Water Licence Application
Supplementary Questionnaire
for Municipalities

Section 1:

GENERAL

1. Date: 2-1-07-97

2. Applicant: MUNICIPALITY OF IGLOOLIK
Municipality and Region

P.O. Box 30
Postal Address

IGLOOLIK, NT

XOA OLO

934-8830 934-8757
Telephone # Fax #

E-Mail Address

2. Contacts:

H. BOYCHUK
Municipality Contact

SAO
Position

934-8830
Telephone #

934-8757
Fax #

DAVID HAULLI
Alternate Contact

HAMLET FOREMAN
Position

934-8912
Telephone #

934-8757
Fax #

4. Community Status: ☐ City ☐ Village ☐ Town
☑ Hamlet ☐ Settlement Corporation

5. a) Population (according to most recent census results): 1174

b) Estimated growth rate over next 5 years: 3%

6. Indicate the status of the municipality's licence on the date of application.

☑ New Application

☐ Renewal → Water Licence # _____

7. Public Concerns:

What concerns does the municipality have regarding the municipal water supply or waste disposal facilities?

List the concerns and describe what steps have been taken to address those concerns.

1. WATER SICTATION IN THE SPRING TIME
2. INSECTS
3. UNDERSIZED SEWAGE LAGOON
4. CONTAMINATED MATERIAL IN GARBAGE DUMP

8. Traditional Water Use Areas:

Will the project impact on traditional use areas? ☐ Yes ☑ No

How has this been determined? Explain how such concerns have been addressed.

9. Have the Elders in the community been consulted in the use of Traditional Knowledge in determining this project?

If so, how?

N/A

If **not**, why not?

N/A.

10. Has any baseline data collection and evaluation been undertaken with respect to the physical, biological, and chemical characteristics of the main water bodies in the area?

☑ Yes ☐ No ☐ Unknown

If yes, please provide a summary of program details or site titles, authors, cities, and dates.

Prepared by	Title	Completion Date
D.I.A.N.D.	LAY SAMPLER PROGRAM	MAR. 31/97
GNWT	IGLOOLIK RESERVOIR STUDY	AUG/85
OLIVER/MANGIONE/McCALLA	WATER SUPPLY SYSTEM/IGLOOLIK	OCT./78
W.L. WARDROP & ASSOC.	WATER SUPPLY PROGRAM/IGLOOLIK	MARCH/72
SMITH & ASSOC.	IGLOOLIK WATER QUALITY STUDY	JULY/91

If no, are such studies being planned? ☐ Yes ☐ No

If yes, briefly describe the proposals.

11. Have Elders been consulted in the gathering of baseline data collection with respect to the main water bodies in the area?

If so, how?

N/A

If **not**, why not?

12. Has any baseline data collection and evaluation been undertaken with respect to the various biophysical components (eg wildlife, soils, air quality) of the environment potentially affected by the project, ie; in addition to water related information requested in this questionnaire?

☐ Yes ☐ No ☑ Unknown

If yes, please attach copies of reports or cite titles, authors and dates.

Prepared by	Title	Completion Date

If no, are such studies being planned? ☐ Yes ☐ No

If yes, briefly describe the proposals.

13. Have Elders been consulted on how the project will potentially affect the environment, (eg. wildlife, soils, air quality, water quality, etc.)?

If so, how?

If **not**, why not?

N/A.

If no, when will the Elders be consulted on this proposal?

SECTION 2:

ATTACHMENTS

1. Attach current or up to date detailed map(s) showing the relative locations of the:

   (a) raw water intake;

   (b) water treatment facilities;

   (c) fuel & chemical storage;

   (d) sewage treatment facilities;

   (e) wastewater treatment area and discharge outlets;

   (f) solid waste disposal areas and drainage patterns;

   (g) hazardous waste disposal area;

   (h) transportation access routes;

   (i) existing water bodies/courses and any changes to these water bodies/courses that have or may occur as a result of water use of waste disposal facilities, locations of environmental monitoring sites. (Outline drainage basin)

   (j) traditional use areas outlined on site map;

Are maps attached? ☑ Yes ☐ No

If no, please indicate when they may be available.

ANTICIPATE ADDITIONAL DRAWINGS FOR LAGOON + RESERVOIR. MAY BE AVAILABLE IN 1998. CONSULTANT TO HIRED TO DESIGN RESERVOIR + LAGOON IMPROVEMENTS

Indicate which organization has provided the various maps or diagrams.

AIR PHOTO'S / SURVEYS + MAPPING (MACA)

2. Attach detailed scale plan drawing(s) of the proposed (or present) sewage treatment system. The drawing(s) must be stamped by an engineer registered in NWT and include the following:

   (a) details of pond size and elevation;

   (b) precise details of all retaining structures (dimensions, materials of construction, etc.);

   (c) details of the drainage basin, and existing and proposed drainage modifications;

   (d) details of all decant, siphon mechanisms etc, including sewage treatment facilities;

   (e) details regarding direction and route followed by wastewater flow from the area;

   (f) indications of the distance to nearby major watercourses, and fish bearing waters;

   (g) location and construction of liners;

(h) leachate and groundwater collection systems; and

(i) control structures.

Are maps attached? ☐ Yes ☑ No

If Yes, indicate which organization has provided the various maps or diagrams.

AIRPHOTO ONLY

If no, please indicate when they may be available.

ANTICIPATE DRAWINGS OF THE LAGOON WOULD BE AVAILABLE IN 1998 WHEN REDESIGN OF LAGOON IS COMPLETE

3. Attach detailed scale plan drawing(s) of the proposed (or present) solid waste disposal area. Please include the following details:

(a) precise details of all retaining structures (dimensions, materials of construction, etc.);

(b) details of the drainage basin, and existing and proposed drainage modifications;

(c) details regarding direction and route followed by wastewater flow from the area;

(d) indications of the distance to nearby major watercourses, and fish bearing waters;

(e) all sources of seepage presently encountered near these areas;

(f) the volume of each seepage flow (m^3/day); and

(g) the direction of each flow.

Are drawings attached? ☑ Yes ☐ No

If yes, indicate which organization has provided the various maps or diagrams.

AIRPHOTO

If no, please indicate when they may be available.

4. Attach the present or proposed spill contingency plan that will be employed in case a spill of hazardous materials occurs. Describe the course of action, mitigative methods and equipment available for use. Consult Spill Contingency Guideline enclosed?

STOP SPILL. SCOOP UP. BURN AT DUMP.

Is a copy of the plan attached? ☐ Yes ☑ No

If no, please indicate when it will be available.

Section 3:

HYDROLOGY

1. Effects on surface water flow:

Will a stream channel be altered? ☐ Yes ☑ No

Will the natural storage or water level of a lake or pond be changed? ☑ Yes ☐ No

Will there be changes in the volume of water flow downstream of the project? ☑ Yes ☐ No

Will a storage reservoir be created in a natural channel? ☐ Yes ☑ No

If yes to any of the above, briefly describe the expected change in flow or storage:

_____

_____

_____

_____

2. Drainage Area (Catchment or Basin):

What is the drainage area? _____ Km^2

What is the average elevation of the drainage basin? _____ metres

Check: is the drainage basin outlined on an attached map? ☐ *Yes* ☐ *No*

Describe the drainage basin characteristics, vegetation types, general soil type, lakes, swamps and permafrost areas:

THE RESERVOIR IN IGLOOLIK IS FILLED BY PUMPING WATER APPROXIMATELY 2 KM FROM THE SOURCE AT SOUTH LAKE TO THE RESERVOIR AT THE AIRPORT. THERE IS LIMITED VEGETATION. SOIL TYPE IS GRANULAR MATERIAL. (NOTE ATTACHED INFO)

3. Channel Characteristics:

Will the course of any channel be changed? ☐ Yes ☑ No

If yes describe measures to maintain stream bed and bank stability.

_____

_____

_____

_____

4. Will the cross-section of any watercourse be changed? ☐ Yes ☑ No

If yes, describe the change and its effect on the flow capacity of the channel

Section 4:

WATER SUPPLY

1. Volume of water use:

System of distribution	Estimated number of people on each system	Estimated average water use (L/c/d)	Total water use (L/d)
_____	_____	_____	_____ (L/d)
piped			
✓	1100	31.81 M³/year	79.7 (L/d)
trucked			

79.7 (Water usage (L/d)) x 1 m³ / 1000 L = Water Usage: .0797 (m³/d)

.0797 (Water usage (m³/d)) x 365 days / year = Water Usage: 29.09 (m³/y)

2. Type of source: ☑ Lake ☐ River ☐ Well ☐ Other _____

3. Name of raw water source and alternative, if any.

SOUTH LAKE — Primary Source

EAST LAKE — Secondary Source

4. Usual break-up & freeze-up months. JULY — Break-up; OCTOBER — Freeze-up

5. Please provide short descriptions for the following

- freshwater intake facility PIPELINE
- operating capacity of the pumps used 100 GALS/MIN
- intake screen size. 1/2"

6. Type of water storage facility. (check where applicable)

☑ Reservoir ☐ Storage tank ☐ None

☐ Other _____
description

Is the Reservoir lined? ☐ Yes ☑ No

What type of liner? _____ When was it installed? _____

7. What is the capacity of the water storage facility. 76,265 m³

8. What is the rate of withdrawal from the source? 87 (m³/day)

9. Is water drawn from the source ☑ intermittently ☐ continuously

If it is drawn intermittently, during what month(s) is it drawn? AUGUST

For what period is it drawn (days/weeks/months) ? 2 WEEKS

10. What is the rate of flow of source (if river) or size (if lake)? N/A

11. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn.
NO NOTICEABLE LEVEL CHANGE

12. Is a dam or dyke being used to store or alter the flow of water? ☐ Yes ☑ No

13. What are the dimensions of the dam or dyke? N/A

Length: ____ m. Width: ____ m. Height: ____ m.

U/S slope: ____ m. D/S slope: ____ m.

14. Does the proposed dam create a reservoir in a natural watercourse? ☐ Yes ☐ No N/A
If yes, what is the storage capacity and surface area of the reservoir?

_____ m³ _____ ha.

15. Will the dam or dyke affect fish passage? ☐ Yes ☐ No N/A
If yes, describe all measures for compensation of fish habitat lost due to the dam or dyke and provisions for fish passage.

_____

_____

16. Describe the proposed maintenance and inspection schedule.

17. General conditions of:

(a) Water supply facility ☑ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain.

(b) Storage facility ☑ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain.

(c) Distribution system ☑ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain.

18. When was the last site inspection of the facilities done? By whom?

WEEKLY VISUAL INSPECTION / FOREMAN

19. Are there any changes planned in the water supply system? ☐ No ☑ Yes

If yes, please attach a copy of the plan, or describe changes. Provide the NWB with the contact person and implementation schedule.

WATER RESERVOIR TO BE EXPANDED IN CAPACITY BY 7,700 CU.M. IN 1998. CONTACT PETER BUTCHER / DEPT. OF PUBLIC WORKS & SERVICES / IQALUIT 819-979-5020 FOR SCHEDULE INFO.

Section 5:

WATER TREATMENT

1. Indicate the quality of the raw water before treatment & distribution.

Summer:	☑ good	☐ fair	☐ poor
Fall:	☑ good	☐ fair	☐ poor
Winter:	☑ good	☐ fair	☐ poor
Spring:	☐ good	☑ fair	☐ poor

Describe.

2. Indicate the capacity of the treatment facility. 440 L/min

3. Type of water treatment facility.

☐ Filtration & Chlorination ☑ Chlorination only ☐ None

☐ Other _____
Description

4. Describe the method of water treatment (i.e., backwash, flocculation, sedimentation, chemicals used), and provide the results of the most recent bacteriological and chemical analysis. Attach a diagram if possible.

INLINE CHLORINATOR AT TRUCK FILL STATION
BATCH FLUORIDATION OF THE RESERVOIR DURING
ANNUAL FILLING OF THE RESERVOIR.

5. Have there been any problems or health and environmental concerns with the water treatment facilities?
☑ No ☐ Yes, describe.

6. Are there any changes planned in the water treatment facilities? ☑ No ☐ Yes
If yes, please attach a copy of the plan or indicate changes and include an implementation schedule. Please include excerpt from MACA Capital Plan if available.

BRIEFING NOTES FOR SEWAGE LAGOON + RESERVOIR EXPANSION ARE INCLUDED.

Section 6:

SEWAGE DISPOSAL

1. Indicate the level of treatment the sewage will be receiving:
☑ primary ☐ secondary ☐ tertiary

Pre-treatment (if applicable): ☐ screening ☐ maceration

Lagoons (if applicable): ☐ anaerobic ☐ aerobic ☐ facultative

2. Indicate the capacity of the sewage treatment facility. 37,320 m^3

3. The average depth of the wastewater lagoon is 3 m.

4. What is the design freeboard? 1 m.

5. Indicate the retention time of the sewage while in the treatment facility. 240 days

6. Indicate the estimated rate of discharge of wastewater. 580 L/DAY L/sec

7. Indicate the location of the discharge point. SEEPAGE DESIGNED (46000 L)

8. Will the discharge be: ☑ seasonal ☐ continuous

If the discharge is seasonal, during what month(s) is it done? JULY, AUGUST, HALF OF SEPTEMBER

What is the duration of the discharge (days/weeks/months)? 2.5 MONTHS

9. Comment on the general condition of the:

(a) Sewage collection system ☑ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain. _____

_____

(b) Discharge control system ☑ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain. _____

_____

(c) Dams, diversion dykes, berms N/A ☐ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain. _____

10. When was the last inspection of the facilities? Provide the name and contact number of the inspector.

WEEKLY - BY HAMLET FOREMAN - DAVID HALLI
934-8312

11. Have there been any problems or health and environmental concerns with the sewage disposal facilities?

☑ No
☐ Yes, describe.

12. Is there any harvesting of fish or shell fish in the waters where waste is discharged?

☐ Yes ☑ No

If yes, please indicate species harvested, and estimate amounts.

13. Will the municipality be using a honey bag pit? ☑ Yes ☐ No

If yes, describe its:

Location - NORTH OF SEWAGE LAGOON - 60 METERS.

Drainage - SEEPAGE

Operation & Maintenance - COVER WITH LAYER OF GRANULAR MATERIAL AS REQUIRED.

Please provide a map outlining the above information.

14. Are there any sources of commercial or industrial liquid waste being discharged or deposited to the municipal system that may affect the quality of the effluent or leachate produced? (The municipality should be aware that any discharge commercial or industrial has to be approved by the municipality)

☐ Yes ☑ No

If yes, please describe. _____

15. Have any spills occurred in the past five years? ☑ Yes ☐ No

If yes, describe and show on a map the locations of the spills. What action has been taken to clean the affected areas.

NTPC Heating Fuel Spill - Cleaned up by NTPC.

16. Does the community have a system in place for reporting spills? ☑ Yes ☐ No

If yes, describe. 24 Hour Spill Line

17. Does the community have a contingency plan for clean up of spills? ☐ Yes ☑ No

If yes, describe. _____

18. Has there been any operating problems with the lagoon? ☑ Yes ☐ No

If yes, describe. System is undersized but will be expanded ~~this~~ next year.

19. Are any changes planned in the sewage disposal facilities? ☐ No ☑ Yes

If yes, please describe and if possible, attach a copy of the plan and proposed implementation schedule.

Briefing note attached.

Increase sewage lagoon capacity by 7,700 cu.m.

Section 7:

SOLID WASTE DISPOSAL

1. Indicate the capacity of the disposal area. _____ m^3 N/AVAILABLE

2. The average depth of the solid waste disposal site is _____ m. N/AVAILABLE

3. Are there any sources of commercial or industrial solid waste being deposited in the municipal system that may affect the quality of the effluent or leachate produced?
☐ Yes ☑ No

If yes, please describe. _____

_____

4. Briefly describe how the solid waste will be picked up & delivered to the disposal area.

GARBAGE TRUCK.

_____

5. Is the solid waste site fenced? ☐ Yes ☑ No

6. Will the municipality be using a dead animal pit? ☑ Yes ☐ No

If yes, describe its:

Location - SOUTH OF SOLID WASTE SITE

Drainage - TOWARD THE SEA.

Operation & Maintenance - ANIMALS COVERED WITH GRANULAR MATERIAL AS REQUIRED

7. Will the municipality be using a bulky metal waste disposal area? ☑ Yes ☐ No

If yes, briefly describe its location and operation plan.

LOCATED BETWEEN SEWAGE LAGOONS AND SOLID WASTE DUMP.

WASTE IS SORTED.

8. Will the municipality be using a hazardous waste disposal area? ☑ Yes ☐ No
If yes, describe its: PLANS NOT YET FIRM.

Location - _____

Structure - _____

Operation & Maintenance - _____

9. Are there any hazardous commercial wastes entering the solid waste disposal system?
☑ Yes ☐ No

If yes, describe and note amounts and special handling/disposal methods for these wastes.

HAVE NO RIGID PROCEDURES.

10. How past, present, future has the community assessed the SNP dumpsite runoff?

11. If any natural watercourse may enter the proposed solid waste disposal area, what methods will be used to decrease the amount of runoff water entering these areas?

N/A.

12. Indicate the volume of water that may enter these areas from the source(s) in question and attach all pertinent details of proposed diversions.

Source	Volume (m^3/day)

13. Please describe the nature of any diversions of watercourses: N/A

14. Have there been any problems or health and environmental concerns with the solid waste disposal facilities?

☑ No
☐ Yes, describe.

15. Are any changes planned in the solid waste disposal system?

☐ Yes ☑ No

If yes, please describe and, if possible, attach a copy of the plan and proposed implementation schedule.

16. Is seepage (leachate) anticipated from the site? ☑ Yes ☐ No

WINTER RUNOFF.

Section 8:

ABANDONMENT AND RESTORATION PROGRAM

1. List and describe the locations of abandoned or restored water treatment facilities. Outline on an current map. Refer to original attachment maps.

N/A.

2. List and describe the locations of abandoned or restored sewage treatment facilities. Outline on a current map. Refer to original attachment maps.

N/A

3. List and describe the locations of abandoned or restored solid waste disposal facilities. Outline on a current map. Refer to original attachment maps.

EAST of BREAKWATER. (30+ YEARS AGO).

4. Do you have an abandonment and restoration plan?
☐ Yes ☑ No
If yes, please attach a copy of the plan.

Section 9:

WATER QUALITY MONITORING PROGRAM

1. Briefly describe the methodology that is presently used to sample.

HEALTH CENTRE EMPLOYEE TAKES SAMPLES FROM EACH WATER TRUCK ON A MONTHLY BASIS.

2. Briefly describe any monitoring that is done on wastewater effluent and leachate.

NONE

3. Name the individual who performs sampling within the community?

SIMEON IYYIRAQ
contact name

c/o IGLOOLIK HEALTH CENTRE
postal address

IGLOOLIK, NT X0A 0L0
postal address

( ) 934-8837
telephone number

( )
facsimile number

What level of training does this person have?

UNKNOWN

4. Recognized laboratory performing analysis of samples.

BAFFIN REGIONAL HOSPITAL
name

contact name

IQALUIT, NT X0A 0H0
postal address

postal address

( ) 979-5231
telephone number

( )
facsimile number

5. Are any changes planned in the water quality monitoring program?

☐ Yes ☑ No

If yes, describe. _____

_____

_____

Section 10:

ENVIRONMENTAL ASSESSMENT AND SCREENING

1. Has approval been obtained or sought from the Department of Fisheries and Oceans for using any fish bearing water bodies for containment or disposal of waste?
   ☐ Yes ☑ No

2. Are there any environmental studies ongoing or planned ?
   ☐ Yes ☑ No
   If yes, list:

Prepared by	Title	Completion Date