

2022 BAF-3 ANNUAL NUNAVUT WATER BOARD REPORT

FOR THE
NORTH WARNING SYSTEM

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Prepared for
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ENGLISH EXECUTIVE SUMMARY FOLLOWS

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EXECUTIVE SUMMARY

This 2022 Annual Report for the Nunavut Water Board (NWB) has been prepared by Nasittuq for the Department of National Defence (DND) in order to meet the requirements of Part B "General Conditions", paragraph 1 of its licence 8BC-BAF1929 issued on 01-Sep-2019. This report covers 01 January to 31 December 2021.

As of 1-Aug-2022, Nasittuq is the Operations and Maintenance (O&M) Contractor for the North Warning System (NWS), including BAF-3, the North Warning System (NWS) radar site located on Brevoort Island, Nunavut. The site transitioned to fully attended in 2022 and is now attended (manned) year-round.

816.3 cubic meters of water was drawn from the water supply lake in 2022. This is below the annual maximum of 3,000 cubic meters allowed by the current licence.

Fuel tanks within the berms were demolished in 2012 and 2013, and the berms were intentionally breached in 2012 and 2015. No effluent (berm water) samples were taken in 2022. This monitoring point was discontinued in licence 8BC-BAF1929.

No hazardous waste and waste oil were shipped off-site in 2022 due to the NWS contract transition. In 2023 hazardous waste and waste oil will be sent to an approved hazardous waste disposal site outside of Nunavut as required by the licence.

Non-hazardous domestic solid waste was flown out to the Logistics Support Site (LSS) in Iqaluit and disposed of at Iqaluit's landfill. Nasittuq has documented authorization from the community for receiving the waste.

One spill to the environment occurred at BAF-3 in 2022:

- 4-Sep-2022, NT NU Spill # 2022-449: A leaking connection on heavy equipment caused a spill of 70 L of hydraulic fluid. Impacted soil was removed and containerized for off-site disposal. The connection was repaired and the leak was stopped.

The Spill Contingency Plan was successfully implemented, and updated 1-Aug-2022.

Responsibility for the reclamation of the 2015 Jet A1 spill is to be determined by DND.

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1.0 INTRODUCTION

This 2022 Annual Report for the Nunavut Water Board (NWB) has been prepared by Nasittuq for the Department of National Defence (DND) in order to meet the requirements of Part B "General Conditions", paragraph 1 of its licence 8BC-BAF1929 issued 01 September 2019 and amended effective 14 April 2022. The amendment now allows for 3,000 cubic metres per year.

This report covers 01 January to 31 December 2022.

As of 1-Aug-2022, Nasittuq is the Operation and Maintenance (O&M) Contractor for the North Warning System (NWS), including BAF-3, the NWS radar site located on Brevoort Island, Nunavut. The site transitioned to fully attended in 2022 and is now attended (manned) year-round. An O&M contract transition occurred over the summer of 2022.

1.1 Report Details

Licensee: Department of National Defence, Government of Canada
Licence: 8BC-BAF1929 – Type "B"
Location: BAF-3 North Warning System Site, Brevoort Island, Qikiqtani Region, Nunavut
Report Prepared by: Alaina Leslie and Reviewed by Don Beattie
Nasittuq Corporation, 21-Mar-2022
Time period covered: 01 January to 31 December 2022

2.0 WATER USE

816.3 cubic metres of water was drawn from the water supply lake in 2022. This is below the annual maximum of 3,000 cubic meters allowed by the current licence. A maximum of **26.6 cubic metres per day** was drawn from the water supply lake. See Table 2-1 for the volume of water drawn at BAF-3 in 2022.

Table 2-1: Monthly Raw Water Usage at BAF-3 in 2022

Month	Raw water usage (m ³)
January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	797.6
September	18.7
October	0
November	0
December	0
TOTAL	816.3

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3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

No hazardous waste and waste oil were shipped off-site in 2022 due to the NWS contract transition. In 2023 hazardous waste and waste oil will be sent to an approved hazardous waste disposal site outside of Nunavut as required by the licence.

4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was flown out to the Logistics Support Site (LSS) in Iqaluit and disposed of at Iqaluit's landfill. Nasittuq has documented authorization from the community for receiving the waste. Some non-hazardous waste was incinerated on-site and the waste ash was containerized in barrels to be shipped south.

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

Table 4-1: Non-hazardous Domestic Solid Waste Sent for Disposal from BAF-3 in 2022

Month	Waste Generated (kg)
January	0
February	0
March	45
April	0
May	0
June	227
July	68
August	821
September	385
October	202
November	0
December	0
TOTAL	1,748

5.0 MONITORING PROGRAM

In 2022, a monitoring program was implemented at BAF-3 as required by the water licence, Part J. The monitoring program included the following:

1. Volume of raw water drawn from the water Supply Lake (BAF-1). The information gathered from this requirement 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 (BAF-2). The location of the sewage effluent outfall is shown in **Annex C: Sewage Effluent Outfall (BAF-2) Location with Coordinates**. A sump for the sewage outfall was constructed in 2010. **Analysis of Discharged Sewage Effluent** is shown in **Annex D**.
3. Final Discharge Point from the Landfarm Facility (BAF-3). (inactive)

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4. Final Discharge Point of the Bulk Fuel Storage Facility (BAF-4). Fuel tanks within the berms were demolished in 2012 and 2013, and the berms were intentionally breached in 2012 and 2015. As there are no intact berms, sampling location BAF-4 has been discontinued in licence 8BC-BAF1929. **Analysis of Berm Water** has been left blank.
5. Groundwater monitoring activities (BAF-5). Responsibility for groundwater monitoring of the 19-Mar-2015 Jet A1 spill is to be determined by DND.

6.0 SPILLS (UNAUTHORIZED DISCHARGES)

One spill to the environment occurred at BAF-3 in 2022. Table 6-1, below, describes the spill (unauthorized discharge) details.

The Spill Contingency Plan was successfully implemented.

Table 6-1: Unauthorized Discharges at BAF-3 in 2022

Date, NT-NU Spill #	Product	Quantity	Cause and follow-up action	On-site location
04-Sep-2022, Spill # 2022-449	Hydraulic Fluid	70 L	A leaking connection on heavy equipment caused a spill of 70 L of hydraulic fluid. Impacted soil was removed and containerized for off-site disposal. The connection was repaired and the leak was stopped.	Airstrip Apron (63 19 38 N 64 09 11 W)

7.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

The Spill Contingency Plan was updated on **1-Aug-2022**. An updated copy of the Spill Contingency Plan has been submitted to the NWB with this annual report.

8.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

2022 was the eighth year of clean-up following the 19-Mar-2015 fuel spill. Responsibility for this reclamation work is to be determined by DND.

9.0 ACRONYMS

Table 9-1: Acronyms

Acronym	Definition
MW	Monitoring Well
NAPL	Non-Aqueous Phase Liquids
NWB	Nunavut Water Board
NWS	North Warning System
NWSO	North Warning System Office
PHC	Petroleum Hydrocarbons
RW	Recovery Well
SVE	Soil Vapor Extraction
TDGR	Transportation of Dangerous Goods Regulations

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Acronym	Definition
TPH	Total Petroleum Hydrocarbons
VOC	Volatile Organic Compounds

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ANNEX A. HAZARDOUS WASTE AND WASTE OIL DISPOSAL

n/a

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ANNEX B. LOCATION OF LANDFILL WITH COORDINATES



Figure B-1 Coordinates of Landfill Location: 63° 20' 30.00"N, 64° 10' 02.00"W

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ANNEX C. BAF-3 SEWAGE EFFLUENT OUTFALL LOCATION WITH COORDINATES



Figure C-1: Coordinates of Sewage Outfall Location (Location ID: BAF-2): $63^{\circ} 20' 21.40''N$, $64^{\circ} 09' 26.63''W$

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ANNEX D. ANALYSIS OF DISCHARGED SEWAGE EFFLUENT

The sewage outfall was not discharged in 2022 therefore samples were not required.

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ANNEX E. ANALYSIS OF BERM WATER¹

Fuel tanks within the berms were demolished in 2012 and 2013, and the berms were intentionally breached in 2012 and 2015. As there are no intact berms, no effluent (berm water) samples (Location ID: "BAF-4") were taken in this period and this section has been left blank.

Sampling location ID "BAF-4" was discontinued in licence 8BC-BAF1929.

¹ Effluent from bermed fuel storage facilities.

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ANNEX F. MONITORING ACTIVITIES

To be determined.

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