2023 CAM-3 ANNUAL NUNAVUT WATER BOARD REPORT

FOR THE

NORTH WARNING SYSTEM

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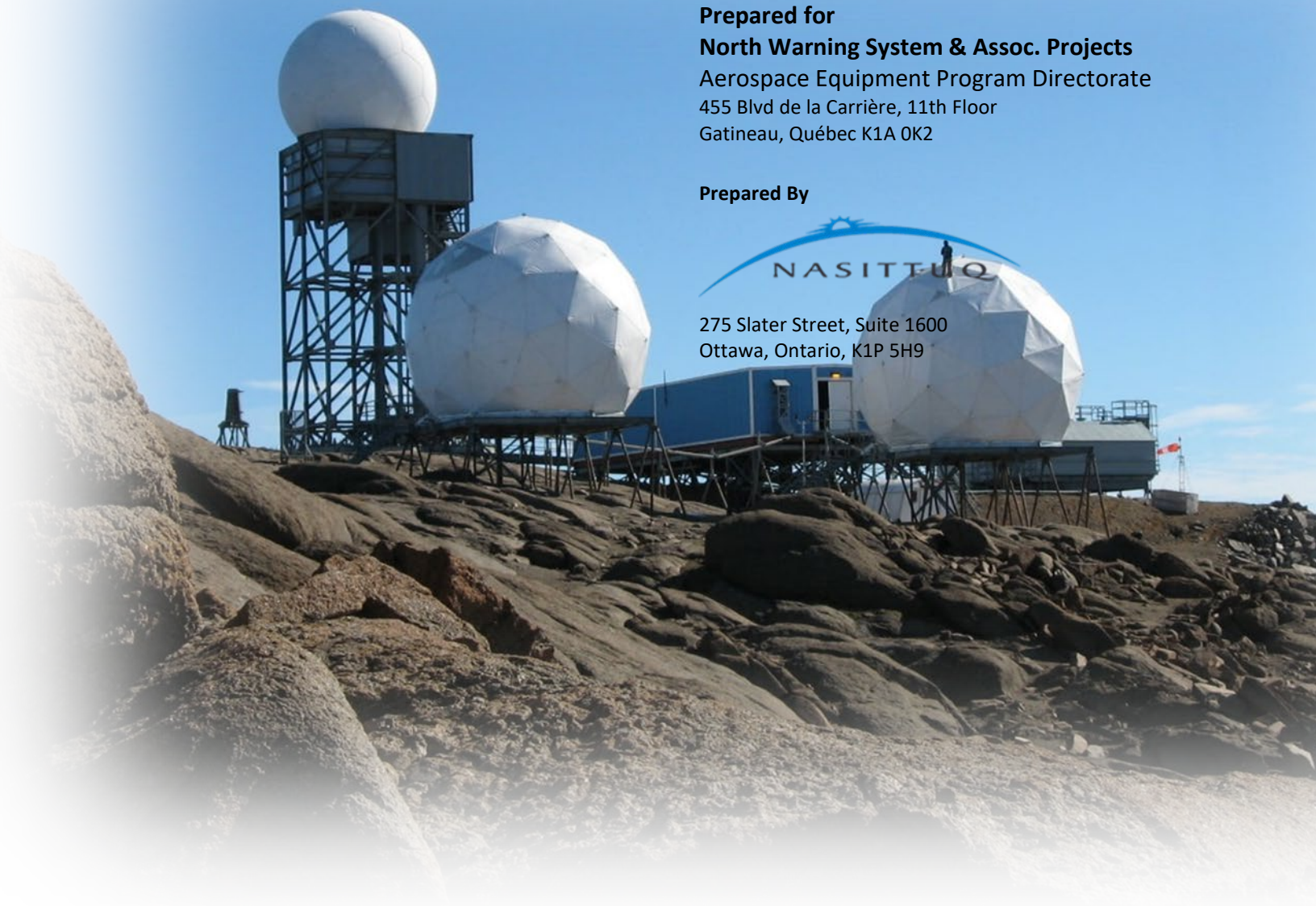

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EXECUTIVE SUMMARY IN ENGLISH FOLLOWS

ᓯᕗᓕᖅᑎᓅᙵᖅᑐᑦ ᓇᐃᓪᓕᑎᖅᓯᒪᔪᑦ – CAM-3

ᑖᓐᓇ 2023–ᒥ ᐊᕐᕋᒍᓕᒫᖅᓯᐅᑦ ᐅᓂᒃᑳᖅ ᓄᓇᕗᒻᒥ ᐃᒪᓕᕆᔩᑦ ᑲᑎᒪᔩᖏᓐᓄᑦ (NWB) ᐱᕙᒌᔭᖅᑕᐅᓚᐅᖅᐳᖅ ᓇᓯᑦᑐᕐᒧᑦ ᑲᓇᑕᒥ ᐅᓇᑕᖅᑐᒃᓴᓕᕆᔩᒃᑯᓐᓄᑦ ᓈᒻᒪᒃᓯᓕᖅᑕᐅᕐᑯᓪᓗᒋᑦ ᐱᔭᐅᒋᐊᓕᑦ ᐃᓚᖓᑦ B "ᑭᓱᑐᐃᓐᓇᑦ ᒪᓕᒋᐊᓖᑦ", ᑎᑎᕋᖅᓯᒪᔪᑦ ᐊᑲᖕᓂᖓ 1 ᐱᔪᓐᓇᐅᑎᖓ 8BC-SHE1929. ᑖᓐᓇ ᐅᓂᒃᑳᖅ ᐃᓗᓕᖃᖅᑐᖅ 01 ᔭᓄᐊᕆᒥᑦ 31 ᑎᓯᐱᕆ 2023-ᒧᑦ.

ᓇᓯᑦᑐᖅ ᐊᐅᓚᔾᔪᑏᑦ ᐋᖅᑭᐅᒪᔾᔪᑎᓪᓗ (O&M) ᐊᖏᖅᑲᑎᒌᒍᑎᒃᑯᑦ ᐃᖅᑲᓇᐃᔮᖅᑖᑎᑕᖅ ᐅᑭᐅᖅᑕᖅᑐᒥ ᐅᓗᕆᐊᓇᖅᑐᓂᒃ ᖃᐅᔨᓴᖅᑎᓄᑦ ᐊᑐᖃᑦᑕᖅᑐᓂ (NWS) ᐃᓚᐅᓪᓗᓂ CAM-3. CAM-3 ᐅᐊᖕᓇᒥᑦ ᐅᔾᔨᖅᓱᕐᕕᐅᔪᖅ (NWS) ᖃᐅᔨᓴᕐᕕᒃ ᓱᐅᐸᑦ ᐸᐃᒥᑦ, ᓄᓇᕗᒻᒥᑦ. 2023–ᒥ ᐃᓂᖓ ᐅᐸᒃᑕᐅᖃᑦᑕᓚᐅᖅᐳᖅ ᐊᕐᕋᒍᒥ ᑎᓴᒪᐃᖅᓱᖅᓱᒍ ᓱᕋᒃᑎᑦᑎᑦᑕᐃᓕᒪᓂᕐᒧᑦ ᐋᖅᑭᐅᒪᑎᑦᑎᓂᖅ ᖃᐅᔨᓴᖅᑕᐅᔭᖅᑐᖅᓱᓂ ᐊᒻᒪ ᐊᓯᖏᓐᓂᒃ ᐱᓕᕆᐊᒃᓴᓂᒃ ᓇᓯᑦᑐᖅ ᐃᖅᑲᓇᐃᔭᖅᑎᖏᓐᓄᑦ CAM-M, ᐃᖃᓗᒃᑑᑦᑎᐊᒥ, ᓄᓇᕗᒻᒥ.

ᑲᑎᖦᖢᒋᑦ 195 ᕿᑐᑦᑐᒐᐅᔮᖅᑐᑦ ᒦᑕᑦ (m³) ᐊᒧᔭᐅᓚᐅᖅᑐᖅ ᐃᒥᖅᑕᕐᕕᒃ ᑕᓯᕐᒥ 2023–ᒥ. ᑖᓐᓇ ᐊᑖᓃᑦᑐᖅ ᐊᕐᕋᒍᑕᒫᑦ ᐊᖏᓛᖑᔪᓐᓇᖅᑐᒧᑦ ᐊᖏᓛᖑᔪᓐᓇᖅᑐᒧᑦ 3,000 ᒦᑕᑦ ᐱᔪᓐᓇᖅᑎᑕᐅᔪᒧᑦ ᓚᐃᓴᓐᓯᒧᑦ.

ᖁᐊᖅᓵᕐᓇᖅᑐᓂᒃ ᐊᑐᒐᒃᓴᐅᔪᓐᓃᖅᑐᓂᒃ ᐊᑐᖅᓯᒪᔪᓂᑦ ᐅᖅᓱᖅᑎᕈᑎᓂᓪᓗ ᐊᐅᓪᓚᖅᑎᑦᑎᔪᖅᑲᓚᐅᙱᓚᖅ ᐃᓂᒥᑦ 2023–ᖑᑎᓪᓗᒍ ᑕᐃᒪᐃᔾᔪᑎᖃᖅᖢᓂ ᓄᒃᑕᖅᑎᒥᒃ. 2024–ᒥ ᖁᐊᖅᓵᕐᓇᖅᑐᑦ ᐊᒃᑕᑯᑦ ᐊᒻᒪ ᐅᖅᓱᖅᑎᕈᑏᑦ ᐊᐅᓪᓚᖅᑎᑕᐅᓛᖅᑐᑦ ᐊᖏᖅᑕᐅᓯᒪᔪᒧᑦ ᐊᑦᑕᕐᓇᖅᑐᓄᑦ ᐊᒃᑕᕝᕕᐊᓗᖕᒧᑦ ᓄᓇᕘᑉ ᓯᓚᑖᓄᑦ ᓚᐃᓴᓐᓯᒃᑯᑦ ᑕᐃᒪᐃᑦᑕᕆᐊᖅᑲᕐᓂᖓᓄᑦ.

ᖁᐊᖅᓵᕐᓇᙱᑦᑐᑦ ᓄᓇᓕᖓᓂ ᐊᒃᑕᑯᐃᑦ ᐃᒋᑕᐅᓚᐅᖅᑐᑦ ᐊᖏᖅᑲᑎᒌᒍᑎᒃᑯᑦ Hᐋᒻᒪᓚᒃᑯᓐᓄᑦ ᐃᖃᓗᒃᑑᑦᓯᐊᒥ ᓄᓇᓕᖓᒥ ᐊᒃᑕᕝᕕᐊᓗᖕᒥ. ᓇᓯᑦᑐᖅ ᑎᑎᕋᖅᓯᒪᕗᖅ ᐱᔪᓐᓇᖅᑎᑦᑎᓂᕐᒥᒃ ᓄᓇᓕᖓᓂ ᐊᒃᑕᑯᓂᒃ ᐱᑎᑕᐅᓂᐊᖅᑎᓪᓗᒋᑦ.

ᑲᑎᑉᐸᓪᓕᐊᔪᑦ ᒪᕐᑯᒃ ᐊᒻᒪ ᐊᐅᒃᐸᓪᓕᐊᔪᖅ ᐃᒪᖅ ᐊᕙᓗᐊᕈᑕᕐᒥᑦ ᐅᖅᓱᐊᓗᖃᐅᑎᖃᕐᕕᖕᓂᑦ ᐸᕐᓇᒃᑕᐅᓚᐅᖅᐳᖅ ᖃᐅᔨᓴᖅᑕᐅᔪᒪᓪᓗᑎᒃ ᐅᖅᓱᐊᓗᒃᓴᒥᑦ ᖃᐅᔨᓴᕈᑎᖃᕐᓗᑎᒃ. ᐃᒪᖅ ᑯᕕᑎᑕᐅᔪᓐᓇᓚᐅᙱᑦᑐᖅ, ᑕᐃᒪᐃᒻᒪᑦ ᖃᐅᔨᓴᖅᑕᐅᓚᐅᙱᑦᑐᖅ.

ᑯᕕᔪᖃᓚᐅᙱᑦᑐᖅ ᐊᕙᑎᒧᑦ CAM-3–ᒥᑦ 2023–ᒥᑦ.

ᐅᑎᖅᑎᑦᑎᕙᓪᓕᐊᔪᖃᓚᐅᙱᑦᑐᖅ CAM-3–ᒥ.

EXECUTIVE SUMMARY

This 2023 Annual Report for the Nunavut Water Board (NWB) has been prepared by Nasittuq 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 2023.

Nasittuq is the Operations and Maintenance (O&M) Contractor for the North Warning System (NWS) including CAM-3. CAM-3 is a North Warning System (NWS) radar site located at Shepherd Bay, Nunavut. In 2023 the site was visited quarterly for preventive maintenance inspections and as required for other work by Nasittuq staff from CAM-M, Cambridge Bay, Nunavut.

A total of 195 cubic meters (m^3) was drawn from the water supply lake in 2023. This is below the annual maximum of 3,000 m^3 allowed by the licence.

No hazardous waste and waste oil were shipped off-site in 2023 due to issues with the transporter. In 2024 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 disposed of through a contract with the Hamlet of Cambridge Bay at the local landfill. Nasittuq has documented authorization from the community for receiving the waste.

Accumulated rain and meltwater contained in the berms of fuel storage facilities was planned to be analyzed with hydrocarbon test strips. Water did not accumulate in the berms enough to require discharge, and therefore was not tested.

No spills to the environment occurred at CAM-3 in 2023.

No progressive reclamation work was completed at CAM-3.

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1.0 INTRODUCTION

This 2023 Annual Report for the Nunavut Water Board (NWB) has been prepared by Nasittuq 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 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 2023.

Nasittuq 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 Nasittuq 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:	Alaina Leslie and reviewed by Don Beattie Nasittuq Corporation, 26-Mar-2024
Time period covered:	01 January to 31 December 2023

2.0 WATER USE

A total of **195 cubic meters** (m^3) was drawn from the water supply lake in 2022. The daily water usage (a maximum of **16 m3 per day**) was below the maximum of **299 m^3 per day** allowed by the licence. The total water used in 2022 was below the threshold set in the licence of **3,000 m^3 per yea**r. See Table 2-1 for the volume of water drawn at CAM-3 each month in 2022.

Table 2-1: Monthly Raw Water Usage at CAM-3 in 2023

Month	Raw water usage (m^3)
January	0
February	0
March	0
April	18.3
May	8.4
June	43.6
July	31.1
August	6.9
September	39.2
October	28
November	19.1
December	0
TOTAL	**194.6**

3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

No hazardous waste and waste oil were shipped off-site in 2023 due to issues with the transporter. In 2024 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 from CAM-3 to CAM-M and disposed of through a contract with the Municipality of Cambridge Bay at the local landfill. Nasittuq 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 2023

Month	Waste Generated (kg)
January	0
February	0
March	0
April	1070
May	870
June	832
July	1181
August	963
September	832
October	486
November	463
December	91
TOTAL	**6,788**

5.0 MONITORING PROGRAM

In 2023 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 2023 and therefore no samples were required. **Annex C: Analysis of Discharged Sewage Effluent** has been left blank**.**

3. Accumulated rain and meltwater contained in the berms of fuel storage facilities was planned to be analyzed with hydrocarbon test strips in order to confirm it was within the effluent quality limits listed in the water licence, Part D, prior to discharge (SHE-3). Water did not accumulate in the berms enough to require discharge, and therefore was not tested. 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)

No spills occurred at CAM-3 in 2023.

7.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

The Spill Contingency Plan was updated on **12-Jun-2023**. 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 2023.

9.0 ACRONYMS

Table 9-1: Acronyms

Acronym	Definition
CO2	Carbon Dioxide
n.o.s.	Not Otherwise Specified
NWB	Nunavut Water Board
NWS	North Warning System
O&M	Operations and Maintenance
POL	Petroleum, Oil & Lubricant
TDGR	Transportation of Dangerous Goods Regulations

ANNEX A. HAZARDOUS WASTE AND WASTE OIL DISPOSAL

n/a

ANNEX B. SEWAGE EFFLUENT OUTFALL (CDL-2) LOCATION WITH COORDINATES

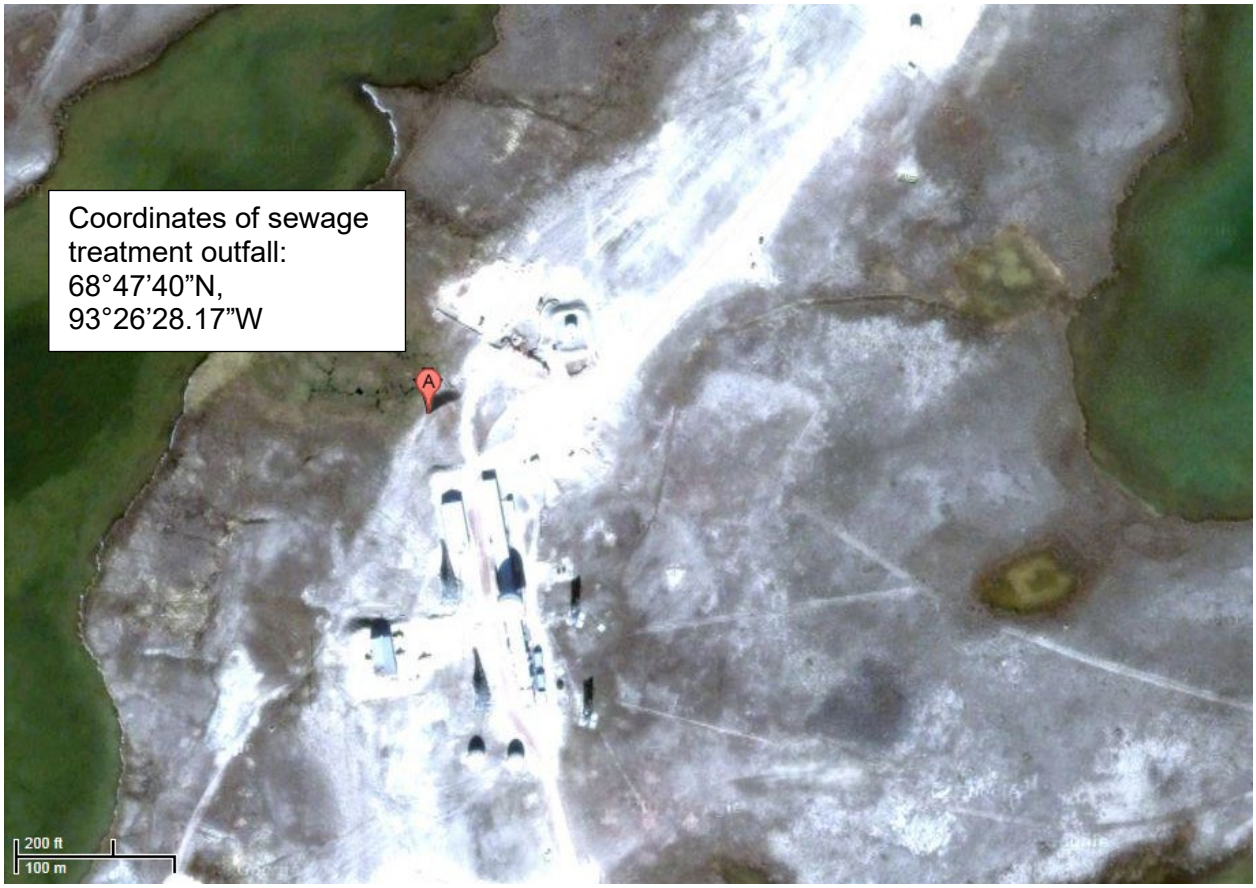

Figure 9.0.0-1: Coordinates of sewage outfall: 68°47'40"N, 93°26'28.17"W

ANNEX C. ANALYSIS OF DISCHARGED SEWAGE EFFLUENT

The sewage outfall was not discharged in 2023 and therefore sampling was not required. This annex has been left blank.

ANNEX D. LOCATION OF BERMED FUEL STORAGE FACILITIES

Table D-1, below, shows the locations of the bermed facilities.

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

Berm	Location on-site	Berm Latitude[1]	Berm Longitude	Date
SHE W22A	Summit	68°47'42.00"N	93°26'19.58"W	n/a
SHE W22D	Beach	68°48'07.82"N	93°36'50.12"W	n/a

[1] Final discharge point of bermed fuel storage facility

ANNEX E. ANALYSIS OF BERM WATER

The berms at CAM-3 were monitored over the winter and it was noted that snow did not accumulate in the berms due to wind. As no snow accumulated, only a few inches of water accumulated in the berms which was not enough to discharge.

In the future, if berm water[2] at CAM-3 requires discharge, it will be tested using hydrocarbon test strips as per the approved QA/QC Plan for Berm Water Sampling as stated in the water licence 8BC-FOH1929, PART D, Item 11.

[2] Effluent from bermed fuel storage facilities.