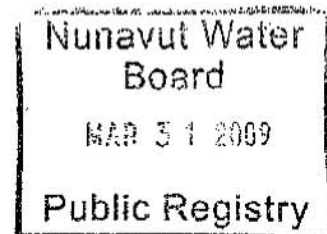


**Report on work conducted in the Summer of 2008 under
Nunavut Water Board License No. 3BC-MIO0809**

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Department of Anthropology
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INTRODUCTION

This report describes our water use while carrying out archaeological fieldwork between July 16 and August 4, 2008 at archaeological site LdFa-1, which is situated at the northwest corner of Mingo Lake in the interior of southern Baffin Island.

PERMITS

The archaeological research described in this report was conducted under Nunavut Territory Archaeologist Permit 2008-029A, issued to the author.

Our use of our campsite at Mingo Lake adjacent to the LdFa-1 site was carried out under INAC Land Use Permit N2007N0025, issued to Brooke Milne and in force from June 26, 2007 through June 25, 2009.

ACKNOWLEDGEMENTS

The primary funding for this research was provided by the Social Sciences and Humanities Research Council of Canada in the form of a Standard Research Grant awarded to Brooke Milne as Principal Investigator and to Douglas Stenton and Robert Park as Collaborators. Logistical support in the field was provided by the Polar Continental Shelf Project, and by the Nunavut Research Institute. The author wishes to extend his gratitude to all three of these agencies for their generous support. The field team was led by the author with the invaluable assistance of Tara Grant, Senior Curator, Archaeology, Canadian Conservation Institute. The field crew included three graduate students: Anne Hamilton and Rachel ten Bruggencate from the Department of Anthropology, University of Manitoba, and Andrea DeGagne, Department of Anthropology, McMaster University; one undergraduate student: Adam Park, University of Toronto; and two field assistants hired from the community of Arctic Bay: Mason Pauloosie and Bruce Pauloosie.

SITE DETAILS

In the 2008 field season we arrived at Mingo Lake by Twin Otter on July 19 and carried out our archaeological excavations each day from July 20 through August 1 with the exception of July 27. Our plan had been to leave Mingo Lake on that date and move our camp to the Mingo River, but it proved impossible to find a location to land the Twin Otter near enough to our intended work location. We therefore returned to Mingo Lake and continued our work there. After some difficulties, on August 3 we were picked up and returned to Iqaluit. Our campsite at Mingo Lake was initially established in the same location as in 2007, on a gravel knoll at the base of the Mingo Lake esker, roughly 30 m away from the shoreline of Mingo Lake. For the second week of our stay at Mingo Lake the camp was relocated up to the top of the esker.

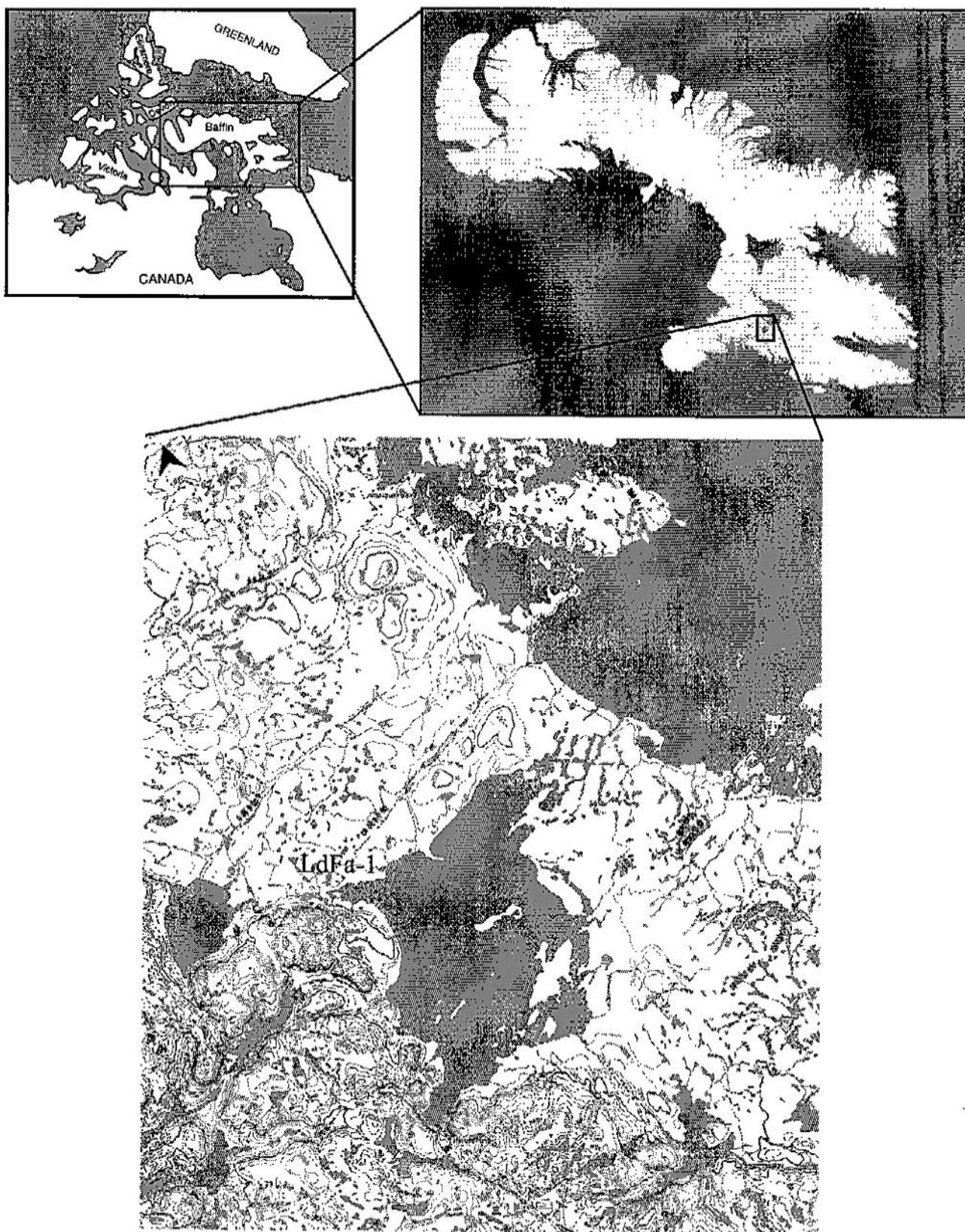


Figure 1. Maps showing the location within Arctic Canada of Mingo Lake and LdFa-1,

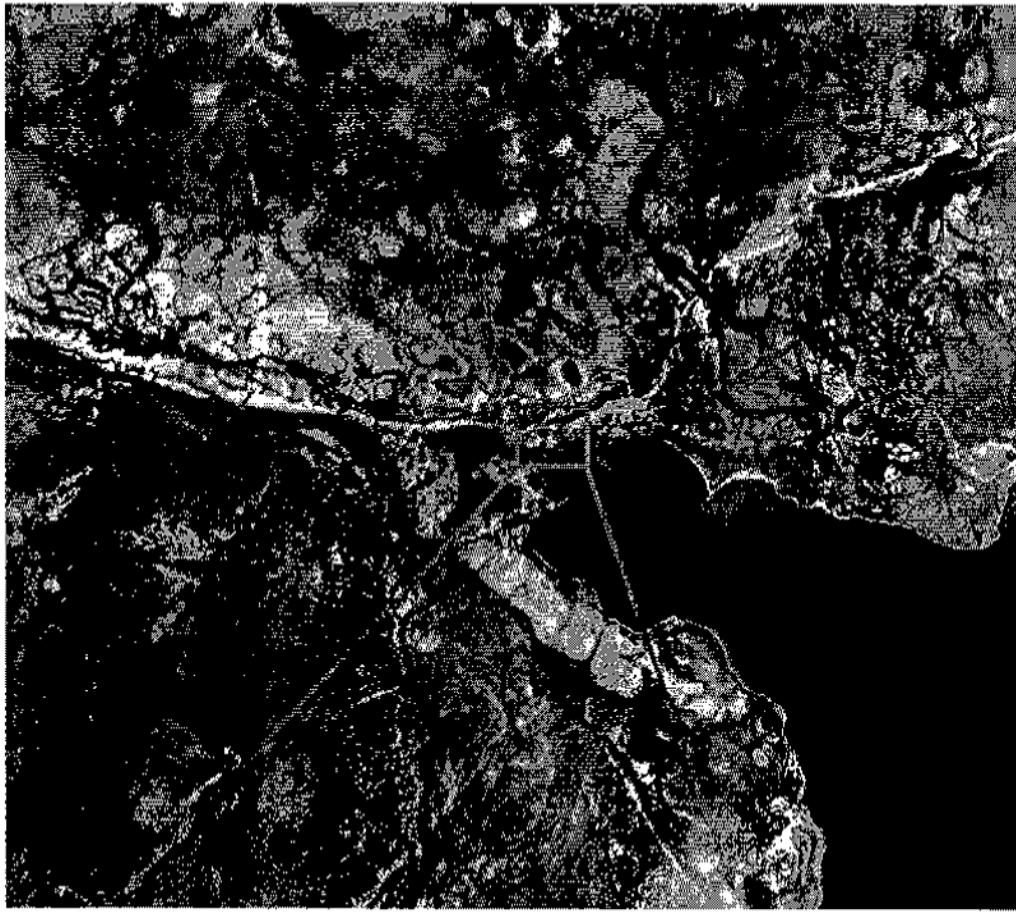


Figure 2. Detail of aerial photograph A-15359-115: the northwest corner of Mingo Lake.

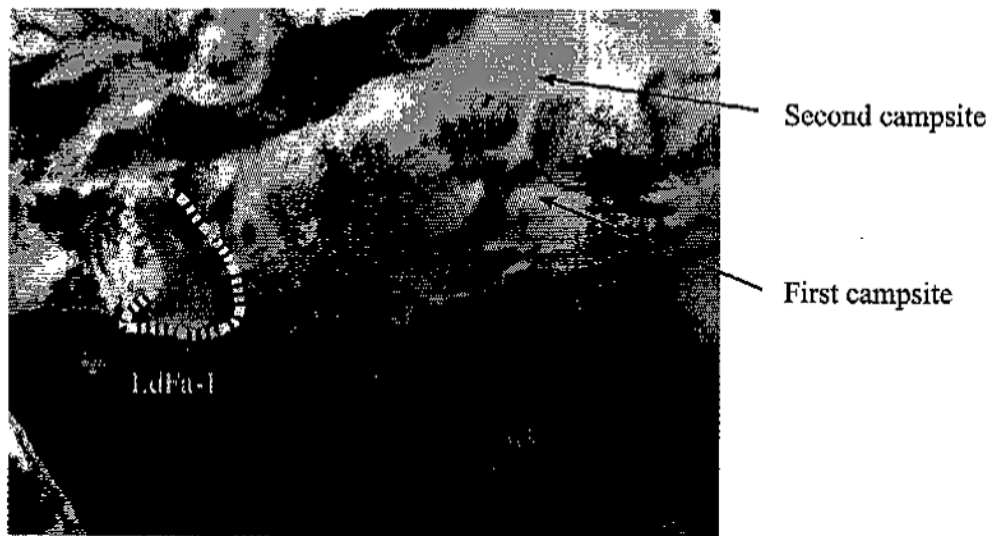


Figure 3. Detail of aerial photograph A-15359-115 showing the exact location of archaeological site LdFa-1 and of the campsites used by our crew during the 2008 field season

REPORT ON WATER USE

As stipulated in the NWB license, this report includes the following sections:

- a. A summary report of water use and waste disposal activities;*
- b. A list of unauthorized discharges and a summary of follow-up actions taken;*
- c. An up-to-date copy of the Spill Contingency Plan, including contact information;*
- d. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;*
- e. A summary of all information requested and results of the Monitoring Program; and*
- f. Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.*

Summary of Water Use and Waste Disposal Activities

The only time Mingo Lake itself was accessed was to draw water for daily domestic use for the field crew. Water was gathered from the lake using refillable 20-liter plastic collapsible containers, which were then carried up to our campsite. On average we used between two and three containers full of water each day, for a total of up to 60 liters of water each day, which is less than one cubic meter of water per day.

Latrines were dug into the ground adjacent to the base camp to contain human waste and were buried when no longer in use. Grey water was deposited in a series of small pits excavated adjacent to the campsite. Upon completion of the camp, all of these pits were backfilled.

Under the terms of our INAC land use permit a site inspection was carried out on July 21, 2008 and our campsite and arrangements were described in the report as "Basically a well laid out camp, well maintained." On the recommendation of Kevin Robertson, the INAC Resource Management Officer who carried out the site inspection, we did not burn any garbage during our entire stay at Mingo Lake. All garbage was bagged and transported by plane back to Iqaluit for disposal.

A list of unauthorized discharges and a summary of follow-up actions taken;

None.

An up-to-date copy of the Spill Contingency Plan, including contact information;

Not applicable. Our work at this location was completed on August 3, 2008 and we do not intend to return in the foreseeable future.

A description of all progressive and or final reclamation work undertaken,

including photographic records of site conditions before, during and after completion of operations;

In accordance with standard archaeological procedures in the North, all excavated areas and test areas were back-filled and re-sodded once excavations were complete in order to return the surface of the site as close to its original condition as possible. This included replacing the soil, grading the area back to its natural contours, and replacing any surface vegetation where possible.

A summary of all information requested and results of the Monitoring Program

Not applicable.

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

Not applicable.



Figure 4. Our initial campsite at Mingo Lake. The latrine area is at the extreme right of the photo.



Figure 5. Example of backfilled excavation in the background, and ongoing archaeological excavations in the foreground. All excavation units were completely backfilled at the end of our field season.

APPENDICES



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Fax: (867) 360-6369

kNK5 wmoEp5 vtmpq
NUNAVUT IMALIRIYIN KATIMAYINGI
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

WATER LICENCE APPLICATION FORM

Application for: (check one)

☒ New ☐ Renewal ☐ Amendment ☐ Assignment ☐ Cancellation

LICENCE NO. _____ (for NWB use only)	
<p>1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE</p> <p>Robert W. Park Department of Anthropology University of Waterloo 200 University Ave. W Waterloo, ON N2L 3G1</p> <p>Phone: (519) 888-4567 extension 35016 Fax: (519) 747-9149 e-mail: rwpark@uwaterloo.ca</p>	<p>2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)</p> <p>Not applicable</p> <p>Phone: _____ Fax: _____ e-mail: _____</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin-top: 10px;"> <p>Nunavut Water Board</p> <p>MAR 31 2009</p> <p>Public Registry</p> </div>
<p>3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)</p> <p>Two campsite areas will be used. The first is on the northwest shore of Mingo Lake at the base of the Mingo Lake esker, roughly 30 m away from the shoreline of Mingo Lake in proximity to archaeological site LdFa-1. The second camp will be set up along the shoreline of the Mingo River where it meets the southwest shore of Amadjuak Lake, adjacent to archaeological site LeDx-42.</p> <p>LdFa-1: Latitude: (64°39'27" N) Longitude: (72°17'54" W) NTS Map Sheet No. <u>026D Amadjuak Lake Scale: 1:250,000</u></p> <p>LeDx-42: Latitude: (64°41'41" N) Longitude: (71°51'55" W) NTS Map Sheet No. <u>36A Mingo Lake Scale: 1:250,000</u></p>	
<p>4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)</p> <p>This project will consist of mapping and excavation at two archaeological sites located near Mingo Lake, Baffin Island. The two sites are LeDx-42 and LdFa-1 (see accompanying maps). The sites were first identified in the 1980s by Douglas Stenton. In 2004 and 2007 some excavation was undertaken at the sites by Brooke Milne. The mapping and excavation that we plan to carry out in 2008 is important for expanding our present understanding of how the interior region of southern Baffin Island was used over time by all peoples who lived on the land, because archaeologists have tended to focus on sites located in coastal areas. At present there is little information available to examine how the earliest populations some 4000 years ago used the interior as part of their seasonal round. Only seven early sites are presently known in the interior of the island and of these only two have been intensively excavated.</p> <p>This project will only be carried out with all the necessary permits and permissions, including a Government of Nunavut Class 2 Archaeology permit. All subsurface site testing and excavation will follow standard archaeological procedures for sites in Nunavut. Each site will be mapped using a total station and photographed prior to excavation. Test units</p>	

ranging in size from 50 cm² to 2 m² will be established. A small number of larger excavation areas (up to a maximum of 5 x 5 m) may also be opened. All soil removed from these units will be screened to ensure that all cultural materials are collected. Upon completion of all subsurface activities, the units will be backfilled and the surface vegetation replaced so as to return the feature to its original state prior to investigation. The duration of this entire field project will be no more than 2½ weeks.

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

- | | |
|---|---|
| <input type="checkbox"/> Industrial | <input type="checkbox"/> Agricultural |
| <input type="checkbox"/> Mining and Milling (includes exploration/drilling) | <input type="checkbox"/> Conservation |
| <input type="checkbox"/> Municipal (includes camps/lodges) | <input type="checkbox"/> Recreational |
| <input type="checkbox"/> Power | <input checked="" type="checkbox"/> Miscellaneous (describe below): |

Archaeological excavation and mapping. See supplementary questionnaire.

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings

6. WATER USE

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

7. QUANTITY OF WATER INVOLVED (cubic metres per day including both quantity to be used and quality to be returned to source)

- Water use ☒ 100m³/day or less
☐ Greater than 100m³/day; if greater, indicate quantities to be used for each purpose (camp, drilling, etc.)

Water returned to source
 _____ m³/day

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

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

See supplementary questionnaire for details

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

None

Land Use Permit
 DIAND

☒ Yes ☐ No If no, date expected _____

Regional Inuit Association ☐ Yes ☒ No If no, date expected Application has been submitted for an Exemption Certificate, which is expected by July.

Commissioner	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, date expected _____
10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)		
Environmental impacts are expected to be minimal to non-existent. All structures, garbage, and other items brought in for use during this project will be removed upon completion of the proposed work. In accordance with standard archaeological procedures in the North, all excavated sites and test areas will be back-filled and re-sodded once excavations are complete in order to return the surface of the site as close to its original condition as possible. This includes replacing the soil, grading the area back to its natural contours, and replacing any surface vegetation.		
NIRB Screening <input type="checkbox"/> Yes <input type="checkbox"/> No If no, date expected N/A		
I have been informed by the Culture and Heritage Division of the GN that archaeology/palaeontology projects that are 'non-development' in nature, such as this one, have been granted exemption from NIRB screening. The GN screening process for my archaeology permit application should be complete by July 1, 2008.		
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		
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?		
12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)		
None		
13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)		
None that are completed		
14. THE FOLLOWING DOCUMENTS <u>MUST</u> BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN		
Supplementary Questionnaire (where applicable: see section 5) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, date expected _____		
Inuktitut and/or Inuinnaqtun/English Summary of Project <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, date expected _____		
Application fee of \$30.00 (Payee Receiver General for Canada) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, date expected _____		
Water Use fee of \$30.00 (unless otherwise indicated in Section 9 of the <i>NWT Waters Regulations</i> ; Payee Receiver General for Canada) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, date expected _____		
15. PROPOSED TIME SCHEDULE (unless otherwise indicated, the NWB will consider the application for a five (5) year term)		
<input type="checkbox"/> one year or less (or) <input checked="" type="checkbox"/> Multi Year		
Start Date: July 18, 2008 Completion Date: August 31, 2009		

Name (Print)

Title (Print)

Signature

Date

For Nunavut Water Board office use only

APPLICATION FEE Amount: \$ _____ Pay ID No.: _____

WATER USE DEPOSIT Amount: \$ _____ Pay ID No.: _____



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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

EXPLORATION/ REMOTE CAMP SUPPLEMENTARY QUESTIONNAIRE

Applicant: Robert W. Park Licence No: _____
(For NWB Use Only)

ADMINISTRATIVE INFORMATION

1. Environment Manager: N/A Tel: _____ Fax: _____ E-mail: _____

2. Project Manager: N/A Tel: _____ Fax: _____ E-mail: _____

3. Does the applicant hold the necessary property rights?

Yes, or 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.

No

5. Duration of the Project

☐ One year or less Start and completion dates:
☒ Multi Year:

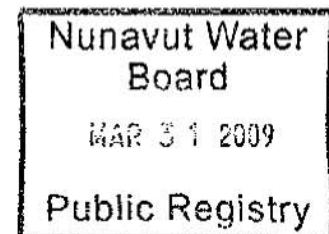
If Multi-Year indicate proposed schedule of on site activities

Start: July 1, 2008. Completion: August 31, 2009. Each summer we will be on site for between two and four weeks.

CAMP CLASSIFICATION

6. Type of Camp

☐ Mobile (self-propelled)
☒ Temporary
☐ Seasonally Occupied: _____
☐ Permanent



7. What is the design, maximum and expected average population of the camp?

The camps will consist entirely of tents (i.e. individual personal nylon tents and one larger white canvas tent) and will house on average 5-6 people at a time. The camp population should not exceed 6 persons at any given time during any period of the project.

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

Both site areas located at Mingo Lake and the Mingo River have been used before. In 2004, short-term camps were set up at both locations. Site activities were limited to basic daily living tasks (i.e. sleeping, cooking, eating, processing recovered artifacts). Impact to the areas was minimal since all equipment and refuse was removed when the camps were packed up upon completion of the site excavations.

CAMP LOCATION

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

Two campsite areas will be used over a period of two summers. In 2008, a small camp will be set up on the northwest shore of Mingo Lake in proximity to archaeological site LdFa-1. The camp will be established in the same location it was in 2007, which is at the base of the Mingo Lake esker, roughly 30 m away from the shoreline of Mingo Lake. This esker provides the greatest local relief in the area and it extends for several kilometers paralleling the lake's shoreline. The only time Mingo Lake will be accessed is to draw water for daily domestic use.

The second camp will be set up along the shoreline of the Mingo River where it meets the southwest shore of Amadjuak Lake, adjacent to archaeological site LeDx-42. A small camp was established here in 2004 and, given the nature of the terrain in the area, which is very undulating and covered with boulder outcrops, it will most likely be used again in 2008 and 2009. The camp will be situated roughly 25 - 30 m away from the Mingo River and the only time the river will be accessed will be to draw water for daily domestic use.

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 locations have been selected based on proximity to the archaeological sites that we will be investigating so that equipment and crew will not have to travel significant distances on a day-to-day basis in order to complete the project's tasks. Both the Mingo Lake and Mingo River campsites have been used before (see above). The Mingo Lake camp is located on Crown Lands and in 2007 a two-year Land Use Permit through INAC was approved (N2007N0025). The Mingo River camp is on Inuit Owned Lands and the Regional Lands Manager, Mr. Salamonie Shoo, has been contacted. We are in the process of applying for a Land Use Exemption Certificate through the Qikiqtani Inuit Association to access this area..

11. Is the camp or any aspect of the project located on:

- | | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | Crown Lands | Permit Number (s)/Expiry Date: N2007N0025 / End of 2008 |
| <input type="checkbox"/> | Commissioners Lands | Permit Number (s)/Expiry Date: _____ |
| <input checked="" type="checkbox"/> | Inuit Owned Lands | Permit Number (s)/Expiry Date: Under Review |

12. Closest Communities (direction and distance in km):

Iqaluit – SW approximately 175 km

Cape Dorset – East approximately 120 km

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

Yes, both communities have been notified about our plans for 2008. The project includes a student training component which is similar to the one that was reviewed and approved by the Mayors and Town Councils of Iqaluit and Cape Dorset before the 2007 field season.

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 to both questions.

PURPOSE OF THE CAMP

15. ☐ Mining (includes exploration drilling)
☐ Tourism (hunting, fishing, wildlife observation, adventure/expedition, etc.)
(Omit questions # 16 to 21)
☒ Other To conduct archaeological fieldwork at two sites near Mingo Lake and the Mingo River.

16. Activities (check all applicable)

- ☐ Preliminary site visit
- ☐ Prospecting
- ☐ Geological mapping
- ☐ Geophysical survey
- ☐ Diamond drilling
- ☐ Reverse circulation drilling
- ☐ Evaluation Drilling/Bulk Sampling (also complete separate questionnaire)
- ☒ Other: To conduct archaeological fieldwork.

17. Type of deposit (exploration focus): NOT APPLICABLE

- ☐ Lead Zinc
- ☐ Diamond
- ☐ Gold
- ☐ Uranium

☐ Other:

DRILLING INFORMATION

18. Drilling Activities – NOT APPLICABLE

- ☐ Land Based drilling
☐ Drilling on ice

19. Describe what will be done with drill cuttings?

NOT APPLICABLE

20. Describe what will be done with drill water?

NOT APPLICABLE

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.

NOT APPLICABLE

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

NOT APPLICABLE

SPILL CONTINGENCY PLANNING

23. The proponent is required to have a site specific Spill Contingency Plan prepared and submitted with the application. This Plan should be prepared in accordance with the *NWT Environmental Protection Act*, *Spill Contingency Planning and Reporting Regulations*, July 22, 1998 and *A Guide to the Spill Contingency Planning and Reporting Regulations*, June 2002. Please include for review.

See Question 25

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

NOT APPLICABLE

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

Propane will be used for cooking and heat. Two cylinders will be brought in for use. Two five-gallon jerry cans of gasoline will be used to power a small 1000-watt generator. The cylinder not in use will be cached at a safe distance from the main cooking tent along with the gasoline cans. This cache will be tarped and rocked down to prevent it from being disturbed.

All fuel containers will be stored away from any bodies of water. Likewise, transfer activities will be undertaken away from any bodies of water. The kind of fuel being used evaporates very quickly and should not pose an immediate threat to the surrounding area in the unlikely event of a spill or leak. Propane will be used by attaching connection hoses from the tanks to the stoves. Similarly, gasoline will be transferred from the jerry cans to the generator using an appropriate funnel. Because of the small quantities of fuel being used and the restricted nature of transfer activities (i.e. from container to stove via fuel line), the potential for a large-scale spill is precluded.

WATER SUPPLY AND TREATMENT

26. Describe the location of water sources.

The camps will be located 25 – 30 m away from the shores of Mingo Lake and the Mingo River.

27. Estimated water use (in cubic metres/day):

<input type="checkbox"/>	Domestic Use: 2m ³ per day	Water Source: Mingo Lake and Mingo River
<input type="checkbox"/>	Drilling: _____	Water Source: _____
<input type="checkbox"/>	Other: _____	Water Source: _____

28. Describe water intake for camp operations? Is the water intake equipped with a mesh screen to prevent entrapment of fish? (see *DFO 1995, Freshwater Intake End-of-Pipe Fish Screen Guideline*) Describe:

Water will be gathered from the lake using refillable 5 liter plastic collapsible containers. There will be no formal or mechanized water intake system for these small, temporary camps.

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

Yes, we will evaluate the water quality using a water purification kit. Given the small size of our camp and the large water body from which we will be drawing water from, we do not anticipate the quality of the water to fluctuate during the time we will be occupying the camps. As such, we will likely only test the water a few times throughout the duration of the project.

30. Will drinking water be treated? How?

If the water requires treatment a water purification system will be used consisting of dissolvable tablets that are available from most retailers selling camping equipment. We would also boil the water if it were deemed necessary to eliminate any bacterial contamination.

31. Will water be stored on site?

Yes, in 4-5 refillable 5-liter plastic collapsible containers.

WASTE TREATMENT AND DISPOSAL

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

☐ Camp Sewage (blackwater)

Latrines will be dug into the ground at the base camp to contain human waste and will be buried when no longer in use. Lime will be used to coat the pits to facilitate decomposition and limit contamination. Given the small number of people in the camp and its short occupation span, the overall quantities of blackwater will be negligible.

☐ Camp Greywater

Grey water will be deposited in a small pit excavated adjacent to the latrines. Upon completion of the camp, this small pit will be backfilled. Given the small number of people in the camp and its short occupation span, the overall quantities of greywater will be negligible

☐ Solid Waste

All garbage produced by the crew during the project that is readily combustible will be burned, and that which cannot be burned will be transported out of the field for disposal in Iqaluit.

☐ Bulky Items/Scrap Metal

Not applicable

☐ Waste Oil/Hazardous Waste

No hazardous wastes will be used during or produced by this project.

☐ Empty Barrels/Fuel Drums

Not applicable

☐ Other:

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

Small contained campfires will be used to burn any combustible waste. Materials that will be burned include paper products and food packaging (e.g. cardboard boxes, labels). Any materials that cannot be burned will be transported out of camp.

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

Non-combustible waste will be collected in garbage bags at the site and transported back to Iqaluit for disposal in the municipal dump. The waste that will be disposed of at the dump will consist of regular house-hold materials and therefore, special authorization to dispose of it is not required.

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

NOT APPLICABLE

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

NOT APPLICABLE

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 methods implemented at these camps have been used at multiple other archaeological camps throughout Nunavut for decades.

ABANDONMENT AND RESTORATION

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

All structures, garbage, and other items brought in for use during this project will be removed upon completion of the proposed work. In accordance with standard archaeological procedures in the North, all excavated sites and test areas will be back-filled and re-sodded once excavations are complete in order to return the surface of the site as close to its original condition as possible. This includes replacing the soil, grading the area back to its natural contours, and replacing any surface vegetation.

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: _____

REGULATORY INFORMATION

40. At a minimum, you should ensure you have a copy of and consult the documents below for compliance with existing regulatory requirements:

- ✓ ARTICLE 13 – *NCLA -Nunavut Land Claims Agreement*
- ✓ NWNSRTA – *The Nunavut Waters and Nunavut Surface Rights Tribunal Act, 2002*
- ✓ *Northwest Territories Waters Regulations, 1993*
- ✓ NWB - Water Licensing in Nunavut - Interim Procedures and Information Guide for Applicants
- ✓ NWB - Interim Rules of Practice and Procedure for Public Hearings
- ✓ RWED – *Environmental Protection Act, R-068-93- Spill Contingency Planning and Reporting Regulations, 1993*
- ✓ RWED A Guide to the Spill Contingency Planning and Reporting Regulations, 2002
- ✓ NWTWB - Guidelines for Contingency Planning
- ✓ *Canadian Environmental Protection Act, 1999 (CEPA)*
- ✓ *Fisheries Act, RS 1985 - s.34, 35, 36 and 37*
- ✓ DFO - Freshwater Intake End of Pipe Fish Screen Guideline
- ✓ NWTWB - Guidelines for the Discharge of Treated Municipal Wastewater in the NWT
- ✓ Canadian Council for Ministers of the Environment (CCME); Canadian Drinking Water Quality Guidelines, 1987
- ✓ Public Health Act - Camp Sanitation Regulations
- ✓ Public Health Act - Water Supply Regulations
- ✓ *Territorial Lands Act and Territorial Land Use Regulations; Updated 2000*



P.O. Box 119
GJOA HAVEN, NU X0B 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

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NUNAVUT IMALIRIYIN KATIMAYINGI
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

NWB File No: 3BC-MIO---

June 5, 2008

Robert W. Park
Department of Anthropology
University of Waterloo
200 University Ave. W
Waterloo ON N2L 3G1
Email: rwpark@uwaterloo.ca

Re: Acknowledgement and Receipt of New Water License Application – Mingo Lake

Dear Mr. Park:

Currently we are seeking a legal opinion on whether or not scientific research activities require water licenses.

I will maintain your file on hold until such time as a determination is reached and will notify you at that time if the application will go forward or be withdrawn or cancelled.

Regards,

Sincerely,

Original signed by:

Richard Dwyer
Licensing Administrator



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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 3BC-MIO0809

September 29, 2008

Robert W. Park
Department of Anthropology
University of Waterloo
200 University Ave. W
Waterloo, ON
N2L 3G1
Email: rwpark@uwaterloo.ca

RE: NWB Licence No. 3BC-MIO0809

Dear Mr. Park,

Please find attached Licence No. 3BC-MIO0809 issued to the University of Waterloo by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*. The terms and conditions of the attached Licence related to water use and waste disposal are an integral part of this approval.

If the Licensee contemplates the renewal of this Licence, it is the responsibility of the Licensee to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then water use and waste disposal must cease, or the Licensee will be in contravention of the *Nunavut Land Claims Agreement* (NLCA) and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA). However, the expiry or cancellation of a licence does not relieve the holder from any obligations imposed by the licence. The NWB recommends that an application for the renewal of this Licence be filed at least three months prior to the Licence expiry date.

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public interest, to hold a public hearing. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment, however a minimum of thirty (30) days is required from time of acceptance by the NWB. It is the responsibility of the Licensee to ensure that all application materials have been received and acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received by interested persons on issues identified. The NWB notes that comments were received from the GN-GoE stating that a burn barrel should be used as a last resort for waste management and that the government of Nunavut is a signatory to the Canada-wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury Emissions. This information is attached for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. Kabloona', with a long horizontal stroke extending to the right.

Thomas Kabloona
Chief Executive Officer

TK/db

Enclosure: Licence No. 3BC-MIO0809
Comments GN-DoE, INAC

cc: Distribution – Qikiqtani

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DECISION

LICENCE NUMBER: 3BC-MIO0809

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a new Water Licence dated May 1, 2008 made by:

UNIVERSITY OF WATERLOO

to allow for the use of water and disposal of waste during camp activities at the Mingo Lake Archaeology Camp located within the Qikiqtani Region, Nunavut generally located at the geographical coordinates as follows:

Latitude: 64° 39' 27" N	Longitude: 72° 17' 54" W (Camp 1)
Latitude: 64° 41' 41" N	Longitude: 71° 51' 55" W (Camp 2)

DECISION

After having been satisfied that the application was in conformity with the Baffin Land Use Plan and exempt from the requirement for screening by the Nunavut Impact Review Board in accordance with Schedule 12.1, Paragraph 5 of the *Nunavut Land Claim Agreement* (NLCA), the NWB decided that the application could proceed through the regulatory process. In accordance with S.55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA) and Article 13 of the NLCA, public notice of the application was given and interested persons were invited to make representations to the NWB.

After reviewing the submission of the Applicant and considering the representations made by interested persons, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the NLCA and of the NWNSRTA, waived the requirement to hold a public hearing, and determined that:

Licence Number 3BC-MIO0809 be issued subject to the terms and conditions contained therein.
(Motion #: 2008-05-15)

SIGNED this 4th day of September 2008 at Gjoa Haven, NU.



Thomas Kabloona
Chief Executive Officer

TK/db

LICENCE NO. 3BC-MIO0809

Pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

UNIVERSITY OF WATERLOO

(Licensee)

of

200 UNIVERSITY AVE. W, WATERLOO, ON, N2L 3G1

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water and/or dispose of waste for a period subject to restrictions and conditions contained within this Licence:

3BC-MIO0809

Licence Number

NUNAVUT 05

Water Management Area

MINGO LAKE ARCHEOLOGY CAMP, BAFFIN ISLAND, NUNAVUT

Location

WATER USE AND WASTE DISPOSAL

Purpose

MUNICIPAL CAMP – TYPE “B”

Classification of Undertaking

FIVE (5) CUBIC METRES PER DAY

Quantity of Water Not to Exceed

SEPTEMBER 4, 2008

Date of Licence

SEPTEMBER 30, 2009

Expiry Date of Licence

Dated this 4th day of September 2008 at Gjoa Haven, NU.



Thomas Kabloona
Chief Executive Officer

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence allows for the use of water and the disposal of waste for an undertaking classified as a Municipal Camp as per Schedule II of the *Regulations* at the Mingo Lake Archaeology Camp, located approximately 120 km east of Cape Dorset within the Qikiqtani Region, Nunavut.

- a. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and
- b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

"Act" means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

"Addendum" means the supplemental text that is added to a full plan or report usually included at the end of the document and is not intended to require a full resubmission of the revised report.

"Amendment" means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

"Appurtenant Undertaking" means an undertaking in relation to which a use of water or a deposit of waste is permitted by a licence issued by the Board;

"Board" means the Nunavut Water Board established under the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

"Engineer" means a professional engineer registered to practice in Nunavut in accordance with the Engineering, Geological and Geophysical Act (Nunavut) S.N.W.T. 1998, c.38, s.5;

"Greywater" means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

"Inspector" means an Inspector designated by the Minister under Section 85 (1) of the *Act*;

"Licensee" means the holder of this Licence;

"Modification" means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

"Nunavut Land Claims Agreement" (NLCA) means the *"Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada"*, including its preamble and schedules, and any amendments to that agreement made pursuant to it;

"Regulations" means the *Northwest Territories Water Regulations* sor/93-303 8th June, 1993, omitting Section 5, Water Use or Waste Deposit Without a Licence;

"Sewage" means all toilet wastes and greywater;

"Spill Contingency Plan" means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

"Sump" means an excavation in impermeable soil for the purpose of catching or storing water or waste;

"Toilet Wastes" means all human excreta and associated products, but does not include greywater;

"Waste" means, as defined in S.4 of the *Act*, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means.

3. **Enforcement**

- a. Failure to comply with this Licence will be a violation of the *Act*, subjecting the Licensee to the enforcement measures and the penalties provided for in the *Act*;
- b. All inspection and enforcement services regarding this Licence will be provided

by Inspectors appointed under the *Act*; and

- c. For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge of waste by the Licensee, Inspectors appointed under the *Act*, hold all powers, privileges and protections that are conferred upon them by the *Act* or by other applicable law.

PART B: GENERAL CONDITIONS

1. The water use fees of \$30, payable to the Receiver General for Canada, shall be sent to the Board annually in advance of any use in accordance with Section 9 of the *Regulations*.
2. The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported, containing the following information:
 - a. A summary report of water use and waste disposal activities;
 - b. A list of unauthorized discharges and a summary of follow-up actions taken;
 - c. An up-to-date copy of the Spill Contingency Plan, including contact information;
 - d. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
 - e. A summary of all information requested and results of the Monitoring Program; and
 - f. Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.
3. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
4. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of water volumes as required under Part J, Item 1.
5. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted, cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan.
6. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
7. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall

become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.

8. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:
 - (a) **Manager of Licensing:**
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338
Fax: (867) 360-6369
Email: licensing@nunavutwaterboard.org
 - (b) **Inspector Contact:**
Water Resources Officer, INAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445
9. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
10. The Licensee shall ensure that any document(s) or correspondence submitted by the Licensee to the Board is received and acknowledged by the Manager of Licensing.
11. This Licence is not assignable except as provided in Section 44 of the *Act*.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all water for domestic camp use from Mingo Lake or Mingo River. The volume of water for the purposes of this Licence shall not exceed 5 cubic meters per day.
2. Streams cannot be used as a water source unless authorized and approved by the Board in writing.
3. If the Licensee requires water in sufficient volume that the source water body may be drawn down the Licensee shall, at least thirty (30) days prior to commencement of use of water, submit to the Board for approval in writing, the following: volume required,

hydrological overview of the water body, details of impacts, and proposed mitigation measures.

4. The Licensee shall equip all water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.
5. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.
6. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
7. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty (30) metres from the ordinary high water mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise approved by the Board in writing.
2. The Licensee shall not practice on-site land filling of domestic waste, unless otherwise approved by the Board in writing.
3. The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.
4. The Licensee shall provide to the Board, documented authorization from the community of Iqaluit prior to the backhauling of any waste.
5. The Licensee shall backhaul and dispose of all hazardous wastes, waste oil and non-combustible waste generated through the course of the operation in an approved waste disposal site.
6. The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.
7. The Licensee shall contain all greywater in a sump located at a distance of at least thirty (30) metres above the ordinary high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created, unless otherwise approved by the Board in writing.

8. For any camp with a design population under 300 person days per year and less than 1,000 person days for the life of the camp, the Licensee shall contain all toilet wastes in latrine pits or use incineration, chemical, portable or composting toilets. Latrine pits shall be located at a distance of at least thirty (30) metres above the ordinary high water mark of any water body, treated with lime and covered with native material to achieve the pre-existing natural contours of the land prior to abandonment.
9. The proponent shall ensure that any hazardous materials, including waste oil, receive proper treatment and disposal at an approved treatment facility.

PART E: CONDITIONS FOR CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes including immediate banks except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.
2. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.
3. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow. The Licensee should minimize disturbance by locating ice bridges in an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.
4. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty (30) metres from the ordinary high water mark in such a fashion that they do not enter the water.

PART F: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. The Licensee is not authorized to drill under the provisions of this Licence.

PART G: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
 - a. the Licensee has notified the Board in writing of such proposed Modifications at

- least sixty (60) days prior to beginning the Modifications;
 - b. such Modifications do not place the Licensee in contravention of the Licence or the *Act*;
 - c. the Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
 - d. the Board has not rejected the proposed Modifications.
- 2. Modifications for which all of the conditions referred to in Part G, Item 1 have not been met can be carried out only with written approval from the Board.
- 3. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

- 1. The Licensee shall submit within (60) days of issuance of the Licence a Spill Contingency Plan in the format set out by the Consolidation of Spill Contingency Planning and Reporting Regulations R-068-93.
- 2. The Licensee shall review the Plan referred to in this Part as required by changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plan are to be submitted in the form of an Addendum to be included with the Annual Report.
- 3. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project do not enter water. All sumps and fuel caches shall be located at a distance of at least thirty (30) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis.
- 4. The Licensee shall ensure that any equipment maintenance and servicing be conducted only in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.
- 5. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - a. Employ the Spill Contingency Plan;
 - b. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and
 - c. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken

to contain and clean up the spill site.

PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION OR TEMPORARY CLOSING

1. The Licensee shall complete all restoration work prior to the expiry of this Licence.
2. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
3. The Licensee shall backfill and restore all sumps to the pre-existing natural contours of the land.
4. The Licensee shall remove from the site, all infrastructure and site materials, including all fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, material and equipment prior to the expiry of this Licence.
5. All roads and airstrip, if any, shall be re-graded to match natural contour to reduce erosion.
6. All culverts shall be removed and the drainage opened up to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.
7. In order to promote growth of vegetation and the needed microclimate for seed deposition, all disturbed surfaces shall be prepared by ripping, grading, or scarifying the surface to conform to the natural topography.
8. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, January 2002. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.
9. All disturbed areas shall be contoured and stabilized upon completion of work and restored to a pre-disturbed state.

PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall measure and record, in cubic metres, the daily quantities of water utilized for camp and other purposes.
2. The Licensee shall provide the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where sources of water are utilized for all purposes.

3. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where wastes associated with camp operations are deposited.
4. Additional monitoring requirements may be requested by the Inspector.
5. The Licensee shall include in the Annual Report required under Part B, Item 2 all data, monitoring results and information required by this Part.