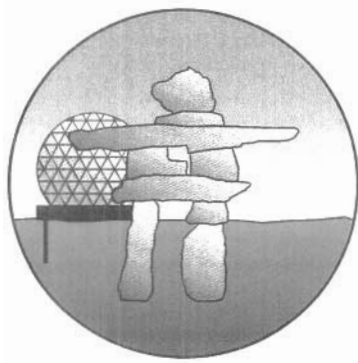


WATER USE LICENCE APPLICATION

For the Clean Up of the CAM-3 Shepherd Bay DEW Line Site



Prepared by:

UMA Engineering Ltd. on Behalf of Defence Construction Canada (for the Department of National Defence)

August 2004

File: CAM-3 3.6



August 11, 2004

Project No.: CAM-3 (3.6)

Ms. Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Ms. Beaulieu:

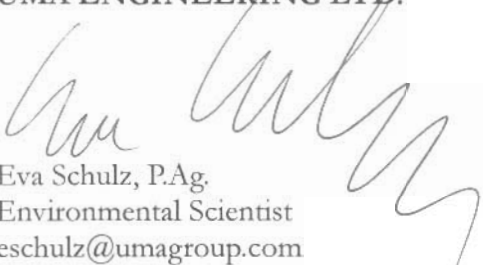
RE: Water Use Licence Application for the Clean Up of the former CAM-3, Shepherd Bay DEW Line Site

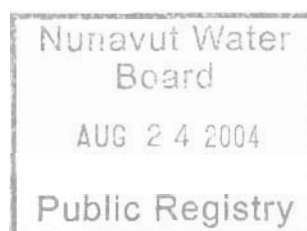
UMA Engineering Ltd. is submitting the enclosed water use licence application for the clean up of the former CAM-3, Shepherd Bay DEW Line Site. The application is being submitted on behalf of Defence Construction Canada and the Department of National Defence. Please find enclosed three copies of the application and supporting documents.

If you have any questions or comments, please do not hesitate to contact the undersigned at 403-270-9220.

Sincerely,

UMA ENGINEERING LTD.


Eva Schulz, P.Ag.
Environmental Scientist
eschulz@umagroup.com



INTERNAL	
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Encl. Water Use Licence Application
Remote Camp Supplementary Questionnaire
Project Description

cc: Phil Warren, DCC
Gladys Joudry, NIRB



P.O. Box 119
GJOA HAVEN, NU X0E 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369
KATIMAYINGI

kNK5 wmoEp5 vtmpq
Nunavut Water Board
NUNAVUT IMALIRIYIN

WATER LICENCE APPLICATION FORM

Nunavut Water
Board

AUG 24 2004

Public Registry

Application for: (check one)

☒ New ☐ Amendment ☐ Renewal ☐ Assignment

LICENCE NO:

(for NWB use only)

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

Phil Warren, Environmental Officer
Defence Construction Canada Ltd.
Constitution Square, Suite 1720
350 Albert Street
Ottawa, Ontario K1A 0K3

Phone: 613-998-7288

Fax: 613-998-0468

e-mail: Philip.Warren@dcc-cdc.gc.ca

as administered by:

Eva Schulz, P.Ag., Environmental Scientist
2540 Kensington Road NW
UMA Engineering Ltd.
Calgary, Alberta T2N 3S3

Phone: 403-270-9200

Fax: 403-270-0399

e-mail: eschulz@umagroup.com

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

Phone: _____

Fax: _____

e-mail: _____

INTERNAL	
PC	<i>chp</i>
MA	
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3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

The CAM-3, Shepherd Bay DEW Line site is located on the mainland near Boothia Peninsula of the Nunavut Territory.

Latitude: 68°46'N Longitude: 93°30'W NTS Map No. 57B/15 Scale 1:50,000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

The purpose of the project is to complete the environmental cleanup of the CAM-3 site. The main components of the cleanup include the following:

- Demolish and remove existing facilities that are not required for the operation of the North Warning System;
- Remove contaminated soils;
- Remediate existing landfills;
- Clean up surface debris; and,

- Physically restore the site to as natural a state as practical.

A detailed Project Description of the work to be completed at CAM-3 is included with the application.

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

- | | |
|--|--|
| <input type="checkbox"/> Industrial | <input type="checkbox"/> Remote/Tourism Camps |
| <input type="checkbox"/> Mine Development | <input type="checkbox"/> Municipal |
| <input type="checkbox"/> Advanced Exploration | <input type="checkbox"/> Power |
| <input type="checkbox"/> Exploratory Drilling | <input checked="" type="checkbox"/> Other (describe): Please see attached Project Description. |

6. WATER USE

- | | |
|---|--|
| <input checked="" type="checkbox"/> To obtain water | <input type="checkbox"/> To divert a watercourse |
| <input type="checkbox"/> To modify the bed or bank of a watercourse | <input type="checkbox"/> Flood control |
| <input type="checkbox"/> To alter the flow of, or store, water | <input checked="" type="checkbox"/> Other (describe): Please see attached Project Description. |
| <input type="checkbox"/> To cross a watercourse | |

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)

It is estimated that the quantity of water to be used for running the camp, including contractor use, will be 50,000 litres/day. The camp requirements are approximately 10,000 litres/day, and construction use is estimated at 40,000 litres/day. Construction use will vary depending on daily activities, but may include dust suppression and granular material wetting. Water from the existing water supply lake will likely be pumped into a water tank on a truck using a portable pump and then transferred to a water storage tank at the Camp. As the contract for the work has not yet been awarded, the size of the tank is not available. No water will be returned to the source.

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

- | | |
|---|---|
| <input checked="" type="checkbox"/> Sewage | <input type="checkbox"/> Waste oil |
| <input checked="" type="checkbox"/> Solid Waste | <input checked="" type="checkbox"/> Greywater |
| <input type="checkbox"/> Hazardous | <input checked="" type="checkbox"/> Sludges |
| <input checked="" type="checkbox"/> Bulky Items/Scrap Metal | Other (describe): _____ |

Camp sewage will be directed to a two-cell lagoon situated a minimum of 100 metres from the camp, any natural drainage course and water bodies that support aquatic life. The sewage effluent will be tested once per month during operation, prior to discharge and tested for the following parameters: Biological Oxygen Demand, Total Suspended Solids, Oil & Grease; Ammonia and pH. Greywater from camp operations will be discharged into the sewage lagoon. Domestic garbage will be incinerated in an enclosed container and the residual waste buried in an on-site landfill. All excess fuels, camp equipment and facilities will be removed from the site after completion of the clean up activities. It is not anticipated that the clean up activities will generate any hazardous wastes. Hazardous wastes already existing at the site will be dealt with according to Section 5.10 of the Project Description. Empty barrels and fuel drums will be disposed of as described in Section 5.8 of the Project Description.

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

Land Use Permit

DIAND ☒ Yes ___ No If no, date expected _____

A land use permit has been applied for, but has not yet been received.

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.

The Project Description/Environmental Screening Report was submitted to NIRB, and is attached to the application. This includes a summary of potential environmental impacts and proposed mitigation measures.

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?

No

11. (Continued)

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?

N/A

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

The contract for the clean up work has not yet been tendered or awarded. Therefore, the names, addresses and functions of the contractors and sub-contractors involved in the clean up of the CAM-3 site are not available at this time.

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

During the radar upgrade program in the early 1990's, prior to the start of the DEW Line Clean Up, a number of environmental and engineering investigations were conducted at the DEW Line sites. The objectives of these studies were as follows:

- To identify the nature and extent of chemical contamination at the sites;
- To determine the possible impact of these contaminants on the Arctic ecosystem in general and the food chain in particular; and
- To develop practical environmental clean up strategies appropriate for the Arctic.

See Sections 1.5 and 3.3 in the Project Description for a list of the previous assessments and investigations.

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) Yes ☒ No If no, date expected. Because the application is being submitted in behalf of a federal proponent, no application fees are required.

15. PROPOSED TIME SCHEDULE

___ Annual (or) ☒ Multi Year

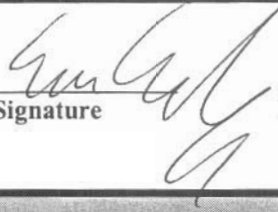
Start Date: July 2005 Completion Date: October 2008

Eva Schulz

Environmental Scientist

Name (Print)

Title (Print)


Signature

Aug. 11, 2004
Date

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: Defence Construction Canada Licence No: _____
(For NWB Use Only)

ADMINISTRATIVE INFORMATION

1. Associate Project Manager: Phil Warren Tel: 613-998-7288 Fax: 613-998-0468 E-mail: Philip.Warren@dcc-cdc.gc.ca
2. Project Manager: Daniel Paquet Tel: 613-998-9523 Fax: 613-998-1061 E-mail: Daniel.Paquet@dcc-cdc.gc.ca

3. Does the applicant hold the necessary property rights?

The property is under the jurisdiction of Indian and Northern Affairs Canada and the Department of National Defence has a land reserve. A Land Use Permit from Indian and Northern Affairs Canada has been applied for.

4. Is the applicant an 'operator' for another company (i.e., the holder of the property rights)?
If so, please provide letter of authorization.

N/A

5. Duration of the Project

☐ Annual

☒ Multi Year:

If Multi-Year indicate proposed schedule of on site activities

Start: July 2005 Completion: October 2008

CAMP CLASSIFICATION

6. Type of Camp

☐ Mobile (self-propelled)

☐ Temporary

☒ Seasonally Occupied: summer months only

☐ Permanent

☐ Other: _____

7. What is the design population of the camp and the maximum population expected on site at one time? What will be the fluctuations in personnel?

The camp will be able to accommodate up to 60 people, with an average of 50 people on site at a time. Peak time for maximum number of people on site is mid-July to the end of August.

8. Provide history of the site if it has been used in the past.

The site was a former Distant Early Warning (DEW) Line site, which was used from 1955 to 1993 to provide radar surveillance of the northern approaches to the North American air space. This now inactive chain of radar stations, at approximately 70 degrees latitude, stretches several thousand kilometres across the breadth of the Arctic. The DEW Line originally consisted of 42 sites in Canada, but was reduced to half of this number in 1963. The 21 sites decommissioned in 1963 are now the responsibility of the Department of Indian and Northern Affairs. The remaining 21 sites are the responsibility of the Department of National Defence.

In March 1985, Canada and the United States agreed to modernize the North American Air Defence System by closing the 21 remaining DND DEW Line sites and building the North Warning System (NWS). The DEW Line Clean Up (DLCU) focuses on closing out the former DEW Line sites, including the remediation of chemically contaminated soils, the stabilization of landfill areas and the demolition/disposal of surplus infrastructure and debris. A monitoring program will be carried out after the clean up has been completed.

CAMP LOCATION

- 9 Please describe proposed camp location in relation to biogeographical and geomorphological features, and water bodies.

Please see Section 6 of the Project Description for a description of the biogeographical and geomorphological features, and water bodies.

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.

The camp and/or associated storage areas are to be located in areas of previous disturbance to minimize damage to previously undisturbed areas. The exact location of the camp will not be available until the contract has been awarded and the contractor mobilizes to the site.

11. Is the camp or any aspect of the project located on:
- | | |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> Crown Lands | Permit Number (s)/Expiry Date: _____ |
| <input type="checkbox"/> Commissioners Lands | Permit Number (s)/Expiry Date: _____ |
| <input type="checkbox"/> Inuit Owned Lands | Permit Number (s)/Expiry Date: _____ |

A land use permit from Indian and Northern Affairs Canada has been applied for, but has not yet been received.

12. Closest Communities (distance in km):

The closest communities are Taloyoak, located approximately 50 km north of the CAM-3 site and Gjoa Haven, located approximately 150 km southwest of the CAM-3 site.

13. Has the proponent notified and consulted the nearby communities and potentially interested parties about the proposed work?

A community meeting was held on April 27, 2004 in Taloyoak to discuss the clean up work at CAM-3. The meeting included an information session and a question and answer period. Notes from the meeting are provided in the Project Description.

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?

See Sections 7 and 8 in the Project Description for a summary of the potential project impacts.

PURPOSE OF THE CAMP

15. ☐ Mining
☐ Tourism (hunting, fishing, wildlife observation, adventure/expedition, etc.)
(Omit questions # 16 to 21)
☒ Other - Environmental Cleanup (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: _____

N/A

17. Type of deposit:
☐ Lead Zinc
☐ Diamond
☐ Gold
☐ Uranium
☐ Other: _____

N/A

DRILLING INFORMATION

18. Drilling Activities
☐ Land Based drilling
☐ Drilling on ice

N/A

19. Describe what will be done with drill cuttings?

N/A

20. Describe what will be done with drill water?

N/A

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.

N/A

22. Will any core testing be done on site? Describe.

N/A

SPILL CONTINGENCY PLANNING

23. Does the proponent have a spill contingency plan in place? Please include for review.

Please see Section 10 of the Project Description.

24. How many spill kits will be on site and where will they be located?

The spill kit will be located within the camp and will consist, at minimum, of the following items:

- Absorbent, oil (7kg bag) – 12
- Salvage drum (85 gal) – 2
- Shovel – 2
- Gloves, rubber lined – 1 pair
- Wheelbarrow - 1

A more detailed list of spill kit items can be made available after award of the clean up contract. In addition to the larger spill kits containing overpack barrels, smaller spill kits will be available with the on-site machinery.

25. Please describe the types, quantities, and method of storage of fuel and chemicals on site, and provide MSDS sheets.

A variety of fuels and other hazardous materials may be used at the CAM-3 site during clean up. The greatest volumes will likely involve Arctic diesel fuel. Other substances such as acids, solvents, lubricants, hydraulic fluid, antifreeze, fuel additives and engine coolants also pose potential environmental and safety hazards. The Contractor is required to comply with the requirements of Workplace Hazardous Materials Information System (WHMIS), which includes the provision of MSDS information.

WATER SUPPLY AND TREATMENT

26. Describe the location of water sources.

Please see Drawing 101 in Appendix I for the location of the existing (summer) water supply lake at CAM-3.

27. Estimated demand (in L/day/person):

☐ Domestic Use: (200 L/day/person x 50 persons).

Water Source: existing water supply lake

☐ Other (construction): 40,000 L/day.

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

Water will be pumped into a truck equipped with a holding tank from the water supply lake and transferred to a tank at the camp area. All water intake hoses will be equipped with screens with a mesh size of 2.5 millimetres or less to prevent the intake of fish.

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

Drinking water quality will be monitoring once per week. The parameters to be analysed include: chlorine, sodium, potassium, magnesium, calcium, iron, manganese, conductivity, hardness, nitrate, nitrite, sulphate, pH, total coliforms, and E. Coli.

30. Will drinking water be treated? How?

If required, drinking water will be treated in accordance with the Health Canada Guidelines for Canadian Drinking Water Quality. Iodine, chlorination and/or thermal heat treatment are common on-site drinking water treatments. In the event analytical results show that water is not fit for human consumption, commercially bottled water will be provided until the water can be treated and is shown to meet all Health Canada Drinking Water Guidelines.

31. Will water be stored on site?

Water will be stored at the camp in a mobile holding tank.

WASTE TREATMENT AND DISPOSAL

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

☐ Camp Sewage (blackwater)

Sewage will be discharged into a 2-cell lagoon, and the effluent tested prior to discharge. The remaining settled solids will be buried on-site. The lagoon will be located a minimum of 100 metres away from the camp and any natural drainage course or water body, and any water body that supports aquatic life.

☐ Camp Greywater

Greywater from camp operations is typically discharged into the sewage lagoon and will be treated in the same manner as described above.

☐ Solid Waste

Domestic and other non-hazardous waste will be incinerated and the residue will be buried in an on-site landfill.

☐ Bulky Items/Scrap Metal

All excess fuels, camp equipment and facilities will be removed from the site after the completion of the clean up activities.

☐ Waste Oil/Hazardous Waste

It is not anticipated that the clean up activities will generate any hazardous wastes. Hazardous wastes already existing at the site will be dealt with according to Section 5.10 of the Project Description during the overall site clean up.

☐ Empty Barrels/Fuel Drums

Empty barrels and fuel drums will be disposed of as described in Section 5.8 of the Project Description during the overall site clean up.

☐ Other:

33. Please describe incineration system if used on site. What types of wastes will be incinerated?

Domestic, non-hazardous solid wastes will be incinerated in an enclosed container. The container will be located at least 100 metres away from the camp, any site facilities, natural water courses or water bodies. A fire extinguisher will be provided at the incineration site.

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

Non-combustible, non-hazardous solid wastes will be buried in an on-site landfill.

35. Describe location (relative to water bodies and camp facilities) dimensions and volume, and freeboard for sumps (if applicable).

N/A

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

The newly constructed Tier II Disposal Facilities on-site have been designed so that they will not produce leachate. The Non-hazardous Waste Landfills do not contain any wastes that would produce leachate. Regardless, monitoring of landfills for the presence of leachate is conducted as part of the Landfill Monitoring Plan, which is updated upon completion of the site clean up and continues for a period of 25 years. Details of the landfill monitoring are in Section 12 of the Project Description.

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?

The water supply and treatment systems have been used during the cleanup of 8 DEW Line sites that are completed, and are currently being used during the clean up of another 6 DEW Line sites. No outstanding problems were discovered during the clean up of these sites. Contingency plans for fuel and hazardous material spills, wildlife encounters and discovery of heritage resources are provided in the Environmental Protection Plan in Section 9 and the Spill Contingency Plan in Section 10 of the Project Description.

ABANDONMENT AND RESTORATION

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

The aim of the DEW Line Clean Up Project is to decommission those facilities used by the former DEW Line which have been declared surplus to the requirements of the new North Warning System and to restore the sites to an environmentally sound condition. Environmental restoration includes the setting of remediation objectives that are designed to preclude the migration of contamination (and hence biomagnification) into the Arctic ecosystem/ food chain. To accomplish this, remediation will include:

- The excavation of soils in cases where parameters exceed those that have been set for the project (i.e., believed to cause significant input into the lower levels of the food chain, for example, higher plants and detritus); and,
- The remediation of landfills which may serve as a source of water contamination and may enter the lower levels of the marine food chain (i.e., algae).

Site decommissioning activities, when the clean up is completed, will involve the demobilization of all contractor equipment, camp infrastructure, and materials no longer required at the site. The requirement for the contractor to undertake these decommissioning activities is a contractual obligation written into the project specifications. Further details on the final abandonment and restoration activities are provided in Section 11 of the Project Description.

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:

Baseline information was collected as part of this project. Please see Section 13 of the Project Description for the list of references. No further baseline information will be collected.

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.