uma

March 29, 2001

File: 0171-095 (FOX-5) -3.6

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Rita Becker
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NT X0E 1J0

Dear Ms. Becker:

RE: Water Use License Application for the Clean Up of the former FOX-5, Broughton Island DEW Line Site

UMA Engineering Ltd. is submitting the attached Water Use License Application for the clean up of the former FOX-5, Broughton Island Distant Early Warning (DEW) Line site, on behalf of Defence Construction Canada. The application includes an abstract in both English and Inuktitut, the application form, the remote camp supplemental questionnaire, and supporting background information.

We trust that sufficient information has been provided to process this application. If you require any further information or clarification, please contact the undersigned at (403) 270-9220, or Natalie Plato, P.Eng. at (867) 979-2091. Thank you for your consideration of this application.

Sincerely,

UMA ENGINEERING LTD.

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

EMS:elt

Encl. Abstract - English and Inuktitut
Application for Water Use License
Remote Camp Supplemental Questionnaire
Appendix A - Figures
Appendix B - Project Description
Appendix C - DEW Line Clean Up - Barrel Protocol
Appendix D - Environmental Screening Report

cc: Pete Quinn / Scott Munn, DCC
Amy Dumoulin-Jeromel / Wayne Ingham, ESG
Natalie Plato / Steve Stowkowy / Michelle Rurka, UMA

1. BACKGROUND

From 1955 to 1993, the Distant Early Warning System - the DEW Line - provided radar surveillance of the northern approaches to the North American continent. 21 sites (6 in the Inuvialuit Settlement Region and 15 in the Nunavut Settlement Area) were decommissioned in the 1960's, are now the responsibility of the Department of Indian Affairs and Northern Development (DIAND).

In March 1985, Canada and the United States agreed to modernize the North American Air Defence System by closing the remaining 21 DND DEW sites and building the North Warning System (NWS). The FOX-5 DEW Line site has been upgraded to a NWS Short Range Radar (SRR) Site.

2. PROJECT LOCATION

FOX-5 (67° 33' N, 63° 49' W) is located in the Baffin District of Nunavut. The site is near the eastern edge of Broughton Island, a small island off the East Coast of the Cumberland Peninsula area of north-eastern Baffin Island.

The upper site is situated on a high point overlooking Davis Strait and is connected by a 9 km road to the community of Qitiktarjuaq (formerly Broughton Island), which is on the western shore of the island. The lower site is located at a beaching area Southwest of the community.

3. PROJECT SCHEDULE

The clean up of the FOX-5 Broughton Island DEW Line site is scheduled from 2001 to 2003. Clean up activities will begin in 2001, once the contractor has mobilized to the site and set up camp. The expected duration of annual clean up activities on site will be from July to October. During the winter months, work will cease and equipment and facilities on site will be winterized. Completion of the clean up and demobilization of the contractor's facilities and equipment is anticipated for September/October 2003.

4. PROJECT ACTIVITIES

4.1 Demolition of Facilities

All DEW facilities not required for NWS SRR operations will be demolished to top of concrete foundations, sorted into non-hazardous and hazardous components and treated as described in Sections 4.4 and 4.5.

4.2 Development of Borrow Sources

Granular fill is required for closure of landfills, development of new landfills, upgrading of the access road to the main site from the airstrip, backfilling contaminated soil areas and general site grading purposes.

4.3 Landfill Development

To facilitate the disposal of contaminated soil, non-hazardous wastes and demolition/site debris, new engineered landfills will be constructed. A non-hazardous landfill will include demolition debris and scattered debris collected during the site clean up. A Tier II soil Disposal Facility will be developed for the disposal of Tier II contaminated soil.

4.4 Disposal of Site Debris

All materials will be sorted into hazardous and non-hazardous debris. Hazardous materials will be shipped off-site for disposal; non-hazardous materials will be placed in an on-site landfill. Creosote treated timbers will be wrapped in plastic and asbestos will be double bagged and disposed of in the non-hazardous landfill. PCB painted materials will be segregated and disposed of separately.

4.5 Disposal of Contaminated Soils

Soils contaminated with metals and hydrocarbons will be removed from the site. There is the potential for the presence of soils exceeding limits specified in the *Chlorobiphenyl Regulations* (i.e., 50 ppm) exists on-site (called CEPA soil). Quantities will be determined through confirmatory testing.

Estimates of contaminated soil quantities are as follows:

Type	Quantity (m3)	Disposal
Tier I	665	Non-hazardous landfill
Tier II	1850	Tier II disposal facility
Type A Hydrocarbon	235	Non-hazardous landfill
Type B Hydrocarbon	1800	On-site treatment
Tier I/Type A	1900	Non-hazardous landfill
Tier II/Type A	205	Tier II disposal facility
Tier II/Type B	800	Tier II disposal facility

4.6 Landfill Closure

Two landfills requiring closure were identified. Closure typically includes, but is not limited to the following: excavation of contaminated soils, removal of surface debris, placement of a granular cover, and regrading of the area.

4.7 General Site Grading

Areas disturbed during the clean up of the site including landfill areas, excavated soil areas, borrow areas, demolition areas and contractor camp and storage areas will be regraded as part of the final decommissioning of the site.

5. CONTRACTOR SUPPORT ACTIVITIES

Sewage from the camp will be handled with, at minimum, primary treatment (settling tank) and discharged to ground surface. Sewage treatment and disposal will be in accordance with

the Land Use Permit. Domestic waste is to be disposed (as is, or incinerated as specified by the Land Use Permit) in a landfill on-site, located within the DND boundary. Vehicle traffic to work areas is to be supported by the existing access roads that traverse the site. Labour and equipment requirements are anticipated to include a workforce of 35 – 45 personnel, 20 pieces of heavy construction equipment and 6 support vehicles.

6. ABANDONMENT AND DECOMMISSIONING

The contract documents for the DEW Line Clean Up Project will require that the contractor clean up and remediate the area disturbed by construction activities including borrow pits and quarries. Following the completion of the clean up, all vehicles and equipment, remaining fuel, supplies, personnel, and the construction camp are to be removed from the site by the contractor.

7. SOCIAL IMPACT OF THE PROJECT

Typically, labour required for the clean up includes heavy equipment operators and general labourers, as well as environmental and engineering specialists. Other employment opportunities include cleaning and cooking staff and transportation personnel. Minimum Inuit employment requirements are developed for each DLCU project and the contractor is required to adhere to these employment standards.

Benefits from the clean up will be felt primarily by the community of Qitiktarjuak. During the clean up there will likely be increased employment and business opportunities for members of the community. As the contract for the clean up of FOX-5 has not been awarded, the requirements of the community are not confirmed. It is likely that a self-sufficient temporary construction camp will be established at the site to accommodate contractor and other personnel.

1. ᖃᓄᐃᓚᐅᕆᐊᒃᓴᖓᓂᒃ ᓯᕗᓂᐊᓂ

1955-ᒥᑦ 1993-ᒧᑦ, ᐅᓇᑕᖅᑐᖃᓕᖅᐸᑦ ᖃᐅᔨᓴᕐᕕᐅᔪᑦ ᓇᐅᑦᑎᖅᑐᕐᕕᐅᔪᑦ - ᑎᐅᓚᓐ - ᐊᑐᐃᓐᓇᐅᑎᑦᑎᖃᑦᑕᓚᐅᖅᐳᑦ ᓈᓚᐅᑎᒃᑯᑦ ᖃᐅᔨᓴᐃᔾᔪᑎᓂᒃ ᐅᑭᐅᖅᑕᖅᑐᒥ ᓄᐊᑦ ᐊᒥᐊᓕᑲᒧᑦ ᓄᓇᕆᔭᐅᔪᒧᑦ. 21 ᐃᓂᑦ (6 ᐃᓄᕕᐊᓗᐃᑦ ᓄᓇᑖᕆᓯᒪᔭᕐᕆᓐᓂ ᐊᒻᒪ 15 ᓄᓇᕗᒥ ᓇᕐᒥᓂᖅ ᓄᓇᑖᖑᔨᓯᒪᔪᓂ) 1960-ᓂ ᐃᒎᑎᖅᑕᐅᓚᐅᖅᐳᑦ, ᑲᒪᕆᔭᐅᓕᖅᐳᑦ ᐃᓄᓕᕆᔩᑐᖃᒃᑯᓐᓄᑦ.

ᒫᑦᓯ 1985-ᒥ, ᑲᓇᑕ ᐊᒥᐊᓕᒃᑲᐃᓪᓗ ᐊᖏᖃᑎᒌᓚᐅᖅᐳᑦ ᓄᑖᖑᖅᑎᕆᓂᐊᕐᓗᑎᒃ ᓄᐊ ᐊᒥᐊᓕᑲᒥ ᐅᓇᑕᖅᑐᒃᓴᓕᕆᔾᔪᓯᕐᓂᒃ ᑎᖕᒥᒌᓕᕆᔾᔪᓯᕐᓂᒃ ᐅᒃᑯᐊᖅᓯᓂᐊᖅᓗᑎᒃ ᐅᒃᑯᐊᖅᑕᐅᑉᓗᑎᒃ 21-ᖑᔪᑦ ᐅᓇᑕᖅᑐᒃᓴᐃᑦ ᓈᓚᒡᕕᖏᓐᓂᒃ ᐊᒻᒪ ᐃᓪᓗᕐᔪᐊᓂᒃ ᐅᑭᐅᖅᑕᖅᑐᒥ ᐅᓇᑕᖅᑐᖃᓕᖅᐸᑦ ᖃᐅᔨᓴᕐᕕᐅᓇᔭᖅᑐᓂᒃ. FOX-5 ᑎᐅᓚᐃᓐ ᐅᓇᑕᖅᑐᒃᓴᑦ ᓈᓚᒡᕕᕕᓂᖓᓂᑦ ᐃᓂᖓ ᓄᑖᖑᕆᐊᖅᑕᐅᕗᖅ (NWS) ᓈᓚᐅᑎᒋᔭᐅᓕᖅᓱᓂ ᐃᓂᐅᓕᖅᓗᓂ ᓈᓚᒡᕕᐅᑉᓗᓂ ᖃᓂᑦᑐᒧᑦ.

2. ᐱᓕᕆᐊᖑᔪᑉ ᓇᓃᓐᓂᖓ

FOX-5 (67° 33' N, 63° 49' W) ᐃᓂᐅᔪᖅ ᕿᑭᖅᑖᓗᑉ ᐊᕙᒃᑐᖅᓯᒪᓂᖓᓂ ᓄᓇᕗᒥ. ᐃᓂᐅᔪᖅ ᐅᕝᑯᐊᓃᑉᐳᖅ ᐃᓱᖓᑕ ᕿᑭᖅᑕᕐᔪᐊᑉ, ᒥᑭᑦᑐᖅ ᕿᑭᖅᑕᕐᔪᐊᖅ ᑲᐳᓚᓐ ᐱᓂᓐᓯᓚᒥ ᐅᐊᖕᓇᖓᓂ-ᐅᕝᑯᐊᓂ ᕿᑭᖅᑖᓗᑉ.

ᖁᓪᓕᓯᖕᓂᖅᓴᖅ ᐃᓂᕆᔭᖓᓃᑉᐳᖅ ᕿᑭᖅᑖᓗᑉ ᐊᑯᑭᑦᑐᐃᓪᓗ ᓄᓇᖃᑕ ᐃᑭᖁᓴᖓᓂᑦ ᐊᒻᒪ 9 ᑭᓛᒥᑕᒥᒃ ᐊᑉᖁᑎᒃᑯᑦ ᐊᑕᐳᖅ ᓄᓇᖓᓐᓄᑦ ᕿᑭᖅᑕᕐᔪᐊᑉ (ᐳᖁᐅᑕᓐ ᐊᐃᓚᓐᖑᓚᐅᖅᑐᑉ), ᐅᐊᓕᓂᖅᐸᓯᐊᓂ ᕿᑭᖅᑕᐅᓚᐅᑉ. ᐊᑦᑎᖕᓂᖅᓴᖅ ᓯᓪᓴᐅᔪᒥ ᓂᒻᕆᐊᓂ ᓄᓇᕆᔭᐅᔪᒥ ᐃᓂᖃᖅᐳᖅ.

3. ᐱᓕᕆᐊᖑᔪᖅ ᖃᖓ ᑲᔪᓯᑎᑕᐅᓂᐊᕐᓂᖓ

ᓴᓪᓚᖅᓴᖅᑕᐅᓂᖓ (FOX-5 ᕿᑭᖅᑕᕐᔪᐊᒥ ᐅᓇᑕᖅᑐᒃᓴᑦ ᓈᓚᒡᕕᕕᓂᖓᓂᑦ ᐃᓂᖓ) ᓴᓪᓚᖅᓴᖅᑕᐅᓂᖃᕐᓂᐊᖅᐳᖅ 2001-ᒥᑦ 2003-ᒧᑦ ᓴᓪᓚᖅᓴᖅᑕᐅᔪᑦ ᐱᕆᐊᕐᓂᐊᖅᐳᑦ 2001-ᒥ, ᑳᓐᑐᕌᒃᑎᐅᔪᖅ ᐃᓂᒧᐊᖅᐸᑦ ᐊᒻᒪ ᑕᖕᒫᕝᕕᒃᓴᒥᒃ ᐋᖅᑭᒃᓯᓯᒪᓕᖅᐸᑦ. ᓴᓪᓚᖅᓴᐃᔪᑦ ᓂᕈᐅᕆᔭᐅᔪᑦ ᐊᕐᕌᒍᑕᒫᖅ ᓴᓪᓚᖅᓴᐃᓂᐅᔪᓂ ᓯᕕᑐᓂᕆᓂᐊᕐᖁᓯᕆᔭᐅᖁᑦ ᔪᓚᐃᒥᑦ ᐊᒃᑐᐳᕆᒧᑦ. ᐅᑭᐅᒃᑯᑦ ᑕᕿᓂ, ᐃᖃᓇᐃᔭᕈᓯᐅᔪᑦ ᓄᖃᕐᓂᐊᖅᐳᑦ ᓴᓇᕿᑎᑦ ᐱᖁᑎᓪᓗ ᐅᑭᐅᒃᑯᑦ ᐋᖅᑭᒃᑕᐅᓗᑎᒃ ᐱᓚᑐᒃᑕᐅᓂᐊᖅᐳᑦ. ᐱᐊᓂᒃᑕᐅᓇᔭᕐᓂᖓ ᓴᓪᓚᖅᓴᐃᓂᐅᔪᑉ ᐃᒎᑎᕆᓂᐅᔪᑉᓗ ᑳᓐᑐᕌᒃᑎᐅᑉ ᐱᖁᑎᖏᓐᓂ ᓴᓇᕿᑎᖏᓐᓂᒃ ᐃᓱᒪᕆᔭᐅᕗᖅ ᐱᓕᕆᐊᖑᓇᕆᐊᒃᓴᖓᓂᒃ ᓯᑉᑕᓪᐳᕆ/ᐊᒃᑐᐳᕆ 2003-ᒥᐅᓇᔭᕆᐊᒃᓴᖓᓂᒃ.

4. ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑉ ᐱᓕᕆᐊᖑᔪᓂ

4.1 ᐃᒎᑎᖅᑕᐅᓂᖏᑦ ᐱᓕᕆᐊᖃᕐᕕᐅᔪᑦ

ᑕᒪᐃᓐᓂᒃ ᓈᓚᒡᕖᑦ ᐊᑐᖅᑕᐅᕆᐊᖃᓐᖏᑦᑐᑦ ᖃᓂᑦᑐᒧᑦ ᓈᓚᕖᐅᓗᑎᒃ ᓈᓚᐅᑎᒃᑯᑦ ᐃᓂᕆᔭᐅᓗᑎᒃ ᐊᐅᓚᑦᑎᑉᕕᐅᓗᑎᒃ ᐃᒎᑎᖅᑕᐅᓂᐊᖅᐳᑦ ᖁᓖᓄᑦ ᕿᑯᐃᑦ ᑐᓐᖓᕕᖏᑦᑕ, ᐊᕙᒃᑐᖅᑕᐅᓗᑎᒃ ᐅᓗᕆᐊᓇᓐᖏᑦᑐᓄᑦ ᐅᓗᕆᐊᓇᖅᑐᓄᓪᓗ ᐊᒻᒪᓗ ᐱᓕᕆᐊᖑᓂᐊᖅᐳᑦ ᒪᓕᒡᓗᒋᑦ ᑎᑎᖅᓯᒪᓂᖏᑦ 4.4-ᒥ ᐊᒻᒪᓗ 4.55-ᒥ.

4.2 ᐱᓕᕆᐊᖑᓂᖓ ᐱᐅᔫ ᐃᓗᓕᖏᑦ

ᑐᐊᐸᒃ ᐅᒃᑯᐊᖅᓯᔾᔪᑕᐅᒥᐊᖃᖅᑐᖅ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᐊᖅᐳᖅ ᓴᐅᓯᔾᔪᑕᐅᓗᓂ, ᓄᑕᑦ ᓴᐅᓯᑉᕕᐅᔪᑦ, ᓄᑖᖑᖅᑎᕆᔾᔪᓯᐅᔪᓪᓗ ᐊᑉᖁᑎᓂ ᐃᓂᔪᒧᑦ ᒥᑦᑕᕐᕕᖕᒥᑦ, ᓴᐅᔭᐅᓂᖏᑦ ᐅᓗᕆᓇᖅᑐᖃᖅᑐᑦ ᒪᓂᖁᐃᑦ ᐊᒻᒪ ᓴᓪᓚᕆᐊᖅᑕᐅᔾᔪᑎᒃᓴᑦ ᐊᑐᖅᑕᐅᕆᐊᖃᕐᓂᐊᖅᐳᑦ.

4.3 ᓄᓇ ᓴᐅᔨᐅᔪᑦ ᐱᓕᓚᐊᖓᓂᖅ

ᐱᓕᓚᐊᓚᓂᐊᕐᓗᑎᑦ ᐃᑎᑕᐅᔪᑦ ᐅᓗᓚᐊᓇᖅᑐᖅᑐᒃᓗ ᒪᓂᕐᖅ, ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦ ᐊᑦᑕᑯᐃᑦ ᐊᒻᒪ ᐃᔪᑎᖅᑕᐅᔪᑦ/ᐃᓂᒥ ᐊᑦᑕᑯᐃᑦ, ᓄᑦᑦ ᐃᐊᓐᔨᓂᐊᓄᑦ ᓴᐅᔨᐅᔪᑦ ᓴᓇᔨᐅᓂᐊᖅᑐᑦ. ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦ ᓴᐅᔨᐅᕐᔪᑎᐅᔪᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᐃᑎᑎᕐᔪᑎᑕᐅᓗᑎᒃ ᐃᔪᑎᖅᑕᐅᔪᓂᒃ ᐊᒻᒪ ᐊᑦᑕᑯᓂᒃ ᑕᒪᓐᓇᒥᐊᖅ ᑲᑎᒪᖅᓴᐃᑎᓗᑎᑦ. ᖃᓄᓕᓕᖅᑎᑕᐅᓂᒪᔪᖅ II ᒪᓂᕐᖏᒧᑦ ᐊᑦᑕᑯᐃᖅᔪᖅ ᓴᖅᑕᐅᓂᐊᖅᓄᖅ ᐊᑦᑕᑯᐃᖅᔪᐊᖅᓄᖅᓂᓂ ᖃᓄᓕᓕᖅᑎᑕᐅᓂᒪᔪᖅ II-ᒥ ᐊᑦᑕᑯᐃᖅᔪᐊᓂᐊᓗᓂ ᐅᓗᓚᐊᓇᖅᑐᖅᑐᒃᓂ ᒪᓂᕐᖏᒥᑦ ᐱᖃᐅᔪᓂᑦ.

4.4 ᐃᑎᑕᐅᓂᖅᑎᑦ ᐃᓂᒥᑦ ᐊᑦᑕᑯᐃᑦ

ᑕᒪᐃᓐᓂᒃ ᐃᔪᑎᖅᑕᐅᓂᑯᐃᑦ ᐊᑦᔪᖅᑕᐅᓗᓚᑎᒃ ᐅᓗᓚᐊᓇᖅᑐᑦ ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦᓗ ᐋᖅᑭᐅᓇᖅᑕᐅᓂᐊᖅᓄᖅᑦ. ᐅᓗᓚᐊᓇᖅᑐᑦ ᐊᐅᑦᓭᖅᑎᑕᐅᓂᐊᖅᓄᖅᑦ ᐊᑦᑕᑯᐃᖅᑕᐅᔨᕐᓴᕐᓗᓚᑎᒃ ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦ ᓄᓇᒥ ᓴᐅᔨᐅᓗᓚᑎᒃ. ᒥᖓᐊᖅᓯᒪᔪᑦ ᖃᐅᔨᐃᑦ ᓯᑲᑎᑐᓂᒃ ᓴᖅᑐᖅᑕᐅᓗᓚᑎᒃ ᒪᑭᑭᓄᓂ ᓴᖅᑕᐅᓗᓚᑎᒃ ᐃᑎᑕᐅᓂᐊᖅᓄᖅᑦ ᐅᓗᓚᐊᓇᓐᖏᑕᑐᒥ ᐊᑦᑕᑯᐃᖅᔪᓕᒧᑦ ᓴᐅᔨᐅᓗᓚᑎᒃ. ᐱᓕᕆᐱ ᒥᖓᐊᖅᓯᒪᔪᑦ ᐃᓕᓴᐃᖓᓕᓂᖅᓂᐊᖅᓄᖅᑦ ᐃᑎᑕᐅᓗᓚᑐᓗ ᐃᓕᓴᐃᑦ.

4.5 ᐃᑎᑕᐅᓂᖅᑎᑦ ᐅᓗᓚᐊᓇᖅᑐᖅᑐᑦ ᒪᓂᕋᐃᑦ ᐃᑦᓭᐃᑦ

ᐃᑦᓭᐃᑦ ᐅᓗᓚᐊᓇᖅᑐᖅᑐᑦ ᓴᐃᖓᓂᒃ ᐱᖅᑕᐅᓂᐊᖅᓄᖅᑦ ᐃᓂᐅᔨᑦ ᐅᖅᓯᐊᓗᓴᓕᓂᓗ ᕿᑎᓕᓂ ᐊᑐᐊᓚᔨᐅᔪᑦ ᐅᖓᑕᒋᐊᕐᓂᑦ ᐱᖅᑕᐅᓂᐊᖅᓄᖅᑦ ᐃᓂᐅᔨᑦ. ᐃᓯᒪᖅᓇᓕᐅᖅᓄᖅ ᐅᓗᓚᐊᓇᖅᑐᖅᑐᒃᓗ ᐃᓂᐅᔨᑦ (ᓯᑦᓗ, 50 ppm)-ᓂᒃ ᓇᓴᐅᑎᓕᑦ ᐃᓂᒥᑦᑦᓯᑕ (ᑕᐃᔨᐅᔪᑦ CEPA ᐃᑦᓯᖅᑲᖅᑐᑦ).

ᐊᖏᓂᖅᑎᑦ ᓇᓗᓇᐃᖅᑕᐅᓂᐊᖅᓄᖅᑦ ᖅᐅᔨᓴᖅᑕᐅᓂᒃᑯᑦ

ᖅᐅᔨᓴᖅᑕᐅᔪᑦ ᐊᖏᓂᖅᑎᑦ ᐃᒪᓐᓇᐅᓕᖅᑐᖅᑐᒃᑯᑦ:

ᖅᓄᐃᑐᓂᖓᓂ	ᖅᑦᓯᐅᓂᖅᑎᑦ (m³)	ᐃᑎᑕᐅᔪᑦ
ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ I-ᒥ	665	ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦ ᓴᐅᔨᐅᓯᒪᓕᕆᐊᐅᔪᑦ
ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ II-ᒥ	1850	ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ II-ᒥ ᐊᑦᑕᑯᖅᑕᐅᑦᕆᐊᑦ
ᖅᓄᐃᑐᓂᖓᓂ A ᐅᖅᓯᐊᓗᑦᓴᓕᓂᑦ	235	ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦ ᓴᐅᔨᐅᓯᒪᓕᕆᐊᐅᔪᑦ
ᖅᓄᐃᑐᓂᖓᓂ B ᐅᖅᓯᐊᓗᑦᓴᓕᓂᑦ	1800	ᐃᓂᒥ ᓴᓗᓴᒪᓚᐊᖅᑕᐅᔪᖅ
ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ I-ᒥ A	1900	ᐅᓗᓚᐊᓇᓐᖏᑕᑐᑦ ᓴᐅᔨᐅᓯᒪᓕᕆᐊᐅᔪᑦ
ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ II-ᒥ A	205	ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ II-ᒥ ᐊᑦᑕᑯᖅᑕᐅᑦᕆᐊᑦ
ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ II-ᒥ B	800	ᖅᓂᓚᓂᖅᑎᑕᐅᓯᒪᔪᖅ II-ᒥ ᐊᑦᑕᑯᖅᑕᐅᑦᕆᐊᑦ

4.6 ᓄᓇ ᐳᐊᓚᔨᖅᑕᐅᓯᒪᔪᖅ ᐅᑦᔨᐊᖅᑕᐅᓂᖓᓂ

ᒪᑭᒃ ᓴᐅᔨᐅᕐᓴᐃᐅᔨᑦ ᐅᑦᔨᐊᖅᑕᐅᓂᐊᖅᓄᖅᑎᑦ ᓇᓗᓇᐃᖅᑕᐅᐅᖅᑦ. ᐅᑦᔨᐊᖅᓯᓂᖅ ᐃᓕᐅᑎᑦᑎᐅᖅᓄᖅ, ᑭᑦᓂᖅᑎᑎᕐᓂᓗᓂ ᐅᔨᓂᖓ; ᐳᐊᓚᔨᖅᑕᐅᓯᒪᓂᖓᓐᓂᑦ ᐊᓂᓂᐊᓚᖅᑐᖅᑐᒃᓗ ᐅᓗᓚᐊᓇᖅᑐᓕᓂ ᒪᓂᕐᖏᑦ, ᐋᖅᑕᐅᓂᖓᓂ ᒪᓂᕋᐅᑦ ᖅᓂᖅ ᐊᑦᑕᑯᐃᑦ, ᓴᐅᔨᐅᓂᖓᓂ ᑐᐊᑦᓴᒻᒥᑦ, ᐊᒻᒪ ᓴᓇᔨᐅᐸᓂᓯᓂᖓᓂ ᐃᓂᐅᑦ.

4.7 ᐃᓂᐅᑦ ᓴᓇᔨᐅᓂᖓᓂ

ᐃᓂᐅᔪᑦ ᐊᑲᖅᑕᐅᔪᑦ ᓴᓗᓴᒪᓴᖅᑕᐅᑎᓕᓂᑦ ᓴᓗᓴᒪᓴᖅᑕᐅᔪᑦ ᐃᓂᓂ ᐃᓕᐅᓗᓂᑦ ᐳᐊᓚᔨᐃᑦᓴᐃᐅᔪᑦ, ᐳᐊᓚᔨᖅᑕᐅᓯᒪᔪᑦ ᒪᓂᕋᐃᑦ ᐃᓂᒥᑦ, ᐃᓗᓕᑑᖅᑕᐅᓯᒪᔪᑦ, ᐃᔪᑎᖅᓴᐃᖅᑎᑦ ᐊᒻᒪ ᑲᑐᕐᑎᐅᑦ ᐃᓂᒋᓕᐅᖅᑕᓂ ᑐᓴᐅᒪᓂᖓᓂ ᓴᓗᓴᒪᓚᐊᖅᑕᐅᑲᓇᓂᖓᓂ ᓴᓗᓴᒪᓴᖅᑕᐅᓂᐊᖅᓄᖅ ᑭᓴᓕᓚᖅᑐᒃ ᐃᔪᑎᖅᑕᐅᓂᐊᓕᕆᓂᖓᓂ ᓴᓗᓴᒪᓴᖅᑎᓕᓂ.

5. ᑲᑎᒪᔨᑦᑎᓂᑦ ᐃᑲᔪᖅᑐᐃᓂᖓᓂᑦ ᐱᓕᓚᐊᓂᒃ

ᖃᓄᖅ ᑕᓪᓕᐊᑦᑐᑦ ᐱᓕᓚᐊᓴᓂᐊᖅᓄᖅᑦ, ᒥᑭᓪᓕᒥᒃ, ᓴᓗᓴᒪᖅᑕᐅᑭᐊᓕᖅᑲᖅᓯᐅᓂᒃ (ᐃᓂᓪᓕᐅᑎᓚᖅᑐᒃ ᐃᓚᓕᐊᖅᑲᖅᓯᐅᓂᒃ ᐊᒻᒪᓗ ᒪᓂᕐᖏᒧᑦ ᐃᓚᐅᔪᓂᒃ. ᖃᓄᖅ

ᓴᓗᒻᒪᖅᑕᐅᒥᐊᕐᓂᖏᑦ ᒪᓕᒃᑕᖃᕐᓂᐊᖅᐳᑦ ᓄᓇ ᐊᑐᖅᑕᐅᓂᖓᓄᑦ ᐱᔪᓐᓇᐅᑎᒥᒃ. ᐊᖏᕐᕋᕆᔭᐅᔪᓂ ᐊᒃᑰᖅᑕᐅᔪᑦ ᐊᒃᑰᖅᑕᐅᓂᐊᖅᐳᑦ (ᓱᕐᑯᔨᓐᖏᓪᓗᒋᑦ, ᐅᕝᕙᓘᓐᓃᑦ ᐃᑯᐊᓚᑎᐅᓂᐊᖅᐳᑦ ᒪᓕᒡᓗᒍ ᓄᓇ ᐊᑐᖅᑕᐅᓂᖓᓄᑦ ᐱᔪᓐᓇᐅᑕᐅᔪᖅ) ᓄᓇᒥ ᓴᐅᔭᐅᓯᒪᔪᒥ ᐃᓂᒋᔭᖓᓂ ᐅᓇᑕᖅᑐᒃᓴᑦ ᑭᒡᓕᒋᔭᖏᑦᑕ. ᓄᓇᓯᐅᑎᑦ ᐱᓕᕆᐊᖃᕝᕕᖕᓂ ᐃᑲᔪᖅᑕᐅᓂᖃᕐᓂᐊᖅᐳᑦ ᒫᓐᓇ ᐊᑉᖁᑕᐅᔪᓂ ᐃᓂᒋᔭᐅᔪᒥ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᓂ. ᓴᓇᓂᕐᒧᑦ ᐱᖁᑎᓪᓗ ᐊᑐᖅᑕᐅᒥᐊᖃᖅᑐᑦ ᐃᓱᒪᒋᔭᐅᕗᑦ ᐃᓚᐅᑎᑕᐅᓇᔭᕆᐊᒃᓴᖏᓐᓂᒃ ᐃᖃᓇᐃᔭᖅᑎᑦ 35 - 45-ᖑᓇᔭᖅᑐᑦ, 20 ᓴᓇᕿᑎᑦ ᐳᐊᕆᑎᓕᑦ ᐊᓯᖏᓪᓗ ᐊᒻᒪ ᐊᕐᕕᓂᓖᑦ ᓄᓇᓯᐅᑦ ᐃᑲᔪᕆᐊᕈᑎᑦ.

6. ᕿᒪᐃᓂᕐᒧᑦ ᐃᒍᑉᑎᕆᓂᕐᒧᓪᓗ ᐸᕐᓇᒍᑕᐅᔪᖅ

ᑳᓐᑐᕐᒍᓯᐅᔪᖅ ᑎᑎᖅᑲᐅᑎᑦ ᓴᓗᒻᒪᖅᓴᐃᓂᐊᕐᓂᕐᒧᑦ ᓈᓚᒡᕕᕕᓂᕐᓂ ᐱᓕᕆᐊᖑᔪᒥ ᑳᓐᑐᕐᒃᑎᒧᑦ ᓴᓗᒻᒪᖅᓴᖅᑕᐅᒥᐊᖃᕐᓂᐊᖅᐳᑦ ᐊᒻᒪᓗ ᓴᓗᒻᒪᖅᓴᐃᓗᑎᒃ ᐃᓂᐅᔪᒥᒃ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᒥᒃ ᓴᓇᔭᐅᓂᒃᑯᑦ ᐱᓕᕆᐊᖑᔪᒃᑯᑦ ᐃᓚᐅᓗᒋᑦ ᐳᐊᕆᓴᖅᑕᐅᓯᒪᔪᑦ ᐃᓗᑐᔪᑦ ᑐᐊᐸᒃᑕᕝᕕᐅᔪᓪᓗ. ᐱᐊᓂᒃᑕᐅᑎᓪᓗᒍ ᓴᓗᒻᒪᖅᓴᖅᑕᐅᔪᖅ, ᑕᒪᐃᓐᓂᒃ ᓄᓇᓯᐅᑎᑦ ᐱᖁᑎᓪᓗ, ᐅᖅᓱᐊᓗᐃᑦ, ᓱᓇᒃᑯᑖᑦ, ᐃᖃᓇᐃᔭᖅᑎᑦ, ᑕᖕᒫᕐᕕᐅᔪᑦ ᐲᖅᑕᐅᒥᐊᖃᕐᓂᐊᖅᐳᑦ ᐃᓂᐅᔪᒥᑦ ᑳᓐᑐᕐᒃᑎᐅᔪᒥᑦ.

7. ᐃᓄᐃᑦ ᐃᒃᐱᒋᔭᖃᖅᑎᐅᓂᖏᑦ ᓴᓇᔭᐅᔪᒥᑦ

ᐃᒪᓐᓇᐃᑉᐳᖅ, ᓴᓇᓂᐅᔪᑦ ᓴᓗᒻᒪᖅᓴᐃᓂᐅᑉᓗᑎᒃ ᐊᑐᖅᑕᐅᒥᐊᖃᖅᑐᑦ ᐃᓚᖃᖅᐳᑦ ᐳᐊᕆᑎᓕᖕᓂᒃ ᓴᓇᔨᓂᓪᓗ, ᐊᒻᒪᓗ ᐊᕙᒥᐅᑕᓄᑦ ᐃᐊᓐᔭᓂᐊᓄᑦ ᐱᓕᕆᐊᖅᑎᓄᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᓗᑎᒃ. ᐊᓯᖏᑦ ᐃᖃᓇᐃᔭᕐᕕᒃᓴᐃᑦ ᐃᓚᖃᖅᐳᑦ ᓴᓗᒻᒪᖅᓴᐃᔨᐅᓂᕐᒥᒃ ᐃᒐᔨᐅᓂᕐᒥᒃ ᐃᖏᕐᖃᑦᑕᖅᑐᓕᕆᔨᐅᓂᕐᒥᒃ. ᐃᓄᐃᓴᒃᑐᑦ ᐃᓄᐃᑦ ᐃᖃᓇᐃᔭᕐᓂᖏᑦ ᓴᕿᑕᐅᖃᑦᑕᖅᐳᑦ ᓴᓗᒻᒪᖅᓴᖅᑕᐅᕝᕕᐅᔪᓂ ᓈᓚᒡᕕᕕᓂᕐᓂ ᐱᓕᕆᐊᖑᔪᓂ ᑳᓐᑐᕐᒃᑎᐅᔪᕐᓗ ᒪᓕᒋᐊᖃᖅᐳᖅ ᐃᖃᓇᐃᔭᖅᑎᖃᕐᓗᓂ ᐃᓄᖕᓂᒃ ᐃᖃᓇᐃᔭᖅᑎᖃᕐᓂᕐᒧᑦ ᒪᓕᒃᑕᑦᓴᓂᒃ ᒪᓕᒡᓗᓂ ᐃᖃᓇᐃᔭᖅᑎᖃᕆᐊᖃᖅᐳᖅ.

ᐃᑲᔫᑕᐅᔪᑦ ᓴᓗᒻᒪᖅᑕᐅᔪᓂᑦ ᐃᓱᒪᒋᔭᐅᕗᑦ ᓄᓇᒥᔭᐅᔪᒥᑦ ᕿᑭᖅᑕᕐᔪᐊᒥ ᓴᓗᒻᒪᖅᓴᐃᑎᓪᓗᒋᑦ ᐃᓱᒪᖕᓇᖅᐳᖅ ᐃᓚᐹᓪᓕᕐᓴᕆᐊᒃᓴᖏᓐᓂᒃ ᐃᖃᓇᐃᔭᖅᑐᑦ ᐱᓇᓱᐊᒐᕆᔭᐅᔪᓂᓗ ᐱᓕᕆᐊᖅᑐᑦ ᓄᓇᒥᔭᐅᔪᒥ. ᑳᓐᑐᕐᒃᑎᓪᓗᒋᑦ ᓴᓗᒻᒪᖅᓴᖅᑕᐅᓂᖓᓄᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᖅ FOX-5 ᓱᓕ ᑐᓂᔾᔪᑕᐅᓯᒪᓐᖏᑎᓪᓗ, ᓄᓇᖃᖅᑐᑦ [illegible] ᓱᓕ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᓐᖏᓚᑦ. ᐃᓱᒪᖕᓇᖅᐳᖅ ᑕᒻᒫᕐᕕᒃ ᐋᖅᑭᐅᒪᔭᐅᓂᐊᖅᑐᖅ [illegible] ᐃᓂᐅᔪᒥ ᑳᓐᑐᕐᒃᑎᒧᑦ ᐊᒻᒪᓗ ᐊᓯᖏᓐᓄᑦ ᐃᖃᓇᐃᔭᖅᑎᓄᑦ ᐋᖅᑭᐅᒪᔭᐅᓗᓂ.

Copies of the proposed Project Description and the Environmental Screening Report have been sent to Nunavut Tunngavik Incorporated, the Nunavut Impact Review Board, the Hunters and Trappers Association, and the Hamlet of Qitiktarjuaq.

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 pages 30-41 of the Project Description in Appendix B for 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.

A spill contingency plan is included in Annex E of the Project Description and in Section 7.2 of the Environmental Protection Plan in Annex A of the Project Description in Appendix B.

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

The spill kit will be located within the current SRR building 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 will be available after award of the clean up contract.

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 in use at the FOX-5 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. As chemicals are usually stored and transferred in barrels of 205 litres or smaller, potential spill quantities are small.

Material Safety Data Sheets will be made available by the Contractor, after award of the contract. 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 attached Figure 101 in Appendix A for the location of the existing Water Supply Lake at FOX-5.

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

- Domestic Use: 12,000 L/day (340 L/day/person). Water Source: Water Supply Lake
- Drilling Units: n/a Water Source: _____
- Other: 18,000 L/day – Contractor Use Water Source: Water Supply Lake

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 site area. Water withdrawal rates are not to exceed 10 percent of the existing stream flow or 10 percent of the total water body volume. All water intake hose 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 will be monitored on a monthly basis for potability parameters which may 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. Addition of chlorine or iodine and/or thermal heat treatment are common on-site drinking water treatments.

31. Will water be stored on site?

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

WASTE TREATMENT AND DISPOSAL

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

See pages 10-18 in the enclosed Project Description in Appendix B for a detailed description of the sewage disposal, disposal of site debris, contaminated soils, camp wastes, and removal of