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NUNAVUT WATER BOARD

NUNAVUT IMALIRIYIN KATIMAYINGI

OFFICE DES EAUX DU NUNAVUT

**Water Licence Application
Supplementary Questionnaire
For Municipalities**

I. GENERAL

1. Date: November 16, 2008

2. Applicant: **Hamlet of Igloolik**

Municipality and Region

3. Contacts: Brian Fleming

4. Name of Contact

SAO

Position

867 -934-8830
Telephone #

867- 934-8757
Fax #

igloolik@magma.ca
Email

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

5. Indicate the status of the municipality's license on the date of the application.

☐ New Application

☒ * **Renewal** Water License # NWB3IGLO308

II. ATTACHMENTS: NIL

1. Attach current or up-to-date detailed map(s) showing the locations of the:
 - a. Raw water intake;
 - b. Water storage and treatment facilities;
 - c. Fuel and chemical storage;
 - d. Sewage treatment facilities (lagoon, honey bag pit, wetland);
 - 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 or waste disposal facilities, locations of environmental monitoring sites. (Outline drainage basin);
 - j. Traditional use areas outlined on site map and areas around the community used for recreation, camping, fishing, etc.
 - k. Abandoned and/or restored water treatment, sewage, and solid waste disposal facilities.

Are maps attached? ___ Yes * No

If no, please indicate when they will be available.

Upon completion of a consultant study planned for 08/09.

Indicate which organization has provided the various maps or diagrams.

III. WATER SUPPLY

Water Source

1. Type of source: * Lake ___ River ___ Well ___ Other ___

South Lake

2. Name of water source and alternative, if any.

Reservoir
Primary Source Secondary Source

3. Usual break-up & freeze-up period: June September
Break-up Freeze-up

Water Intake

1. Please provide short descriptions for the following:

a. Freshwater intake facility - Mobile Pump at South Lake

b. Operating capacity of pump used

76,000 gallons/minute, 100psi

c. Intake screen size - 150 mm

Water Storage

1. Type of water storage facility. (Check where applicable)

* Reservoir/Pond ___ Storage tank ___ none

___ Other _____ Description:

2. If “reservoir” checked:

Is the reservoir lined? ___ Yes * No

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

Water Treatment

1. Indicate the quality of the water.

Summer:	___ * ___ good	___ fair	___ poor
Fall:	___ * ___ good	___ fair	___ poor
Winter:	___ * ___ good	___ fair	___ poor
Spring:	___ * ___ good	___ fair	___ poor

2. Describe.

3. Type of water treatment.

___	Filtration and chlorination
* ___	Chlorination only
___	None
___	Other _____
	Description

Water Use And Distribution

1. Volume of water use:

Distribution	Estimated number of people on the system A	Estimated average water consumption (Liters/capita/day) B	Total water consumption (Day/day) A x B
PIPED			
TRUCKED	2033	108	219, 564 liters
TOTAL			

General Condition of the water supply facilities

1. General condition of the:
 - 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.

Modifications

1. Are there any changes *planned* for the water supply system?
☐ No ☐ *Yes

If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

Yes, currently in the planning stage, waiting for capital funding.

2. Does the community believe changes needed to the water supply, storage or treatment facilities? Describe.

Yes, currently in the planning stage, waiting for capital funding.

Propose to rehabilitate 2km of water pipeline.

Identification

Are there signs identifying drinking water sources presently used by the municipality?

* ☐ Yes ☐ No

IV. SEWAGE DISPOSAL

1. What type(s) of sewage treatment does the community have?

- ☒ Lagoon
- ☐ Mechanical system
- ☐ Wetland
- ☒ Honey bag (2 Units)
- ☐ Combination/Other: Describe:

Lagoon (if applicable)

1. Has there been any operating problems with the lagoon? * ☐ Yes ☐ No

If yes, describe

Minor leaching.

Mechanical System (if applicable) *N/A*

1. Describe (type, specifications, operation and maintenance program for the mechanical wastewater treatment system).

2. Are sludge's produced ? ☐ Yes ☐ No

N/A

If yes, describe how the sludge's are disposed of:

Wetland (if applicable)

1. Describe the Wetland wastewater treatment system.

Natural sloping ground without vegetation.

Honey Bag Pit: N/A

1. Does the municipality use a honey bag pit?

☒ Yes ☐ No

If yes, describe the location, drainage, and operation/maintenance of the site:

The honey bag pit is lined and located adjacent to our sewage lagoon.

Commercial, Industrial and/or Hazardous Wastes

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

___ Yes * ___ No

If yes, indicate sources, types and quantities.

Sewage Discharge

1. Are fish, shellfish and other wildlife harvested in or near the discharge area?

___ Yes * No

If yes, indicate species harvested, and level of harvest.

General Condition of the sewage treatment facilities

1. General condition of the:

a. Sewage collection system * ___ Satisfactory ___ Unsatisfactory

If unsatisfactory, explain.

b. Discharge control system ___ Satisfactory * ___ Unsatisfactory

If unsatisfactory, explain.

It is an exfiltration lagoon that is not working properly.

c. Dams, diversion dykes, berms ___ Satisfactory ___ * ___ Unsatisfactory

If unsatisfactory, explain.

Dams are unstable and require remediation.

Modifications

1. Are there any changes *planned* in the sewage treatment facilities? ___ No * Yes

If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

Hamlet/GN is hiring a consultant in 08/09 to design improvements for the facility.

2. Does the municipality or residents believe changes are needed to the sewage treatment facilities?

If yes Describe.

Yes. Waiting for recommendations from the consultant.

Abandonment and Restoration; N/A

1. List and describe abandoned or restored sewage treatment facilities. Refer to original attachment maps.

Identification

Are there signs identifying past and present sewage disposal sites? ☐ * Yes
No

V. SOLID WASTE DISPOSAL

1. Briefly describe how solid wastes are collected and delivered to the disposal area.

Picked up and delivered to the land fill site by truck.

2. Is the solid waste site fenced? ☐ Yes * ☐ No

3. Is the fence adequate? ☐ Yes ☐ No
If no, describe:

Waste Reduction

1. Does the municipality burn garbage?

☐ * ☐ Yes ☐ No

If yes, describe how and when this is done.

One to 2 times per week as weather permits.

2. Has the municipality considered measures for waste reduction such as recycling or reuse?

☐ Yes * ☐ No

If yes, describe

Animal Carcasses Pit

1. Does the municipality have an area for the disposal of animal carcasses?

☐ Yes * ☐ No

If yes, describe the location, drainage and operation/maintenance of the site

They are burned during summer, in a large barrel located in the solid waste site.

Waste Oil Pit

1. Describe the waste oil storage area.

A designated area inside the landfill site

The Hamlet burns as much used oil as possible in a used oil burner located at the garage. Oil deposited in the land fill site is placed in a barrel, situated inside a 20' x 20' lined holding area, with a 1 foot high berm around the sides.

Bulky Scrap Metal Waste Disposal Area

1. Does the municipality have a scrap metal or bulky waste disposal area?
___ * ___ Yes ___ No

If yes, briefly describe its location and operation plan.

It is situated between the sewage lagoon and remainder of the solid waste site. No clear operational plan exists, and we are waiting for the consultant to provide recommendations.

Commercial, Industrial and/or Hazardous Wastes Disposal Area

1. Are there any commercial or industrial waste being discharged or deposited in the solid waste disposal area? (The municipality should be aware that any discharge of commercial or industrial waste has to be approved by the municipality)

___ Yes ___ * ___ No

If yes, please indicate sources, types and quantity.

2. Will the municipality use a hazardous waste disposal area? N/A
___ * ___ Yes ___ No

If yes, describe its:

- a. Location - Between the sewage lagoon and scrap metal area.
- b. Structure – An old fuel tank and a sea can, for depositing paint, batteries, and similar hazardous materials.
- c. Operation and maintenance (describe special handling/disposal methods for these wastes) – Materials are contained and secured.

General Condition of the Solid Waste Disposal Area

1. Comment on the general conditions of the:
a. Solid waste disposal area ___ Satisfactory ___ * ___ Unsatisfactory

If unsatisfactory, explain.

No fence, at or near capacity, and close to the community.

Modifications

1. Are there any changes planned for the solid waste disposal area?

☐ No * ☒ Yes

If yes, attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

The Hamlet is waiting for recommendations from the consultant.

2. Are changes needed to the solid waste disposal area?

Describe. Yes.

Abandonment and Restoration

1. List and describe abandoned or restored solid waste facilities.

Indicate their location on a map.

We are in the process of abandoning, restoration and identifying a new site, which will be addressed according to recommendations from the consultant.

Identification

Are there signs identifying past and present solid waste disposal sites?

* ☐ Yes ☐ No

VI. INSPECTION AND MONITORING

1. When were municipal facilities inspected by?

☐ * Indian and Northern Affairs Inspector at:

Date: August, 2008

☐ * Municipal and Community Affairs (**Presently GN-CGS**)

Date: July, 2008

☐ Other: _____ Date: _____

2. Is there a system in place for reporting spills?

* ☐ Yes ☐ No

If yes, describe.

Spill Action Hot Line and the Hamlet follows GN Policy/Procedures.

3. Is there a contingency plan for clean up of spills?

* ☒ Yes ☐ No

If yes, describe.

Spill kits are available and we work closely with the GN.

4. 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?

Unknown. Within the last year however, there have been minor spills in town at the arena, HTO office, and gas station. The spills were contained, material removed according to the directions of the Environmental Officer, Department of Environment.

Monitoring Program

1. Is water sampling and analysis done?

* ☐ Yes ☐ No

If Yes, answer the questions a to e:

- a. Is water sampling and analysis done?

Yes.

- b. Briefly describe how samples are taken and sent to the laboratory.

Water trucks are sampled daily, and water samples are collected from public locations in town, which are sent to the laboratory through the local Health Center in coordination with the Environmental Health Officer.

- c. Briefly describe any monitoring done for wastewater effluent and leachate.

INAC inspector did effluent sampling during decanting in July 2008

- c. Who is responsible for water sampling?

Name: **Hamlet Employees**

Position: **Water Truck Drivers**

Telephone #: **867-934-8912**

Fax #: **867-934-8451**

Level of training: **Locally Trained**

- d. Recognized laboratory performing analysis of samples.

Name: Caduceon Environmental Laboratories
Address: 285 Dalton Avenue, Kingston, ON.
Telephone #: 613-544-2001

- e. Are any changes planned in the water quality-monitoring program? ____ Yes
* No

If yes, describe.

VII. PUBLIC CONCERNS

1. What concerns does the municipality or residents have regarding the municipal water supply water supply or waste disposal facilities? List the concerns and describe what steps have been taken to address those concerns.

Water supply pipeline is being rehabilitated, a fence needs to be installed around the reservoir, and the existing land fill will be decommissioned and a new site will be identified and developed, according to the recommendations of the consultant hired to assist the Hamlet.

VIII. PUBLIC HEALTH: Please contact GN-DOH

(Help may be obtained from the Regional Environmental Health Officer if you have difficulty with this section.)

1. Date: Nov 4, 2008
2. Municipality: Igloolik
3. Contact: (Environmental Health Officer Contact) Wanda Joy
Telephone # 967-975-4817
Fax #: 867-975-4833
4. Have there been any problems or health/environmental concerns with drinking water?
____ Yes * ____ No
If yes, describe:

5. Have there been any problems or health/environmental concerns with sewage disposal/treatment?

☐ Yes ☒ No

If yes, describe

6. Have there been any problems or health/environmental concerns with solid waste disposal?

☐ Yes ☒ No

If yes, describe:

Monitoring Program

1. Does the Regional Health Board perform water quality sampling?

☒ Yes ☐ No

If Yes, answer questions (a) to (e)

GN-DOH Environmental Health officer

- a. Briefly describe the sampling methodology.

Health inspectors collect samples two/three times a year and test in their Lab in Iqaluit for QA/AC.

- b. Briefly describe any monitoring of wastewater effluent and leachate.

The INAC inspector last sampled the Water and Lagoon in August 2008. Hamlet will start by themselves from next year and so.

- c. Who is responsible for sampling?

Name: Director of Public Works

Position:

Telephone #: 867-934-8912

Fax #: 867-934- 8757

Level of training: Locally trained

- c. Recognized laboratory performing analysis of samples.

Name: Caduceon Environmental Laboratories

Address: 285 Dalton Avenue, Kingston, ON.

Telephone #:613-544-2001

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

☐ Yes ☒ No

If yes, describe.

IX. TECHNICAL INFORMATION (*Assistance may be obtained from the Regional Community Government (CGS office if you have difficult with this section).*)

1. Date: N/A

2. Municipality: **Hamlet of Igloolik**

3. Contact: Bhabesh Roy. P.Eng., MPE, GN-CGS

4. Population: **2033**

5. Estimated growth rate over next 5 years: **4.9 %**

6. 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

If yes, provide a summary of program details or site title, authors, cities, and dates:

The water in our reservoir was sampled and analyzed (attached).

If no, are such studies being planned?

☐ No ☒ Yes (If yes, when and by whom):

By the Hamlet. The results are attached.

No fixed time frame yet.

7. Have Elders been consulted in the collection of baseline data on main water bodies in the area?

☒ No ☐ Yes

If yes, specify.

8. Has baseline data collection and evaluation been undertaken with respect to the various biophysical components of the environment potentially affected by the project?

☐ No ☒ Yes

If yes, provide details below.

If no, are such studies being planned?

___ No ___ *Yes.

If yes, specify: see item #6.

Once funding is approved.

Attachments NIL

- 1.
2. Attach detailed plan or drawing(s) of the present *solid waste disposal area*.
Include the following information:
 - a. details of pond size and elevation;
 - b. 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 path of wastewater flow from the area;
 - f. distance from watercourses and fish bearing waters;
 - g. location and construction of liners;
 - h. leachate and groundwater collection systems; and
 - i. control structures.
3. Attach detailed plan or drawing(s) of the present *sewage treatment system*. The drawing(s) should include the following: N/A
 - a. 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 path of wastewater flow from the area;
 - d. indications of the distance from watercourses and fish bearing waters;
 - e. all sources of seepage presently encountered near these areas, volumes (m^3/day) and directions.
 - f. The volume of seepage flow (m^3 / day); and
 - g. The direction of each flow.
4. Are drawings for the solid waste disposal area and sewage treatment system attached?
___ Yes ___ * ___ No

If Yes, who has provided them?

If no, indicate when they will be available.

Hydrology

1. Effects on surface water flow:

Are any stream channels altered? ☐ Yes ☒ No

Is the natural storage or water level of any lake or pond changed? ☐ Yes ☒ No

Are there changes in water flow downstream of the project? ☐ Yes ☒ No

Is a storage reservoir 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:

What is the drainage area? 1 km²

What is the average elevation of the drainage basin? 150 metres

Is the drainage basin outlined on an attached map? ☐ Yes ☒ No

Describe the drainage basin characteristics, (vegetation, general soil type, lakes, swamps and permafrost areas, etc.)

Gently sloped natural wetland to the coast.

3. Channel characteristics:

Is the course of any channel changed? ☒ Yes ☐ No

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

1.5m high berms have been installed.

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.

Water Supply

1. What is the rate of withdrawal from the source? 44,098 m³/day

2. Is water drawn from the source ☒ intermittently ☐ continuously

3. If it is drawn intermittently, during what month(s) is it drawn?
August to September

4. For what period is it drawn (days/weeks/months)? 6 -7 Weeks
5. What is the rate of flow of source (if river) or size (if lake)? Unknown
* _____
6. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn.

Not known

Water Intake

1. Please provide short descriptions of the following:
 - a. freshwater intake facility: Mobile Pump
 - b. operating capacity of the pumps: 76,000 gallons per minute
 - c. intake screen size: 150mm diameter

Water Storage

1. Is a dam or dyke being used to store or alter the flow of water? Yes * No
2. What are the dimensions of the dam or dyke? N/A
Length: _____ Width: _____ Height: _____
U/S slope: _____ D/S slope: _____
3. Does the proposed dam create a reservoir in a natural watercourse?
Yes * No

If yes, what is the storage capacity and surface area of the reservoir?
_____ m³ _____ ha.

4. Will the dam or dyke affect fish migration or movement?
Yes _____ No _____

If yes, describe all measures for compensation of fish habitat lost due to the dam or dyke, and mitigation for fish migration or movement.

Water Treatment

1. Indicate the capacity of the treatment facility. 1000 L/min

2. What is the capacity of the water storage facility: 65,000 cu meter.
3. 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.

Chemical used-Chlorination
4. Are there any changes planned in the water treatment facilities? * ☐ No ☐ Yes
If yes, attach a copy of the plan or indicate changes and include an implementation schedule.
Include excerpt from MACA Capital Plan if available.

Sewage Disposal

1. Indicate the level of sewage treatment:
☐ * ☐ primary ☐ secondary ☐ tertiary
 Pre-treatment (if applicable): ☐ screening ☐ maceration
 Lagoons (if applicable): ☐ anaerobic ☐ * ☐ aerobic ☐ facultative
2. Indicate the capacity of the sewage treatment facility: (19,360 approximately) m³
3. Based on current population projections, the facility will meet the needs of the community until the year 2012.
4. Average depth of the wastewater lagoon: 6m.
5. What is the design freeboard? 1.0m.
6. Indicate the retention time of the sewage while in the treatment facility
90 days.
7. Indicate the estimated rate of discharge of wastewater 11.36 L/sec.
8. Indicate the location of the discharge point:

NE corner of the Lagoon towards the sea

9. Is the discharge: ☐ * seasonal ☐
 If the discharge is seasonal, during what month(s) is it done?
 Normally August
 What is the duration of the discharge (days/weeks/months)? 3 weeks

10. Are there any changes planned in the sewage disposal facilities?

 * No Yes

If yes, attach a copy of the plan or indicate changes and include an implementation schedule.

Include excerpt from MACA Capital Plan if available

Solid Waste Disposal

1. Indicate the capacity of the disposal area: Unknown m³
2. The *average* depth of the solid waste disposal site 1.0m m.
3. The current facility will meet community needs until the year: 2011 .

Waiting for a recommendation from a consultant.

4. Do any natural watercourse enter the solid waste disposal area? What methods are used to decrease the amount of runoff water entering these areas? **NO**
5. Indicate the volume of water that may enter these areas from any source(s) and attach all pertinent details of the diversions.

Source

Volume

N/A

6. Please describe any diversions of watercourses:

NIL

7. Are there any changes planned in the solid waste disposal facilities? No * Yes
If yes, attach a copy of the plan or indicate changes and include an implementation schedule

Waiting for recommendations from consultant on a plan to decommission existing site and to identify and plan a new site.

Other

1. Describe any additional details on the existing municipal facilities which should be considered by the Nunavut Water Board during its review.

Hamlet currently has 1 manual on the water supply system. Once a consultant has designed the new facilities, an operational manual will be developed for solid and waste water management.