2020 ANNUAL NUNAVUT WATER BOARD REPORT FOR CAM-3

FOR THE

North Warning System

Contract # W8485-100224/001/NX

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EXECUTIVE SUMMARY IN ENGLISH FOLLOWS

2020 ᐊᖏᕐᕋᒍᒧᑦ ᐅᓂᒃᑲᑦ ᓄᓇᕗᒻᒥ ᐃᒥᓕᓐᓂᑦ ᑲᑎᒪᔨᖏᓪᓄᑦ (NWB) ᑎᑎᕐᖅᑕᐅᓯᒪᔪᑦ Raytheon Canada Limited (RC) ᐱᓕᓐᓇᖕᖓᓪᓄᑦ ᐅᓇᑕᖅᑐᑕᓐᓂᔨᓴᑦ ᑎᑭᑦᑎᒍᓇᓂᐅᕙᖏᓐᓂᒃ ᐱᑕᖃᓐᓇᖅᑐᑎᑕᐅᔪᓂᑦ ᐃᓕᒍᑕᖕᖓ B “ᖃᓄᐃᓂᖃᓐᓇᖅᑐᑎᑕᐅᔪᓂᑦ”, ᑎᑎᕐᖅᓯᒪᓂᖕᖓ 1 ᓕᐃᔨᓯᖏᓐᓄᓂ 8BC-SHE1929. ᐅᓴᐊ ᐅᓂᒃᑲᑦ ᐱᖃᓯᐅᔨᔪᓂᑦ 01 ᑲᓪᓄᐊᓗ ᑎᑭᑦᑐᒍ 31 ᑎᓯᐱᓗ 2020.

RC ᐊᐅᓕᓂᖕᖓᓪᓄᑦ ᐊᓚᒪ ᒪᑭᒪᑎᑕᐅᓂᓂᖕᖓᓪᓄᑦ (O&M) ᑲᓪᑐᑦᓴᖅᑎᑐ ᐅᑭᐅᑕᖅᑐᒥ ᖃᐅᔨᓴᕐᓴᖅᓪᓄᑦ (NWS) ᐱᖃᓯᐅᑎᓪᓗᓂ CAM-3. CAM-3 ᐅᐸᑦᑕᐅᓯᒪᓂᑐᑦᑐᖅ (ᐃᓄᖃᖕᓂᑐᑦᑐᖅ) ᐅᑭᐅᑕᖅᑐᒥ ᖃᐅᔨᓴᕐᓴᖅᓪᓄᑦ ᓇᔪᖅᑕᖕᓂᑦ ᓯᐊᐅᑦ ᐃᒪᖕᒋᓂ, ᓄᓇᕗᑦ. ᓇᔪᖅᑕᐅᔪᖅ ᐅᐸᑦᑕᐅᖃᑦᑕᖅᑐᖅ ᐱᖕᓇᓯᓂ ᑕᖅᑭᐅᓚᐃᒪᒪᑕ RC ᐃᖅᑲᓇᐃᔨᖅᑎᑦᓂᓪᓄᑦ ᐅᕙᓪᓕᑦ CAM-M, ᐃᖃᓗᑦᑐᑦᑎᐊᖅ, ᓄᓇᕗᑦ.

ᑲᑎᑦᑐᑦ 77.6 ᑭᐸᓵᓚᑦᑐᑦ ᑭᑕᐃᑦ (m³) ᐱᓕᐅᓪᓕᖅᑐᑦ ᐃᒋᑦ ᐃᒪᖃᕐᒪᑯᐅᔪᒥᑦ ᑕᓯᖏᑦ 2020–ᖓᑎᓪᓗᒍ. ᑕᐃᓪᓇ ᑐᖓᓚᓄᑦᑐᑦ ᐊᖏᕐᕋᒍᒧᑦ ᐊᖓᔪᓵᓚᓪᓇᖅᑕᖓᓂ 1,440 m³ ᐱᔪᓇᖅᑎᑕᐅᔪᓂᑦ ᓪᓕᐅᖃᓪᓚᒍᑦ.

ᐃᒥᖅᑕᖃᓪᓕᐅᖕᖓᓪᓂᑐᖅ ᐃᓕᖃᖃᕐᓂᑦ ᐅᖅᓯᐊᓗᖃᐅᑎᓂᑦ ᖃᐅᔨᓴᖏᖃᓐᓂᑦ ᐱᑕᖃᓐᓇᖅᑐᖃᓕᕐᓂᑦ ᐅᖅᓯᐊᓗᖃᓪᓕᐅᖕᖓᓪᓂᑦᑐᖅ.

2020–ᒥᑦ, ᐊᑦᑕᓇᖅᑐᓂᑦ ᐊᑦᑕᑯᓂᑦ ᐊᐅᓪᓚᑎᑦᑎᔪᖃᓪᓕᐅᖕᖓᓪᓂᑐᖅ CAM-3–ᒥᑦ.

ᐊᑦᑕᓇᖕᖓᓪᓂᑦ ᑎᓯᔪᑦ ᐊᑦᑕᑯᐃᐃᑦ ᐃᒥᑕᐅᓪᓚᐅᖕᖓᓪᓂᑦ ᑲᓪᑐᑦᑎᒍᔪᑦ Hᐊᒡᒪᓚᓪᓕᖅᑐᓂᑦ ᐃᖃᓗᑦᑐᑦᑎᐊᖅ ᐊᓪᓯᐊᓪᓕᖅᓂᓂ. RC ᑎᑎᕐᖅᑕᐅᓯᒪᔪᓂᑦ ᐱᓯᒪᑦᑎᑦᔪᑦ ᐱᔪᓇᓕᐅᑎᓂᑦ ᓄᓇᕗᒻᒥ ᐱᓕᐅᓂᖕᖓᓪᓄᑦ ᐊᑦᑕᑯᐃᐃᑦ.

ᐊᑕᐅᓯᖏᑐ ᑯᐃᔪᖃᓪᓕᐅᖕᖓᓪᓂᖅ ᐊᑦᑕᑯᐃᐃᑦ ᐃᒥᑕᐅᓪᓚᐅᖕᖓᓪᓂᑦ ᑲᓪᑐᑦᑎᒍᓇᓂᐅᕙᖏᓐᓂᒃ ᐊᓪᓯᐊᓪᓕᖅᓂᓂ CAM-3 ᐅᓇᐅᑎᓪᓗᒍ 2020:

- 16ᑲᓪᓄᐊᓗ2020, NT-NU ᑯᐃᔪᖃᖕᓂᓄᑦ # 20-015: ᐃᖃᓗᐃᑦᑐᖅᑎᑦ ᓇᔪᖃᓪᓚᐅᔪᒧᓪᓚᐅᖕᖓᓪᓂᑦ 15ᑲᓪᓄᐊᓗ2020 ᐊᖃᑭᓯᓂᐊᖃᖕᓂᖕᖓᑎ ᐊᐅᓪᓚᐅᑎᓂᑦ ᓄᖃᖃᖕᑎᑐᒥᖃᖕᓂᖅ ᐅᓇᐅᑎᓪᓗᒍ 3ᑲᓪᓄᐊᓗ2020. 16ᑲᓪᓄᐊᓗ2020, ᐃᖃᓗᐃᑦᑐᖅᑎᑦ ᓇᓂᓯᓚᐅᖕᖓᓪᓂᑦ ᑲᓇᐃᑲᒥ ᓯᓚᒥ ᐊᒡᒪ ᖃᓂᑭᔾᔪᓚᐊᓂ 40 L ᒪᒪᐃᑲ ᑯᐃᔪᖃᓪᓚᐅᔪᒧᖅ. ᐱᓕᓐᓇᓵᑦ ᐅᓂᒃᑲᖅᓯᒪᔪᑦ ᐱᓯᓄᓂᑦ ᓯᓚᓕᓄᑦ ᓯᑎᑦᑕᐅᑎᖓᓪ ᐊᓯᓕᖕᖓᑐᓂᐅᕙᓪᓕᐅᖕᖓᓪᓂᑦ DEG1 ᐃᒪᖃᓂ ᐅᓇᖅᓯᓚᐊᖕᖓᓂ ᐊᒡᒪ ᐅᖕᑯᔾᔨᐅᑎᖓᓂ ᒪᑐᖓ ᐊᓂᐊᑎᑎᓪᓚᓂ ᐃᒪᖃᓂ. ᐅᓇᐅᑎᓪᓗᒍ 17ᑲᓪᓄᐊᓗ2020, ᐃᖃᓗᐃᑦᑐᖅᑎᑦ ᓴᓚᒪᖃᓴᓇᐅᑎᖕᖓᓪᓂᑦ ᑯᐃᔨᐅᓯᒪᔪᑦ ᐱᔨᐃᓪᓚᒍ ᐊᑐᑐᑦᑕᐅᓯᒪᔪᑦ ᐊᐅᓚᑦ ᐊᒡᒪ ᐅᓴᖃᐅᑎᓪᓚᓂ 2 ᖃᑦᑕᐅᑲᓪᓄᐊᓂᑑ (85 ᐃᒪᓐ ᐊᑐᓂ). ᐅᖕᑯᔾᔨᐅᑎᖃᖕᓂᖅ ᐊᒡᒪ ᑯᐃᓂᐅᔪᖕᓄ ᒪᑐᓯᒪᓕᖕᖓᓂ.

ᑯᐃᔪᖃᖕᓂᓄᑦ ᑐᐊᐃᓴᖕᓂᓄᑦ ᕿᖕᓇᐅᑦ ᐊᖕᑭᓕᐊᖕᑕᐅᔪᖕᓄ 06-ᑲᓪᓄᐊᓗ-2021. ᐅᓪᓚᒥᒧᖃᓐᓂᑦ ᐊᑲᓐᓂᑦ ᑯᐃᔪᖃᖕᓂᓄᑦ ᑐᐊᐃᓴᖕᓂᓄᑦ ᕿᖕᓇᐅᑦ ᑐᓂᓯᐅᓯᒪᔪᑦ NWB–ᑯᓪᓄᑦ ᐅᕙᓂ ᐊᖏᕐᕋᒍᒧᑦ ᐅᓂᒃᑲᑦ.

ᐅᑎᖅᑎᓂᖏᒧᑦ ᐃᖃᓗᐃᑲᑦᑐᖅᑎᑦᑐᖅᑐᑦ CAM-3–ᒥᑦ.

EXECUTIVE SUMMARY

This 2020 Annual Report for the Nunavut Water Board (NWB) has been prepared by Raytheon Canada (RC) for the Department of National Defence in order to meet the requirements of Part B "General Conditions", paragraph 1 of its licence 8BC-SHE1929. This report covers 01 January to 31 December 2020.

RC is the Operations and Maintenance (O&M) Contractor for the North Warning System (NWS) including CAM-3. 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 RC staff from CAM-M, Cambridge Bay, Nunavut.

A total of 77.6 cubic meters (m^3) was drawn from the water supply lake in 2020. This is below the annual maximum of 1,440 m^3 allowed by the licence.

No water was present in the berms of fuel storage facilities so no samples were required.

In 2020, no hazardous waste was shipped from CAM-3.

Non-hazardous domestic solid waste was disposed of through a contract with the Hamlet of Cambridge Bay at the local landfill. RC has documented authorization from the community for receiving the waste.

One spill to the environment occurred at CAM-3 in 2020:

- 16Jan2020, NT-NU Spill# 20-015: Staff arrived on-site on 15Jan2020 to start troubleshooting a generator that had stopped operating on 3Jan2020. On 16Jan2020, staff found glycol outdoors and estimated 40 L of glycol was spilled. The technicians report that the 3-way valve may have stuck causing DEG1 coolant to overheat and cause the radiator cap to release the coolant. On 17Jan2020, the staff cleaned up the spill by removing impacted snow and containerizing it into 2 drums (85 gallons each). The radiator has been repaired and the spill has been closed.

The Spill Contingency Plan was updated on 06-Jan-2021. An updated copy of the Spill Contingency Plan has been submitted to the NWB with this annual report.

No progressive reclamation work was completed at CAM-3.

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1.0 INTRODUCTION

This 2020 Annual Report for the Nunavut Water Board (NWB) has been prepared by Raytheon Canada (RC) for the Department of National Defence in order to meet the requirements of Part B "General Conditions", paragraph 1 of its licence 8BC-SHE1929 issued on 01 September 2019. This report covers 01 January to 31 December 2020.

RC is the Operations and Maintenance (O&M) Contractor for the North Warning System (NWS) including CAM-3. 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 RC staff from CAM-M, Cambridge Bay, Nunavut.

1.1 Report Details

Licensee:	Department of National Defence, Government of Canada
Licence:	8BC-SHE1929 – Type "B"
Location:	CAM-3 North Warning System Site, Shepherd Bay, Kitikmeot Region, Nunavut
Report Prepared by:	Jeremie Berube and reviewed by Don Beattie Raytheon Canada, 18-Mar-2020
Time period covered:	01 January to 31 December 2020

2.0 WATER USE

A total of 77.6 cubic meters (m³) was drawn from the water supply lake in 2020. The daily water usage was below the maximum of 300 m³ per day allowed by the licence. The total water used in 2020 was below the threshold set in the licence of 1,440 m³ per year. See Table 2-1 for the volume of water drawn at CAM-3 each month in 2020.

Table 2-1: Monthly Raw Water Usage at CAM-3 in 2020

Month	Raw water usage (m³)
January	0
February	0
March	0
April	0
May	0
June	0
July	52.1
August	7.1
September	12.2
October	6.2
November	0
December	0
TOTAL	**77.6**

3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

No Hazardous Wastes was shipped from CAM-3 in 2020. Hazardous waste was prepared for shipment and will be prioritized for the 2021 sealift.

4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was flown from CAM-3 to CAM-M and disposed of through a contract with the Municipality of Cambridge Bay at the local landfill. RC has documented authorization from the community for receiving the waste.

See Table 4-1 for the quantity of waste generated.

Table 4-1: Non-hazardous Domestic Solid Waste Sent for Disposal from CAM-3 in 2020

Month	Waste Generated (kg)
January	0
February	244
March	0
April	0
May	166
June	0
July	0
August	83
September	0
October	0
November	227
December	0
TOTAL	**720**

5.0 MONITORING PROGRAM

In 2020 a monitoring program was implemented at CAM-3 as required by the water licence.

The monitoring program included the following:

1. Volume of raw water drawn from the water Supply Lake (SHE-1). The raw water monitoring information is shown in **Section 2.0 Water Use**. The volume of water drawn was within the limit stated in the water licence.
2. Quality of sewage discharged from the final discharge point of the sewage disposal facility (SHE-2). The location of the sewage effluent outfall is shown in **Annex B: Sewage Effluent Outfall (CDL-2) Location with Coordinates**, including coordinates. A sump for the sewage outfall was constructed in 2010.

   The sewage outfall was not discharged in 2020 and therefore no samples were required. **Annex C: Analysis of Discharged Sewage Effluent** has been left blank..
3. Water in the berms was not present in 2020 so no samples were required. The coordinates of the facilities are shown in **Annex D: Location of Bermed Fuel Storage Facilities**.
4. Final Discharge Point from the Landfarm (SHE-4). No landfarm has been established at CAM-3, so this monitoring station remains inactive.

6.0 SPILLS (UNAUTHORIZED DISCHARGES)

Date, NT-NU Spill #	Product	Quantity	Cause and follow-up action	On-site location
16-Jan-2020 Spill # 20-015	Glycol	40L	Staff arrived on-site on 15Jan2020 to start troubleshooting a generator that had stopped operating on 3Jan2020. On 16Jan2020, staff found glycol outdoors and estimated 40 L of glycol was spilled. The technicians report that the 3-way valve may have stuck causing DEG1 coolant to overheat and cause the radiator cap to release the coolant. On 17Jan2020, the staff cleaned up the spill by removing impacted snow and containerizing it into 2 drums (85 gallons each). The radiator has been repaired and the spill has been closed.	A-Train DEG#1 68°47'35.20"N, 93°26'23.00"W

7.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

The Spill Contingency Plan was updated on 06-Jan-2021. An updated copy of the Spill Contingency Plan has been submitted to the NWB with this annual report.

8.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

No progressive reclamation work was undertaken in 2020.

9.0 ACRONYMS

Table 9-1: Acronyms

Acronym	Definition
n.o.s.	Not Otherwise Specified
NWB	Nunavut Water Board
NWS	North Warning System
O&M	Operations and Maintenance
RC	Raytheon Canada
TDGR	Transportation of Dangerous Goods Regulations

Annex A.Hazardous Waste and Waste Oil Disposal in 2020

No Hazardous Wastes was shipped from CAM-3 in 2020. This Annex has been left blank.

Annex B.Sewage Effluent Outfall (CDL-2) Location with Coordinates

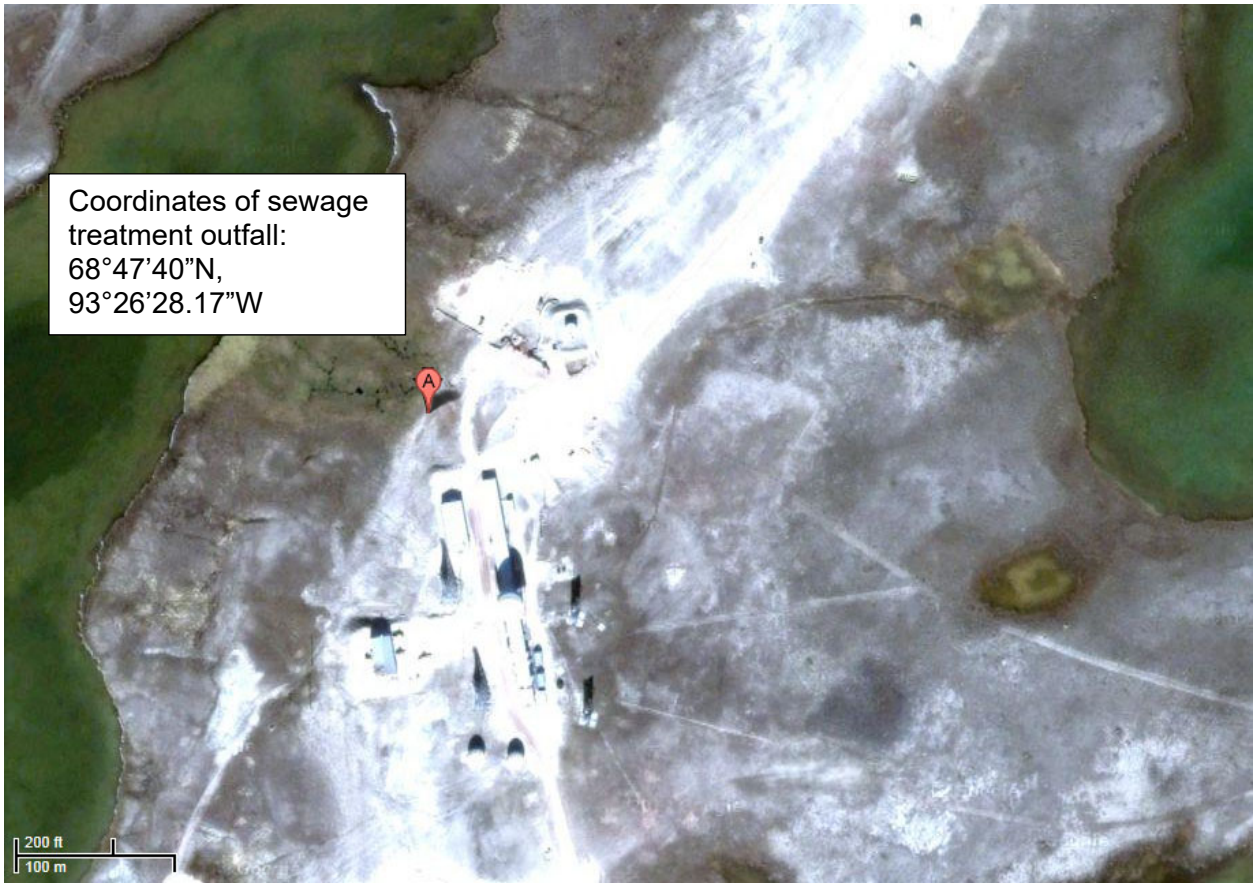

Figure B-1: Coordinates of sewage outfall: 68°47’40”N, 93°26’28.17”W

Annex C. Analysis of Discharged Sewage Effluent

The outfall sumps were not discharged in 2020 and therefore no samples were required. This Annex has been left blank.

Annex D.Location of Bermed Fuel Storage Facilities

The bermed facilities at CAM-3 did not contain water and therefore no samples were required. Table D-1, below, shows the locations of the bermed facilities.

Table D-1: Location of Bermed Fuel Storage Facilites at CAM-3

Berm	Location on-site	Discharge Latitude[1]	Discharge Longitude	Date
SHE W22A	Summit	68°47'42.00"N	93°26'19.58"W	**n/a**
SHE W22C & W22C	Beach	68°48'07.82"N	93°36'50.12"W	**n/a**

[1] Final discharge point of bermed fuel storage facility