



**OPERATION AND MANAGEMENT PLAN**  
**HYDROCARBON IMPACTED WATER TREATMENT**

**PROPERTY LOCATED AT**  
**1571 KAKIVAK COURT**  
**IQALUIT (NUNAVUT)**

*Privileged and confidential document presented to*



**Manager of Licensing**  
Nunavut Water Board  
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Gjoa Haven (Nunavut) X0B 1J0  
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**FINAL REPORT**

April 10, 2015

O/Ref.: QE14-209-1



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Prepared and verified by:

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Jan Wollenberg, B.Sc.  
Project Manager – Environment



Approved by:

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Greg Johnson, P. Eng., M.Sc.A.  
Project Director – Northern Projects



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## LIST OF ABBREVIATIONS

AANDC:

AST: Aboveground storage tank

CALA: Canadian Association for Laboratory Accreditation Inc.

PHC: Petroleum hydrocarbons

WTF: Water treatment facility

## **1. OPERATION AND MANAGEMENT PLAN**

### **1.1 General**

The facility was developed based on a need arising from clients with impacted water and/or snow and ice resulting from spills from storage tanks or water from tank washing. The impacted water is transported to the facility for treatment.

The facility contains a multi-step filtration system to treat the impacted water. Water is initially passed through an oil/water separator and particulate filter to remove free product and sediments. Following the initial filtration, water is then circulated through Qikiqtaaluk Environmental Inc.'s (QE) patented Ultrasorption™ filters and activated carbon filters in order to remove organic chemicals. Technical details regarding the water treatment system are presented in Figures 2 and 3 of Appendix A. The treated water is then stored in clean tanks for sampling and analysis in a Canadian Association for Laboratory Accreditation Inc. (CALA) certified laboratory to ensure it respects the Nunavut Water Board (NWB) criteria prior to discharge.

The system will treat oily waste, hydrocarbon impacted water and hydrocarbon impacted snow and ice. The facility can treat up to a maximum of 15 m<sup>3</sup> of water per day. The total storage capacity of impacted water before treatment, as well as for treated water awaiting analysis and discharge, is 30 m<sup>3</sup>. Berms will be constructed around the tanks storing contaminated and treated water and the bermed area will be covered in order to prevent snow and water accumulation.

#### **1.1.1 Location**

The facility is located on a property in northwestern Iqaluit. The approximate coordinates of the center of the property are:

**Latitude:** 63,45'44.87" N

**Longitude:** 68,32'39.27" W

Figure 1 in Appendix A presents a map of the facility area.

### **1.2 Hazardous Liquids Found On-Site and Storage Capacity**

No fuel or other hazardous liquids are used during the operation of the petroleum hydrocarbon impacted water system. Hydrocarbons may be recovered from the oil/water separator, and such waste oil will either be used in a waste oil furnace, or containerized for off-site disposal. The volume of waste oil to be managed from the treated system is variable and difficult to predict as it is dependent on the degree of impacted snow/water.

The facility is located in an industrial area of Iqaluit which has a permit from the Government of Nunavut to operate as an authorized hazardous waste transfer station. Therefore, QE already has spill response material, additional containers including tote tanks and overpack drums in stock, and can thus easily manage any waste oil generated by the treatment system.

All fuel storage containers will be situated in a manner that allows easy access and removal of containers in the event of leaks or spills. Large fuel caches in excess of 20 drums will be inspected daily.

12-volt fuel pumps (and hand pumps) are to be used for fuel transfer operations with drums of waste oil.

### **1.3 Secondary Containment Systems**

#### **1.3.1 Water Storage Tanks (Impacted and Treated Water)**

A secondary containment system will be constructed around both the treated and impacted water storage tanks in order to prevent any potential petroleum hydrocarbon spills. As shown in Figure 1 of Appendix A, a containment berm will be constructed around the ASTs to serve as a secondary means of containment in the event of a spill. The berm and tanks will be covered with an impermeable tarp to prevent the accumulation of snow and rainwater.

#### **1.3.2 Recovered Petroleum Hydrocarbons, Liquid Sludges and Waste Filter Media**

Petroleum hydrocarbons and free product recovered during water treatment operations will be containerized in closed 205 L drums for off-site shipment and disposal. Waste filter media is packaged in Quatrex-type containers for off-site shipment and disposal.

Prior to loading onto the sealift, waste liquids and filter media will be stored on-site within a secondary containment structure as shown in Figure 1 of Appendix A. Berms of approximately 0.5 m in height will be constructed surrounding the liquid waste storage area to provide a means of secondary containment in the event of a spill. An impermeable tarp will be installed over the bermed storage area to prevent the accumulation of snow and rainwater.

### **1.4 PHC Impacted Soils**

During remediation work following a spill, impacted soils are often excavated from affected snow/ice/water source areas. Impacted soils are containerized and shipped for off-site disposal at authorized facilities or are disposed of at the Nunatta Environmental Services Landfarm Facility (Nunatta); QE works regularly with Nunatta during remediation projects.

## **1.5 Transport and Disposal of Contaminated Materials**

Contaminated materials from treatment operations (filter media, sludge, packaged petroleum hydrocarbons, etc.) are packaged according to applicable regulations and transported by truck to the barging area for shipment and off-site disposal. The truck will be equipped with a spill kit and the operator trained in spill response.

Materials will be transported a maximum of 1 week prior to the arrival of the sealift in order to minimize storage time at the beach. Whenever possible, the fenced Coast Guard Compound will be used to temporarily store the waste prior to loading the ship.

## **1.6 Transport of Treated Water to Discharge Location**

No treated water is currently transported as water is discharged at a location on the facility property located at 1571 Kakivak Court as shown in Figure 1. Should transport eventually be required, based on a change in discharge location, the water will be pumped into a tank located on a roll-off platform. The water will then be transported using a roll-off truck to the discharge location. The truck will be equipped with a spill kit and the operator trained in spill response.

## **1.7 Treated Effluent Quality Monitoring**

Based on the conditions of the Water Licence (No. 1BR-THI1419), a monitoring station with ID THI-1 (Water) was established to monitor the effluent from the WTF to be discharged at the Final Discharge Point.

One sample is collected at Monitoring Station THI-1 prior to each batch discharge event and prior to completion of discharge. The sample is to be analyzed for the following parameters included in the following table.



**TABLE 1: Analysis Parameters**

pH <sup>1</sup>	Total Zinc	Total Nickel
Total Suspended Solids	Conductivity	Total Phosphorous
Nitrate – Nitrite	Ammonia Nitrogen	Total Aluminum
Total Phenols	Oil and Grease (visual)	Total Cobalt
Total Hardness	Sulphate	Total Manganese
Sodium	Total Alkalinity	Total Arsenic
Magnesium	Potassium	PAH <sup>2</sup>
Chloride	Calcium	BTEX <sup>3</sup>
Total Copper	Total Cadmium	TPH <sup>4</sup>
Total Iron	Total Chromium	
Total Mercury	Total Lead	

1. Measure of acidity or basicity
2. Polycyclic Aromatic Hydrocarbons
3. Total Petroleum Hydrocarbons
4. Benzene, toluene, ethylbenzene, xylene

As the Final Discharge Point is located more than 100 m from any waterbody, no monitoring of nearby waterbodies is required.

Among the parameters to be monitored, the following maximum allowable concentrations of any grab sample are to be met before discharge:

**TABLE 2: Maximum Allowable Concentrations**

Parameter	Maximum Allowable Concentration of any Grab Sample (mg/L)
pH <sup>1</sup>	6.5 to 9 (pH units)
TSS <sup>2</sup>	50
Oil and Grease	15 and no visible sheen
Total Lead	0.001
Benzene	0.370
Toluene	0.002
Ethyl benzene	0.090

1. Measure of acidity or basicity
2. Total suspended solids

Sampling results from 2014 are available in Appendix B.

## **1.8 Soil Quality Monitoring**

In addition to effluent quality monitoring, yearly soil sampling will be carried out at the Final Point of Discharge to ensure that the water treatment activities are not causing a negative impact on the surrounding environment.

Sampling results from 2014 are available in Appendix B.

## **1.9 Operation of the Water Treatment Unit**

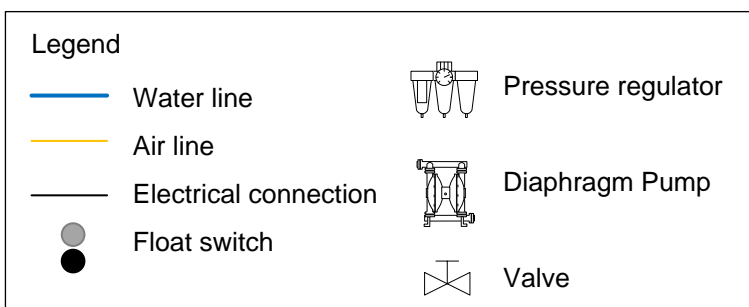
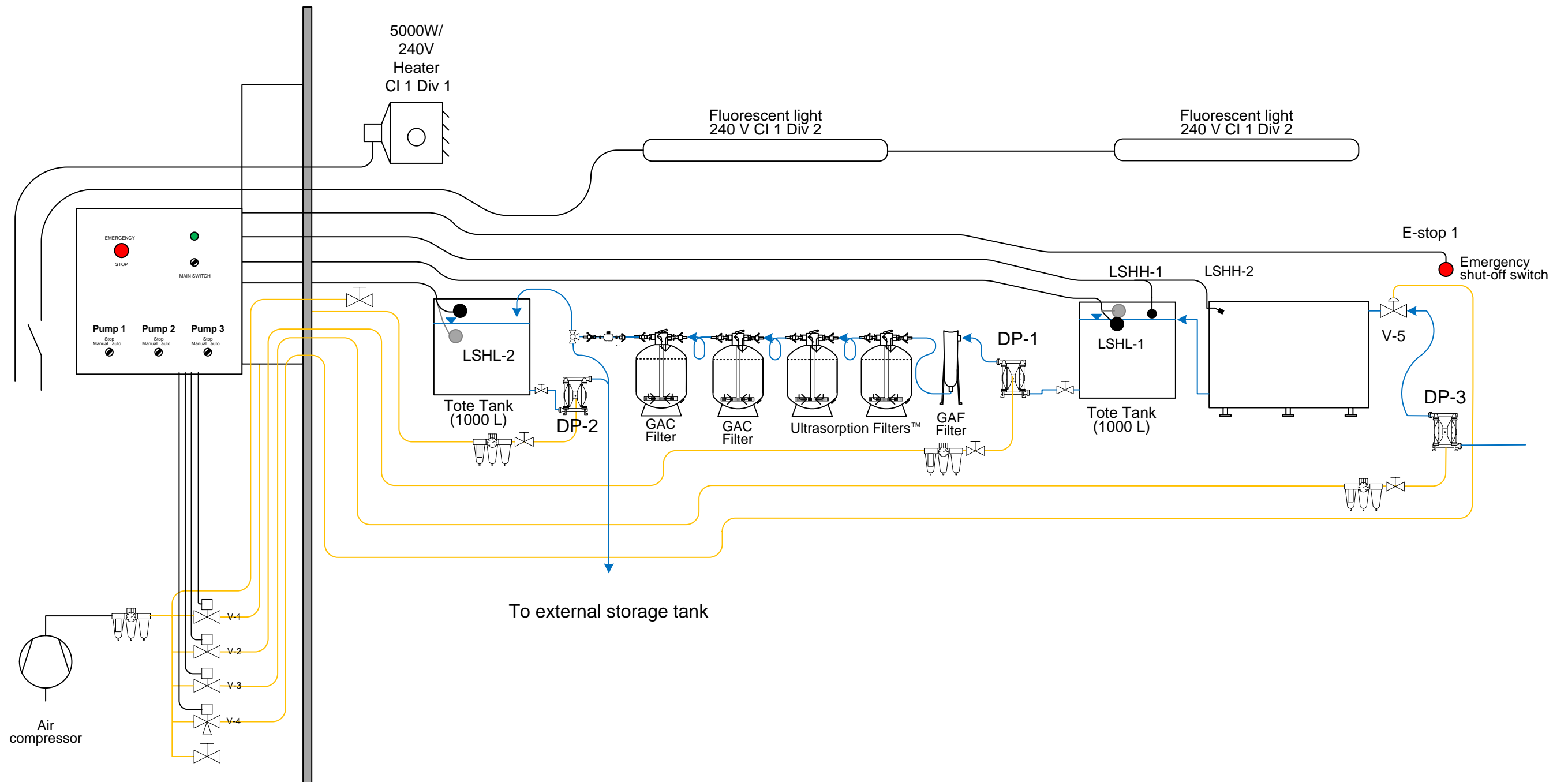
The water treatment unit is operated as follows:

1. Water is collected in the holding tank and allowed to settle for a minimum of 24 hours.
2. Any free product floating on the surface of the tank will be pumped off into sound drums for disposal.
3. An air compressor is started and the water is pumped into the oil/water separator.
4. Once the oil/water separator is filled, water is pumped into the intermediate holding tank.
5. Should the water not show any signs of free product, it is then pumped through the filters to remove the contamination, and into the treated water holding tank.
6. The water is checked for clarity and if it appears to have been treated, it is pumped into a clean holding tank to be tested for discharge.
7. At no time should the pressure in the system rise above 10 psi.
8. The system must be monitored at all times during operation until the automated shut-off system is connected and fully tested to ensure that it is operating properly.
9. Treated water is then sampled and sent to a CALA accredited laboratory for analysis. If results meet discharge criteria, then they are submitted to an Aboriginal Affairs and Northern Development Canada Water Resource Officer and permission is requested for discharge. Once permission is obtained, the water is discharged to the authorized discharge location.
10. Should water not meet the discharge criteria, it is treated until the discharge criteria is obtained.

## **APPENDIX A**

### **FIGURES**





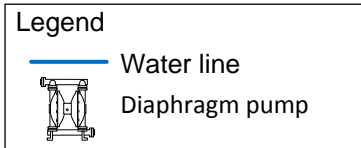
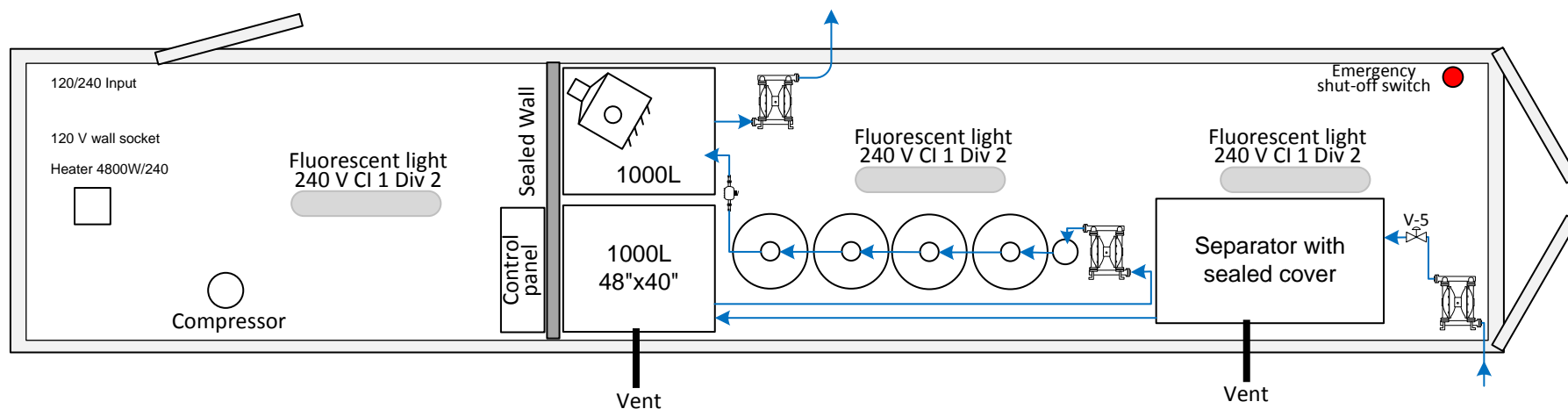
Title: <b>Figure 2</b> <b>Water Treatment Facility Flow Diagram</b>		
Project: <b>WATER TREATMENT FACILITY</b> 1571 Kakivak Court, Iqaluit		
Scale: No scale	Conception date: 2015-03-25	Revision date: 2015-04-06
Drawn by: É. Leblanc	Verified by: J. Wollenberg	Approved by: G. Johnson
Project n°: QE14-209-2	Drawing n°: QE14-209-2-01.vsd	Layout: A


Presented to:



Presented by:





Presented to: 	Title: <b>Figure 3</b> <b>Water Treatment Facility Layout</b>		Scale: No scale	Design date: 2015-03-25	Revision date: 2015-04-06
	Project: <b>WATER TREATMENT FACILITY</b> 1571 Kakivak Court, Iqaluit		Drawn by: É. Leblanc	Verified by: J. Wollenberg	Approved by: G. Johnson
			Project n°: QE14-209-2	Drawing n°: EQ14-209-2-02.vsd	Layout: A

## **APPENDIX B**

### **SAMPLE RESULTS**

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: 1418970  
Date Submitted: 2014-09-03  
Date Reported: 2014-09-10  
Project: QE14-200-3  
COC #: 789334

Page 1 of 6

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**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: \_\_\_\_\_

Lorna Wilson  
Laboratory Supervisor, Inorganics

APPROVAL: \_\_\_\_\_

Charlie (Long) Qu  
Laboratory Supervisor, Organics

Exova (Ottawa) is certified and accredited for specific parameters by:

CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), 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.



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: 1418970  
 Date Submitted: 2014-09-03  
 Date Reported: 2014-09-10  
 Project: QE14-200-3  
 COC #: 789334

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1131280 Soil  2014-09-02 Cour 1
Group	Analyte	MRL	Units	Guideline	
General Chemistry	Moisture	0.1	%		4.6
Hydrocarbons	F1 (C6-C10)	10	ug/g		<10
	F1-BTEX (C6-C10)	10	ug/g		<10
	F2 (C10-C16)	10	ug/g		<10
	F3 (C16-C34)	20	ug/g		<20
	F4 (C34-C50)	20	ug/g		<20
	O-Terphenyl	0	%		60
Mercury	Hg	0.1	ug/g		<0.1
Metals	Ag	0.2	ug/g		<0.2
	As	1	ug/g		3
	Ba	1	ug/g		41
	Cd	0.5	ug/g		<0.5
	Co	1	ug/g		9
	Cr	1	ug/g		56
	Cu	1	ug/g		22
	Mn	1	ug/g		325
	Mo	1	ug/g		1
	Ni	1	ug/g		26
	Pb	1	ug/g		8
	Se	1	ug/g		<1
	Sn	5	ug/g		<5
	Zn	2	ug/g		65
VOCs	Benzene	0.02	ug/g		<0.02
	Ethylbenzene	0.05	ug/g		<0.05
	m/p-xylene	0.05	ug/g		<0.05
	o-xylene	0.05	ug/g		<0.05

**Guideline =** \* = **Guideline Exceedence**

\*\* = Analysis completed at 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

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COC #: 789334

Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.					1131280 Soil  2014-09-02 Cour 1
Group	Analyte	MRL	Units	Guideline	
VOCs	Toluene	0.20	ug/g		<0.20
	Xylene; total	0.05	ug/g		<0.05
VOCs Surrogates (%)	Toluene-d8	0	%		95

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Report Number: 1418970  
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 COC #: 789334

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 275894 <b>Analysis Date</b> 2014-09-10 <b>Method</b> CCME			
F2 (C10-C16)	<10 ug/g	92	50-120
F3 (C16-C34)	<20 ug/g	92	50-120
F4 (C34-C50)	<20 ug/g	92	50-120
<b>Run No</b> 275899 <b>Analysis Date</b> 2014-09-10 <b>Method</b> C SM2540B			
Moisture	<0.1 %	99	80-120
<b>Run No</b> 275906 <b>Analysis Date</b> 2014-09-10 <b>Method</b> CCME			
O-Terphenyl	60 %	106	60-140
<b>Run No</b> 275942 <b>Analysis Date</b> 2014-09-09 <b>Method</b> V 8260B			
Benzene	<0.02 ug/g	92	80-120
Ethylbenzene	<0.05 ug/g	91	80-120
m/p-xylene	<0.05 ug/g	95	80-120
o-xylene	<0.05 ug/g	95	80-120
Toluene	<0.20 ug/g	95	80-120
Toluene-d8	98 %	100	

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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: 1418970  
 Date Submitted: 2014-09-03  
 Date Reported: 2014-09-10  
 Project: QE14-200-3  
 COC #: 789334

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 275943 <b>Analysis Date</b> 2014-09-10 <b>Method</b> CCME			
F1 (C6-C10)	<10 ug/g	95	80-120
<b>Run No</b> 275944 <b>Analysis Date</b> 2014-09-10 <b>Method</b> CCME			
F1-BTEX (C6-C10)			
<b>Run No</b> 275945 <b>Analysis Date</b> 2014-09-10 <b>Method</b> V 8260B			
Xylene; total			
<b>Run No</b> 275948 <b>Analysis Date</b> 2014-09-10 <b>Method</b> M SM3112B-3500B			
Hg	<0.1 ug/g	87	70-130
<b>Run No</b> 275958 <b>Analysis Date</b> 2014-09-10 <b>Method</b> EPA 200.8			
Ag	<0.2 ug/g	92	70-130
As	<1 ug/g	100	70-130
Ba	<1 ug/g	94	70-130
Cd	<0.5 ug/g	91	70-130
Co	<1 ug/g	98	70-130
Cr	<1 ug/g	101	70-130
Cu	<1 ug/g	99	70-130
Mn	<1 ug/g	101	70-130

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

Report Number: 1418970  
 Date Submitted: 2014-09-03  
 Date Reported: 2014-09-10  
 Project: QE14-200-3  
 COC #: 789334

**QC Summary**

Analyte	Blank	QC % Rec	QC Limits
Mo	<1 ug/g	98	70-130
Ni	<1 ug/g	100	70-130
Pb	<1 ug/g	95	70-130
Se	<1 ug/g	100	70-130
Sn	<5 ug/g	91	70-130
Zn	<2 ug/g	98	70-130

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

Report Number: 1416300  
Date Submitted: 2014-08-05  
Date Reported: 2014-08-13  
Project: QE14-200-3  
COC #: 788187

Page 1 of 9

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**Dear Oliver Simard:**

**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: \_\_\_\_\_

Lorna Wilson  
Laboratory Supervisor, Inorganics

APPROVAL: \_\_\_\_\_

Tanya Baillargeon  
Team Lead, Organics

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

Report Number: 1416300  
 Date Submitted: 2014-08-05  
 Date Reported: 2014-08-13  
 Project: QE14-200-3  
 COC #: 788187

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1123936 Water - 2014-08-04 2014-01
Group	Analyte	MRL	Units	Guideline	
Calculations	Hardness as CaCO <sub>3</sub>	1	mg/L		321
General Chemistry	Alkalinity as CaCO <sub>3</sub>	5	mg/L		123
	Cl	1	mg/L		622
	Conductivity	5	uS/cm		2500
	NO <sub>2</sub> + NO <sub>3</sub> as N	0.10	mg/L		0.23
	pH	1.00			7.74
	SO <sub>4</sub>	1	mg/L		151
	Total Suspended Solids	2	mg/L		20
Hydrocarbons	F1 (C6-C10)	100	ug/L		<100
	F1-BTEX (C6-C10)	100	ug/L		<100
	F2 (C10-C16)	100	ug/L		200
	F3 (C16-C34)	200	ug/L		<200
	F4 (C34-C50)	200	ug/L		<200
	O-Terphenyl	0	%		139
Mercury	Hg	0.0001	mg/L		<0.0001
Metals	Al	0.01	mg/L		0.13
	As	0.001	mg/L		0.001
	Ca	1	mg/L		61
	Cd	0.0001	mg/L		0.0005
	Co	0.0002	mg/L		0.0024
	Cr	0.001	mg/L		<0.001
	Cu	0.001	mg/L		0.007
	Fe	0.03	mg/L		3.51
	K	1	mg/L		11
	Mg	1	mg/L		41
	Mn	0.01	mg/L		1.04

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

Report Number: 1416300  
 Date Submitted: 2014-08-05  
 Date Reported: 2014-08-13  
 Project: QE14-200-3  
 COC #: 788187

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1123936 Water - 2014-08-04 2014-01
Group	Analyte	MRL	Units	Guideline	
Metals	Na	2	mg/L		414
	Ni	0.005	mg/L		0.010
	Pb	0.001	mg/L		0.002
	Zn	0.01	mg/L		0.22
Nutrients	N-NH3	0.02	mg/L		5.17
	Phenols	0.001	mg/L		0.002
	Total P	0.01	mg/L		0.02
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
Semi-Volatiles	1-methylnaphthalene	0.1	ug/L		<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1
	Acenaphthene	0.1	ug/L		<0.1
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L		<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1
	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		<0.1
	Phenanthrene	0.1	ug/L		<0.1
	Pyrene	0.1	ug/L		<0.1

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					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1123936 Water - 2014-08-04 2014-01
Group	Analyte	MRL	Units	Guideline	
VOCs	Benzene	0.5	ug/L		<0.5
	Ethylbenzene	0.5	ug/L		<0.5
	m/p-xylene	0.5	ug/L		<0.5
	o-xylene	0.5	ug/L		<0.5
	Toluene	0.5	ug/L		<0.5
	Xylene; total	1.0	ug/L		<1.0
VOCs Surrogates (%)	Toluene-d8	0	%		98

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## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 0 <b>Analysis Date</b> 2014-08-07 <b>Method</b> C SM2340B			
Hardness as CaCO <sub>3</sub>			
<b>Run No</b> 274035 <b>Analysis Date</b> 2014-08-06 <b>Method</b> C SM4500-PF			
Total P	<0.01 mg/L	100	85-115
<b>Run No</b> 274047 <b>Analysis Date</b> 2014-08-06 <b>Method</b> C SM4500-NH3D			
N-NH <sub>3</sub>	<0.02 mg/L	98	85-115
<b>Run No</b> 274057 <b>Analysis Date</b> 2014-08-06 <b>Method</b> EPA 200.8			
Al	<0.01 mg/L	94	89-111
As	<0.001 mg/L	99	93-106
Cd	<0.0001 mg/L	99	93-107
Co	<0.0002 mg/L	101	94-106
Cr	<0.001 mg/L	101	94-106
Cu	<0.001 mg/L	100	93-106
Fe	<0.03 mg/L	95	92-107
Mn	<0.01 mg/L	102	94-106

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### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Ni	<0.005 mg/L	101	94-106
Pb	<0.001 mg/L	106	70-130
Zn	<0.01 mg/L	100	94-106
<b>Run No</b> 274068 <b>Analysis Date</b> 2014-08-06 <b>Method</b> C SM5530D			
Phenols	<0.001 mg/L	96	73-127
<b>Run No</b> 274083 <b>Analysis Date</b> 2014-08-06 <b>Method</b> C SM4500-NO3-F			
NO2 + NO3 as N	<0.10 mg/L	100	80-120
<b>Run No</b> 274084 <b>Analysis Date</b> 2014-08-06 <b>Method</b> M SM3120B-3500C			
Ca	<1 mg/L	99	80-120
K	<1 mg/L	104	80-120
Mg	<1 mg/L	99	80-120
Na	<2 mg/L	103	80-120
<b>Run No</b> 274087 <b>Analysis Date</b> 2014-08-06 <b>Method</b> M SM3112B-3500B			
Hg	<0.0001 mg/L	107	70-130
<b>Run No</b> 274102 <b>Analysis Date</b> 2014-08-06 <b>Method</b> SM 2320B			
Alkalinity as CaCO3	<5 mg/L	97	95-105
Conductivity	<5 uS/cm	101	95-105

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## QC Summary

Analyte	Blank	QC % Rec	QC Limits
pH	5.93	100	90-110
<b>Run No</b> 274106 <b>Analysis Date</b> 2014-08-07 <b>Method</b> SM 4110C			
Cl	<1 mg/L	100	90-110
SO4	<1 mg/L	107	90-110
<b>Run No</b> 274139 <b>Analysis Date</b> 2014-08-07 <b>Method</b> C SM2540			
Total Suspended Solids	<2 mg/L	101	90-110
<b>Run No</b> 274207 <b>Analysis Date</b> 2014-08-08 <b>Method</b> O CCME Reg 153			
F1 (C6-C10)	<100 ug/L	103	80-120
<b>Run No</b> 274209 <b>Analysis Date</b> 2014-08-08 <b>Method</b> O CCME Reg 153			
F1-BTEX (C6-C10)			
<b>Run No</b> 274210 <b>Analysis Date</b> 2014-08-07 <b>Method</b> V 8260B			
Benzene	<0.5 ug/L	101	80-120
Ethylbenzene	<0.5 ug/L	102	80-120
m/p-xylene	<0.5 ug/L	107	80-120
o-xylene	<0.5 ug/L	105	80-120
Toluene	<0.5 ug/L	110	80-120
Toluene-d8	95 %	105	80-120

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### QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 274212 <b>Analysis Date</b> 2014-08-08 <b>Method</b> V 8260B			
Xylene; total			
<b>Run No</b> 274233 <b>Analysis Date</b> 2014-08-08 <b>Method</b> C SM5520B			
Oil & Grease - Total	<1 mg/L	95	60-120
<b>Run No</b> 274282 <b>Analysis Date</b> 2014-08-08 <b>Method</b> P 8270			
1-methylnaphthalene	<0.1 ug/L	64	20-140
2-methylnaphthalene	<0.1 ug/L	64	20-140
Acenaphthene	<0.1 ug/L	66	20-140
Acenaphthylene	<0.1 ug/L	64	20-140
Anthracene	<0.1 ug/L	72	20-140
Benzo(a)anthracene	<0.1 ug/L	78	20-140
Benzo(a)pyrene	<0.01 ug/L	73	20-140
Benzo(b)fluoranthene	<0.05 ug/L	67	20-140
Benzo(g,h,i)perylene	<0.1 ug/L	76	20-140
Benzo(k)fluoranthene	<0.05 ug/L	76	20-140
Chrysene	<0.05 ug/L	77	20-140
Dibenzo(a,h)anthracene	<0.1 ug/L	76	20-140

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### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Fluoranthene	<0.1 ug/L	78	20-140
Fluorene	<0.1 ug/L	70	20-140
Indeno(1,2,3-c,d)pyrene	<0.1 ug/L	76	20-140
Naphthalene	<0.1 ug/L	62	20-140
Phenanthrene	<0.1 ug/L	72	20-140
Pyrene	<0.1 ug/L	80	20-140
<b>Run No 274366 Analysis Date 2014-08-12 Method O CCME</b>			
O-Terphenyl	71 %		60-140
<b>Run No 274386 Analysis Date 2014-08-12 Method O CCME Reg 153</b>			
F4 (C34-C50)	<200 ug/L	119	50-120
<b>Run No 274389 Analysis Date 2014-08-12 Method O CCME Reg 153</b>			
F2 (C10-C16)	<100 ug/L	119	50-120
F3 (C16-C34)	<200 ug/L	119	50-120

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