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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: **September 9, 2007**

2. Applicant: **Hamlet of Coral Harbour, Kivalliq Region**

3. Contacts: **Ron Ladd**
Name of Contact

Senior Administrative Officer
Position

867-925-8867	**867-925-8233**	**munch@qiniq.com**
Telephone #	Fax #	Email

4. Community Status: __ Village __ Town __ City
X Hamlet __ Settlement Corporation

5. Indicate the status of the municipality's license on the date of the application.
__ New Application
_**X**_ Renewal Water License # **NWB3COR0207**

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 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? **X** Yes __No

If no, please indicate when they will be available.

Indicate which organization has provided the various maps or diagrams.

The maps and drawings have been provided by Nunami Jacques Whitford Limited, on behalf of the Hamlet and Department of Community and Government Services.

III. WATER SUPPLY

Water Source

1. Type of source: __ Lake **X** River __Well __Other _____

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

_POST RIVER__ _____
Primary Source Secondary Source

3. Usual break-up & freeze-up period: **May** **November**
Break-up Freeze-up

Water Intake

1. Please provide short descriptions for the following:

a. Freshwater intake facility
Twin heat-traced 100 mm HDPE lines inside 250 mm HDPE pipes themselves covered with 75 mm polyurethane insulation and 400 mm HDPE casing.

b. Operating capacity of pump used
900 L/min
c. Intake screen size
Not Available

Water Storage

1. Type of water storage facility. (Check where applicable)
X Reservoir/Pond ___ Storage tank ___ none

___ Other _____ _____Description:

Reservoir has been blasted out of bedrock. Reservoir has a 40,000 cubic meter capacity Reservoir consists of two cells (not independent).

2. If "reservoir" checked:

Is the reservoir lined? __Yes **X** No

What type of liner? _____When was it installed?_____

Water Treatment

1. Indicate the quality of the water.

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

2. Describe.

3. Type of water treatment.

____ Filtration and chlorination
X **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	**800**	**105.3**	**30,739,017 l/year**
		TOTAL	

General Condition of the water supply facilities

1. General condition of the:

a. Water supply facility
X satisfactory __ Unsatisfactory

If unsatisfactory, explain.

b. Storage facility
X satisfactory __ Unsatisfactory

If unsatisfactory, explain.

c. Distribution system
X satisfactory __Unsatisfactory
Truck Delivery
If unsatisfactory, explain.

Modifications

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

If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.
An upgrade to the pump station/house is in the 5 year Capital Plan.

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

Yes, the community would like to have a filtration system in addition to chlorination.

Identification

Are there signs identifying drinking water sources presently used by the municipality?
__ Yes _**X** No

IV. SEWAGE DISPOSAL

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

___ Lagoon
___ Mechanical system
___ Wetland
___ Honey bag
X Combination/Other: Describe: Natural Wetland **X**

Please see attached report describing the wetland treatment system.

Lagoon *(if applicable)*

1. Has there been any operating problems with the lagoon? **X** Yes ___ No
   If yes, describe.

Lagoon cell was constructed in 2003; however, it is not impervious and effluent seeps from the lagoon cell into the wetland during warm months. Please see attached report to describe treatment.

Mechanical System (NA)

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

2. Are sludge's produced ? __ Yes **X** No
   If yes, describe how the sludge's are disposed of:

Wetland *(if applicable)*

1. Describe the Wetland wastewater treatment system.

Please see attached report describing the wetland treatment system.

Honey Bag Pit

1. Does the municipality use a honey bag pit?
   ___ Yes **X** 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 **X_** 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 **X_** 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 **X** Satisfactory __ Unsatisfactory
If unsatisfactory, explain.

b. Discharge control system **X** Satisfactory __ Unsatisfactory
If unsatisfactory, explain.

Please see attached report describing the wetland treatment system.

c. Dams, diversion dykes, berms __ Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

Modifications

1. Are there any changes *planned* in the sewage treatment facilities? **__** No **X** Yes
If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

Please see attached report describing the wetland treatment system.

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

Yes, a contract for design work to address some issues related to the wetland treatment system was issued. A Schematic Design Report has been prepared, will be followed by detailed design, tendering and construction in 2008. Please see attached report.

Abandonment and Restoration

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

North East of the Community there is an old site that is not signed. This used to be a solid waste site as well as a honey bag drop off. Advised that this site has been successfully decommissioned.

Identification

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

V. SOLID WASTE DISPOSAL

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

Solid wastes are collected by the Hamlet in a truck and transported to the disposal area. Disposal occurs twice weekly.

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

3. Is the fence adequate? **X** Yes __ No
   If no, describe:

Waste Reduction

1. Does the municipality burn garbage?
   X Yes ___No
   If yes, describe how and when this is done.

Once a month, garbage is burned; a permit is obtained from the Fire Chief before burning is carried out.

At the end of each summer, a bulldozer compacts the accumulated garbage and covers it every two years.

2. Has the municipality considered measures for waste reduction such as recycling or reuse?
   X Yes **_____** No
   If yes, describe

Recycling has been considered but is not economical in this remote location.

Animal Carcasses Pit

1. Does the municipality have an area for the disposal of animal carcasses?
   X Yes **__** No
   If yes, describe the location, drainage and operation/maintenance of the site

The airport in Coral Harbour has a disposal site which includes an area for animal hides and carcasses. Hides and carcasses are buried and covered with gravel.

Waste Oil Pit

1. Describe the waste oil storage area.

Waste oil is stored in drums at the Hamlet Garage. Waste oil is burned in the Waste Oil burner in the Garage.

Bulky Scrap Metal Waste Disposal Area

1. Does the municipality have a scrap metal or bulky waste disposal area?
   X Yes __ No
   If yes, briefly describe its location and operation plan.

The location is immediately south of the landfill. In the next 2 years the Governments of Canada and Nunavut will be removing all scrap metal from community waste sites, including that in Coral Harbour.

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 **X** No
   If yes, please indicate sources, types and quantity.

2. Will the municipality use a hazardous waste disposal area?
   __ Yes **X** No
   If yes, describe its:

   a. Location

   b. Structure

   c. Operation and maintenance (describe special handling/disposal methods for these wastes)

General Condition of the Solid Waste Disposal Area

1. Comment on the general conditions of the:

a. Solid waste disposal area
   X Satisfactory __ Unsatisfactory
   If unsatisfactory, explain.

Modifications

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

Abandonment and Restoration

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

North East of the Community there is an old site that is not signed. This used to be a solid waste site as well as a honey bag drop off. Advised that this site has been successfully decommissioned.

Identification

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

__ Yes **X** No

VI. INSPECTION AND MONITORING

1. When were municipal facilities inspected by?

X Indian and Northern Affairs Inspector Date: **August 28, 2007**

___ Municipal and Community Affairs Date: _____

X Other: **GN, Environmental Health** Date: **August 28, 2007**

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

X Yes ___ No

If yes, describe.

Spills are reported to the Hamlet of Coral Harbour, Administration Office and the Nunavut Spill Line. Corrective action is taken in relation to the spill event.

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

X Yes ___ No

If yes, describe.

Yes as per Bylaw 203, Emergency Services. Revised April 2007.

4. Have any spills occurred in the past five years?

X 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?

136 litres of diesel at Airport, reported and cleaned up July 13, 2007
112 litres of diesel fuel, Hamlet building storage tank, reported and cleaned up July 16, 2007
820 litres of diesel fuel at Caribou Camp, outside Hamlet Boundaries, reported and cleaned up February 24, 2007
Unknown volume of sewage from RCMP sewage holding tank, reported and cleaned up February 2007

Monitoring Program

1. Is water sampling and analysis done?
X Yes ___No

If Yes, answer the questions a to e

a. Briefly describe how samples are taken and sent to the laboratory.
Water samples are sent to the Environmental Health Officer each month for laboratory analysis. INAC Water Resources Inspectors inspect facilities annually and take confirmatory samples for analysis.

b. Briefly describe any monitoring done for wastewater effluent and leachate.
INAC inspectors inspect facilities annually and take drinking water and wastewater effluent samples for analysis according to requirements. Since 2004, the Government of Nunavut has been collecting effluent samples in the wetland annually for analysis to determine treatment performance of the wetland. This information is summarized elsewhere in reports supporting this application. Hamlet staff also undertake an inspection each spring to ensure systems are functioning safely.

c. Who is responsible for water sampling?
Name: **Charlie Angootealuk**

Position: **Hamlet Foreman**

Telephone **#: 867-925-8867**

Fax #: **867-925-8233**

Level of training:
Canada Wide Strategy for Wastewater Annual Operators Workshop, November 24, 2006, NTWWA Operators Workshop April 16, 2007. Member of NTWWA since 1994.

d. Recognized laboratory performing analysis of samples.

Jeremy Roberts, C.P.H.I. (C)
Environmental Health Officer
P.O. Box 390, Iglak Building
Kugluktuk, NU, X0B 0E0
Phone: 867-982-7610
Fax: 867-982-7640
Email: jroberts@gov.nu.ca

e. Are any changes planned in the water quality-monitoring program? ___ Yes **X** 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.

A filtration system could be added to the current chlorination system to increase water treatment. Improvements to the pump-house are contained within the Capital Plan.

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

1. Date: **August 28, 2007**

2. Municipality: **Coral Harbour**

3. Contact: (Environmental Health Officer Contact) **Jeremy Roberts**

   Telephone # **867-982-7610**

   Fax #: **867-982-7640**

4. Have there been any problems or health/environmental concerns with drinking water?
   ___ Yes **X** No
   If yes, describe:

5. Have there been any problems or health/environmental concerns with sewage disposal/treatment?
   ___ Yes **X** No
   If yes, describe

6. Have there been any problems or health/environmental concerns with solid waste disposal?
   ___ Yes **X** No
   If yes, describe:

Monitoring Program

1. Does the Regional Health Board perform water quality sampling?
   X Yes ___ No
   If Yes, answer questions (a) to (e)

a. Briefly describe the sampling methodology.

Samples are taken once per month from the water distribution system after it has been treated for chlorine. Samples are tested for coliform and E. Coli.

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

Env Health Officer conducts visual inspections during community visits. Will follow-up on any complaints received.

c. Who is responsible for sampling?

Name: **Hamlet of Coral Harbour**

Position: **Public Works Foreman**

Telephone #: **867-925- 8867**

Fax #: **867-925-8233**

Level of training: **no formal training required**

d. Recognized laboratory performing analysis of samples.

Name: **Kivalliq Health Centre**

Address: **Rankin Inlet**
X0C 0G0

Telephone #: **867-645-8331**

Fax #: **867-645-8079**

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

__ Yes **X** No

If yes, describe.

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

1. Date: **September 9, 2007**

2. Municipality: **Hamlet of Coral Harbour**

3. Contact: **Ron Ladd, SAO**

   Telephone #: **867-925-8667**

   Fax #: **867-925-8823**

4. Population: **789 (2006 estimate, Bureau of Statistics, GN)**

5. Estimated growth rate over next 5 years**: 2.45% (Bureau of Stats, GN)**

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?

   X Yes __No

   If yes, provide a summary of program details or site title, authors, cities, and dates:
   Please see attached report describing the wetland treatment system.

   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?

   X 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 **X** Yes
   If yes, provide details below.
   Please see attached report describing the wetland treatment system.

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;
   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.

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 (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, including
      v volumes (m^3/day) and directions.
   f. The volume of seepage flow (m^3 / day); and
   g. The direction of each flow.

3. Are drawings for the solid waste disposal area and sewage treatment system attached?

   X 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 **X** No

   Is the natural storage or water level of any lake or pond changed? __ Yes **X** No

   Are there changes in water flow downstream of the project? **X** Yes __ No

   Is a storage reservoir created in a natural channel? __Yes **X** No

   If yes to any of the above, briefly describe the expected change in flow or storage:
   Please see attached report describing the wetland treatment system.

2. Drainage Area:
   What is the drainage area? _____km^2
   What is the average elevation of the drainage basin?_____metres
   Is the drainage basin outlined on an attached map? ___Yes **X**_No

   Describe the drainage basin characteristics, (vegetation, general soil type, lakes, swamps and permafrost areas, etc.)
   Please see attached report describing the wetland treatment system.

3. Channel characteristics:
   Is the course of any channel changed? ____ Yes **X** No

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

4. Will the cross-section of any watercourse be changed? __ Yes **X** 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? **1428 (approx.) m^3/day.**

2. Is water drawn from the source **X** intermittently ___continuously

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

4. For what period is it drawn (days/weeks/months)? **Approximately 2 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. **As the filling of the reservoir occurs over 14 days it is represents only a small volume of the flow of the Post River and therefore no adverse effects on the river or its biota are expected.**

Water Intake

1. Please provide short descriptions of the following:
   a. freshwater intake facility
   Twin heat-traced 100 mm HDPE lines inside 250 mm HDPE pipes themselves covered with 75 mm polyurethane insulation and 400 mm HDPE casing.

   b. operating capacity of the pumps
   900 L/min

   c. intake screen size:
   Unknown

Water Storage

1. Is a dam or dyke being used to store or alter the flow of water? ___Yes **X** No

2. What are the dimensions of the dam or dyke?
   Length:_____ Width: _____ Height:_____
   U/S slope: _____ D/S slope: _____

3. Does the proposed dam create a reservoir in a natural watercourse?
   ___ Yes **X** No
   If yes, what is the storage capacity and surface area of the reservoir?
   40000 m^3

4. Will the dam or dyke affect fish migration or movement ?
   ___ Yes **X** 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. **Unknown** L/min

2. What is the capacity of the water storage facility **40000m^3**

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.

   Chlorine is added to each water truck load as it is loaded.

4. Are there any changes planned in the water treatment facilities? No **_X**Yes
   If yes, attach a copy of the plan or indicate changes and include an implementation schedule.
   An upgrade to the Truckfill Station is in the 5 year Capital Plan.

Sewage Disposal

1. Indicate the level of sewage treatment:
   ___ primary **X** secondary ___ tertiary
   Pre-treatment (if applicable): __screening ___ maceration
   Lagoons (if applicable): ___ anaerobic ___ aerobic ___facultative

2. Indicate the capacity of the sewage treatment facility 400 **m³/ daily. Please see attached report describing the wetland treatment system.**

3. Based on current population projections, the facility will meet the needs of the community until the year **2027 +** . **Please see attached report describing the wetland treatment system.**

4. Average depth of the wastewater lagoon _____m. **NA**

5. What is the design freeboard? _____ m. **NA**

6. Indicate the retention time of the sewage while in the treatment facility _____ days.

7. Indicate the estimated rate of discharge of wastewater_____ L/sec.
   Continuous at a low rate during months of May to October. Please see attached report describing the wetland treatment system.

8. Indicate the location of the discharge point **Please see attached report describing the wetland treatment system.**

9. Is the discharge: **X** seasonal ____continuous

If the discharge is seasonal, during what month(s) is it done? **May- October**

What is the duration of the discharge (days/weeks/months) ? **5.5 months**

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

Please see attached report describing the wetland treatment system.

Include excerpt from MACA Capital Plan if available

Solid Waste Disposal

1. Indicate the capacity of the disposal area **30,000m^3**

2. The *average* depth of the solid waste disposal site **2** m**.**

3. The current facility will meet community needs until the year **2012**.

3. 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, the facility was built in an area of an existing pond. The water in the pond is being displaced over time.**

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
Natural Precipitation	

6. Please describe any diversions of watercourses: _____

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

Other

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