



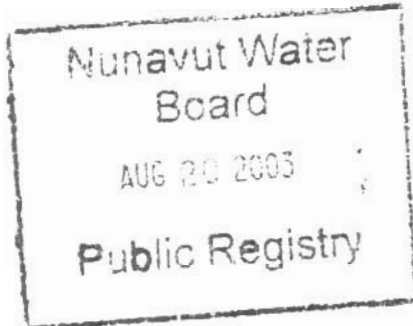
NWBSCAM

*An ATCO Frontec and Pan Arctic Inuit Company*

13 August 2003

Serial No.: 0028-ENV

Mr. Jim Wall  
Technical Advisor  
Nunavut Water Board  
Box 119  
Gjoa Haven, NU  
X0B 1J0



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Dear Mr. Wall:

**Subject: Application for Water License for the North Warning System Sites in Nunavut**

Attached is an application package for the six North Warning System sites that are subjected to the requirement of a water usage license stipulated by the Nunavut Water Board. We trust the information we have provided is complete.

Should you require additional information regarding this application, please do not hesitate to contact the undersigned at (613) 787-3868 or E-mail: [sam.cheng@nasittuq.com](mailto:sam.cheng@nasittuq.com).

Yours truly,  
**NASITTUQ CORPORATION**

Sam Cheng  
Supervisor, Environmental Services

Attachment

Cc: R&CS 3-4-5 (cover letter only)



P.O. Box 119  
GJOA HAVEN, NU X0E 1J0  
TEL: (867) 360-6338  
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KATIMAYINGI

kNK5 wmoEp5 vtmpq  
NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN

## WATER LICENCE APPLICATION FORM

Application for: (check one)

☒ New ☐ Amendment ☐ Renewal ☐ Assignment

LICENCE NO:

(for NWB use only) NWB5CAM

**1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE**

*North Warning System Office  
c/o National Defence Headquarters  
101 Colonel By Drive  
Ottawa, ON. K1A 0K2  
Attention: Maj. A. Cameron – R&C 3-4*

Phone: (613) 998-8602  
Fax: (613) 998-9261  
e-mail: Cameron.AD@forces.gc.ca

**2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)**

Phone: Same  
Fax: \_\_\_\_\_  
e-mail: \_\_\_\_\_

**3. LOCATION OF UNDERTAKING** (describe and attach a topographical map, indicating the main components of the Undertaking)

*CAM-M, Cambridge Bay*

Latitude: 69°06'52" N Longitude: 105°07'14" W NTS Map No. N.A. Scale N.A.

**4. DESCRIPTION OF UNDERTAKING** (attach plans and drawings)

*DND/NWSO Long Range Radar Station*

**5. TYPE OF UNDERTAKING** (A supplementary questionnaire must be submitted with the application for undertakings listed in "bold")

- |   |   |
|---|---|
| <input type="checkbox"/> Industrial           | <input checked="" type="checkbox"/> <b>Remote/Tourism Camps</b> |
| <input type="checkbox"/> Mine Development     | <input type="checkbox"/> <b>Municipal</b>                       |
| <input type="checkbox"/> Advanced Exploration | <input type="checkbox"/> Power                                  |
| <input type="checkbox"/> Exploratory Drilling | <input type="checkbox"/> Other (describe): _____                |

**6. WATER USE**

- ☒ To obtain water  
☐ To modify the bed or bank of a watercourse  
☐ To alter the flow of , or store, water  
☐ To cross a watercourse
- ☐ To divert a watercourse  
☐ Flood control  
☐ Other (describe): \_\_\_\_\_

**7. QUANTITY OF WATER INVOLVED** (litres per second, litres per day or cubic metres per year, including both quantity to be used and quality to be returned to source)

*Approximately 2,190,000 liters per year*

**8. WASTE** (for each type of waste describe: composition, quantity, methods of treatment and disposal, etc.)

- ☒ Sewage *tertiary sewage treatment system*  
☒ Solid Waste *Cambridge Bay Community landfill*  
☒ Hazardous *retrograde to licensed disposal facility*  
☒ Bulky Items/Scrap Metal *stockpile and retrograde*  
☒ Waste oil *retrograde to licensed disposal facility*  
☒ Greywater *tertiary sewage treatment system*  
☐ Sludges  
Other (describe): \_\_\_\_\_

**9. PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING** (give name, mailing address and location; attach if necessary)

Land Use Permit *Not applicable DND property*

DIAND ☐ Yes ☐ No If no, date expected \_\_\_\_\_

Regional Inuit Association ☐ Yes ☐ No If no, date expected \_\_\_\_\_

Commissioner ☐ Yes ☐ No If no, date expected \_\_\_\_\_

**10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES** (direct, indirect, cumulative impacts, etc.)

NIRB Screening ☐ Yes ☐ No If no, date expected \_\_\_\_\_

*Reference: Monenco-Eyrettechnics Group. October 1987. Initial environmental Evaluation of the North Warning System Project Eleven long Range Radar Sites and the Short Range Radar Development Site. Volume One.*

## 11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement?

If yes, has the applicant entered into an agreement with the Designated Inuit organization to pay compensation for any loss or damage that may be caused by the alteration. If no compensation agreement has been made, how will compensation be determined?

*The project will NOT substantially affect the quality, quantity, or flow of water through Inuit Owned Lands.*

## 12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

Nasittuq Corporation (NWS Facility Manager)  
Suite 100, 170 Laurier Avenue W.  
Ottawa, ON K1P 5V5

## 13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

*See Box. 10 above*

## 14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) ☒ Yes \_\_\_ No If no, date expected \_\_\_\_\_

Inuktitut/English Summary of Project ☒ Yes \_\_\_ No If no, date expected \_\_\_\_\_

Application fee \$30.00 (c/o of Receiver General for Canada) **N.A.**

## 15. PROPOSED TIME SCHEDULE

\_\_\_ Annual (or) ☒ Multi Year

Start Date: 1950's Completion Date: TBD

K.G. KUGL

ENVIRONMENTAL OFFICER -  
NORTH WATERS SYSTEM

[Signature]

13 June 2009

Name (Print)

Title (Print)

Signature

Date

FOR HARRY A.D. CAMPBELL

For Nunavut Water Board use only

APPLICATION FEE

Amount: \$ \_\_\_\_\_

Receipt No.: \_\_\_\_\_

WATER USE DEPOSIT

Amount: \$ \_\_\_\_\_

Receipt No.: \_\_\_\_\_



P.O. Box 119

GJOA HAVEN, NT X0E 1J0 kNK5 wmoEp5 vtmpq

TEL: (867) 360-6338

NUNAVUT WATER BOARD

FAX: (867) 360-6369

NUNAVUT IMALIRIYIN KATIMAYINGI

## EXPLORATION/ REMOTE CAMP SUPPLEMENTARY QUESTIONNAIRE

**Applicant:** North Warning System Office **Licence No:** \_\_\_\_\_  
(For NWB Use Only)

### ADMINISTRATIVE INFORMATION

1. Environment Manager: Mr. Kim Kalen, R&CS 3-4-3C Tel: (613) 998-8482 Fax: (613) 998-9261  
E-mail : Kalen.KE@forces.gc.ca
2. Project Manager: Maj. A. Cameron, R&CS 3-4 Tel: (613) 998-8602 Fax: (613) 998-9261  
E-mail: Cameron.AD@forces.gc.ca
3. Does the applicant hold the necessary property rights?  
*Yes.*
4. Is the applicant an 'operator' for another company (i.e., the holder of the property rights)?  
If so, please provide letter of authorization.  
*Not applicable*
5. Duration of the Project  
[ ] Annual  
[ X ] Multi Year:  
If Multi-Year indicate proposed schedule of on site activities  
Start: 1950's Completion: TBD

### CAMP CLASSIFICATION

6. Type of Camp  
[ ] Mobile (self-propelled)  
[ ] Temporary  
[ ] Seasonally Occupied:  
[ ] Permanent  
[ X ] Other: National Defence Long Range Radar Station
7. What are the design population of the camp and the maximum population expected on site at one time? What will be the fluctuations in personnel?  
*The premise is manned all year round with an average population of 18 people. Higher occupancy in summer.*
8. Provide history of the site if it has been used in the past.  
*The station has been manned since 1950's (During both the Distant Early Warning System and the present North Warning System.*

## CAMP LOCATION

9. Please describe proposed camp location in relation to biogeographical and geomorphological features, and water bodies.  
*Please refer to CAM-M Site Plans (Serial H-C25/2-8400-102 & Serial H-C25/2-8400-104) in Annex B*  
*Please refer to CAM-M Site Description in Annex A*
10. How was the location of the camp selected? Was the site previously used? Was assistance from the Regional Inuit Association Land Manager sought? Include maps and/or aerial photographs.  
  
*Based on the National Prime Mission requirements.*
11. Is the camp or any aspect of the project located on:  
[ X ] Crown Lands Permit Number (s)/Expiry Date: Not applicable  
[ ] Commissioners Lands Permit Number (s)/Expiry Date: \_\_\_\_\_  
[ ] Inuit Owned Lands Permit Number (s)/Expiry Date: \_\_\_\_\_
12. Closest Communities (distance in km):  
  
*2.5 Km east on the north shore of the main inlet of Cambridge Bay, Nunavut.*
13. Has the proponent notified and consulted the nearby communities and potentially interested parties about the proposed work?  
  
*Not applicable*
14. Will the project have impacts on traditional water use areas used by the nearby communities?  
Will the project have impacts on local fish and wildlife habitats?  
  
*No.*

## PURPOSE OF THE CAMP

15. ☐ Mining  
☐ Tourism (hunting, fishing, wildlife observation, adventure/expedition, etc.)  
(Omit questions # 16 to 21)  
☒ Other National Prime Mission (Omit questions # 16 to 22)
16. ☐ Preliminary site visit  
☐ Prospecting  
☐ Geological mapping  
☐ Geophysical survey  
☐ Diamond drilling  
☐ Reverse circulation drilling  
☐ Evaluation Drilling/Bulk Sampling (also complete separate questionnaire)  
☐ Other: \_\_\_\_\_
17. Type of deposit:  
☐ Lead Zinc  
☐ Diamond

- ☐ Gold
- ☐ Uranium
- ☐ Other: \_\_\_\_\_

## DRILLING INFORMATION

18. Drilling Activities
- ☐ Land Based drilling
  - ☐ Drilling on ice
19. Describe what will be done with drill cuttings?
20. Describe what will be done with drill water?
21. List the brand names and constituents of the drill additives to be used? Includes MSDS sheets and provide confirmation that the additives are non-toxic and biodegradable.
22. Will any core testing be done on site? Describe.

## SPILL CONTINGENCY PLANNING

23. Does the proponent have a spill contingency plan in place? Please include for review.
- The North Warning System/Nasittuq Spill Contingency Plan is attached as Annex C.*
24. How many spill kits will be on site and where will they be located?
- 2 groups of spill kits are available on site; namely fuel spill kit and chemical spill kit.  
Please refer to the spill kit storage location(CAM-M) site plans (Serial H-C25/2-8400-102)in Annex D .*
25. Please describe the types, quantities, and method of storage of fuel and chemicals on site, and provide MSDS sheets.

Type	Quantity	Storage method	MSDS
Jet A-1	2,601,168 liters	Above-ground storage tank	See Annex E

## WATER SUPPLY AND TREATMENT

26. Describe the location of water sources.
- See CAM-M Site plans (Serial H-C25/2-8400-102 & Serial H-C25/2-8400-104) in Annex B*
27. Estimated demand (in L/day \* person):
- ☐ Domestic Use: 2,190,000 liters /year Water Source: water lake
  - ☐ Drilling Units: \_\_\_\_\_ Water Source: \_\_\_\_\_
  - ☐ Other: \_\_\_\_\_ Water Source: \_\_\_\_\_

28. Describe water intake for camp operations? Is the water intake equipped with a mesh screen to prevent entrapment of fish? Describe:

*Water is pumped directly from the water lake to a raw water tank. The water intake is equipped with a mesh screen.*

29. Will drinking water quality be monitored? What parameters will be analyzed and at what frequency?

*Drinking water quality is monitored. Parameters tested are based on the Canadian Drinking Water Criteria and is listed as follows:*

*Physical and Chemical Parameters:*

<i>Alkalinity</i>	<i>Hardness</i>	<i>Phenols</i>
<i>Ammonia</i>	<i>Hydrogen sulphide</i>	<i>Potassium</i>
<i>BOD5</i>	<i>Iron</i>	<i>Sodium</i>
<i>Calcium</i>	<i>Magnesium</i>	<i>Sulphate</i>
<i>Chloride</i>	<i>Manganese</i>	<i>Tannin and lignin</i>
<i>Color</i>	<i>Nitrate</i>	<i>Total Dissolved Solids</i>
<i>Conductivity</i>	<i>Nitrite</i>	<i>Total Kjeldahl Nitrogen (TKN)</i>
<i>Chemical Oxygen Demand</i>	<i>PCBs</i>	<i>Turbidity</i>
<i>Fluoride</i>	<i>pH</i>	

*Bacteriological Parameters*

<i>E. coli</i>	<i>Heterotrophic plate (HPC)</i>
<i>Fecal streptococci</i>	<i>Total and Fecal coliform</i>

30. Will drinking water be treated? How?

*Drinking water is treated using the following phases.*

*Particulates and suspended solids      filtration (3µ)*

*Bacteria/other water borne microbes      Iodine\**

*Color and odor      Charcoal filter*

- *Disinfection using UV will replace iodine at CAM-M by the end of 2003*

31. Will water be stored on site?

*Yes, water is stored in above ground water storage tanks inside the water storage building.*

## WASTE TREATMENT AND DISPOSAL

32. Describe the characteristics, quantities, treatment and disposal methods for:

⊗ Camp Sewage (blackwater)

*Tertiary Sewage Treatment*

⊗ Camp Greywater (e.g., kitchen, showers and washroom sinks)

*Tertiary Sewage Treatment*

⊗ Solid Waste

*Landfilled at the Cambridge Bay community*



⊗ Bulky Items/Scrap Metal  
*Stockpile and retrograde*

⊗ Waste Oil/Hazardous Waste  
*retrograde to licensed disposal facility*

⊗ Empty Barrels/Fuel Drums  
*Re-used for liquid waste*

○ Other:

33. Please describe incineration system if used on site. What types of wastes will be incinerated?  
*Not applicable.*

34. Where and how will non-combustible waste be disposed of ? If in a municipality in Nunavut, has authorization been granted?  
*Retrograde to licensed disposal facility*

35. Describe location (relative to water bodies and camp facilities ) dimensions and volume, and freeboard for sumps (if applicable).  
*Not applicable*

36. Will leachate monitoring be done? What parameters will be sampled and analyzed, and at what frequency?

*Yes, the proposed outfall area will be monitored. Effluent quality will be assessed based on the Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments. Parameters to be sampled and analysed Will be as follows:*

<i>Ammonia Nitrogen</i>	<i>Magnesium</i>	<i>sodium</i>	<i>Total Arsenic</i>
<i>BOD5</i>	<i>Nitrate-nitrite</i>	<i>Total Calcium</i>	<i>Total Copper</i>
<i>Calcium</i>	<i>Oil and grease</i>	<i>Total Chromium</i>	<i>Total Iron</i>
<i>Conductivity</i>	<i>pH</i>	<i>Total Lead</i>	<i>Total Mercury</i>
<i>Fecal Coliform</i>	<i>Potassium</i>	<i>Total Nickel</i>	<i>Total Zinc</i>

*The above parameters will be sampled and analysed at every preventive maintenance trip during the snow free seasons.*

## OPERATION AND MAINTENANCE

37. Have the water supply and waste treatment and disposal methods been used and proven in cold climate? What known O&M problems may occur? What contingency plans are in place?

*Yes, the water supply system and similar waste system have been in operation at the station since 1950's.*

## ABANDONMENT AND RESTORATION

38. Provide a detailed description of progressive and final abandonment and restoration activities at the site.  
*To be determined.*

## BASELINE DATA

39. Has or will any baseline information be collected as part of this project? Provide bibliography.
- ☐ Physical Environment (Landscape and Terrain, Air, Water, etc.)
  - ☐ Biological Environment (Vegetation, Wildlife, Birds, Fish and Other Aquatic Organisms, etc.)
  - ☐ Socio-Economic Environment (Archaeology, Land and Resources Use, Demographics, Social and Culture Patterns, etc.)
  - ☐ Other:

*Reference: Monenco-Eyretchnics Group. October 1987. Initial Environmental Evaluation of the North Warning System Project Eleven long Range Radar Sites and the Short Range Radar Development Site. Volume One*

## REGULATORY INFORMATION

40. Do you have a copy of
- ☐ Article 13 - Nunavut Land Claims Agreement
  - ☐ NWB - Water Licensing in Nunavut - Interim Procedures and Information Guide for Applicants
  - ☐ NWB - Interim Rules of Practice and Procedure for Public Hearings
  - ☐ NWTWB - Guidelines for the Discharge of Treated Municipal Wastewater in the NWT
  - ☐ NWTWB - Guidelines for Contingency Planning
  - ☐ DFO - Freshwater Intake End of Pipe Fish Screen Guideline
  - ☐ Fisheries Act - s.35
  - ☐ RWED - Environment Protection- Spill Contingency Regulations
  - ☐ Canadian Drinking Water Quality Guidelines
  - ☐ Public Health Act Camp Sanitation Regulations
  - ☐ Public Health Act Water Supply Regulations
  - ☐ Territorial Land Use Act and Regulations

You should consult the above document, guidelines, and legislation for compliance with existing regulatory requirements.