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SOW REF: 16.F.5.d



# **2014 ANNUAL NUNAVUT WATER BOARD REPORT FOR FOX-M**

FOR THE

## **North Warning System**

Contract # W8485-100224/001/NX  
CDRL 16.F.5.d

Document Number  
FM-EHS-13 Rev 1, 16-Mar-2015

**Prepared for**

**North Warning System & Assoc. Projects**  
Aerospace Equipment Program Directorate  
455 Blvd de la Carrière  
11th floor  
Gatineau, Québec  
K1A 0K2

**Prepared by**

**Raytheon**  
**Canada Limited**  
400 Cooper Street  
Suite 3000  
Ottawa, ON, K2P 2H8

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## CHANGE HISTORY

This sheet is a record of each issue of this document. When the revised document is issued, the previous issue is automatically superseded.

Version	Date	Configuration Management	Pages Changed	Reason for Change
1	16-Mar-2015	-	-	Initial Document Release.
<b>Document Title:</b> 2014 Annual Nunavut Water Board Report for FOX-M				<b>Document Number:</b> FM-EHS-13



## EXECUTIVE SUMMARY

This 2014 Annual Report for the Nunavut Water Board (NWB) has been prepared by Raytheon Canada Limited (RCL) for the Department of National Defence in order to meet the requirements of the licence issued 10 September 2009 3BC-FOH0919 – Type “B”, Part B. General Conditions, paragraph 1. This report covers the period from 01 January to 31 December 2014.

The Operation and Maintenance (O&M) Contractor for the North Warning System (NWS) changed in 2014. Nasittuq was the O&M Contractor of the NWS from 01 January to 31 July 2014 and had Care, Custody, and Control (CC&C) of the site. On 01 August 2014, RCL became the O&M Contractor and took over CC&C of the NWS sites, including FOX-M Long Range Radar site.

FOX-M is an attended (manned) North Warning System radar site located at Hall Beach, Nunavut. The site population increases from due to project activity at FOX-M and similarly at other radar sites within FOX-M's zone.

The water usage from January to December was 15,688.7 cubic meters, which is an average of 43.0 cubic meters per day. There is no water usage limit in the licence for FOX-M because water is drawn from an artificial (man-made) reservoir and not from a natural source. The quantity drawn is greater than what is actually used on-site because the water is recirculated to prevent the water line from freezing.

Sewage was processed by the tertiary wastewater treatment system. Some of the treated effluent is recycled as on site urinal/toilet flush water. The discharged treated effluent is of potable water quality. The treated effluent was sent for laboratory analysis.

The water contained in the berms of fuel storage facilities was sent for laboratory analysis and confirmed to be within effluent quality limits of the NWB licence 3BC-FOH0919, Part D, item 10 before the water was pumped out of the berms.

No hazardous waste and waste oil were disposed of in 2014.

Non-hazardous domestic solid waste was disposed of through a contract with the Hamlet of Hall Beach and at the local landfill. RCL has documented authorization from the community for receiving the waste.

One outdoor spill occurred at FOX-M in 2014. The spill was:

- a. NT-NU Spill Line Report # 14-177. On 23 May 2014, 20 liters of Jet A1 fuel leaked from a broken gasket on a fuel line between the power plant and tanks W22J and W22K. The spilled fuel was contained by snow and ice. The spilled fuel was cleaned up with absorbent pads, and the contaminated snow was placed in a salvage drum for future disposal at a licensed hazardous waste disposal facility outside of Nunavut. The broken gasket was replaced.

The Spill Contingency Plan was successfully implemented.





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## 1.0 INTRODUCTION

This 2014 Annual Report for the Nunavut Water Board (NWB) has been prepared by Raytheon Canada Limited (RCL) for the Department of National Defence in order to meet the requirements of the licence issued 10 September 2009 3BC-FOH0919 – Type “B”, Part B. General Conditions, paragraph 1. This report covers the period of 01 January to 31 December 2014.

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FOX-M is an attended (manned) North Warning System radar site located at Hall Beach, Nunavut. The site population increases due to project activity at FOX-M and similarly at other radar sites within FOX-M’s zone.

### 1.1 REPORT DETAILS

Licensee:	Department of National Defence, Government of Canada
Licence:	3BC-FOH0919 – Type “B”
Location:	FOX-M North Warning System Site, Hall Beach, Qikiqtani Region, Nunavut
Report prepared by:	Raytheon Canada Limited, 16-Mar-2015
Time Period Covered:	01 January to 31 December 2014

## 2.0 WATER USE

The water usage from January to December was 15,688.7 cubic meters, which is an average of 43.0 cubic meters per day. See Table 2-1 for raw water usage.

There is no water usage limit in the licence for FOX-M because water is drawn from an artificial (man-made) reservoir and not from a natural source. The quantity drawn is greater than what is actually used on-site because the water is recirculated to prevent the water line from freezing. Water usage decreased in December because the water line froze on 11 December 2014 and the site started trucking water from the reservoir.

**Table 2-1 Monthly Raw Water Usage at FOX-M in 2014**

Month	Raw water usage in cubic metres (m <sup>3</sup> )	Company with CC&C of the site
January	1,423.6	Nasittuq Corporation
February	1,919.8	Nasittuq Corporation
March	1,231.4	Nasittuq Corporation
April	1,396.5	Nasittuq Corporation
May	1,437.5	Nasittuq Corporation
June	1,187.3	Nasittuq Corporation
July	1,400.3	Nasittuq Corporation
August	1,340.7	RCL
September	1,225.9	RCL
October	1,323.4	RCL
November	1,264.7	RCL
December	537.6	RCL
<b>TOTAL</b>	<b>15,688.7</b>	

### 3.0 TREATED SEWAGE DISCHARGE

The sewage and grey water are both processed through an advanced tertiary wastewater treatment system, *Cycle-let*®. The system was maintained by Nasittuq from 01 January to 31 July 2014, and is now maintained by RCL. Some of the treated water is recycled as urinal/toilet flush water. The remainder is of potable water quality and is discharged at the designated outfall. As noted in Table 3-1, refer to the year-end report for the volume of sewage and grey water treated by the Cycle-let system.

**Table 3-1 Monthly and Annual Volume of Sewage and Grey Water Treated at FOX-M in 2014**

Month	Volume of sewage and greywater treated then discharged or recycled in cubic metres (m <sup>3</sup> )	Company with CC&C of the site
January	137.5	Nasittuq Corporation
February	130.4	Nasittuq Corporation
March	124.3	Nasittuq Corporation
April	93.5	Nasittuq Corporation
May	104.1	Nasittuq Corporation
June	131.5	Nasittuq Corporation
July	141.8	Nasittuq Corporation
August	111.0	RCL
September	145.8	RCL
October	114.7	RCL
November	94.0	RCL
December	81.6	RCL
<b>Total</b>	<b>1,410.4</b>	

## 4.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

No hazardous waste and waste oil were disposed of in 2014. Therefore Table 4-1 is blank and Annex A for the shipping documents is blank. (Shipping documents include the completed movement documents for waste regulated under the Transportation of Dangerous Goods Regulations (TDGR) and Manifests for non-regulated waste).

**Table 4-1 Hazardous Waste and Waste Oil Sent for Disposal from FOX-M in 2014**

Site	Description, TDG shipping name	Quantity	Movement Document or Manifest #
FOX-M	No hazardous waste or waste oil was disposed of in 2014.	0	N/A

## 5.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was disposed of through a contract with the Hamlet of Hall Beach and at the local landfill. RCL has documented authorization from the community for receiving the waste. See Table 5-1 for the quantity of waste generated.

**Table 5-1 Non-hazardous Domestic Solid Waste Sent for Disposal from FOX-M 2014**

Month	Waste Generated (kg)	Company with CC&C of the site
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Month	Waste Generated (kg)	Company with CC&C of the site
January	2,680	Nasittuq Corporation
February	3,117	Nasittuq Corporation
March	2,870	Nasittuq Corporation
April	2,386	Nasittuq Corporation
May	3,536	Nasittuq Corporation
June	2,988	Nasittuq Corporation
July	3,047	Nasittuq Corporation
August	2,516	RCL
September	2,835	RCL
October	2,516	RCL
November	1,755	RCL
December	2,270	RCL
<b>Total</b>	<b>32,516</b>	

## 6.0 MONITORING PROGRAM

See **Annex B** for the location of the treated sewage effluent outfall, FOH-2, with co-ordinates.

See **Annex C** for analysis of treated sewage effluent. The laboratory had to re-run the BOD on the sample taken in April. The reported BOD result was high. It is possible that the rerun impacted the result. BOD results in March and May were well within licence criteria.

See **Annex D** for the list of bermed fuel storage facilities, FOH-3, with co-ordinates.

See **Annex E** for analysis of berm water (water contained in the berms of fuel storage facilities). The results were confirmed to be within effluent quality limits of the NWB licence 3BC-FOH0919, Part D, item 10 before the water was pumped out of the berms.

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## 7.0 SPILLS (UNAUTHORIZED DISCHARGES)

Table 7-1 Outdoor Spills Reported at FOX-M in 2014

Date, Spill #	Product	Quantity	Cause and follow-up action	Location at FOX-M
23 May 2014,  Spill # 14-177	Jet A1 fuel	20 litres	Site personnel found a gasket on a fuel line had broken due to age and weathering. The spilled fuel was contained by snow and ice. The spilled fuel was cleaned up with absorbent pads, and the contaminated snow was placed in a salvage drum for future disposal at a licensed hazardous waste disposal facility outside of Nunavut. The broken gasket was replaced.	Fuel line between power plant and tanks W22J and W22K

## 8.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

The Spill Contingency Plan was successfully implemented. There were no revisions to the Spill Contingency Plan in 2014.

## 9.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

None undertaken.



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## 10.0 ACRONYMS

Acronym	Definition
CC&C	Care, Custody, and Control
DEG	Diesel Engine Generator
DND	Department of National Defence
NWB	Nunavut Water Board
NWS	North Warning System
NWSO	North Warning System Office
O&M	Operations and Maintenance
PCB	Polychlorinated Biphenyl
RCL	Raytheon Canada Limited
TDGR	Transportation of Dangerous Goods Regulations

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## **ANNEX A - FOX-M - HAZARDOUS WASTE AND WASTE OIL DISPOSAL IN 2014**

This annex has been left blank as no hazardous waste or waste oil were disposed of in 2014. Therefore there are no shipping documents for Annex A.

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## ANNEX B - FOX-M - TREATED SEWAGE EFFLUENT OUTFALL (CDL-2) LOCATION WITH CO-ORDINATES



Coordinates of sewage treatment outfall: 63° 45'39.50"N, 81°13'28.40"W.

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**ANNEX C - FOX-M - ANALYSIS OF TREATED SEWAGE EFFLUENT****Table C-1 Summary of Analysis of Treated Sewage Effluent at FOX-M in 2014**

Date	Parameter				
	pH	Oil and Grease (Present - P / Absent - A)	Biological Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	Faecal Coliforms*
Maximum Concentration	6.0 to 9.0 (pH units)	No visible sheen	120 mg/L	180 mg/L	10,000 CFU/100 mL
30-Jan-14	7.91	A	14	3	9
28-Feb-14	8	A	6	<2	6
13-Mar-14	7.62	A	9	2	6
28-Apr-14	7.76	A	181	20	101
19-May-14	7.85	A	3	<2	3
5-Jun-14	7.85	A	1	<2	1
23-Jul-14	8.16	A	2	2	2
Aug-14	The work order to take this sample mistakenly stated that the date was July 2014. The work order was cancelled in error because the task stated July and was assumed to be left over from a previous contractor				
25-Sep-14	7.07	A	12	<2	12.0
20-Oct-14	7.1	A	1	<2	1.0
8-Dec-14 <sup>1</sup>	7.76	A	3	<2	3.0
23-Dec-14	7.76	A	2	<2	2.0

\*Average of the Cyclet 1A, Cyclet 1B, and Cyclet 1C.

<sup>1</sup> No sample was taken in November 2014. This sample was taken to fill the November sampling requirement.

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Certificate of Analysis



Client: Nasitug Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1401889  
Date Submitted: 2014-02-04  
Date Reported: 2014-02-05  
Project:   
COC #: 173142

Group	Analyte	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1085474	Sewage	1085475	Sewage	1085476
Microbiology	Faecal Coliforms	0	ct/100mL		2014-01-30	Fox-M Cyclelet 1-A	2014-01-30	Fox-M Cyclelet 1-B	2014-01-30
					15		6		9

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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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1401690  
Date Submitted: 2014-02-04  
Date Reported: 2014-02-11  
Project:   
COC #: 173142

				Lab I.D.	1085487
				Sample Matrix	Sewage
				Sample Type	
				Sampling Date	2014-01-30
				Sample I.D.	FOX-M-Cyclet
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.91
	Total Suspended Solids	2	mg/L		3
Nutrients	BOD5	1	mg/L		14
	Oil & Grease - Mineral	1	mg/L		<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		PIA		A

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasituuq Corp. (Ottawa)

Report Number: 1403713  
Date Submitted: 2014-03-06  
Date Reported: 2014-03-06  
Project:   
COC #: 173146

Group	Analyte	MRL	Units	Guideline	1090634	1090635	1090636
					Sewage	Sewage	Sewage
Microbiology	Faecal Coliforms	0	ct/100mL	Guideline	2014-02-28	2014-02-28	2014-02-28
					Fox Main Cyclot 1 A	Fox Main Cyclot 1 B	Fox Main Cyclot 1 C
					1	3	1

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February 2014 – 2 of 2

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasituuq Corp. (Ottawa)

Report Number: 1403734  
Date Submitted: 2014-03-05  
Date Reported: 2014-03-11  
Project:   
COC #: 173146

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			8.01
	Total Suspended Solids	2	mg/L		<2
Nutrients	BOD5	1	mg/L		6
	Oil & Grease - Mineral	1	mg/L		<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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= Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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March 2014 – 1 of 2

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Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 140418  
Date Submitted: 2014-03-18  
Date Reported: 2014-03-19  
Project:   
COC #: 173143

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1092724 Sewage 2014-03-13 Fox Main Cyclot 1A	1092725 Sewage 2014-03-13 Fox Main Cyclot 1B	1092726 Sewage 2014-03-13 Fox Main Cyclot 1C
Group	Analyte	MRL	Units	Guideline			
Microbiology	Faecal Coliforms	0	cf/100mL		2	3	5

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March 2014 – 2 of 2

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180 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1404397  
Date Submitted: 2014-03-18  
Date Reported: 2014-03-24  
Project:   
COC #: 173143

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1002650 Sewage  2014-03-13 FOX MAIN CYCLET
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.62
	Total Suspended Solids	2	mg/L		2
Nutrients	BOD5	1	mg/L		0
	Oil & Grease - Mineral	1	mg/L		<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		PTA		A

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April 2014 – 1 of 2

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1408076  
Date Submitted: 2014-05-06  
Date Reported: 2014-05-07  
Project:   
COC #: 173150

Group	Analyte	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1101626	Sewage	1101627	Sewage	1101628
Microbiology	Faecal Coliforms	0	cf/100mL		2014-04-28	Fox-M Cytel 1A	2014-04-28	Fox-M Cytel 1B	2014-04-28
					0		0		0

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1408057  
Date Submitted: 2014-05-06  
Date Reported: 2014-05-20  
Project:   
COC #: 173150

Group		Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry		pH	1.00			1101590 Water
		Total Suspended Solids	2	mg/L		2014-04-28 FOX-M Cyetelet 1
Nutrients		BOD5	1	mg/L		
		Oil & Grease - Mineral	1	mg/L		
Oil & Grease		Oil & Grease - Non-mineral	1	mg/L		
		Oil & Grease - Total	1	mg/L		
		Visible Sheen		mg/L		

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May 2014 2014 – 1 of 2

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180 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasituu Corp. (Ottawa)

Report Number: 1409508  
Date Submitted: 2014-05-22  
Date Reported: 2014-05-28  
Project:   
COC #: 173145

Group	Analyte	MRL	Units	Guideline	1105307	1105308	1105309
					Sewage	Sewage	Sewage
Microbiology	Faecal Coliforms	0	ct/100mL		2014-05-19 Fox M Cyclot 1A	2014-05-19 Fox M Cyclot 1B	2014-05-19 Fox M Cyclot 1C
					2	1	2

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

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MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable  
Concentration, STD = Standard, FWQO = Provincial Water Quality Guideline, IPWQO  
= Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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SOW REF: 16.F.5.d

May 2014 – Page 2 of 2

## EXOVA OTTAWA

## Certificate of Analysis



Client: Nasittuq Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1409529  
Date Submitted: 2014-05-22  
Date Reported: 2014-05-29  
Project: 100025  
COC #: 173145

Lab I.D. 1105445 Sample Matrix Sewage Sample Type Sampling Date 2014-05-19 Sample I.D. Fox M Cyclet 1				
Group	Analyte	MRL	Units	Guideline
General Chemistry	pH	1.00		7.85
	Total Suspended Solids	2	mg/L	<2
Nutrients	BOD5	1	mg/L	3
Oil & Grease	Oil & Grease - Mineral	1	mg/L	<1
	Oil & Grease - Non-mineral	1	mg/L	<1
	Oil & Grease - Total	1	mg/L	<1
Visible Sheen	Visible Sheen		P/A	A

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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Page 2 of 3

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SOW REF: 16.F.5.d

June 2014 – 1 of 2

EXOVA OTTAWA

Certificate of Analysis



Client: Nasittuq Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1410846  
Date Submitted: 2014-06-09  
Date Reported: 2014-06-10  
Project:   
COC #: 132962

					Lab I.D.	1109238	1109239	1109240
					Sample Matrix	Sewage	Sewage	Sewage
					Sample Type	-	-	-
					Sampling Date	2014-06-05	2014-06-05	2014-06-05
					Sample I.D.	Fox Main Cyclet 1A	Fox Main Cyclet 1B	Fox Main Cyclet 1C
Group	Analyte	MRL	Units	Guideline				
Microbiology	Faecal Coliforms	0	ct/100mL	Water		14	18	35

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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June 2014 – 2 of 2

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Client: Nasituu Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasituu Corp. (Ottawa)

Report Number: 1410668  
Date Submitted: 2014-06-09  
Date Reported: 2014-06-16  
Project:   
COC #: 132962

				Lab I.D.	1109272
				Sample Matrix	Sewage
				Sample Type	2014-06-06
				Sampling Date	Fox Main Cycle 1
				Sample I.D.	
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.05
	Total Suspended Solids	2	mg/L		<2
Nutrients	BOD5	1	mg/L		1
	Oil & Grease - Mineral	1	mg/L		<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Shoon	Visible Shoon		P/A		A

Guideline = \* = Guideline Exceedence  
\*\* = Analysis completed at Mississauga, Ontario.  
Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional Q/A/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, PW/QO = Provincial Water Quality Guideline, IPWQO  
= Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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July 2014 – 1 of 2

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Client: Nasituuq Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasituuq Corp. (Ottawa)

Report Number: 1415646  
Date Submitted: 2014-07-26  
Date Reported: 2014-07-29  
Project:   
COC #: 173147

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1122326 Sewage	1122327 Sewage	1122328 Sewage
Group	Analyte	MRL	Units	Guideline		2014-07-23 Fox - M - Cycle1 1A	2014-07-23 Fox - M - Cycle1 1B	2014-07-23 Fox - M - Cycle1 1C
Microbiology	Faecal Coliforms	0	cf/100mL		3	1	1	

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, PAWQO = Provincial Water Quality Guideline, IPAQO  
= Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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July 2014 – 2 of 2

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Client: Nasittug Corp. (Ottawa)  
100 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittug Corp. (Ottawa)

Report Number: 1415653  
Date Submitted: 2014-07-28  
Date Reported: 2014-08-05  
Project:   
COC #: 173147

Lab I.D. 1122343 Sample Matrix Sewage Sample Type 2014-07-23 Sampling Date Fox - M - Cyclot 1 Sample I.D.				
Group	Analyte	MRL	Units	Guideline
General Chemistry	pH	1.00		8.16
	Total Suspended Solids	2	mg/L	2
Nutrients	BOD5	1	mg/L	2
	Oil & Grease - Mineral	1	mg/L	<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L	<1
	Oil & Grease - Total	1	mg/L	<1
Visible Sheen	Visible Sheen		P/A	A

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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August 2014 – The work order to take this sample mistakenly stated that the date was July 2014. The work order was cancelled in error because the task stated July and was assumed to be left over from a previous contractor

Such omissions will not occur in the future.

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September 2014 – 1 of 2

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1422431  
Date Submitted: 2014-10-20  
Date Reported: 2014-10-21  
Project: 140348  
COC #: 173149

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1140632 Sewage 2014-09-25 Fox Main Cyclelet 1A	1140633 Sewage 2014-09-25 Fox Main Cyclelet 1B	1140634 Sewage 2014-09-25 Fox Main Cyclelet 1C
Microbiology	Faecal Coliforms	0	ct/100mL			0	0	0

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.  
146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

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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September 2014 – 2 of 2

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1500623  
Date Submitted: 2015-01-13  
Date Reported: 2015-01-20  
Project: 140340  
COC #: 177717

		Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
		1155445	Sewage		2014-12-23	Cyclot - FOX - M
Group	Analyte	MRL	Units	Guideline		
General Chemistry	pH	1.00			7.76	
	Total Suspended Solids	2	mg/L		<2	
Nutrients	BOD5	1	mg/L		2	
	Oil & Grease - Mineral	1	mg/L		<1	
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1	
	Oil & Grease - Total	1	mg/L		<1	
Visible Sheen	Visible Sheen		P/A		A	

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.  
146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

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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October 2014 – 1 of 2

EXOVA ENVIRONMENTAL ONTARIO

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Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1423749  
Date Submitted: 2014-11-05  
Date Reported: 2014-11-06  
Project:   
COC #: 173148

Group	Analyte	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1144715	1144716	1144717	1144715	1144716
Microbiology	Faecal Coliforms	0	ct/100mL		Sewage	Sewage	Sewage	2014-10-20	2014-10-20
					Cyclet Fox-M A	Cyclet Fox-M B	Cyclet Fox-M C		
					0	0	0		

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.  
148 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

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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EXOVA ENVIRONMENTAL ONTARIO

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Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1423732  
Date Submitted: 2014-11-05  
Date Reported: 2014-11-11  
Project: 140340  
COC #: 173148

Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.					1144666 Sewage  2014-10-20 Cyclot Fox-M
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.10
	Total Suspended Solids	2	mg/L		<2
Nutrients	BOD5	1	mg/L		1
	Oil & Grease - Mineral	1	mg/L		<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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.  
148 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

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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November 2014 – 1 of 2

No sample was taken in November 2014. This sample was taken to fill the November sampling requirement.

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1427054  
Date Submitted: 2014-12-30  
Date Reported: 2015-01-02  
Project: 140340  
COC #: 177716

					Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1153971	Sewage			
					2014-12-08				
					Cyclelet Fox-M - A				
Group	Analyte	MRL	Units	Guideline					
Microbiology	Faecal Coliforms	0	ct/100mL		0	0	0		

Guideline = \* = Guideline Exceedence  
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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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EXOVA ENVIRONMENTAL ONTARIO

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Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1427076  
Date Submitted: 2014-12-30  
Date Reported: 2015-01-05  
Project: 140340  
COC #: 177716

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1154009 Wastewater  2014-12-08 Cyclot Fox-M
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.76
	Total Suspended Solids	2	mg/L		<2
Nutrients	BOD5	1	mg/L		3
	Oil & Grease - Mineral	1	mg/L		<1
Oil & Grease	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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.  
146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

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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December 2014 – 1 of 2

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1500588  
Date Submitted: 2015-01-13  
Date Reported: 2015-01-14  
Project: 140340  
COC #: 177717

Group	Analyte	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1155384	Sewage		2014-12-23	Cyclot Fox-M A
Microbiology	Faecal Coliforms	0	ct/100mL		1155385	Sewage		2014-12-23	Cyclot Fox-M B
					1155386	Sewage		2014-12-23	Cyclot Fox-M C
					0			0	

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.  
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**EXOVA ENVIRONMENTAL ONTARIO**

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Client: Canadian Base Operators  
400 Cooper St., Suite 3000  
Ottawa, ON  
K2P 2H8  
Attention: Mr. Will Wyman  
PO#:   
Invoice to: Canadian Base Operators

Report Number: 1500623  
Date Submitted: 2015-01-13  
Date Reported: 2015-01-20  
Project: 140340  
COC #: 177717

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.76
	Total Suspended Solids	2	mg/L		<2
Nutrients	BOD5	1	mg/L		2
Oil & Grease	Oil & Grease - Mineral	1	mg/L		<1
	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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.  
146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

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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## ANNEX D - FOX-M - LOCATION OF BERMED FUEL STORAGE FACILITIES WITH CO-ORDINATES

Licence	Location	Monitoring Station # (Final discharge point of bermed fuel storage facility)	Berm's location on-site	Berm's co-ordinates
3BC- FOH0919 Type "B"	FOX-M North Warning System Site, Hall Beach, Melville Peninsula, Qikiqtani Region, Nunavut	FOH-3	Summit (near PGS building), berm of tank W22A	68° 45' 42" N 81° 13' 24" W
			Summit (near PGS building), berm of tank W22B	68° 45' 43" N 81° 13' 26" W
			Airfield (near hangar) berm of tanks W20D and W20E	68° 46' 16" N 81° 13' 59" W
			Beach, Berm of tank W20F	68° 46' 24" N 81° 12' 47" W
			Beach, Berm of tank W20B	68° 46' 24" N 81° 12' 50" W

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## ANNEX E - FOX-M - ANALYSIS OF BERM WATER (EFFLUENT FROM BERMED FUEL STORAGE FACILITIES)

Table E-1 Analysis of Berm Water at FOX-M in 2014

Site		FOX-M W22A	FOX-M W22B	FOX-M W20B	FOX-M W20F	FOX-M W20D & W20E
Berm	Maximum Concentration of any Grab Sample (µg/L)	31-May- 14	31-May- 14	31-May-14	31- May-14	31- May-14
Date						
pH	6 to 9	7.64	7.74	7.67	7.59	7.6
Oil and Grease (ug/L)	5000	<1000	<1000	<1000	<1000	<1000
Arsenic (total) (ug/L)	100	<20	<20	<20	<20	<20
Cadmium (dissolved) (ug/L)	10	0.1	<0.1	<0.1	<0.1	<0.1
Chromium (dissolved) (ug/L)	100	<1	<1	<1	<1	<1
Cobalt (dissolved) (ug/L)	50	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved) (ug/L)	200	2	3	3	5	2
Lead (dissolved) (ug/L)	50	<1	<1	<1	<1	<1
Mercury (total) (ug/L)	0.6	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved) (ug/L)	200	<5	<5	<5	<5	<5
PCB (total) (ug/L)	1000	<0.1	<0.1	<0.1	<0.1	<0.1
Phenols (ug/L)	20	<1	<1	<1	<1	<1
Zinc (total) (ug/L)	500	<40	<40	110	<40	<40
Benzene (ug/L)	370	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene (ug/L)	2	<0.5	<0.5	<0.5	<0.5	<0.5
Ethyl benzene (ug/L)	90	<0.5	<0.5	<0.5	<0.5	<0.5

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31 May 2014

Summit (near PGS building), Berm of tank W22A

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EXOVA OTTAWA

Certificate of Analysis



Client: Nasitug Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1410074  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 169313

Group		Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
Metals		Cd	0.0001	mg/L		1108844 Water - 2014-05-31 FOX-M W22A
		Co	0.0002	mg/L		
		Cr	0.001	mg/L		
		Cu	0.001	mg/L		
		Ni	0.005	mg/L		
		Pb	0.001	mg/L		
Others		Filtration				Yes

Guideline = \* = Guideline Exceedence  
\*\* = Analysis completed at Mississauga, Ontario.  
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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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31 May 2014

Summit (near PGS building), Berm of tank W22A

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## EXOVA OTTAWA

## Certificate of Analysis



Client: Nasitluq Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitluq Corp. (Ottawa)

Report Number: 1410633  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 169313

Lab I.D.					1108780
Sample Matrix					Water
Sample Type					2014-05-31
Sampling Date					FOZ-M-W22A
Sample I.D.					
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.64
Mercury	Hg	0.0001	mg/L		<0.0001
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Zn	0.04	mg/L		<0.04
Nutrients	Phenols	0.001	mg/L		<0.001
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
VOCs	Benzene	0.5	ug/L		<0.5
	Ethylbenzene	0.5	ug/L		<0.5
	Toluene	0.5	ug/L		<0.5
VOCs Surrogates (%)	Toluene-d8	0	%		97

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.

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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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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1410672  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173684

					Lab I.D.	1108642
					Sample Matrix	Water
					Sample Type	-
					Sampling Date	2014-05-31
					Sample I.D.	FOX-M W22B
Group	Analyte	MRL	Units	Guideline		
Metals	Cd	0.0001	mg/L		<0.0001	
	Co	0.0002	mg/L		<0.0002	
	Cr	0.001	mg/L		<0.001	
	Cu	0.001	mg/L		0.003	
	Ni	0.005	mg/L		<0.005	
	Pb	0.001	mg/L		<0.001	
Others	Filtration				Yes	

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

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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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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1410632  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173684

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1108779 Water 2014-05-31 FOX-M-W22B
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.74
Mercury	Hg	0.0001	mg/L		<0.0001
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Zn	0.04	mg/L		<0.04
Nutrients	Phenols	0.001	mg/L		<0.001
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
VOCs	Benzene	0.5	ug/L		<0.5
	Ethylbenzene	0.5	ug/L		<0.5
	Toluene	0.5	ug/L		<0.5
VOCs Surrogates (%)	Toluene-d8	0	%		97

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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Beach, Berm of tank W20B

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1410871  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173683

Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.					1108841 Water - 2014-05-31 FOX-M W20B
Group	Analyte	MRL	Units	Guideline	
Metals	Cd	0.0001	mg/L		<0.0001
	Co	0.0002	mg/L		<0.0002
	Cr	0.001	mg/L		<0.001
	Cu	0.001	mg/L		0.003
	Ni	0.005	mg/L		<0.005
	Pb	0.001	mg/L		<0.001
Others	Filtration				Yes

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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Beach, Berm of tank W20B

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EXOVA OTTAWA

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100 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1410631  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173663

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	
				1108778 Water 2014-05-31 FOX-M W20B	
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.87
Mercury	Hg	0.0001	mg/L		<0.0001
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Zn	0.04	mg/L		0.11
Nutrients	Phenols	0.001	mg/L		<0.001
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
VOCs	Benzene	0.5	ug/L		<0.5
	Ethylbenzene	0.5	ug/L		<0.5
	Toluene	0.5	ug/L		<0.5
VOCs Surrogates (%)	Toluene-d8	0	%		96

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.

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

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasittuq Corp. (Ottawa)

Report Number: 1410067  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173688

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
Metals	Cd	0.0001	mg/L		1108837 Water - 2014-05-31 FOX-M W20F
	Co	0.0002	mg/L		<0.0001
	Cr	0.001	mg/L		<0.0002
	Cu	0.001	mg/L		<0.001
	Ni	0.005	mg/L		0.005
	Pb	0.001	mg/L		<0.005
Others	Filtration				<0.001 Yes

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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Beach, Berm of tank W20F

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160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1410629  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173688

Lab I.D. 1108776 Sample Matrix Water Sample Type Sampling Date 2014-05-31 Sample I.D. FOX - MW20F				
Group	Analyte	MRL	Units	Guideline
General Chemistry	pH	1.00		7.59
Mercury	Hg	0.0001	mg/L	<0.001
Metals	Aqua-Regia Digest			Y
	As	0.02	mg/L	<0.02
	Zn	0.04	mg/L	<0.04
Nutrients	Phenols	0.001	mg/L	<0.001
Oil & Grease	Oil & Grease - Total	1	mg/L	<1
PCEs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	<0.1
VOCs	Benzene	0.5	ug/L	<0.5
	Ethylbenzene	0.5	ug/L	<0.5
	Toluene	0.5	ug/L	<0.5
VOCs Surrogates (%)	Toluene-d8	0	%	96

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.

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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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Airfield (near hangar), Berm of tanks W20D and W20E

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Client: Nasitug Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1410669  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173682

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1106839 Water - 2014-05-31 FOX-M W20E/W20D
Group	Analyte	MRL	Units	Guideline	
Metals	Cd	0.0001	mg/L		<0.0001
	Co	0.0002	mg/L		<0.0002
	Cr	0.001	mg/L		<0.001
	Cu	0.001	mg/L		0.002
	Ni	0.005	mg/L		<0.005
	Pb	0.001	mg/L		<0.001
Others	Filtration				Yes

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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Airfield (near hangar), Berm of tanks W20D and W20E

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## EXOVA OTTAWA

## Certificate of Analysis



Client: Nasitug Corp. (Ottawa)  
160 Elgin Street, Suite 400  
Ottawa, ON  
K2P 2C4  
Attention: Ms. Barb Thomson  
PO#:   
Invoice to: Nasitug Corp. (Ottawa)

Report Number: 1410630  
Date Submitted: 2014-06-05  
Date Reported: 2014-06-10  
Project:   
COC #: 173682

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1108777 Water 2014-05-31 FOX-M W20E/W20D
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.00
Mercury	Hg	0.0001	mg/L		<0.0001
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Zn	0.04	mg/L		<0.04
Nutrients	Phenols	0.001	mg/L		<0.001
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
VOCs	Benzene	0.5	ug/L		<0.5
	Ethylbenzene	0.5	ug/L		<0.5
	Toluene	0.5	ug/L		<0.5
VOCs Surrogates (%)	Toluene-d8	0	%		97

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,  
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= Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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