



Section 3
Water Licence Application
Supplementary Questionnaire
For Municipalities



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NUNAVUT

MALIRIYIN KATIMAYING

**Water Licence Application
Supplementary Questionnaire
for Municipalities**

I. GENERAL

1. Date: January 2003

2. Applicant:

Municipality and Region: The Hamlet of Hall Beach, Hall Beach, Nunavut

Contacts:

Name of Contact: Anne Curley and Zillah Piialaq

Position: Senior Administrative Officer and Acting/Assistant

Telephone: 867-928-8945

Fax: 867-928-8871

4. Community Status:

Village

Town

City

Hamlet

Settlement Corporation

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

New Application

Renewal Water Licence #

II. ATTACHMENTS

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

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

j. Outline drainage basin

k. Traditional use areas outlined on site map and areas around the community used for recreation, camping, fishing, etc.

1. 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.

Indicate which organization has provided the various maps or diagrams.

III. WATER SUPPLY

Water Source

1. Type of source:

Lake
 River
 Well
 Other

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

Primary Source: Bermed Reservoir – built in 2000

Secondary Source: Not Applicable

3. Usual break-up & freeze-up period:

Break-up: June

Freeze-up: October

Water Intake

1. Please provide short descriptions for the following:

- a. Freshwater intake facility

In the 50's, Water Supply Lake was converted into a bermed reservoir for water use by the community and the DEW line. In 2000, a new bermed reservoir was constructed roughly 50 metres from the old Water Supply Lake reservoir. A pumphouse is used to fill up the new reservoir from the old one every spring. Water Supply Lake is recharged every year from the surrounding lands. There is no permanent intake structure.

b. Operating capacity of pumps used:

6" 225 GPM.

c. Intake screen size

22" by 21" Johnson Filter.

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

What type of liner?

Geotech fabric

When was it installed?

2000

Water Treatment

1. Indicate the quality of the water.

Summer:	<input checked="" type="checkbox"/> good	<input type="checkbox"/> fair	<input type="checkbox"/> poor
Fall:	<input checked="" type="checkbox"/> good	<input type="checkbox"/> fair	<input type="checkbox"/> poor
Winter:	<input checked="" type="checkbox"/> good	<input type="checkbox"/> fair	<input type="checkbox"/> poor
Spring:	<input checked="" type="checkbox"/> good	<input type="checkbox"/> fair	<input type="checkbox"/> 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 (Litres/capita/day) B	Total water consumption (Litres/day) A x B
PIPED	0	0	0
TRUCKED	651	106	69,000
TOTAL			69,000

General Condition of the water supply facilities

1. General condition of the:

Water supply facility

Satisfactory Unsatisfactory

If unsatisfactory, explain.

b. Storage facility

Satisfactory Unsatisfactory

If unsatisfactory, explain.

c. Distribution system

Satisfactory Unsatisfactory

If unsatisfactory, explain.

Two trucks in use seven days a week full time. Excessive wear and tear. Frozen fill ups and overflows in the buildings. System gets overused.

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.

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

“Old water lake, the supply for the new reservoir, needs to be up kept. Erosion occurred this fall. Need preventative maintenance on it.”

Identification

1. 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
 Combination/Other: describe

The sewage treatment of the community consists of a lagoon to retain the waste and to exfiltrate the sewage to the wetlands. Sewage lagoon was finished construction this summer, 2002

Lagoon (if applicable)

1. Have there been any operating problems with the lagoon?

Yes No

If yes, describe

Mechanical System (if applicable)

1. Describe (type, specifications, operation and maintenance program for the mechanical wastewater treatment system).
2. Are sludges produced?

If yes, describe how the sludges are disposed of:

Wetland (if applicable)

1. Describe the Wetland wastewater treatment system.

Wastewater is retained in the sewage lagoon system then exfiltrates through the semi-permeable berm. Wastewater travels through 6 hectares of vegetation before discharging into Foxe Basin. The combination of the retention time of the sewage and wetlands treatment is an efficient method of treating the wastewater.

Honey Bag Pit

1. Does the municipality use a honey bag pit?

Yes No

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

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

After sewage exfiltrates through the permeable berms, it carries on through the surrounding wetlands for treatment and then discharges into Foxe Basin. The community harvests and fishes all along the coast, including the discharge from

the wetlands area.

General Condition of the sewage treatment facilities

1. General conditions
 - a. Sewage collection system

Satisfactory Unsatisfactory

If unsatisfactory, explain.

- b. Discharge control system

Satisfactory Unsatisfactory

If unsatisfactory, explain.

- c. Dams, diversion dykes, berms

Satisfactory Unsatisfactory

If unsatisfactory, explain.

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.

Attached are drawings from the re-design of the sewage lagoons done by FSC 2002.

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

No changes at this point. Some minor deficiencies are being corrected from the recent construction of the sewage lagoons.

Abandonment and Restoration

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

There is an abandoned sewage lagoon at the dew line site. The lagoon is located approximately 200 to 250 metres from the ocean. There is a large quantity of shallow standing water in the area. The lagoon may be leaking in all areas, but most water appears clean. The berms are wide and appear to be in good condition. (Field notes for Site Visit - Hall Beach Sewage Lagoon Design, Ferguson Simek Clark 2002)

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.

Solid waste is collected by the Hamlet twice per week using a 1992 Ford model F-350 stake truck. The solid waste management site (200 m²) is situated on flat ground north of the Hamlet. Solid wastes are burned at the disposal site every day. Although gravel is readily available, the wastes are neither covered nor compacted.

Bulky wastes are stored at separate sites

2. Is the solid waste site fenced?

Yes No

3. Is the fence adequate?

Yes No

If no, describe:

“Only fenced on south side. Maybe future modifications down the road.”

Waste Reduction

1. Does the municipality burn garbage?

Yes No

If yes, describe how and when this is done.

Wastes are burned daily. Pile into a trench, burn, and cover periodically.

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

Waste Oil Pit

1. Describe the waste oil storage area.

They have an area where 45 gallon drums are stockpiled.

Bulky Scrap Metal Waste Disposal Area

1. Does the municipality have a scrap metal or bulky waste disposal area?

Yes No

The community uses two areas for bulky wastes. Both are separated from the main Solid Waste Site. The first site is located 50 m east of the MSW site and is approximately 30 m by 40 m. The second site is located 750 m to the south of the first site, and is approximately 30 m by 50 m.

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 storage area?

Yes No

If yes, describe:

- a. Location
- b. Structure
- c. Operation and maintenance

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.

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.

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

No

Abandonment and Restoration

1. List and describe abandoned or restored solid waste facilities. Indicate their location on a map.

There is an abandoned solid waste site is located outside of the community of Hall Beach. It has been compacted and covered with gravel.

Identification

1. 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

Date:

Community Government and Transportation

Date: October 8, 2002

Other:

Date:

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

Yes No

If yes, describe.

The community reports to a Department of Fisheries Officer to report any spills. The spill line is also used.

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

Yes No

If yes, describe.

Volunteer fire fighting force has cleaned up in the past. No other plan in place.

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?

See attached Spill Reports

Monitoring Program

1. Is water sampling and analysis done?

Yes No

If Yes, answer questions a through e

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

Land administrator does sampling once a month and sends samples to Iqaluit Regional Health Board for analysis. Water is sampled from the main tap and shipped in a lab box via First Air to the lab.

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

None.

- c. Who is responsible for water sampling?

Name: Joelee Paniloo
Position: Community Lands Administrator
Telephone: (867) 928-8850
Fax: (867) 928-8871
Level of training: n/a

- d. Recognized laboratory performing analysis of samples.

Name: Chief Laboratory Technologist
Address: Laboratory - Baffin Region Hospital
PO Box 1000, Station 1024
Iqaluit, Nu
Telephone: (867) 979-7317 or 979-7318
Fax: (867) 979-7316

- 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 or waste disposal facilities? List the concerns and describe what steps have been taken to address those concerns.

Delivery schedule. The current delivery system needs to be upgraded or changed as it is operating at its maximum capabilities.

The community wants the lagoon to be relocated because of its proximity to town. Odours from the lagoon travel into town depending on wind conditions. They also have concern about children playing in the area. There is also unease about the lagoon's proximity to the ocean and contaminated water may enter. (Hall Beach Sewage Lagoon, FSC, 2002)

VIII. PUBLIC HEALTH

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

1. Date:
2. Municipality:
3. Contact: Philip Reeve
Telephone:
Fax:

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?

No Yes

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

- a. Briefly describe the sampling methodology.
- b. Briefly describe any monitoring of wastewater effluent and leachate.
- c. Who is responsible for sampling?

Name:
Position:
Telephone #:
Fax #:
Level of training:

- d. Recognized laboratory performing analysis of samples.

Name: Taiga Environmental Laboratory
Address: 4601 52nd Ave. PO Box 1500
Yellowknife, NT, Canada, X1A 2R3
Telephone #: (867) 669-2788
Fax #: (867) 669-2718

- e. 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 (CG&T) office if you have difficulty with this section.

1. Date:
2. Municipality: Hall Beach
3. Contact: Sameh Elsayed, Municipal Planning Engineer (CG&T)
Telephone # (867) 897-3616
Fax # (867) 897-3632 / 897-3633
4. Population (according Hamlet Government): 651 (2002)
5. Estimated growth rate over next 5 years: 2.52 %
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:

If no, are such studies being planned?

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

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 any 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.

Prepared by:

Title:

Completion Date:

If no, are such studies being planned?

No Yes

If yes, specify:

Attachments

1. Attach detailed plan or drawing(s) of the present *solid waste disposal area*. Include the following information:

- a. Details of pond size and elevation: Not Applicable
- b. Details of all retaining structures: Not Applicable
- c. Details of the drainage basin, and existing and proposed drainage modifications:
- d. Details of all decant, siphon mechanisms etc., 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: Not Applicable
- h. Leachate and groundwater collection systems; and control structures: Not Applicable

2. Attach detailed plan or drawing(s) of the present *sewage treatment system*. The drawing(s) should include the following:

- a. Details of all retaining structures:

See attached drawings for sewage lagoon improvements

- 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, including volumes (m^3/day) and directions:
 - f. The volume of seepage flow (m^3 / day):
 - g. The direction of each flow:
3. Are drawings for the solid waste disposal area and sewage treatment system attached?

Yes No

If yes, who has provided them?

Ferguson Simek Clark

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:

Water Supply Lake, the previous reservoir formed in 1956, will lose storage in the spring as pumps are opened to fill up the new reservoir. It recharges by the next spring.

2. Drainage Area:

What is the drainage area:

What is the average elevation of the drainage basin?

25 m to 0 m (drains to ocean)

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.)

Due to depressions created during the glacial period, a resultant marine overlap is responsible for the low-relief topography of raised beaches and shallow lakes now found in the area. Marine sands and gravels cover the landscape, with fines in the depressions. The thin surface deposits are underlain by limestone bedrock.

Hall Beach is located within the continuous permafrost zone. Materials located beneath the thin active layer are perennially frozen to a substantial depth.

3. Channel characteristics:

Is the course of any channel changed?

Yes No

If yes, describe measures to maintain streambed 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.

Water Supply

1. What is the rate of withdrawal from the source?

225 GPM.

2. Is water drawn from the source

intermittently
 continuously

3. If it is drawn intermittently, during what month(s) is it drawn?
The new reservoir is filled up every spring from Water Supply Lake
4. For what period is it drawn (days/weeks/months)?
days
5. What is the rate of flow of source (if river) or size (if lake)?
Water Supply Lake has 103 000m³ capacity
6. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn.
The water level fluctuates during spring fill of the new reservoir.

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?
Not applicable
3. Does the proposed dam create a reservoir in a natural watercourse?
Not Applicable
If yes, what is the storage capacity and surface area of the reservoir?
4. Will the dam or dyke affect fish migration or movement?
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:
Water is treated in truck tanks by a chlorine injector at the truck fill. This is done automatically and serves two trucks easily.

2. What is the capacity of the water storage facility:

DEW-Line Reservoir capacity is 600,000 m³

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.

Water is treated through 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:

The sewage is trucked 3 km to the primary treatment sewage lagoon (3,600 m²). The two cells collectively occupy an area of 0.4 ha. The exfiltration lagoons empty into two wetlands connected by a ditch with a combined area of six ha.

3. Based on current population projections, the facility will meet the needs of the community until the year:

2022

4. Average depth of the wastewater lagoon
1.8 m
5. What is the design freeboard:
0.5 m
6. Indicate the retention time of the sewage while in the treatment facility days:
7 months
7. Indicate the estimated rate of discharge of wastewater:
Exfiltration lagoon
8. Indicate the location of the discharge point:
See attached diagrams "Hall Beach Sewage Treatment Planning"
9. Is the discharge:
 seasonal
 continuous
If the discharge is seasonal, during what month(s) is it done?
Continuous discharge throughout the summer. Frozen in the winter.
What is the duration of the discharge (days/weeks/months)?
All day during days above freezing
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.
See attached drawings for the recent changes to the sewage lagoon.
Include excerpt from MACA Capital Plan if available.

Solid Waste Disposal

1. Indicate the capacity of the disposal area:
200m²
2. The *average* depth of the solid waste disposal site
3. The current facility will meet community needs until the year
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: Not Applicable
Volume: Not Applicable

6. Please describe any diversions of watercourses:

Not Applicable

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.
Include excerpt from MACA Capital Plan if available.

Other

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