IIA-4.2).

The analytical results revealed that the water quality at both extraction points respected guideline values for all parameters analyzed in both July and August 2017.

5.2 Water Quality Monitoring Points – Pre and Post-Construction

5.2.1 Water Extraction Points

5.2.1.1 Point 1 (IIA-2)

Iron and zinc concentrations for both the June and September sampling campaigns exceeded the guideline values; the exceedances were negligible in the June sample, whereas an increased iron concentration was observed in September. This pattern is likely due to seasonal fluctuations in background metal concentrations, as a similar trend was observed during the 2016 sampling campaign. Copper, zinc, and aluminium concentrations were also slightly above guideline values in September 2017. Again, the exceedances were minor, and are likely due to seasonal fluctuations in background concentrations.

5.2.1.2 Point 4 (IIA-4.2)

Pre-construction (June) aluminium, zinc, and iron concentrations were slightly above guideline levels. At the end of the construction season, iron and zinc levels were again below guideline levels, whereas aluminium concentrations remained slightly above guideline levels.

5.2.2 Site Inflow Points

5.2.2.1 Point IIA-5 (Carney Creek Upstream Project Area)

Aluminium, copper, iron, and zinc slightly exceeded guideline levels during the June sampling campaign, but were once again below the guideline levels during the September campaign. The 2016 data showed a similar pattern, indicating that higher metals concentrations may be present in the water as a background concentration. All other parameters analyzed at this location were below guideline concentrations.

5.2.2.2 Point IIA-6 (Start of the Inner Field Drainage Ditch)

All parameters analyzed respected guideline levels during both the June and September sampling campaigns.

5.2.3 Site Outflow Points

5.2.3.1 Point IIA-7 (Carney Creek Downstream Project Area)

Zinc concentrations slightly exceeded guideline levels in June and September. Given that higher levels of zinc were already observed at the Site point of entry (location IIA-5), it is unlikely that this exceedance is a result of construction activities.

5.2.3.2 Point IIA-8 (Inner Field Ditch Downstream Project Area)

Iron and zinc concentrations were above the guideline values in both June and September. Given that pre-construction iron and zinc concentrations at the Site point of entry (location IIA-5) were also above guideline levels in June, it is unlikely that this exceedance is a result of construction activities. Similar concentrations of iron and zinc were also measured prior to the 2016 construction season, indicating that the water quality does not appear to have changed at this location due to construction activities.

5.2.3.3 Point IIA-9 (Southern Inner Field Downstream Project Area)

Iron, manganese, copper, and lead concentrations were slightly above guideline values during the June sampling campaign. During the September sampling campaign, manganese and lead concentrations were once again below guideline values, indicating that the exceedances measured in June were likely due to seasonal fluctuations in background concentrations. Iron and zinc remained slightly above guideline levels in September, which is consistent with the results from the 2016 sampling campaign.

Overall, the analyses of the water samples collected as part of the WQMP revealed no significant difference in the Site's water quality before and after the construction season. The slight variations observed for certain metals are most likely related to seasonal changes. As such, it does not appear that the construction activities are having an impact on the Site's water quality.

6. CONCLUSIONS AND RECOMMENDATIONS

QE was retained by the Bouygues-Sintra Design Build Joint Venture to carry out water sampling and results interpretation as part of the WQMP for the Iqaluit International Airport construction project.

Water samples were collected at the airport between June and September 2017. The results demonstrated that during the construction season (July and August), water at the extraction points remained suitable for use with all parameters measured showing concentrations below guideline values. Concentrations of certain metals, notably iron, zinc, and aluminium, slightly exceeded guideline values at several locations both before and after the construction season June and September 2017, respectively. Yet, given that metals concentrations above criteria were already measured at the Site inflow point before construction activities began, exceedances are likely due to elevated background concentrations and seasonal fluctuations, rather than the construction activities. Based on the results of the 2016 and 2017 sampling campaigns, the construction activities at the airport do not appear to have had a negative impact on the Site's water quality.

APPENDIX A

General Conditions and Limitations of the Study

GENERAL CONDITIONS AND LIMITATIONS
PHASES II AND III AND REMEDIATION

This report was prepared for the exclusive use of the client to whom it is addressed (the "Client") and is strictly confidential. This report or a copy by a third person shall not be used without written authorization from the Client, in which a copy will be provided to Qikiqtaaluk Environmental Inc. (QE), as well as a written authorization from QE. The use and/or copy of this report is subject to the present general conditions and limitations. QE will not be liable or obligated by any unauthorized use of this report by a third party; a third party shall be responsible for all consequences resulting from the use of this report.

The facts, interpretations, conclusions and recommendations contained in this report concern the site described in this report (the "Site") and do not apply to any other site or area. This report must be read in its entirety, as individual sections may be misinterpreted. The Client and all other authorized persons, in accordance with the above, must only rely on the information found in the "final report"; QE shall not be held responsible for the use of any other texts, opinions or draft documents or reports issued by QE or the translation, partial or complete, of the final version of the report.

The environmental site assessment carried out by QE, described in this report (the Assessment), was performed for the specific purposes of the scope of work described in the present report, and should in no way serve any other purpose. The methodology followed is described in the present report, and the Assessment meets, to the best of our knowledge, the rules of conduct and professional practices accepted in the field of expertise concerned at the time the report was written.

The results of the present report are limited to the conditions the day(s) the work was carried out. Unless otherwise specified, the work, results, interpretation of the data, comments, recommendations and conclusions contained in this report are based, to the best of our knowledge, on the applicable policies, laws and regulations at the time the report was written and apply specifically to the Site, as well as on professional opinions expressed specifically in the context of the contract awarded by the Client. If these policies, laws or regulations are modified, or differ from those presumed, QE must be informed by the Client in order to revise, if applicable, the interpretative contents of the report. When no policy, law or regulation is available to interpret the data, work, comments, recommendations and conclusions expressed in the report, they are based, to the best of our knowledge, on the regulations and accepted professional practices in the fields of expertise concerned.

All descriptions, assessments and estimates mentioned in the report concerning the nature, composition and quality of soils or groundwater are only valid for the locations where boreholes and surveys were performed, and only at the depths in which the samples were collected. Fluctuations in groundwater levels, as well as activities carried out on the Site and surrounding properties, are factors that may influence the condition of the Site over time.

The scope of work carried out was defined based on the information provided by the Client, the defined scope of work objectives of the contract, previous available environmental site assessments, the condition of the Site at the time of the work, applicable policies, laws and regulations, as well as, to the best of our knowledge, acceptable professional rules and practices in the fields of expertise concerned. The fact that a substance was not analyzed during the study does not eliminate the possibility that this substance be found at concentrations above the detection limits or the criteria indicated in the applicable policies, laws and regulations. In addition, the precision of data obtained and its interpretation are relative to the analytical methods used, the limitations of the equipment, the choice of analytical parameters, the uniformity of underground conditions, as well as the physical constraints associated with the Site.

The assessment of the degree and extent of the contamination, as well as the volume estimate of contaminated matter to be managed result from an extrapolation between surveys and are provided for information purposes only. The actual quantities could be higher or lower than the estimate. Information provided should not be used as geotechnical data, unless otherwise mentioned in the report.

The present report contains information obtained from the Client and third parties, the accuracy of which has not been verified. The information was obtained, to the best of our knowledge, in accordance with known and accepted rules of conduct and professional practices in the fields of expertise concerned. QE presumes that the information provided by the Client or by a third party is accurate and correct. QE cannot be held responsible for its accuracy or reliability, or the omission or non-disclosure of pertinent information by the Client or a third party. QE cannot guarantee the accuracy of the laboratory results obtained by a subcontractor. However, QE ensures that all subcontractors have the required qualifications and certifications in accordance with applicable policies, laws and regulations, and, to the best of our knowledge, are in accordance with the rules of conduct and professional practices accepted in the field for the fields of expertise concerned.

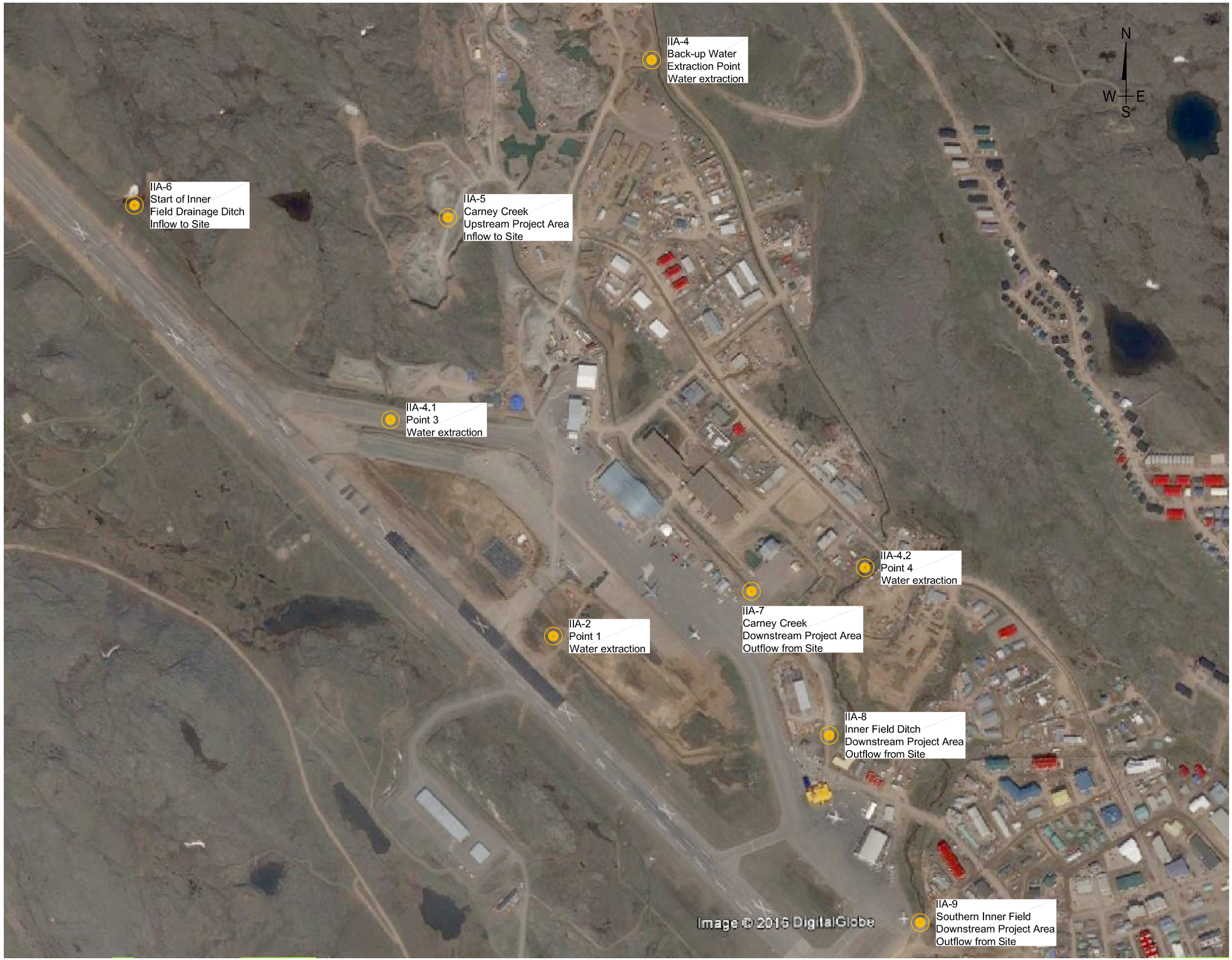
QE cannot be held responsible for damages resulting from hidden or unforeseeable events or changes in the Site conditions that take place after the date the information was collected. In addition, QE cannot be held responsible for the use of this report by a third party and/or for purposes other than those for which it has been written, or for any real or perceived loss of the Site, or failure of a transaction due to the contents of this report. QE has no interest in the Site covered in the present report.

All opinions expressed and references made to policies, laws and regulations mentioned in the report are solely technical and provided for the client's information only and should not, under any circumstances, be considered as legal advice or a legal opinion.

APPENDIX B

Figures

Presented to:	Figure 1	Drawn by: J.-M. Robert	Verified by: J. Wollenberg	Approved by: J. Godin
BOUYGUES-SINTRA DESIGN BUILD JOINT VENTURE	Regional Site Location	Date: 2017-11-09	Drawing no.: QE17-130-2-01 A	Geodetic reference: Latitude/Longitude
Property located at: *Iqaluit International Airport* *Iqaluit, NU*	WATER QUALITY MONITORING PROGRAM	Qikiqtaaluk environmental ᕿᑭᖅᑖᓗᒃ ᐊᕙᑎᓕᕆᔨᑦ		



Legend

Approximate sampling point location (QE, 2016)

Source :
- *QE; locations are based on field measurements; 2016;*
- *Google Earth Pro; satellite image; July 20, 2015.*

0 80 160 240 320 400m

CONFIDENTIAL

Figure 2

Water Quality Monitoring and Extraction Points

WATER QUALITY MONITORING PROGRAM

Presented to:

BOUYGUES-SINTRA DESIGN BUILD JOINT VENTURE

Property located at:
Iqaluit International Airport
Iqaluit, NU

Drawn by:	Verified by:	Approved by:
J.-M. Robert	J. Wollenberg	J. Godin
Date:	Drawing no.:	Geodetic reference:
2017-11-09	QE17-130-2-01 | B	WSG84/UTM | Zone 19N

Qikiqtaaluk environmental

This document shall not be used for construction, building or installation purposes.

APPENDIX C

Analytical Results Tables

TABLE I: June Detection Limits associated with each Parameter
Bouygues-Sintra Design Build Joint Venture
2017 Water Quality Monitoring Program Iqaluit International Airport

			Client ID	IIA-2	IIA-4.2	IIA-5	IIA-6	IIA-7	IIA-8	IIA-9	DUP-1
			Sample ID	B17-17824-1	B17-17824-2	B17-17009-1	B17-17009-2	B17-17009-3	B17-17009-4	B17-17009-5	B17-17009-6
			Date Collected (yyyy-mm-dd)	2017-06-21	2017-06-21	2017-06-17	2017-06-17	2017-06-17	2017-06-17	2017-06-17	2017-06-17
Analyte	**CCME Guideline for Freshwater Habitat**	**Unit**	**Analytical Detection Limit**								
Hardness	N/A	mg/L	1	36	35	71	11	60	35	28	25
Acenaphthene	5.8	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	N/A	µg/L	0.05	65.9	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum	0.1	mg/L	0.005	0.04	0.39	0.48	0.02	0.09	0.03	0.26	0.19
Anthracene	0.012	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Arsenic	0.005	mg/L	0.0001	< 0.0001	< 0.0001	0.0007	< 0.0001	0.0002	< 0.0001	0.0002	0.0001
Benzene	370	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	0.015	µg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+k)fluoranthene	N/A	µg/L	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BOD_5	N/A	mg/L	3	< 3	< 3	< 3	< 3	< 3	4	< 3	< 3
Cadmium	0.00009	mg/L	0.00002	< 0.000014	< 0.000014	0.000017	< 0.000014	0.000035	< 0.000014	0.000019	< 0.000014
Chromium	0.0089	mg/L	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001
Chrysene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cobalt	N/A	mg/L	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	0.002	mg/L	0.0001	0.0012	0.0017	0.0027	0.001	0.0017	0.0013	0.0031	0.0017
Dibenzo(a,h)anthracene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethylbenzene	90	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Glycol	192	mg/L	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Fluoranthene	0.04	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	3	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Iron	0.3	mg/L	0.005	0.311	0.916	1.29	0.086	0.142	0.251	0.966	0.578
Lead	0.001	mg/L	0.00002	0.00005	0.00053	0.0016	0.00004	0.00025	0.00008	0.00116	0.0004
Manganese	N/A	mg/L	0.001	0.022	0.036	0.059	0.006	0.056	0.088	0.049	0.025
Mercury	0.000026	mg/L	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Methylnaphthalene 2-(1-)	N/A	µg/L	0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Methylnaphthalene,1-	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene,2-	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	1.1	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	0.025	mg/L	0.0002	< 0.0002	0.0005	0.008	< 0.0002	0.0006	0.0004	0.0011	0.0006
Oil & Grease-Total	N/A	mg/L	1	< 1.0	< 1.0	Analysis not required					
pH (limit 6.5 - 9)	9	-	-	7.27	7.34	7.88	7.31	7.94	7.83	7.65	7.61
PHC F1 (C6-C10)	N/A	µg/L	20	< 20	< 20	34	46	27	31	< 20	< 20
PHC F2 (>C10-C16)	N/A	µg/L	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F3 (>C16-C34)	N/A	µg/L	400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400
PHC F4 (>C34-C50)	N/A	µg/L	400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400
Phenanthrene	0.4	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phosphorus-Total	N/A	mg/L	0.01	0.02	0.05	0.02	< 0.01	0.01	< 0.01	0.08	0.07
Propylene Glycol	500	mg/L	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Pyrene	0.025	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Glycols	N/A	mg/L	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Total Suspended Solids	N/A	mg/L	3	< 3	< 3	5	< 3	3	< 3	60	37
Xylene, m,p-	N/A	µg/L	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	N/A	µg/L	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	N/A	µg/L	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Zinc	0.03	mg/L	0.005	0.04	0.032	0.134	0.006	0.032	0.036	0.026	0.013

IIA-2 Point 1 63°45'16"N, 68°32'54"W
IIA-4 Backup Water Extraction Point - Cooordinates 63°45'55"N, 68°32'37"W
IIA-4.1 Point 3 Innear Field Near Taxiway A - Coorindates 63°45'33"N, 68°33'26"W
IIA-4.2 Point 4 Creek Before it Crosses Federal Road - Coordinates 63°45'22"N, 68°32'1"W
IIA-5 Carney Creek Upstream Project Area 63°45'45"N, 68°33'1"W
IIA-6 Start of Inner Field Drainage Ditch 63°45'46"N, 68°33'59"W
IIA-7 Carney Creek Downstream Project Area 63°45'19"N, 68°32'23"W
IIA-8 Inner Field Ditch Downstream Project Area 63°45'9"N, 68°32'11"W
IIA-9 Southern Inner Field Downstream Project Area 63°44'56"N, 68°31'57"W

BOD_5: Biological oxygen demand (5 days)
F1 ($C_{6\text{-}10}$): Petroleum hydrocarbons Fraction 1 (C_6 to C_{10})
F2 ($C_{10\text{-}16}$): Petroleum hydrocarbons Fraction 2 (C_{10} to C_{16})
F3 ($C_{16\text{-}34}$): Petroleum hydrocarbons Fraction 3 (C_{16} to C_{34})
F4 ($C_{34\text{-}50}$): Petroleum hydrocarbons Fraction 4 (C_{34} to C_{50})

= Detection limit above guideline value
= Parameter above guideline value
= Guideline value varies based on hardness value

O/Ref.: QE17-130-2

Qikiqtaaluk environmental

TABLE II: July Detection Limits associated with each Parameter
Bouygues-Sintra Design Build Joint Venture
2017 Water Quality Monitoring Program Iqaluit International Airport

				Client ID	IIA-2	IIA-4.2
				Sample ID	B17-20720-1	B17-20720-2
				Date Collected (yyyy-mm-dd)	2017-07-22	2017-07-22
Analyte	**CCME Guideline for Freshwater Habitat**	**Unit**	**Analytical Detection Limit**			
Acenaphthene	5.8	µg/L	0.05		< 0.05	< 0.05
Acenaphthylene	N/A	µg/L	0.05		< 0.05	< 0.05
Anthracene	0.012	µg/L	0.05		< 0.05	< 0.05
Arsenic	0.005	mg/L	0.0001		0.0002	0.0001
Benzene	370	µg/L	0.5		< 0.5	< 0.5
Benzo(a)anthracene	N/A	µg/L	0.05		< 0.05	< 0.05
Benzo(a)pyrene	0.015	µg/L	0.01		< 0.01	< 0.01
Benzo(b)fluoranthene	N/A	µg/L	0.05		< 0.05	< 0.05
Benzo(b+k)fluoranthene	N/A	µg/L	0.1		< 0.1	< 0.1
Benzo(g,h,i)perylene	N/A	µg/L	0.05		< 0.05	< 0.05
Benzo(k)fluoranthene	N/A	µg/L	0.05		< 0.05	< 0.05
Chrysene	N/A	µg/L	0.05		< 0.05	< 0.05
Dibenzo(a,h)anthracene	N/A	µg/L	0.05		< 0.05	< 0.05
Ethylbenzene	90	µg/L	0.5		< 0.5	< 0.5
Ethylene Glycol	192	mg/L	3		< 3	< 3
Fluoranthene	0.04	µg/L	0.05		< 0.05	< 0.05
Fluorene	3	µg/L	0.05		< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	N/A	µg/L	0.05		< 0.05	< 0.05
Lead	0.001	mg/L	0.00002		0.00012	< 0.00002
Methylnaphthalene 2-(1-)	N/A	µg/L	0.07		< 0.07	< 0.07
Methylnaphthalene,1-	N/A	µg/L	0.05		< 0.05	< 0.05
Methylnaphthalene,2-	N/A	µg/L	0.05		< 0.05	< 0.05
Naphthalene	1.1	µg/L	0.05		< 0.05	< 0.05
Oil & Grease-Total	N/A	mg/L	1		2.1	75.2
pH @25°C	9	-	-		7.94	7.78
PHC F1 (C6-C10)	N/A	µg/L	20		< 20	< 20
PHC F2 (>C10-C16)	N/A	µg/L	50		< 50	< 50
PHC F3 (>C16-C34)	N/A	µg/L	400		< 400	< 400
PHC F4 (>C34-C50)	N/A	µg/L	400		< 400	< 400
Phenanthrene	0.4	µg/L	0.05		< 0.05	< 0.05
Propylene Glycol	500	mg/L	3		< 3	< 3
Pyrene	0.025	µg/L	0.05		< 0.05	< 0.05
Toluene	2	µg/L	0.5		< 0.5	< 0.5
Total Suspended Solids	N/A	mg/L	3		9	< 3
Xylene, m,p-	N/A	µg/L	0.4		< 0.4	< 0.4
Xylene, m,p,o-	N/A	µg/L	0.4		< 0.4	< 0.4
Xylene, o-	N/A	µg/L	0.1		< 0.1	< 0.1

F1 (C_{6-10}): Petroleum hydrocarbons Fraction 1 (C_6 to C_{10})
F2 (C_{10-16}): Petroleum hydrocarbons Fraction 2 (C_{10} to C_{16})
F3 (C_{16-34}): Petroleum hydrocarbons Fraction 3 (C_{16} to C_{34})
F4 (C_{34-50}): Petroleum hydrocarbons Fraction 4 (C_{34} to C_{50})

IIA-2 Point 1 63°45'16"N, 68°32'54"W
IIA-4.2 Point 4 Creek Before it Crosses Federal Road - Coordinates 63°45'22"N, 68°32'1"W
= Detection limit above guideline value
= Parameter above guideline value
= Guideline value varies based on hardness value

Qikiqtaaluk environmental

TABLE III: August Detection Limits associated with each Parameter
Bouygues-Sintra Design Build Joint Venture
2017 Water Quality Monitoring Program Iqaluit International Airport

			Client ID	IIA-2	IIA-4.2
			Sample ID	B17-24654-1	B17-24654-2
			Date Collected (yyyy-mm-dd)	2017-08-21	2017-08-21
Analyte	**CCME Guideline for Freshwater Habitat**	**Unit**	**Analytical Detection Limit**		
Acenaphthene	5.8	µg/L	0.05	< 0.05	< 0.05
Acenaphthylene	N/A	µg/L	0.05	< 0.05	< 0.05
Anthracene	0.012	µg/L	0.05	< 0.05	< 0.05
Arsenic	0.005	mg/L	0.0001	0.0001	0.0001
Benzene	370	µg/L	0.5	< 0.5	< 0.5
Benzo(a)anthracene	N/A	µg/L	0.05	< 0.05	< 0.05
Benzo(a)pyrene	0.015	µg/L	0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N/A	µg/L	0.05	< 0.05	< 0.05
Benzo(b+k)fluoranthene	N/A	µg/L	0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	N/A	µg/L	0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	N/A	µg/L	0.05	< 0.05	< 0.05
Chrysene	N/A	µg/L	0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	N/A	µg/L	0.05	< 0.05	< 0.05
Ethylbenzene	90	µg/L	0.5	< 0.5	< 0.5
Ethylene Glycol	192	mg/L	3	< 3	< 3
Fluoranthene	0.04	µg/L	0.05	< 0.05	< 0.05
Fluorene	3	µg/L	0.05	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	N/A	µg/L	0.05	< 0.05	< 0.05
Lead	0.001	mg/L	0.00002	0.00039	0.00039
Methylnaphthalene 2-(1-)	N/A	µg/L	0.07	< 0.07	< 0.07
Methylnaphthalene,1-	N/A	µg/L	0.05	< 0.05	< 0.05
Methylnaphthalene,2-	N/A	µg/L	0.05	< 0.05	< 0.05
Naphthalene	1.1	µg/L	0.05	< 0.05	< 0.05
Oil & Grease-Total	N/A	mg/L	1	< 1.0	< 1.0
pH @25°C	9	-	-	7.92	7.97
PHC F1 (C6-C10)	N/A	µg/L	20	< 20	< 20
PHC F2 (>C10-C16)	N/A	µg/L	50	< 50	< 50
PHC F3 (>C16-C34)	N/A	µg/L	400	< 400	< 400
PHC F4 (>C34-C50)	N/A	µg/L	400	< 400	< 400
Phenanthrene	0.4	µg/L	0.05	< 0.05	< 0.05
Propylene Glycol	500	mg/L	3	< 3	< 3
Pyrene	0.025	µg/L	0.05	< 0.05	< 0.05
Toluene	2	µg/L	0.5	< 0.5	< 0.5
Total Suspended Solids	N/A	mg/L	3	< 3	< 3
Xylene, m,p-	N/A	µg/L	0.4	< 0.4	< 0.4
Xylene, m,p,o-	N/A	µg/L	0.4	< 0.4	< 0.4
Xylene, o-	N/A	µg/L	0.1	< 0.1	< 0.1

F1 (C_{6-10}): Petroleum hydrocarbons Fraction 1 (C_6 to C_{10})
F2 (C_{10-16}): Petroleum hydrocarbons Fraction 2 (C_{10} to C_{16})
F3 (C_{16-34}): Petroleum hydrocarbons Fraction 3 (C_{16} to C_{34})
F4 (C_{34-50}): Petroleum hydrocarbons Fraction 4 (C_{34} to C_{50})

IIA-2 Point 1 63°45'16"N, 68°32'54"W
IIA-4.2 Point 4 Creek Before it Crosses Federal Road - Coordinates 63°45'22"N, 68°32'1"W

= Detection limit above guideline value
= Parameter above guideline value
= Guideline value varies based on hardness value

Qikiqtaaluk environmental

TABLE IV: September Detection Limits associated with each Parameter
Bouygues-Sintra Design Build Joint Venture
2017 Water Quality Monitoring Program Iqaluit International Airport

			Client ID	IIA-2	IIA-4.2	IIA-5	IIA-6	IIA-7	IIA-8	IIA-9
			Sample ID	B17-29659-6	B17-29659-7	B17-29659-1	B17-29659-2	B17-29659-3	B17-29659-4	B17-29659-5
			Date Collected (yyyy-mm-dd)	2017-09-30	2017-09-30	2017-09-30	2017-09-30	2017-09-30	2017-09-30	2017-09-30
Analyte	**CCME Guideline for Freshwater Habitat**	**Unit**	**Analytical Detection Limit**							
Acenaphthene	5.8	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aluminum	0.1	mg/L	0.005	**0.28**	**0.04**	0.05	0.03	0.05	0.03	0.04
Anthracene	0.012	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Arsenic	0.005	mg/L	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001
Benzene	370	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	0.015	µg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+k)fluoranthene	N/A	µg/L	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BOD_5	N/A	mg/L	3	6	5	5	5	4	5	7
Cadmium	0.00009	mg/L	0.00002	< 0.000014	< 0.000014	< 0.000014	< 0.000014	< 0.000014	0.000019	< 0.000014
Chromium	0.0089	mg/L	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cobalt	N/A	mg/L	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	0.002	mg/L	0.0001	**0.0024**	0.0007	0.0009	0.0013	0.0011	0.0016	0.0011
Dibenzo(a,h)anthracene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethylbenzene	90	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Glycol	192	mg/L	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Fluoranthene	0.04	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	3	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Iron	0.3	mg/L	0.005	**1.52**	0.014	0.036	0.099	0.058	**1.08**	**1.6**
Lead	0.001	mg/L	0.00002	0.00034	< 0.00002	0.00003	< 0.00002	0.00004	0.00009	0.00007
Manganese	N/A	mg/L	0.001	0.113	0.008	0.026	0.017	0.082	0.455	0.201
Mercury	0.000026	mg/L	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Methylnaphthalene 2-(1-)	N/A	µg/L	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.21
Methylnaphthalene,1-	N/A	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.22
Methylnaphthalene,2-	N/A	µg/L	0.05	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.08	0.43
Naphthalene	1.1	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.36
Nickel	0.025	mg/L	0.0002	0.0012	0.0004	0.0005	0.0005	0.0009	0.0016	0.001
Oil & Grease-Total	N/A	mg/L	1	4.3	2.3	Analysis not required				
pH (limit 6.5 - 9)	9	-	-	8.01	7.71	7.8	7.79	7.97	7.98	7.98
PHC F1 (C6-C10)	N/A	µg/L	20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
PHC F2 (>C10-C16)	N/A	µg/L	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F3 (>C16-C34)	N/A	µg/L	400	< 400	< 400	< 400	< 400	< 400	< 400	< 400
PHC F4 (>C34-C50)	N/A	µg/L	400	< 400	< 400	< 400	< 400	< 400	< 400	< 400
Phenanthrene	0.4	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phosphorus-Total	N/A	mg/L	0.01	0.05	0.02	0.02	0.01	0.02	0.02	0.02
Propylene Glycol	500	mg/L	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Pyrene	0.025	µg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Glycols	N/A	mg/L	6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Total Suspended Solids	N/A	mg/L	3	5	< 3	< 3	< 3	< 3	4	< 3
Xylene, m,p-	N/A	µg/L	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	N/A	µg/L	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	N/A	µg/L	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Zinc	0.03	mg/L	0.005	0.089	0.008	0.011	0.005	0.079	0.049	0.034

IIA-2 Point 1 63°45'16"N, 68°32'54"W
IIA-4 Backup Water Extraction Point - Cooordinates 63°45'55"N, 68°32'37"W
IIA-4.1 Point 3 Innear Field Near Taxiway A - Coorindates 63°45'33"N, 68°33'26"W
IIA-4.2 Point 4 Creek Before it Crosses Federal Road - Coordinates 63°45'22"N, 68°32'1"W
IIA-5 Carney Creek Upstream Project Area 63°45'45"N, 68°33'1"W
IIA-6 Start of Inner Field Drainage Ditch 63°45'46"N, 68°33'59"W
IIA-7 Carney Creek Downstream Project Area 63°45'19"N, 68°32'23"W
IIA-8 Inner Field Ditch Downstream Project Area 63°45'9"N, 68°32'11"W
IIA-9 Southern Inner Field Downstream Project Area 63°44'56"N, 68°31'57"W

BOD_5: Biological oxygen demand (5 days)
F1 (C_{6-10}): Petroleum hydrocarbons Fraction 1 (C_6 to C_{10})
F2 (C_{10-16}): Petroleum hydrocarbons Fraction 2 (C_{10} to C_{16})
F3 (C_{16-34}): Petroleum hydrocarbons Fraction 3 (C_{16} to C_{34})
F4 (C_{34-50}): Petroleum hydrocarbons Fraction 4 (C_{34} to C_{50})

= Detection limit above guideline value
= Parameter above guideline value
= Guideline value varies based on hardness value

Qikiqtaaluk environmental

APPENDIX D

Certificates of Analysis

JUNE 2017

CADUCEON™ ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-17009

Rev. 1

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 20-Jun-17
DATE REPORTED: 11-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-5	IIA-6	IIA-7	IIA-8
			Sample I.D.		B17-17009-1	B17-17009-2	B17-17009-3	B17-17009-4
			Date Collected		17-Jun-17	17-Jun-17	17-Jun-17	17-Jun-17
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Hardness (as CaCO3)	mg/L	1	SM 3120	23-Jun-17/O	71	11	60	35
pH @25°C	pH Units		SM 4500H	21-Jun-17/O	7.88	7.31	7.94	7.83
Total Suspended Solids	mg/L	3	SM 2540D	27-Jun-17/O	5	< 3	3	< 3
Aluminum	mg/L	0.01	SM 3120	23-Jun-17/O	0.48	0.02	0.09	0.03
Arsenic	mg/L	0.0001	EPA 200.8	26-Jun-17/O	0.0007	< 0.0001	0.0002	< 0.0001
Cadmium	mg/L	).000014	EPA 200.8	26-Jun-17/O	0.000017	< 0.000014	0.000035	< 0.000014
Chromium	mg/L	0.001	EPA 200.8	26-Jun-17/O	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.005	SM 3120	23-Jun-17/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	26-Jun-17/O	0.0027	0.0010	0.0017	0.0013
Iron	mg/L	0.005	SM 3120	23-Jun-17/O	1.29	0.086	0.142	0.251
Lead	mg/L	0.00002	EPA 200.8	26-Jun-17/O	0.00160	0.00004	0.00025	0.00008
Manganese	mg/L	0.001	SM 3120	23-Jun-17/O	0.059	0.006	0.056	0.088
Mercury	mg/L	0.00002	SM 3112B	11-Jul-17/R	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nickel	mg/L	0.0002	EPA 200.8	26-Jun-17/O	0.0008	< 0.0002	0.0006	0.0004
Phosphorus-Total	mg/L	0.01	MOEE 3367	26-Jun-17/O	0.02	< 0.01	0.01	< 0.01
Zinc	mg/L	0.005	SM 3120	23-Jun-17/O	0.134	0.006	0.032	0.036
BOD	mg/L	3	SM 5210B	21-Jun-17/O	< 3	< 3	< 3	4
Benzene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p-	µg/L	0.4	EPA 8260	28-Jun-17/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	28-Jun-17/O	< 0.1	< 0.1	< 0.1	< 0.1
Xylene, m,p,o-	µg/L	0.4	EPA 8260	28-Jun-17/O	< 0.4	< 0.4	< 0.4	< 0.4
Toluene-d8 (SS)	%		EPA 8260	28-Jun-17/O	98.0	98.0	98.0	97.0
PHC F1 (C6-C10)	µg/L	20	MOE E3421	28-Jun-17/O	34	46	27	31
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	26-Jun-17/K	< 50	< 50	< 50	< 50
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	26-Jun-17/K	< 400	< 400	< 400	< 400

NOTE: Revision created upon request from client to add Hg & Hardness to the Final Report.

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-17009

Rev. 1

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 20-Jun-17
DATE REPORTED: 11-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-5	IIA-6	IIA-7	IIA-8
			Sample I.D.		B17-17009-1	B17-17009-2	B17-17009-3	B17-17009-4
			Date Collected		17-Jun-17	17-Jun-17	17-Jun-17	17-Jun-17
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	26-Jun-17/K	< 400	< 400	< 400	< 400
Acenaphthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	µg/L	0.01	EPA 8270	27-Jun-17/K	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	27-Jun-17/K	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	27-Jun-17/K	< 0.07	< 0.07	< 0.07	< 0.07
Naphthalene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	27-Jun-17/K	111	116	118	121
Propylene Glycol	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3	< 3	< 3
Ethylene Glycol	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3	< 3	< 3
Diethylene Glycol	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3	< 3	< 3
Total Glycols	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3	< 3	< 3

NOTE: Revision created upon request from client to add Hg & Hardness to the Final Report.

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

CADUCEON™ ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-17009

Rev. 1

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 20-Jun-17
DATE REPORTED: 11-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-9	DUP-1		
			Sample I.D.		B17-17009-5	B17-17009-6		
			Date Collected		17-Jun-17	17-Jun-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Hardness (as CaCO3)	mg/L	1	SM 3120	23-Jun-17/O	28	25		
pH @25°C	pH Units		SM 4500H	21-Jun-17/O	7.65	7.61		
Total Suspended Solids	mg/L	3	SM 2540D	27-Jun-17/O	60	37		
Aluminum	mg/L	0.01	SM 3120	23-Jun-17/O	0.26	0.19		
Arsenic	mg/L	0.0001	EPA 200.8	26-Jun-17/O	0.0002	0.0001		
Cadmium	mg/L	).000014	EPA 200.8	26-Jun-17/O	0.000019	< 0.000014		
Chromium	mg/L	0.001	EPA 200.8	26-Jun-17/O	0.001	< 0.001		
Cobalt	mg/L	0.005	SM 3120	23-Jun-17/O	< 0.005	< 0.005		
Copper	mg/L	0.0001	EPA 200.8	26-Jun-17/O	0.0031	0.0017		
Iron	mg/L	0.005	SM 3120	23-Jun-17/O	0.966	0.578		
Lead	mg/L	0.00002	EPA 200.8	26-Jun-17/O	0.00116	0.00040		
Manganese	mg/L	0.001	SM 3120	23-Jun-17/O	0.049	0.025		
Mercury	mg/L	0.00002	SM 3112B	11-Jul-17/R	< 0.00002	< 0.00002		
Nickel	mg/L	0.0002	EPA 200.8	26-Jun-17/O	0.0011	0.0006		
Phosphorus-Total	mg/L	0.01	MOEE 3367	26-Jun-17/O	0.08	0.07		
Zinc	mg/L	0.005	SM 3120	23-Jun-17/O	0.026	0.013		
BOD	mg/L	3	SM 5210B	21-Jun-17/O	< 3	< 3		
Benzene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5		
Toluene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5		
Xylene, m,p-	µg/L	0.4	EPA 8260	28-Jun-17/O	< 0.4	< 0.4		
Xylene, o-	µg/L	0.1	EPA 8260	28-Jun-17/O	< 0.1	< 0.1		
Xylene, m,p,o-	µg/L	0.4	EPA 8260	28-Jun-17/O	< 0.4	< 0.4		
Toluene-d8 (SS)	%		EPA 8260	28-Jun-17/O	98.0	98.0		
PHC F1 (C6-C10)	µg/L	20	MOE E3421	28-Jun-17/O	< 20	< 20		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	26-Jun-17/K	< 50	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	26-Jun-17/K	< 400	< 400		

NOTE: Revision created upon request from client to add Hg & Hardness to the Final Report.

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-17009

Rev. 1

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 20-Jun-17
DATE REPORTED: 11-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-9	DUP-1		
			Sample I.D.		B17-17009-5	B17-17009-6		
			Date Collected		17-Jun-17	17-Jun-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	26-Jun-17/K	< 400	< 400		
Acenaphthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Acenaphthylene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Anthracene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	27-Jun-17/K	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	27-Jun-17/K	< 0.1	< 0.1		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Chrysene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Fluoranthene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Fluorene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	27-Jun-17/K	< 0.07	< 0.07		
Naphthalene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Phenanthrene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Pyrene	µg/L	0.05	EPA 8270	27-Jun-17/K	< 0.05	< 0.05		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	27-Jun-17/K	127	100		
Propylene Glycol	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3		
Ethylene Glycol	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3		
Diethylene Glycol	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3		
Total Glycols	mg/L	3	EPA 8015	22-Jun-17/O	< 3	< 3		

NOTE: Revision created upon request from client to add Hg & Hardness to the Final Report.

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-17824

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 27-Jun-17
DATE REPORTED: 11-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-17824-1	B17-17824-2		
			Date Collected		21-Jun-17	21-Jun-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Hardness (as CaCO3)	mg/L	1	SM 3120	29-Jun-17/O	36	35		
pH @25°C	pH Units		SM 4500H	28-Jun-17/O	7.27	7.34		
Total Suspended Solids	mg/L	3	SM 2540D	28-Jun-17/O	< 3	< 3		
Aluminum	mg/L	0.01	SM 3120	29-Jun-17/O	0.04	0.39		
Arsenic	mg/L	0.0001	EPA 200.8	28-Jun-17/O	< 0.0001	< 0.0001		
Cadmium	mg/L	).000014	EPA 200.8	28-Jun-17/O	< 0.000014	< 0.000014		
Chromium	mg/L	0.001	EPA 200.8	28-Jun-17/O	< 0.001	< 0.001		
Cobalt	mg/L	0.005	SM 3120	29-Jun-17/O	< 0.005	< 0.005		
Copper	mg/L	0.0001	EPA 200.8	28-Jun-17/O	0.0012	0.0017		
Iron	mg/L	0.005	SM 3120	29-Jun-17/O	0.311	0.916		
Lead	mg/L	0.00002	EPA 200.8	28-Jun-17/O	0.00005	0.00053		
Manganese	mg/L	0.001	SM 3120	29-Jun-17/O	0.022	0.036		
Mercury	mg/L	0.00002	SM 3112B	11-Jul-17/R	< 0.00002	< 0.00002		
Nickel	mg/L	0.0002	EPA 200.8	28-Jun-17/O	< 0.0002	0.0005		
Phosphorus-Total	mg/L	0.01	MOEE 3367	28-Jun-17/O	0.02	0.05		
Zinc	mg/L	0.005	SM 3120	29-Jun-17/O	0.040	0.032		
BOD	mg/L	3	SM 5210B	28-Jun-17/O	< 3	< 3		
Benzene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5		
Toluene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	28-Jun-17/O	< 0.5	< 0.5		
Xylene, m,p-	µg/L	0.4	EPA 8260	28-Jun-17/O	< 0.4	< 0.4		
Xylene, o-	µg/L	0.1	EPA 8260	28-Jun-17/O	< 0.1	< 0.1		
Xylene, m,p,o-	µg/L	0.4	EPA 8260	28-Jun-17/O	< 0.4	< 0.4		
Toluene-d8 (SS)	%		EPA 8260	28-Jun-17/O	99.0	99.0		
PHC F1 (C6-C10)	µg/L	20	MOE E3421	28-Jun-17/O	< 20	< 20		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	29-Jun-17/K	< 50	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	29-Jun-17/K	< 400	< 400		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	29-Jun-17/K	< 400	< 400		

NOTE: Acceptable Holding Time for BOD exceeded upon arrival at lab.

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-17824

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 27-Jun-17
DATE REPORTED: 11-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-17824-1	B17-17824-2		
			Date Collected		21-Jun-17	21-Jun-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Oil & Grease-Total	mg/L	1.0	SM 5520	05-Jul-17/K	< 1.0	< 1.0		
Acenaphthene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Acenaphthylene	µg/L	0.05	EPA 8270	06-Jul-17/K	65.9	< 0.05		
Anthracene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	06-Jul-17/K	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	06-Jul-17/K	< 0.1	< 0.1		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Chrysene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Fluoranthene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Fluorene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	06-Jul-17/K	< 0.07	< 0.07		
Naphthalene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Phenanthrene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Pyrene	µg/L	0.05	EPA 8270	06-Jul-17/K	< 0.05	< 0.05		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	06-Jul-17/K	105	105		
Propylene Glycol	mg/L	3	EPA 8015	29-Jun-17/O	< 3	< 3		
Ethylene Glycol	mg/L	3	EPA 8015	29-Jun-17/O	< 3	< 3		
Diethylene Glycol	mg/L	3	EPA 8015	29-Jun-17/O	< 3	< 3		
Total Glycols	mg/L	3	EPA 8015	29-Jun-17/O	< 3	< 3		

NOTE: Acceptable Holding Time for BOD exceeded upon arrival at lab.

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

JULY 2017

CADUCEON™ ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-20720

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 24-Jul-17
DATE REPORTED: 28-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-20720-1	B17-20720-2		
			Date Collected		22-Jul-17	22-Jul-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
pH @25°C	pH Units		SM 4500H	24-Jul-17/O	7.94	7.78		
Total Suspended Solids	mg/L	3	SM 2540D	26-Jul-17/O	9	< 3		
Aluminum	mg/L	0.01	SM 3120	26-Jul-17/O	0.12	0.02		
Antimony	mg/L	0.0001	EPA 200.8	24-Jul-17/O	< 0.0001	< 0.0001		
Arsenic	mg/L	0.0001	EPA 200.8	24-Jul-17/O	0.0002	0.0001		
Barium	mg/L	0.001	SM 3120	26-Jul-17/O	0.016	0.001		
Beryllium	mg/L	0.002	SM 3120	26-Jul-17/O	< 0.002	< 0.002		
Bismuth	mg/L	0.02	SM 3120	26-Jul-17/O	< 0.02	< 0.02		
Boron	mg/L	0.005	SM 3120	26-Jul-17/O	0.023	0.012		
Cadmium	mg/L	0.00001	EPA 200.8	24-Jul-17/O	< 0.000014	< 0.000014		
Calcium	mg/L	0.02	SM 3120	26-Jul-17/O	26.6	16.2		
Chromium	mg/L	0.001	EPA 200.8	24-Jul-17/O	< 0.001	< 0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	25-Jul-17/O	< 0.001	< 0.001		
Cobalt	mg/L	0.0001	EPA 200.8	24-Jul-17/O	0.0003	< 0.0001		
Copper	mg/L	0.0001	EPA 200.8	24-Jul-17/O	0.0015	0.0009		
Iron	mg/L	0.005	SM 3120	26-Jul-17/O	1.08	0.016		
Lead	mg/L	0.00002	EPA 200.8	24-Jul-17/O	0.00012	< 0.00002		
Magnesium	mg/L	0.01	SM 3120	26-Jul-17/O	5.21	2.41		
Manganese	mg/L	0.001	SM 3120	26-Jul-17/O	0.085	0.002		
Mercury	mg/L	0.00002	SM 3112B	26-Jul-17/R	< 0.00002	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	24-Jul-17/O	0.0011	0.0007		
Nickel	mg/L	0.0002	EPA 200.8	24-Jul-17/O	0.0009	0.0003		
Potassium	mg/L	0.1	SM 3120	26-Jul-17/O	1.3	0.5		
Sodium	mg/L	0.2	SM 3120	26-Jul-17/O	12.3	2.5		
Strontium	mg/L	0.001	SM 3120	26-Jul-17/O	0.085	0.039		
Tin	mg/L	0.05	SM 3120	26-Jul-17/O	< 0.05	< 0.05		
Titanium	mg/L	0.005	SM 3120	26-Jul-17/O	0.009	< 0.005		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-20720

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 24-Jul-17
DATE REPORTED: 28-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-20720-1	B17-20720-2		
			Date Collected		22-Jul-17	22-Jul-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Selenium	mg/L	0.001	EPA 200.8	24-Jul-17/O	< 0.001	< 0.001		
Silver	mg/L	0.00002	EPA 200.8	24-Jul-17/O	< 0.00002	< 0.00002		
Uranium	mg/L	0.00005	EPA 200.8	24-Jul-17/O	0.00066	0.00024		
Vanadium	mg/L	0.005	SM 3120	26-Jul-17/O	< 0.005	< 0.005		
Yttrium	mg/L	0.005	SM 3120	26-Jul-17/O	< 0.005	< 0.005		
Zinc	mg/L	0.005	SM 3120	26-Jul-17/O	0.091	< 0.005		
Acenaphthene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Acenaphthylene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Anthracene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	27-Jul-17/K	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	27-Jul-17/K	< 0.1	< 0.1		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Chrysene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Fluoranthene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Fluorene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	27-Jul-17/K	< 0.07	< 0.07		
Naphthalene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Phenanthrene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Pyrene	µg/L	0.05	EPA 8270	27-Jul-17/K	< 0.05	< 0.05		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	27-Jul-17/K	109	101		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-20720

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 24-Jul-17
DATE REPORTED: 28-Jul-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-20720-1	B17-20720-2		
			Date Collected		22-Jul-17	22-Jul-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Benzene	µg/L	0.5	EPA 8260	24-Jul-17/O	< 0.5	< 0.5		
Toluene	µg/L	0.5	EPA 8260	24-Jul-17/O	< 0.5	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	24-Jul-17/O	< 0.5	< 0.5		
Xylene, m,p-	µg/L	0.4	EPA 8260	24-Jul-17/O	< 0.4	< 0.4		
Xylene, o-	µg/L	0.1	EPA 8260	24-Jul-17/O	< 0.1	< 0.1		
Xylene, m,p,o-	µg/L	0.4	EPA 8260	24-Jul-17/O	< 0.4	< 0.4		
Toluene-d8 (SS)	%		EPA 8260	24-Jul-17/O	99.0	99.0		
PHC F1 (C6-C10)	µg/L	20	MOE E3421	25-Jul-17/O	< 20	< 20		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	26-Jul-17/K	< 50	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	26-Jul-17/K	< 400	< 400		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	26-Jul-17/K	< 400	< 400		
Oil & Grease-Total	mg/L	1.0	SM 5520	26-Jul-17/K	2.1	75.2		
Propylene Glycol	mg/L	3	EPA 8015	26-Jul-17/O	< 3	< 3		
Ethylene Glycol	mg/L	3	EPA 8015	26-Jul-17/O	< 3	< 3		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

AUGUST 2017

CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-24654

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 24-Aug-17
DATE REPORTED: 31-Aug-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-24654-1	B17-24654-2		
			Date Collected		21-Aug-17	21-Aug-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
pH @25°C	pH Units		SM 4500H	24-Aug-17/O	7.92	7.97		
Arsenic	mg/L	0.0001	EPA 200.8	25-Aug-17/O	0.0001	0.0001		
Lead	mg/L	0.00002	EPA 200.8	25-Aug-17/O	0.00039	0.00039		
Total Suspended Solids	mg/L	3	SM 2540D	30-Aug-17/O	< 3	< 3		
Benzene	µg/L	0.5	EPA 8260	24-Aug-17/O	< 0.5	< 0.5		
Toluene	µg/L	0.5	EPA 8260	24-Aug-17/O	< 0.5	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	24-Aug-17/O	< 0.5	< 0.5		
Xylene, m,p-	µg/L	0.4	EPA 8260	24-Aug-17/O	< 0.4	< 0.4		
Xylene, o-	µg/L	0.1	EPA 8260	24-Aug-17/O	< 0.1	< 0.1		
Xylene, m,p,o-	µg/L	0.4	EPA 8260	24-Aug-17/O	< 0.4	< 0.4		
Toluene-d8 (SS)	%		EPA 8260	24-Aug-17/O	109	10.0		
PHC F1 (C6-C10)	µg/L	20	MOE E3421	24-Aug-17/O	< 20	< 20		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	28-Aug-17/K	< 50	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	28-Aug-17/K	< 400	< 400		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	28-Aug-17/K	< 400	< 400		
Oil & Grease-Total	mg/L	1.0	SM 5520	28-Aug-17/K	< 1.0	< 1.0		
Acenaphthene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Acenaphthylene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Anthracene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	31-Aug-17/K	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	31-Aug-17/K	< 0.1	< 0.1		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Chrysene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-24654

Report To:

Qikiqtaaluk Env. Inc.
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 24-Aug-17
DATE REPORTED: 31-Aug-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-2	IIA-4.2		
			Sample I.D.		B17-24654-1	B17-24654-2		
			Date Collected		21-Aug-17	21-Aug-17		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Fluoranthene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Fluorene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	31-Aug-17/K	< 0.07	< 0.07		
Naphthalene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Phenanthrene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Pyrene	µg/L	0.05	EPA 8270	31-Aug-17/K	< 0.05	< 0.05		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	31-Aug-17/K	107	102		
Propylene Glycol	mg/L	3	EPA 8015	25-Aug-17/O	< 3	< 3		
Ethylene Glycol	mg/L	3	EPA 8015	25-Aug-17/O	< 3	< 3		

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

SEPTEMBER 2017

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-29659

Report To:

Qikiqtaaluk Env Inc
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 04-Oct-17
DATE REPORTED: 13-Oct-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-5	IIA-6	IIA-7	IIA-8
			Sample I.D.		B17-29659-1	B17-29659-2	B17-29659-3	B17-29659-4
			Date Collected		30-Sep-17	30-Sep-17	30-Sep-17	30-Sep-17
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
pH @25°C	pH Units		SM 4500H	06-Oct-17/O	7.80	7.79	7.97	7.98
Total Suspended Solids	mg/L	3	SM 2540D	12-Oct-17/O	< 3	< 3	< 3	4
Aluminum	mg/L	0.01	SM 3120	05-Oct-17/O	0.05	0.03	0.05	0.03
Arsenic	mg/L	0.0001	EPA 200.8	06-Oct-17/O	< 0.0001	< 0.0001	< 0.0001	0.0001
Cadmium	mg/L	0.00001	EPA 200.8	06-Oct-17/O	< 0.000014	< 0.000014	< 0.000014	0.000019
Chromium	mg/L	0.001	EPA 200.8	06-Oct-17/O	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.005	SM 3120	05-Oct-17/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	06-Oct-17/O	0.0009	0.0013	0.0011	0.0016
Iron	mg/L	0.005	SM 3120	05-Oct-17/O	0.036	0.099	0.058	1.08
Lead	mg/L	0.00002	EPA 200.8	06-Oct-17/O	0.00003	< 0.00002	0.00004	0.00009
Manganese	mg/L	0.001	SM 3120	05-Oct-17/O	0.026	0.017	0.082	0.455
Mercury	mg/L	0.00002	SM 3112 B	10-Oct-17/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nickel	mg/L	0.0002	EPA 200.8	06-Oct-17/O	0.0005	0.0005	0.0009	0.0016
Phosphorus-Total	mg/L	0.01	MOEE 3367	11-Oct-17/O	0.02	0.01	0.02	0.02
Zinc	mg/L	0.005	SM 3120	05-Oct-17/O	0.011	0.005	0.079	0.049
BOD	mg/L	3	SM 5210B	05-Oct-17/O	5	5	4	5
Benzene	µg/L	0.5	EPA 8260	10-Oct-17/O	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	10-Oct-17/O	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	EPA 8260	10-Oct-17/O	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p-	µg/L	0.4	EPA 8260	10-Oct-17/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	10-Oct-17/O	< 0.1	< 0.1	< 0.1	< 0.1
Xylene, m,p,o-	µg/L	0.4	EPA 8260	10-Oct-17/O	< 0.4	< 0.4	< 0.4	< 0.4
Toluene-d8 (SS)	%		EPA 8260	10-Oct-17/O	95.0	96.0	92.0	85.0
PHC F1 (C6-C10)	µg/L	20	MOE E3421	10-Oct-17/O	< 20	< 20	< 20	< 20
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	10-Oct-17/K	< 50	< 50	< 50	< 50
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	10-Oct-17/K	< 400	< 400	< 400	< 400
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	10-Oct-17/K	< 400	< 400	< 400	< 400

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-29659

Report To:

Qikiqtaaluk Env Inc
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 04-Oct-17
DATE REPORTED: 13-Oct-17
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-5	IIA-6	IIA-7	IIA-8
			Sample I.D.		B17-29659-1	B17-29659-2	B17-29659-3	B17-29659-4
			Date Collected		30-Sep-17	30-Sep-17	30-Sep-17	30-Sep-17
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Oil & Grease-Total	mg/L	1.0	SM 5520	11-Oct-17/K				
Propylene Glycol	mg/L	3	EPA 8015	05-Oct-17/O	< 3	< 3	< 3	< 3
Ethylene Glycol	mg/L	3	EPA 8015	05-Oct-17/O	< 3	< 3	< 3	< 3
Acenaphthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	µg/L	0.01	EPA 8270	11-Oct-17/K	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	11-Oct-17/K	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	11-Oct-17/K	< 0.07	< 0.07	< 0.07	0.08
Naphthalene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	< 0.05
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Oct-17/K	106	115	99.0	101

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

CADUCEON™ ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B17-29659

Report To:

Qikiqtaaluk Env Inc
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Eleni Mouriki

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2378 Holly Lane
Ottawa Ontario K1V 7P1
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SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: IIAIP (QE17-130-2)
P.O. NUMBER: 430001496
WATERWORKS NO.

			Client I.D.		IIA-9	IIA-2	IIA-4.2	
			Sample I.D.		B17-29659-5	B17-29659-6	B17-29659-7	
			Date Collected		30-Sep-17	30-Sep-17	30-Sep-17	
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
pH @25°C	pH Units		SM 4500H	06-Oct-17/O	7.98	8.01	7.71	
Total Suspended Solids	mg/L	3	SM 2540D	12-Oct-17/O	< 3	5	< 3	
Aluminum	mg/L	0.01	SM 3120	05-Oct-17/O	0.04	0.28	0.04	
Arsenic	mg/L	0.0001	EPA 200.8	06-Oct-17/O	0.0001	0.0002	< 0.0001	
Cadmium	mg/L	0.00001	EPA 200.8	06-Oct-17/O	< 0.000014	< 0.000014	< 0.000014	
Chromium	mg/L	0.001	EPA 200.8	06-Oct-17/O	< 0.001	< 0.001	< 0.001	
Cobalt	mg/L	0.005	SM 3120	05-Oct-17/O	< 0.005	< 0.005	< 0.005	
Copper	mg/L	0.0001	EPA 200.8	06-Oct-17/O	0.0011	0.0024	0.0007	
Iron	mg/L	0.005	SM 3120	05-Oct-17/O	1.60	1.52	0.014	
Lead	mg/L	0.00002	EPA 200.8	06-Oct-17/O	0.00007	0.00034	< 0.00002	
Manganese	mg/L	0.001	SM 3120	05-Oct-17/O	0.201	0.113	0.008	
Mercury	mg/L	0.00002	SM 3112 B	10-Oct-17/O	< 0.00002	< 0.00002	< 0.00002	
Nickel	mg/L	0.0002	EPA 200.8	06-Oct-17/O	0.0010	0.0012	0.0004	
Phosphorus-Total	mg/L	0.01	MOEE 3367	11-Oct-17/O	0.02	0.05	0.02	
Zinc	mg/L	0.005	SM 3120	05-Oct-17/O	0.034	0.089	0.008	
BOD	mg/L	3	SM 5210B	05-Oct-17/O	7	6	5	
Benzene	µg/L	0.5	EPA 8260	10-Oct-17/O	< 0.5	< 0.5	< 0.5	
Toluene	µg/L	0.5	EPA 8260	10-Oct-17/O	< 0.5	< 0.5	< 0.5	
Ethylbenzene	µg/L	0.5	EPA 8260	10-Oct-17/O	< 0.5	< 0.5	< 0.5	
Xylene, m,p-	µg/L	0.4	EPA 8260	10-Oct-17/O	< 0.4	< 0.4	< 0.4	
Xylene, o-	µg/L	0.1	EPA 8260	10-Oct-17/O	< 0.1	< 0.1	< 0.1	
Xylene, m,p,o-	µg/L	0.4	EPA 8260	10-Oct-17/O	< 0.4	< 0.4	< 0.4	
Toluene-d8 (SS)	%		EPA 8260	10-Oct-17/O	98.0	94.0	100	
PHC F1 (C6-C10)	µg/L	20	MOE E3421	10-Oct-17/O	< 20	< 20	< 20	
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	10-Oct-17/K	< 50	< 50	< 50	
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	10-Oct-17/K	< 400	< 400	< 400	
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	10-Oct-17/K	< 400	< 400	< 400	

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Lab Manager - Ottawa District

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WATERWORKS NO.

			Client I.D.		IIA-9	IIA-2	IIA-4.2	
			Sample I.D.		B17-29659-5	B17-29659-6	B17-29659-7	
			Date Collected		30-Sep-17	30-Sep-17	30-Sep-17	
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Oil & Grease-Total	mg/L	1.0	SM 5520	11-Oct-17/K		4.3	2.3	
Propylene Glycol	mg/L	3	EPA 8015	05-Oct-17/O	< 3	< 3	< 3	
Ethylene Glycol	mg/L	3	EPA 8015	05-Oct-17/O	< 3	< 3	< 3	
Acenaphthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Acenaphthylene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Anthracene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Benzo(a)anthracene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Benzo(a)pyrene	µg/L	0.01	EPA 8270	11-Oct-17/K	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	11-Oct-17/K	< 0.1	< 0.1	< 0.1	
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Chrysene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Fluoranthene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Fluorene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	11-Oct-17/K	0.21	< 0.05	< 0.05	
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	11-Oct-17/K	0.22	< 0.05	< 0.05	
Methylnaphthalene 2-(1-)	µg/L	0.07	EPA 8270	11-Oct-17/K	0.43	< 0.07	< 0.07	
Naphthalene	µg/L	0.05	EPA 8270	11-Oct-17/K	0.36	< 0.05	< 0.05	
Phenanthrene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Pyrene	µg/L	0.05	EPA 8270	11-Oct-17/K	< 0.05	< 0.05	< 0.05	
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Oct-17/K	124	104	111	

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Lab Manager - Ottawa District

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IQALUIT OFFICE

2027 Iqaluit Lane
P.O. Box 1228
Iqaluit, Nunavut X0A 0H0

T.: 867 222.8194
info@qenv.ca

MONTREAL OFFICE

9935 de Châteauneuf Street
Entrance 1 – Suite 200
Brossard, Quebec J4Z 3V4

T.: 866 634.6367
info@qenv.ca

www.qenv.ca