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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 30, 2008
2. Applicant: Department of Economic Development and Transportation
Municipality and Region
3. Contacts: Name of Contact: Jason Brown

Position: Manager, Resolute Bay Airport

Telephone # 867-252-3923 Fax # 867-252-3684 Email jbrown@gov.nuca
4. Community Status: Airport Facility and Related Government/Private/Scientific Enterprises
5. Indicate the status of the municipality's license on the date of the application.
___ New Application
__X_ Renewal Water License # NWB3YRB0308

II. ATTACHMENTS See Map Attached

1. Attach current or up-to-date detailed map(s) showing the locations of the:
 - a. Raw water intake; Supplied from Char Lake Intake Pumphouse
 - b. Water storage and treatment facilities; Maintained by CGS
 - c. Fuel and chemical storage;
 - d. Sewage treatment facilities (lagoon, honey bag pit, wetland); On site sewage lagoon
 - e. Wastewater treatment area and discharge outlets;
 - f. Solid waste disposal areas and drainage patterns; Existing site
 - g. Hazardous waste disposal area; Existing site
 - 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.

III. WATER SUPPLY

1. Type of source: X Lake ___River ___Well ___Other _____

- Char Lake (delivered by separate water license held by the hamlet)**
Primary Source

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2. If “reservoir” checked:

Is the reservoir lined? Yes No

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

Water Treatment *Not Applicable*

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	N/A		
TRUCKED	Varies	100	17,000 L
TOTAL			17,000 L

General Condition of the water supply facilities *Not Applicable*

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 **Not Applicable**

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.

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?

___X___ Lagoon
___ Mechanical system
___X___ Wetland
___ Honey bag
___ Combination/Other: Describe:

Lagoon (if applicable)

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

If yes, describe

From the 1999 Dillon report, p. 3: "The sewage lagoons are unlined and treatment of the wastewater is accomplished through overland flow to the west and down-gradient of the landfill."

The lagoon consists of a two-celled structure measuring approximately 18 m X 37 m X 2 that was built by Transport Canada sometime in the '70s or '80s when the airport facilities contained more personnel and year-round activity. The number of people at the airport site has decreased substantially since then. A refurbished and expanded lagoon/wetland is going in the 5-year Capital Plan

Mechanical System (if applicable) Not Applicable

1. Describe (type, specifications, operation and maintenance program for the mechanical wastewater treatment system).
2. Are sludge's produced ? ☐ Yes ☐ No
If yes, describe how the sludge's are disposed of:

Wetland (if applicable)

1. Describe the Wetland wastewater treatment system.
The wetland is as designed originally under the aegis of Transport Canada. It consists of an overflow cascading over part of a corner of the solid waste site.

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
f 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.
 - c. Dams, diversion dykes, berms ☒ Satisfactory ___ Unsatisfactory
If unsatisfactory, explain.
- A study is being recommended to determine how to optimize the lagoon/wetland.

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. As funding becomes approved, a larger lagoon with engineered wetland is planned.
2. Does the municipality or residents believe changes are needed to the sewage treatment facilities? N/A
If yes Describe.

Abandonment and Restoration

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

Identification

Are there signs identifying past and present sewage disposal sites? ☐ Yes ☐ No
Signs have been erected in the past.

V. SOLID WASTE DISPOSAL

1. Briefly describe how solid wastes are collected and delivered to the disposal area.
Solid wastes are collected on an irregular basis. Until the new fenced solid waste site is licensed (through the hamlet) the airport will continue to use the existing solid waste site that was established under the aegis of Transport Canada.
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.
2. Has the municipality considered measures for waste reduction such as recycling or reuse? ***Not applicable***
 ☐ 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.
N/A . facilities are as designed under the authority of Transport Canada.

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.

Bulky metals are placed in a separate area of the solid waste site.

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.

Occasional waste from normal airport and scientific related operations as has traditionally been the case when Transport Canada operated the site.

2. Will the municipality use a hazardous waste disposal area?
☒ Yes ☐ No

If yes, describe its:

- a. Location

There is a landfarm for contaminated soil as a separate facility

- b. Structure

Bermed areas

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

These procedures are under review and a new O&M plan is being developed and will be submitted as a supplement to this renewal application

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.

Until the new fenced-in area that has been built is given a water license the old facilities must continue to be used.

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.

Abandonment and Restoration

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

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 Date: **July 21, 2008**
☐ Municipal and Community Affairs Date: August 20, 2008
☐ Other: _____ Date: _____

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

☐ Yes ☒ No

If yes, describe.

This will be submitted as a supplement to this renewal application

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

☐ Yes ☒ No

If yes, describe.

This will be submitted as a supplement to this renewal application

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

☐ Yes ☐ No information

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

Monitoring Program

1. Is water sampling and analysis done?

☒ Yes ☐ No

Grab Samples

If Yes, answer the questions a to e:

- a. Briefly describe how samples are taken and sent to the laboratory.
- b. Briefly describe any monitoring done for wastewater effluent and leachate.

Periodic Sampling

c. Who is responsible for water sampling?

Name: Various Employees at Municipality

Position: N/A

Telephone #:

Fax #:

Level of training:

d. Recognized laboratory performing analysis of samples.

Name: Various Labs

Address:

Telephone #:

Fax #:

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.
None

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

1. Date:
2. Municipality:

2. Contact: (Environmental Health Officer Contact)

EHO on call: 867-975-2978 cell: 222-0978 Front Desk 975-4800

Ken Klassen kklassen@gov.nu.ca

Wanda Joy wjoy@gov.nu.ca

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.
Grab samples
- b. Briefly describe any monitoring of wastewater effluent and leachate.
See report
- c. Who is responsible for sampling?
Name: Various Airport employees_____
Position: N/A_____
Telephone #: 867-252-3923_____
Fax #: 867-252-3684_____
Level of training: _____
- d. Recognized laboratory performing analysis of samples.

Name: Taiga Labs and various others_____

Address: Yellowknife _____

Telephone #:867-669-2788 _____

Fax #: _____

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 difficult with this section*).

1. Date: **_November 30, 2008_**_____

2. Municipality: Resolute Bay Airports (ED&T)____

3. Contact: Jason Brown, Mgr_____

Telephone #: 867-252-3923_____

Fax #: 867-252-3684____

4. Population: **_229 (2006)_**_____

5. Estimated growth rate over next 5 years: **1.27% to reach 250 by 2013**__

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:
See attached studies

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.
See attached studies

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: These attachments will follow
 - 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: These attachments will follow
 - 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.

3. Are drawings for the solid waste disposal area and sewage treatment system attached?
These attachments will follow
☐ 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? 8 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.) These will follow

3. Channel characteristics:

Is the course of any channel 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.

Water Supply Not Applicable (Municipality delivers water from a source with a separate water license)

1. What is the rate of withdrawal from the source? _____m³/day
2. Is water drawn from the source _____ intermittently _____ continuously
3. If it is drawn intermittently, during what month(s) is it drawn? _____
4. For what period is it drawn (days/weeks/months)? _____
5. What is the rate of flow of source (if river) or size (if lake)? _____
6. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn. _____

Water Intake

1. Please provide short descriptions of the following:
 - a. freshwater intake facility
 - b. operating capacity of the pumps
 - c. intake screen size:

Water Storage Not Applicable (Municipality delivers water from a source with a separate water license)

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?
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 Not Applicable (Municipality delivers water from a source with a separate water license)

1. Indicate the capacity of the treatment facility. _____L/min
2. What is the capacity of the water storage facility _____litres
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.
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:
____x____ primary ____ secondary ____ tertiary
Pre-treatment (if applicable): ____ screening ____ maceration
Lagoons (if applicable): ____ anaerobic ____ aerobic ____x____ facultative
2. Indicate the capacity of the sewage treatment facility _____1,325_____m³
3. Based on current population projections, the facility will meet the needs of the community until the year _____ .
4. Average depth of the wastewater lagoon 2 m.
5. What is the design freeboard? 0.5 m.
6. Indicate the retention time of the sewage while in the treatment facility
_____320_____ days.
7. Indicate the estimated rate of discharge of wastewater 0.7 L/sec.
8. Indicate the location of the discharge point
9. Is the discharge: x seasonal _____
If the discharge is seasonal, during what month(s) is it done? July + August____

What is the duration of the discharge (days/weeks/months) ? 45-60 days

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 N/A m³
2. The *average* depth of the solid waste disposal site 10 m.
3. The current facility will meet community needs until the year N/A.
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

6. Please describe any diversions of watercourses: N/A
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

Other

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

More details will follow.