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2014 ANNUAL NUNAVUT WATER BOARD REPORT FOR CAM-3

FOR THE

North Warning System

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

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Prepared for

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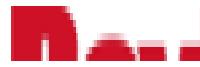
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CHANGE HISTORY

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Version	Date	Configuration Management	Pages Changed	Reason for Change
1	16-Mar-2015	-	-	Initial Document Release.
Document Title: 2014 Annual Report Nunavut Water Board for CAM-3			Document Number: FM-EHS-13	

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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-SHE0919 – 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 NWS sites. On 01 August 2014, RCL became the O&M Contractor and took over CC&C of the NWS sites, including the CAM-3 Long Range Radar site.

CAM-3 is an unattended (unmanned) North Warning System radar site located at Shepherd Bay, Nunavut. The site is visited quarterly for preventive maintenance inspections and as required for other work by RCL staff from CAM-M, Cambridge Bay, Nunavut.

A total of 118.3 cubic meters was drawn from the water supply lake. This is below the annual maximum of 1,440 cubic meters allowed by the licence.

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-SHE0919, 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 Cambridge Bay and at the local landfill. RCL has documented authorization from the community for receiving the waste.

Two outdoor spills occurred at CAM-3 in 2014. The spills were:

- a. NT-NU Spill Report # 14-101. On 09 Apr 2014, a Canadian Ranger reported a very minor leak. The Ranger noticed snow was yellow under a valve. On 14 April 2014, Nasittuq personnel arrived on-site. They investigated the area around tanks W22I and W22H and found 2 weeping valves (1 valve near each tank). Staff opened and closed the valves to relieve the pressure, confirmed that the nuts on the valves were tight, and cleaned up the fuel impacted snow. Fuel impacted snow was placed in a container for future disposal at a licensed hazardous waste disposal facility outside of Nunavut.
- b. NT-NU Spill Report # 14-102. On 09 April 2014, a Canadian Ranger reported a very minor leak. The Ranger noticed snow was yellow under a valve. On 14 April 2014, Nasittuq personnel arrived on-site. They investigated the beach-to-summit fuel pipeline and found 2 weeping valves. Staff opened and closed the valves to relieve the pressure, confirmed that the nuts on the valves were tight, and cleaned up the fuel impacted snow. Fuel impacted snow was placed in a container for future disposal at a licensed hazardous waste disposal facility outside of Nunavut.

The Spill Contingency Plan was successfully implemented.

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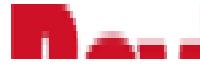
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1.0 INTRODUCTION

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CAM-3 is an unattended (unmanned) North Warning System radar site located at Shepherd Bay, Nunavut. The site is visited quarterly for preventive maintenance inspections and as required for other work by RCL staff from CAM-M, Cambridge Bay, Nunavut.

1.1 REPORT DETAILS

Licensee: Department of National Defence, Government of Canada
Licence: 3BC-SHE0919 – Type “B”
Location: CAM-3 North Warning System Site,
Cambridge Bay, Kitikmeot Region, Nunavut
Report prepared by: Raytheon Canada Limited, 16-Mar- 2015
Time Period Covered: 01 January to 31 December 2014

2.0 WATER USE

A total of 118.3 cubic meters was drawn from the water supply lake. This is below the annual maximum of 1,440 cubic meters allowed by the licence. See Table 2-1 for the volume of raw water drawn at CAM-3 in 2014.

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Table 2-1 Monthly Raw Water Usage at CAM-3 in 2014

Month	Raw water usage in cubic metres (m ³)	Company with CC&C of the site
January	0	Nasittuq Corporation
February	0	Nasittuq Corporation
March	0	Nasittuq Corporation
April	0	Nasittuq Corporation
May	29.4	Nasittuq Corporation
June	0	Nasittuq Corporation
July	57.5	Nasittuq Corporation
August	0	RCL
September	31.4	RCL
October	0	RCL
November	0	RCL
December	0	RCL
TOTAL	118.3	

3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

No hazardous wastes or waste oils were disposed of in 2014. Therefore Table 3-1 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 3-1 Hazardous Waste and Waste Oil Sent for Disposal from CAM-3 in 2014

Site	Description, TDG shipping name	Quantity	Movement Document or Manifest #
CAM-3	No hazardous wastes or waste oils were disposed of in 2014.	0	N/A

4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was flown out to CAM-M and disposed of through a contract with the Municipality of Cambridge Bay at the local landfill. RCL has documented authorization from the community for receiving the waste. See Table 4-1 for the quantity of waste generated.

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Table 4-1 Non-hazardous Domestic Solid Waste Sent for Disposal from CAM-3 in 2014

Month	Waste Generated (kg)	Company with CC&C of the site
January	0	Nasittuq Corporation
February	0	Nasittuq Corporation
March	0	Nasittuq Corporation
April	0	Nasittuq Corporation
May	0	Nasittuq Corporation
June	65	Nasittuq Corporation
July	474	Nasittuq Corporation
August	0	RCL
September	21	RCL
October	21	RCL
November	107	RCL
December	0	RCL
Total	688	

5.0 MONITORING PROGRAM

See **Annex B** for the location of the sewage effluent outfall, SHE-2, with co-ordinates. A sump for the sewage outfall was built in 2010.

See **Annex C** is blank. The sump for the sewage outfall was not pumped out therefore no samples were taken for laboratory analysis.

See **Annex D** for the list of bermed fuel storage facilities, SHE-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-SHE0919, Part D, item 10 before the water was pumped out of the berms.

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6.0 SPILLS (UNAUTHORIZED DISCHARGES)

Table 7-1 Outdoor Spills Reported at CAM-3 in 2014

Date, Spill #	Product	Quantity	Cause and follow-up action	Location at CAM-3
09 Apr 2014, Spill # 14-101	Jet A1 fuel	Less than 1 liter (drops on snow)	On 09 April 2014, a Canadian Ranger reported a very minor leak. The Ranger noticed snow was yellow under a valve. On 14 April 2014, Nasittuq personnel arrived on-site. They investigated the area around tanks W22I and W22H and found 2 weeping valves (1 valve near each tank). Staff opened and closed the valves to relieve the pressure, confirmed that the nuts on the valves were tight, and cleaned up the fuel impacted snow. Fuel impacted snow was placed in a container for future disposal at a licensed hazardous waste disposal facility outside of Nunavut.	2 valves near summit fuel tanks W22I and W22H
09 Apr 2014, Spill # 14-102	Jet A1 fuel	Less than 1 liter (drops on snow)	On 09 April 2014, a Canadian Ranger reported a very minor leak. The Ranger noticed snow was yellow under a valve. On 14 April 2014, Nasittuq personnel arrived on-site. They investigated the beach-to-summit fuel pipeline and found 2 weeping valves. Staff opened and closed the valves to relieve the pressure, confirmed that the nuts on the valves were tight, and cleaned up the fuel impacted snow. Fuel impacted snow was placed in a container for future disposal at a licensed hazardous waste disposal facility outside of Nunavut.	2 valves on beach-to summit fuel line

7.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

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

8.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

None undertaken.

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9.0 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 – 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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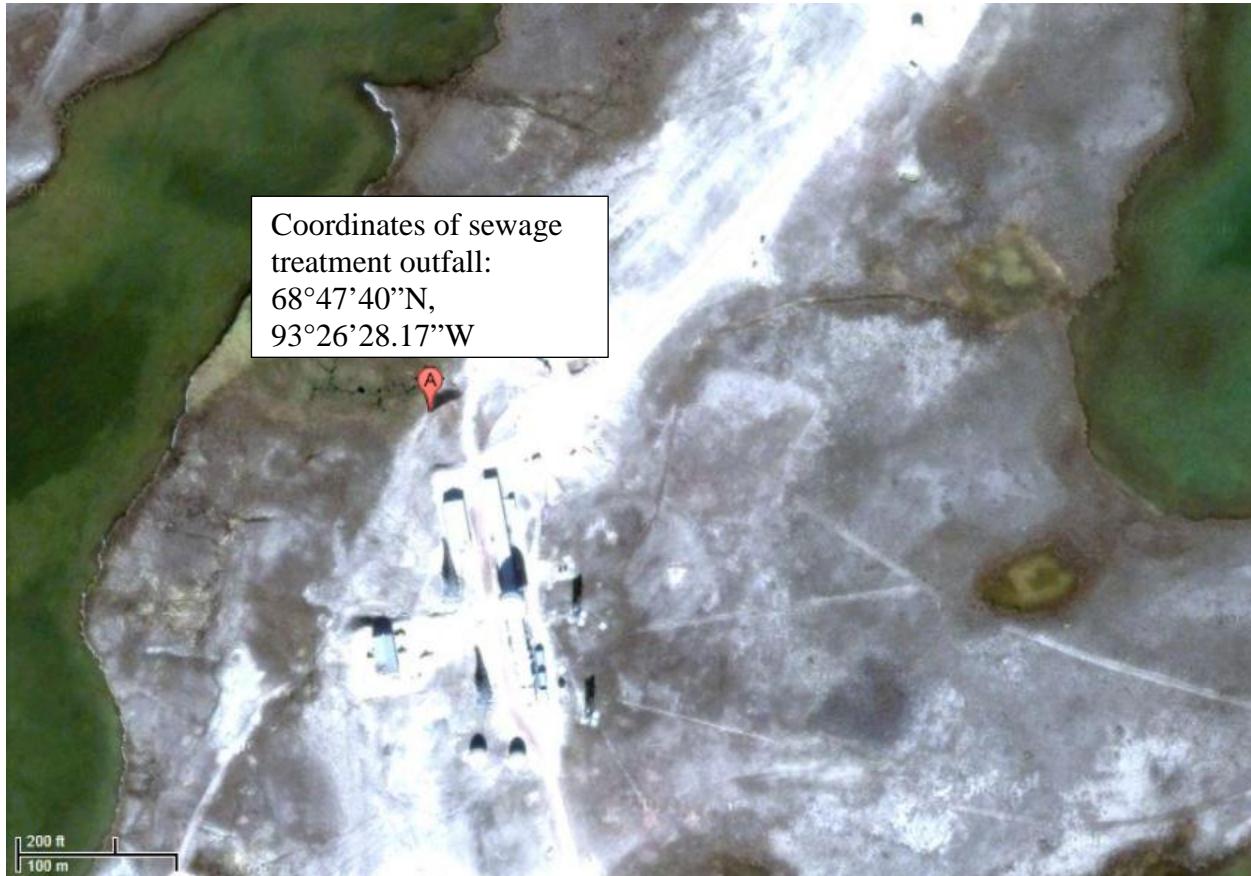
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ANNEX B - CAM-3 - SEWAGE EFFLUENT OUTFALL (CDL-2) LOCATION WITH CO-ORDINATES

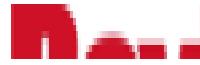


Coordinates of sewage treatment outfall: 68°47'40"N, 93°26'28.17"W

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ANNEX C - CAM-3 - ANALYSIS OF SEWAGE EFFLUENT

The sump of the sewage outfall was not pumped out therefore no samples were taken for laboratory analysis. This Annex has been left blank because there are no results to report.

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ANNEX D - CAM-3 - 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- SHE0919 Type "B"	CAM-3 North Warning System Site, Cambridge Bay, Kitikmeot Region, Nunavut	SHE-3	Summit, berm of tank W22A	68° 47' 42" N 93° 26' 20" W
			Beach, berm of tanks W22C and W22D	68° 48' 07" N 93° 36' 50" W

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ANNEX E - CAM-3 - ANALYSIS OF BERM WATER (EFFLUENT FROM BERMED FUEL STORAGE FACILITIES)

Table E-1 Analysis of Berm Water at CAM-3 in 2014

Site Berm	Maximum Concentration of any Grab Sample (µg/L)	CAM-3 W22C&W22D
Date	23-Jun-14	
pH	6 to 9	7.47
Oil and Grease (ug/L)	5000	<1000
Arsenic (total) (ug/L)	100	<20
Cadmium (dissolved) (ug/L)	10	<0.1
Chromium (dissolved) (ug/L)	100	<1
Cobalt (dissolved) (ug/L)	50	<0.2
Copper (dissolved) (ug/L)	200	1
Lead (dissolved) (ug/L)	50	<1
Mercury (total) (ug/L)	0.6	0.5
Nickel (dissolved) (ug/L)	200	<5
PCB (total) (ug/L)	1000	<0.1
Phenols (ug/L)	20	<1
Zinc (total) (ug/L)	500	<40
Benzene (ug/L)	370	<0.5
Toluene (ug/L)	2	<0.5
Ethyl benzene (ug/L)	90	<0.5

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31 May 2014

Beach, Berm of tanks W22C and W22D

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EXOVA OTTAWA

Certificate of Analysis

Exova

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: 1411395
Date Submitted: 2014-06-13
Date Reported: 2014-06-18
Project: CAM-3
COC #: 122608

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	0.001	
	Ni	0.005	mg/L	<0.005	
	Pb	0.001	mg/L	<0.001	

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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SOW REF: 16.F.5.d

31 May 2014

Beach, Berm of tanks W22C and W22D

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EXOVA OTTAWA

Certificate of Analysis

Exova

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

Report Number: 1411394
Date Submitted: 2014-06-13
Date Reported: 2014-06-20
Project: CAM-3
COC #: 122608

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00	mg/L	7.47	
Mercury	Hg	0.0001	mg/L	0.0005	
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	%	98	

Guideline - * = Guideline Exceedence

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