

September 8th, 2015

Transmission via email

1 Page

Mr. Michel Boulianne
Environmental Advisor
Sintra – Division Ouest
9975, Avenue de Catania, Local B
Brossard, QC
J4Z 3V6
Tel: 1-866-708-1803
Email: glecureur@sintra.ca

Re: Water Sampling Results at the Iqaluit International Airport

Mr. Boulianne,

You will find attached to this report the test results from the water quality sampling program at the Iqaluit International Airport. In the tables below you will find 4 pages of summary results that show the parameters that do not respect the CCME Guideline values as well as the official analytical results from the laboratory.

Please note that the detection limit of certain of the parameters analysed are above the guideline values. I am working with the laboratory to resolve this and I hope to have the complete results to you soon.

Should you have any questions please do not hesitate to contact me.

Sincerely,


Greg Johnson
Project Director

Cc Sylvain Laberge, Jacques Dion – Qikiqtaaluk Environmental Inc.

Attch : Summary Tables of Analytical Results (4 pages)
Official Certificates of Analysis (21 pages)

Workorder No.: 1516059

Client: Qikiytaaluk Enviromental

Address.: 9935 Av de Catania, Entrance 1 , Suite 200

City: Brossard

Telephone: 514-940-3332

Contact: Greg Johnson

Date Received: 2015-08-17

EXOVA Canada Inc. (Environmental Ontario)

2395 Speakman Drive, Mississauga, ON L5K 1B3

8-146 Colonnade Road, Ottawa, ON K2E 7Y1

Service Depots: Kingston, St. Catharines

Toll-free: 1-888-271-8378

Please refer to the accompanying
digitally signed PDF version of the report
for official results.

Please refer to the accompanying digitally signed PDF version of the report for official results.	CCME Guideline for Freshwater				LIMS #	1195557	1195558	1195559
					Sample ID	PT1	PT2	Backup
Analyte	Habitat	Units	MRL	Sample Date	Analysis Date	2015-08-14	2015-08-14	2015-08-14
1-methylnaphthalene	N/A	ug/L	0.1	2015-08-18		0.2	<0.1	<0.1
2-methylnaphthalene	N/A	ug/L	0.1	2015-08-18		0.2	<0.1	<0.1
Acenaphthene	5.8	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Acenaphthylene	N/A	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Al	100	ug/L	10	2015-08-18		1170	200	30
Anthracene	0.012	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
As	5	ug/L	1	2015-08-18		<1	<1	<1
Benzene	370	ug/L	0.5	2015-08-18		<0.5	<0.5	<0.5
Benzo(a)anthracene	N/A	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Benzo(a)pyrene	0.015	ug/L	0.01	2015-08-18		<0.01	<0.01	<0.01
Benzo(b)fluoranthene	N/A	ug/L	0.05	2015-08-18		<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	N/A	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Benzo(k)fluoranthene	N/A	ug/L	0.05	2015-08-18		<0.05	<0.05	<0.05
BOD5	N/A	mg/L	1	2015-08-23		1	3	<1
Cd	0.09	ug/L	0.01	2015-08-18		0.02	<0.01	<0.01
Chrysene	N/A	ug/L	0.05	2015-08-18		<0.05	<0.05	<0.05
Co	N/A	ug/L	0.2	2015-08-18		1.6	0.6	<0.2
Cr	N/A	ug/L	1	2015-08-18		2	<1	<1
Cu	2	ug/L	1	2015-08-18		6	2	1
Dibenzo(a,h)anthracene	N/A	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Diethylene Glycol	N/A	mg/L	2	2015-08-19		<2	<2	<2
Ethylbenzene	90	ug/L	0.5	2015-08-18		<0.5	<0.5	<0.5
Ethylene Glycol	192000	mg/L	5	2015-08-19		<5	<5	<5

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Please refer to the accompanying digitally signed PDF version of the report for official results.	CCME Guideline for Freshwater				LIMS #	1195557	1195558	1195559
					Sample ID	PT1	PT2	Backup
Analyte	Habitat	Units	MRL	Sample Date	Analysis Date	2015-08-14	2015-08-14	2015-08-14
F1 (C6-C10)	N/A	ug/L	20	2015-08-18		<20	<20	<20
F1-BTEX (C6-C10)	N/A	ug/L	20	2015-08-18		<20	<20	<20
F2 (C10-C16)	N/A	ug/L	20	2015-08-18		<20	<20	<20
F3 (C16-C34)	N/A	ug/L	50	2015-08-18		760	<50	<50
F4 (C34-C50)	N/A	ug/L	50	2015-08-18		550	<50	50
Fe	300	ug/L	30	2015-08-18		3340	530	30
Fluoranthene	0.04	ug/L	0.1	2015-08-18		0.2	<0.1	<0.1
Fluorene	3	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Hg	0.026	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	N/A	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
m/p-xylene	N/A	ug/L	0.4	2015-08-18		<0.4	<0.4	<0.4
Mn	N/A	ug/L	10	2015-08-18		420	440	<10
Na	N/A	mg/L	2	2015-08-18		28	49	<2
Naphthalene	1.1	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Ni	25	ug/L	5	2015-08-18		<5	<5	<5
O-Terphenyl	N/A	%	0	2015-08-18		94	89	89
o-xylene	N/A	ug/L	0.4	2015-08-18		<0.4	<0.4	<0.4
Pb	1	ug/L	1	2015-08-18		2	<1	<1
pH	9		1	2015-08-18		8.12	8.29	7.7
Phenanthrene	0.4	ug/L	0.1	2015-08-18		<0.1	<0.1	<0.1
Propylene Glycol	500000	mg/L	5	2015-08-19		<5	<5	<5
Pyrene	0.025	ug/L	0.1	2015-08-18		0.1	<0.1	<0.1
Tetraethylene Glycol	N/A	mg/L	5	2015-08-19		<5	<5	<5
Toluene	2	ug/L	0.5	2015-08-18		<0.5	<0.5	<0.5
Toluene-d8	N/A	%	0	2015-08-18		91	94	92
Total P	N/A	mg/L	0.03	2015-08-26		0.05	<0.03	0.05
Total Suspended Solids	N/A	mg/L	2	2015-08-18		39	<2	37
Triethylene Glycol	N/A	mg/L	3	2015-08-19		<3	<3	<3
Xylene; total	N/A	ug/L	0.5	2015-08-18		<0.5	<0.5	<0.5
Zn	30	ug/L	10	2015-08-18		70	20	<10

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**CCME
Guideline for
Freshwater
Habitat**

**LIMS #
Sample ID
Sample Date
Analysis Date**

**1195557
PT1
2015-08-14**

**1195558
PT2
2015-08-14**

**1195559
Backup
2015-08-14**

Analyte	Habitat	Units	MRL	Analysis Date
PT1	IIA-2	Inner Field Ditch Point 1		
PT2	IIA-3	Inner Field Ditch Point 2		
Backup	IIA-4	Backup Water Extraction Point		

 = Detection limit above guideline value
 = Parameter above guideline value

Workorder No.: 1516456

Client: Qikiytaaluk Enviromental

Address.: 9935 Av de Catania, Entrance 1 , Suite 200

City: Brossard

Telephone: 514-940-3332

Contact: Greg Johnson

Date Received: 2015-08-20

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Please refer to the accompanying digitally signed PDF version of the report for official results.				LIMS #	1196631	1196632	1196633	1196634	1196635	1196636
CCME Guideline for Freshwater				Sample ID Sample Date	CC Up 2015-08-16	IFD Up 2015-08-16	CC Down 2015-08-16	IFD Down 2015-08-16	SIF Down 2015-08-16	Arch AB 2015-08-16
Analyte	Habitat	Units	MRL	Analysis Date						
1-methylnaphthalene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	5.8	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Al	0.1	mg/L	0.01	2015-08-26	0.08	0.02	0.07	0.14	0.05	0.06
Anthracene	0.012	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
As	0.005	mg/L	0.001	2015-08-26	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene	370	ug/L	0.5	2015-08-22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	0.015	ug/L	0.01	2015-08-24	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	N/A	ug/L	0.05	2015-08-24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	N/A	ug/L	0.05	2015-08-24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD5	N/A	mg/L	1	2015-08-26	<1	<1	<1	<1	25	<1
Cd	0.00009	mg/L	0.0001	2015-08-26	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	N/A	ug/L	0.05	2015-08-24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Co	N/A	mg/L	0.0002	2015-08-26	<0.0002	<0.0002	<0.0002	0.0005	0.0014	<0.0002
Cr	N/A	mg/L	0.001	2015-08-26	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cu	0.002	mg/L	0.001	2015-08-26	0.001	0.002	0.002	0.002	0.002	0.001
Dibenzo(a,h)anthracene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diethylene Glycol	N/A	mg/L	2	2015-08-24	<2	<2	<2	<2	<2	<2
Ethylbenzene	90	ug/L	0.5	2015-08-22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylene Glycol	192000	mg/L	5	2015-08-24	<5	<5	<5	<5	8	<5
F1 (C6-C10)	N/A	ug/L	20	2015-08-27	<20	<20	<20	<20	<20	<20
F1-BTEX (C6-C10)	N/A	ug/L	20	2015-08-27	<20	<20	<20	<20	<20	<20
F2 (C10-C16)	N/A	ug/L	20	2015-08-31	<20	<20	<20	<20	<20	<20
F3 (C16-C34)	N/A	ug/L	50	2015-08-31	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	N/A	ug/L	50	2015-08-31	<50	<50	<50	<50	<50	<50
Fe	0.3	mg/L	0.03	2015-08-26	0.12	0.3	0.1	0.68	1.77	0.09
Fluoranthene	0.04	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	3	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hg	0.000026	mg/L	0.0001	2015-08-26	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)pyrene	N/A	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
K	N/A	mg/L	1	2015-08-21	<1	1	<1	4	1	<1
m/p-xylene	N/A	ug/L	0.4	2015-08-22	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Mn	N/A	mg/L	0.01	2015-08-26	<0.01	0.02	0.05	0.38	0.36	<0.01
Na	N/A	mg/L	2	2015-08-21	2	9	4	43	10	3

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Analyte	CCME Guideline for Freshwater Habitat	Units	MRL	LIMS # Sample ID Sample Date Analysis Date	1196631	1196632	1196633	1196634	1196635	1196636
					CC Up 2015-08-16	IFD Up 2015-08-16	CC Down 2015-08-16	IFD Down 2015-08-16	SIF Down 2015-08-16	Arch AB 2015-08-16
Naphthalene	1.1	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ni	0.025	mg/L	0.005	2015-08-26	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
O-Terphenyl	N/A	%	0	2015-08-31	30	82	74	72	70	72
o-xylene	N/A	ug/L	0.4	2015-08-22	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Pb	0.001	mg/L	0.001	2015-08-26	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene	0.4	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Propylene Glycol	500000	mg/L	5	2015-08-24	<5	<5	<5	<5	<5	<5
Pyrene	0.025	ug/L	0.1	2015-08-24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tetraethylene Glycol	N/A	mg/L	5	2015-08-24	<5	<5	<5	<5	<5	<5
Toluene	2	ug/L	0.5	2015-08-22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene-d8	N/A	%	0	2015-08-22	96	98	101	100	101	97
Total P	N/A	mg/L	0.05	2015-08-25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Suspended Solids	N/A	mg/L	1	2015-08-25	2	<1	<1	5	4	2
Triethylene Glycol	N/A	mg/L	3	2015-08-24	<3	<3	<3	<3	<3	<3
Xylene; total	N/A	ug/L	0.5	2015-08-27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zn	0.03	mg/L	0.01	2015-08-26	<0.01	<0.01	<0.01	0.03	0.02	<0.01

CC Up	IIA-5	Carney Creek Above Work Site
IFD Up	IIA-6	Inner Filed Ditch Above Work Site
CC Down	IIA-7	Carney Creek Below Work Site & Below Arch Culvert Install Location
IFD Down	IIA-8	Inner Filed Ditch Below Work Site
SIF Down	IIA-9	South Inner Field Ditch Below Work Site
Arch AB	N/A	Above Arch Culvert Install Location

= Detection limit above guideline value
 = Parameter above guideline value

Client: Qikiytaaluk Enviromental
9935 Av de Catania, Entrance 1 , Suite 200
Brossard, QC
J4X 3V4
Attention: Mr. Greg Johnson
PO#: RQ11-105
Invoice to: Qikiytaaluk Enviromental

Report Number: 1516059
Date Submitted: 2015-08-17
Date Reported: 2015-08-26
Project: QE15-110-5
COC #: 800307

Page 1 of 9

Dear Greg Johnson:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Shyla Monette
Team Leader, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

All analysis is completed in Ottawa, Ontario (unless otherwise indicated).

Exova Ottawa is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on our CALA scope of accreditation. It can be found at <http://www.cala.ca/scopes/2602.pdf>.

Exova (Ottawa) is certified and accredited for specific parameters by OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils). Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is accredited for specific parameters by SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Exova recommends consulting the official provincial or federal guideline as required.

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 9935 Av de Catania, Entrance 1 , Suite 200
 Brossard, QC
 J4X 3V4
 Attention: Mr. Greg Johnson
 PO#: RQ11-105
 Invoice to: Qikiytaaluk Enviromental

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 Date Submitted: 2015-08-17
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 Project: QE15-110-5
 COC #: 800307

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1195557 Water 2015-08-14 PT1	1195558 Water 2015-08-14 PT2	1195559 Water 2015-08-14 Backup
Group	Analyte	MRL	Units	Guideline				
General Chemistry	pH	1.00				8.12	8.29	7.70
Mercury	Hg	0.1	ug/L			<0.1	<0.1	<0.1
Metals	Al	10	ug/L			1170	200	30
	As	1	ug/L			<1	<1	<1
	Cd	0.01	ug/L			0.02	<0.01	<0.01
	Co	0.2	ug/L			1.6	0.6	<0.2
	Cr	1	ug/L			2	<1	<1
	Cu	1	ug/L			6	2	1
	Fe	30	ug/L			3340	530	30
	Mn	10	ug/L			420	440	<10
	Na	2	mg/L			28	49	<2
	Ni	5	ug/L			<5	<5	<5
	Pb	1	ug/L			2	<1	<1
	Zn	10	ug/L			70	20	<10
PHC (Hydrocarbons)	F1 (C6-C10)	20	ug/L			<20	<20	<20
	F1-BTEX (C6-C10)	20	ug/L			<20	<20	<20
	F2 (C10-C16)	20	ug/L			<20	<20	<20
	F3 (C16-C34)	50	ug/L			760	<50	<50
	F4 (C34-C50)	50	ug/L			550	<50	50
PHC Surrogate	O-Terphenyl	0	%			94	89	89
Semi-Volatiles	1-methylnaphthalene	0.1	ug/L			0.2	<0.1	<0.1
	2-methylnaphthalene	0.1	ug/L			0.2	<0.1	<0.1
	Acenaphthene	0.1	ug/L			<0.1	<0.1	<0.1
	Acenaphthylene	0.1	ug/L			<0.1	<0.1	<0.1
	Anthracene	0.1	ug/L			<0.1	<0.1	<0.1
	Benzo(a)anthracene	0.1	ug/L			<0.1	<0.1	<0.1

Guideline = * = Guideline Exceedence

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).

Results relate only to the parameters tested on the samples submitted.

Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Qikiytaaluk Enviromental
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Report Number: 1516059
 Date Submitted: 2015-08-17
 Date Reported: 2015-08-26
 Project: QE15-110-5
 COC #: 800307

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1195557 Water 2015-08-14 PT1	1195558 Water 2015-08-14 PT2	1195559 Water 2015-08-14 Backup
Group	Analyte	MRL	Units	Guideline			
Semi-Volatiles	Benzo(a)pyrene	0.01	ug/L		<0.01	<0.01	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05	<0.05	<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1	<0.1	<0.1
	Benzo(k)fluoranthene	0.05	ug/L		<0.05	<0.05	<0.05
	Chrysene	0.05	ug/L		<0.05	<0.05	<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1	<0.1	<0.1
	Fluoranthene	0.1	ug/L		0.2	<0.1	<0.1
	Fluorene	0.1	ug/L		<0.1	<0.1	<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1	<0.1	<0.1
	Naphthalene	0.1	ug/L		<0.1	<0.1	<0.1
	Phenanthrene	0.1	ug/L		<0.1	<0.1	<0.1
	Pyrene	0.1	ug/L		0.1	<0.1	<0.1
Subcontract	BOD5	1	mg/L		1	3	<1
	Diethylene Glycol	2	mg/L		<2	<2	<2
	Ethylene Glycol	5	mg/L		<5	<5	<5
	Propylene Glycol	5	mg/L		<5	<5	<5
	Tetraethylene Glycol	5	mg/L		<5	<5	<5
	Total P	0.03	mg/L		0.05	<0.03	0.05
	Total Suspended Solids	2	mg/L		39	<2	37
	Triethylene Glycol	3	mg/L		<3	<3	<3
VOCs	Benzene	0.5	ug/L		<0.5	<0.5	<0.5
	Ethylbenzene	0.5	ug/L		<0.5	<0.5	<0.5
	m/p-xylene	0.4	ug/L		<0.4	<0.4	<0.4
	o-xylene	0.4	ug/L		<0.4	<0.4	<0.4
	Toluene	0.5	ug/L		<0.5	<0.5	<0.5
	Xylene; total	0.5	ug/L		<0.5	<0.5	<0.5

Guideline = *** = Guideline Exceedence**

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Client: Qikiytaaluk Enviromental
9935 Av de Catania, Entrance 1 , Suite 200
Brossard, QC
J4X 3V4
Attention: Mr. Greg Johnson
PO#: RQ11-105
Invoice to: Qikiytaaluk Enviromental

Report Number: 1516059
Date Submitted: 2015-08-17
Date Reported: 2015-08-26
Project: QE15-110-5
COC #: 800307

					Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
Group	Analyte	MRL	Units	Guideline					
VOCs Surrogates (%)	Toluene-d8	0	%		1195557	Water		2015-08-14	PT1
					1195558	Water		2015-08-14	PT2
					1195559	Water		2015-08-14	Backup
					91	94		92	

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 290004 Analysis/Extraction Date 2015-08-18 Analyst TJB			
Method O CCME Reg 153			
Petroleum Hydrocarbons F1	<20 ug/L	84	60-140
Petroleum Hydrocarbons F1-BTEX			
Run No 292525 Analysis/Extraction Date 2015-08-18 Analyst TJB			
Method V 8260B			
Benzene	<0.5 ug/L	106	60-130
Ethylbenzene	<0.5 ug/L	86	60-130
m/p-xylene	<0.4 ug/L	107	60-130
o-xylene	<0.4 ug/L	100	60-130
Toluene	<0.5 ug/L	101	60-130
Run No 292527 Analysis/Extraction Date 2015-08-18 Analyst TJB			
Method V 8260B			
Xylene Mixture			
Run No 292558 Analysis/Extraction Date 2015-08-18 Analyst AET			
Method SM4500-H+B			
pH	5.93	99	90-110
Run No 292559 Analysis/Extraction Date 2015-08-18 Analyst SKH			

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Method M SM3120B-3500C			
Sodium	<2 mg/L	105	82-118
Run No 292560	Analysis/Extraction Date 2015-08-18	Analyst FWU	
Method P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	58	50-140
Methlynaphthalene, 2-	<0.1 ug/L	56	50-140
Acenaphthene	<0.1 ug/L	60	50-140
Acenaphthylene	<0.1 ug/L	56	50-140
Anthracene	<0.1 ug/L	66	50-140
Benz[a]anthracene	<0.1 ug/L	70	50-140
Benzo[a]pyrene	<0.01 ug/L	76	50-140
Benzo[b]fluoranthene	<0.05 ug/L	79	50-140
Benzo[ghi]perylene	<0.1 ug/L	78	50-140
Benzo[k]fluoranthene	<0.05 ug/L	98	50-140
Chrysene	<0.05 ug/L	73	50-140
Dibenz[a h]anthracene	<0.1 ug/L	76	50-140
Fluoranthene	<0.1 ug/L	74	50-140
Fluorene	<0.1 ug/L	62	50-140

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	76	50-140
Naphthalene	<0.1 ug/L	56	50-140
Phenanthrene	<0.1 ug/L	68	50-140
Pyrene	<0.1 ug/L	76	50-140
Run No 292569 Analysis/Extraction Date 2015-08-18 Analyst FWU			
Method O CCME Reg 153			
Petroleum Hydrocarbons F2	<20 ug/L	100	60-140
Petroleum Hydrocarbons F3	<50 ug/L	100	60-140
Petroleum Hydrocarbons F4	<50 ug/L	100	60-140
Run No 292609 Analysis/Extraction Date 2015-08-18 Analyst K_A			
Method EPA 200.8			
Aluminum	<10 ug/L	92	89-111
Arsenic	<1 ug/L	100	93-106
Cadmium	<0.01 ug/L	97	93-107
Cobalt	<0.2 ug/L	104	94-106
Chromium Total	<1 ug/L	101	94-106
Copper	<1 ug/L	104	93-106
Iron	<30 ug/L	98	92-107

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Manganese	<10 ug/L	99	94-106
Nickel	<5 ug/L	104	94-106
Lead	<1 ug/L	104	70-130
Zinc	<10 ug/L	98	94-106
Run No 292621 Analysis/Extraction Date 2015-08-18 Analyst JDT			
Method M SM3112B-3500B			
Mercury	<0.1 ug/L	101	76-123
Run No 292622 Analysis/Extraction Date 2015-08-18 Analyst SDC			
Method SUBCONTRACT P			
Total Suspended Solids	<2.0 mg/L	90	
Run No 292692 Analysis/Extraction Date 2015-08-19 Analyst QL			
Method SUBCONTRACT-PC			
Diethylene Glycol	<2 mg/L		
Ethylene Glycol	<5 mg/L		
Propylene Glycol	<5 mg/L		
Tetraethylene Glycol	<5 mg/L		
Triethylene Glycol	<3 mg/L		
Run No 293053 Analysis/Extraction Date 2015-08-23 Analyst SCM			
Method SUBCONTRACT-SA-INORG			

Guideline =

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
BOD5	<2 mg/L	90	
Run No 293333 Analysis/Extraction Date 2015-08-26 Analyst CON			
Method SUBCONTRACT-SA-INORG			
Total P	<0.03 mg/L	88	

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Project: QE15-110-5
COC #: 800577

Page 1 of 12

Dear Greg Johnson:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Shyla Monette
Team Leader, Inorganics

All analysis is completed in Ottawa, Ontario (unless otherwise indicated).

Exova Ottawa is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on our CALA scope of accreditation. It can be found at <http://www.cala.ca/scopes/2602.pdf>.

Exova (Ottawa) is certified and accredited for specific parameters by OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils). Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is accredited for specific parameters by SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Exova recommends consulting the official provincial or federal guideline as required.

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 COC #: 800577

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1196631 Water 2015-08-16 CC Up	1196632 Water 2015-08-16 IFD Up	1196633 Water 2015-08-16 CC Down	1196634 Water 2015-08-16 IFD Down
Group	Analyte	MRL	Units	Guideline					
General Chemistry	Total Suspended Solids	1	mg/L			2	<1	<1	5
Mercury	Hg	0.0001	mg/L			<0.0001	<0.0001	<0.0001	<0.0001
Metals	Al	0.01	mg/L			0.08	0.02	0.07	0.14
	As	0.001	mg/L			<0.001	<0.001	<0.001	<0.001
	Cd	0.0001	mg/L			<0.0001	<0.0001	<0.0001	<0.0001
	Co	0.0002	mg/L			<0.0002	<0.0002	<0.0002	0.0005
	Cr	0.001	mg/L			<0.001	<0.001	<0.001	<0.001
	Cu	0.001	mg/L			0.001	0.002	0.002	0.002
	Fe	0.03	mg/L			0.12	0.30	0.10	0.68
	K	1	mg/L			<1	1	<1	4
	Mn	0.01	mg/L			<0.01	0.02	0.05	0.38
	Na	2	mg/L			2	9	4	43
	Ni	0.005	mg/L			<0.005	<0.005	<0.005	<0.005
	Pb	0.001	mg/L			<0.001	<0.001	<0.001	<0.001
	Zn	0.01	mg/L			<0.01	<0.01	<0.01	0.03
Nutrients	Total P	0.05	mg/L			<0.05	<0.05	<0.05	<0.05
PHC (Hydrocarbons)	F1 (C6-C10)	20	ug/L			<20	<20	<20	<20
	F1-BTEX (C6-C10)	20	ug/L			<20	<20	<20	<20
	F2 (C10-C16)	20	ug/L			<20	<20	<20	<20
	F3 (C16-C34)	50	ug/L			<50	<50	<50	<50
	F4 (C34-C50)	50	ug/L			<50	<50	<50	<50
PHC Surrogate	O-Terphenyl	0	%			30	82	74	72
Semi-Volatiles	1-methylnaphthalene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	2-methylnaphthalene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Acenaphthene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1

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					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1196631 Water 2015-08-16 CC Up	1196632 Water 2015-08-16 IFD Up	1196633 Water 2015-08-16 CC Down	1196634 Water 2015-08-16 IFD Down
Group	Analyte	MRL	Units	Guideline					
Semi-Volatiles	Anthracene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Benzo(a)anthracene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	0.01	ug/L			<0.01	<0.01	<0.01	<0.01
	Benzo(b)fluoranthene	0.05	ug/L			<0.05	<0.05	<0.05	<0.05
	Benzo(g,h,i)perylene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Benzo(k)fluoranthene	0.05	ug/L			<0.05	<0.05	<0.05	<0.05
	Chrysene	0.05	ug/L			<0.05	<0.05	<0.05	<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Fluoranthene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Fluorene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Naphthalene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Phenanthrene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
	Pyrene	0.1	ug/L			<0.1	<0.1	<0.1	<0.1
Subcontract	BOD5	1	mg/L			<1	<1	<1	<1
	Diethylene Glycol	2	mg/L			<2	<2	<2	<2
	Ethylene Glycol	5	mg/L			<5	<5	<5	<5
	Propylene Glycol	5	mg/L			<5	<5	<5	<5
	Tetraethylene Glycol	5	mg/L			<5	<5	<5	<5
	Triethylene Glycol	3	mg/L			<3	<3	<3	<3
VOCs	Benzene	0.5	ug/L			<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	0.5	ug/L			<0.5	<0.5	<0.5	<0.5
	m/p-xylene	0.4	ug/L			<0.4	<0.4	<0.4	<0.4
	o-xylene	0.4	ug/L			<0.4	<0.4	<0.4	<0.4
	Toluene	0.5	ug/L			<0.5	<0.5	<0.5	<0.5
	Xylene; total	0.5	ug/L			<0.5	<0.5	<0.5	<0.5

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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1196631 Water 2015-08-16 CC Up	1196632 Water 2015-08-16 IFD Up	1196633 Water 2015-08-16 CC Down	1196634 Water 2015-08-16 IFD Down
VOCs Surrogates (%)	Toluene-d8	0	%			96	98	101	100
Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1196635 Water 2015-08-16 SIF Down	1196636 Water 2015-08-16 Arch AB		
General Chemistry	Total Suspended Solids	1	mg/L			4	2		
Mercury	Hg	0.0001	mg/L			<0.0001	<0.0001		
Metals	Al	0.01	mg/L			0.05	0.06		
	As	0.001	mg/L			<0.001	<0.001		
	Cd	0.0001	mg/L			<0.0001	<0.0001		
	Co	0.0002	mg/L			0.0014	<0.0002		
	Cr	0.001	mg/L			<0.001	<0.001		
	Cu	0.001	mg/L			0.002	0.001		
	Fe	0.03	mg/L			1.77	0.09		
	K	1	mg/L			1	<1		
	Mn	0.01	mg/L			0.36	<0.01		
	Na	2	mg/L			10	3		
	Ni	0.005	mg/L			<0.005	<0.005		
	Pb	0.001	mg/L			<0.001	<0.001		
	Zn	0.01	mg/L			0.02	<0.01		
Nutrients	Total P	0.05	mg/L			<0.05	<0.05		
PHC (Hydrocarbons)	F1 (C6-C10)	20	ug/L			<20	<20		
	F1-BTEX (C6-C10)	20	ug/L			<20	<20		

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				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1196635 Water 2015-08-16 SIF Down	1196636 Water 2015-08-16 Arch AB
Group	Analyte	MRL	Units	Guideline		
PHC (Hydrocarbons)	F2 (C10-C16)	20	ug/L		<20	<20
	F3 (C16-C34)	50	ug/L		<50	<50
	F4 (C34-C50)	50	ug/L		<50	<50
PHC Surrogate	O-Terphenyl	0	%		70	72
Semi-Volatiles	1-methylnaphthalene	0.1	ug/L		<0.1	<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1	<0.1
	Acenaphthene	0.1	ug/L		<0.1	<0.1
	Acenaphthylene	0.1	ug/L		<0.1	<0.1
	Anthracene	0.1	ug/L		<0.1	<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1	<0.1
	Benzo(a)pyrene	0.01	ug/L		<0.01	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05	<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1	<0.1
	Benzo(k)fluoranthene	0.05	ug/L		<0.05	<0.05
	Chrysene	0.05	ug/L		<0.05	<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1	<0.1
	Fluoranthene	0.1	ug/L		<0.1	<0.1
	Fluorene	0.1	ug/L		<0.1	<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1	<0.1
	Naphthalene	0.1	ug/L		<0.1	<0.1
	Phenanthrene	0.1	ug/L		<0.1	<0.1
	Pyrene	0.1	ug/L		<0.1	<0.1
Subcontract	BOD5	1	mg/L		25	<1
	Diethylene Glycol	2	mg/L		<2	<2
	Ethylene Glycol	5	mg/L		8	<5
	Propylene Glycol	5	mg/L		<5	<5

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 Brossard, QC
 J4X 3V4
 Attention: Mr. Greg Johnson
 PO#: RQ11-105
 Invoice to: Qikiytaaluk Enviromental

Report Number: 1516456
 Date Submitted: 2015-08-20
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 COC #: 800577

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1196635 Water 2015-08-16 SIF Down	1196636 Water 2015-08-16 Arch AB
Group	Analyte	MRL	Units	Guideline			
Subcontract	Tetraethylene Glycol	5	mg/L			<5	<5
	Triethylene Glycol	3	mg/L			<3	<3
VOCs	Benzene	0.5	ug/L			<0.5	<0.5
	Ethylbenzene	0.5	ug/L			<0.5	<0.5
	m/p-xylene	0.4	ug/L			<0.4	<0.4
	o-xylene	0.4	ug/L			<0.4	<0.4
	Toluene	0.5	ug/L			<0.5	<0.5
	Xylene; total	0.5	ug/L			<0.5	<0.5
VOCs Surrogates (%)	Toluene-d8	0	%			101	97

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 290004 Analysis/Extraction Date 2015-08-27 Analyst TJB			
Method O CCME Reg 153			
Petroleum Hydrocarbons F1	<20 ug/L	102	60-140
Petroleum Hydrocarbons F1-BTEX			
Run No 292881 Analysis/Extraction Date 2015-08-21 Analyst SKH			
Method M SM3120B-3500C			
Potassium	<1 mg/L	96	87-113
Sodium	<2 mg/L	94	82-118
Run No 292969 Analysis/Extraction Date 2015-08-24 Analyst FWU			
Method P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	50	50-140
Methlynaphthalene, 2-	<0.1 ug/L	46	50-140
Acenaphthene	<0.1 ug/L	56	50-140
Acenaphthylene	<0.1 ug/L	54	50-140
Anthracene	<0.1 ug/L	68	50-140
Benz[a]anthracene	<0.1 ug/L	74	50-140
Benzo[a]pyrene	<0.01 ug/L	79	50-140
Benzo[b]fluoranthene	<0.05 ug/L	86	50-140

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Benzo[ghi]perylene	<0.1 ug/L	74	50-140
Benzo[k]fluoranthene	<0.05 ug/L	68	50-140
Chrysene	<0.05 ug/L	78	50-140
Dibenz[a h]anthracene	<0.1 ug/L	72	50-140
Fluoranthene	<0.1 ug/L	76	50-140
Fluorene	<0.1 ug/L	62	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	74	50-140
Naphthalene	<0.1 ug/L	48	50-140
Phenanthrene	<0.1 ug/L	68	50-140
Pyrene	<0.1 ug/L	78	50-140
Run No 293312 Analysis/Extraction Date 2015-08-26 Analyst JDT			
Method M SM3112B-3500B			
Mercury	<0.0001 mg/L	98	76-123
Run No 293335 Analysis/Extraction Date 2015-08-26 Analyst K A			
Method EPA 200.8			
Aluminum	<0.01 mg/L	100	89-111
Arsenic	<0.001 mg/L	100	93-106
Cadmium	<0.0001 mg/L	99	93-107

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Cobalt	<0.0002 mg/L	100	94-106
Chromium Total	<0.001 mg/L	100	94-106
Copper	<0.001 mg/L	99	93-106
Iron	<0.03 mg/L	98	92-107
Manganese	<0.01 mg/L	101	94-106
Nickel	<0.005 mg/L	100	94-106
Lead	<0.001 mg/L	101	70-130
Zinc	<0.01 mg/L	100	94-106
Run No 293353 Analysis/Extraction Date 2015-08-25 Analyst CON			
Method Exova Edmonton-SM2540D			
Total Suspended Solids		96	
Run No 293361 Analysis/Extraction Date 2015-08-25 Analyst CON			
Method Exova Edmonton - SM4500-P F			
Total P	<0.05 mg/L	103	
Run No 293401 Analysis/Extraction Date 2015-08-22 Analyst TJB			
Method V 8260B			
Benzene	<0.5 ug/L	108	60-130
Ethylbenzene	<0.5 ug/L	104	60-130
m/p-xylene	<0.4 ug/L	109	60-130

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
o-xylene	<0.4 ug/L	101	60-130
Toluene	<0.5 ug/L	106	60-130
Run No 293402 Analysis/Extraction Date 2015-08-27 Analyst TJB			
Method V 8260B			
Xylene Mixture			
Run No 293523 Analysis/Extraction Date 2015-08-26 Analyst CON			
Method SUBCONTRACT-SA-INORG			
BOD5	<1 mg/L	83	
Run No 293527 Analysis/Extraction Date 2015-08-24 Analyst CON			
Method SUBCONTRACT-SA			
Ethylene Glycol	<5 mg/L	96	
Method SUBCONTRACT-SA-INORG			
Ethylene Glycol	0 mg/L	96	
Run No 293529 Analysis/Extraction Date 2015-08-24 Analyst CON			
Method SUBCONTRACT-SA			
Diethylene Glycol	<2 mg/L	104	
Run No 293530 Analysis/Extraction Date 2015-08-24 Analyst CON			
Method SUBCONTRACT-SA			
Triethylene Glycol	<3 mg/L		

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 293534 Analysis/Extraction Date 2015-08-24 Analyst CON			
Method SUBCONTRACT-SA			
Tetraethylene Glycol	<5 mg/L		
Run No 293535 Analysis/Extraction Date 2015-08-24 Analyst CON			
Method SUBCONTRACT-SA			
Propylene Glycol	<5 mg/L	108	
Run No 293576 Analysis/Extraction Date 2015-08-31 Analyst JLD			
Method O CCME Reg 153			
Petroleum Hydrocarbons F2	<20 ug/L	80	60-140
Petroleum Hydrocarbons F3	<50 ug/L	80	60-140
Petroleum Hydrocarbons F4	<50 ug/L	80	60-140

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Sample Comment Summary

Sample ID: 1196631 CC Up Analysis was performed on unpreserved samples, for entire work order. F2-F4 Surrogate recoveries are not within acceptable limits due to matrix interferences.

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