



P.O. Box 119

kNK5 wmoEp5 vtmpq

Gjoa Haven, NU X0B 1J0

NUNAVUT WATER BOARD

Tel: (867) 360-6338

NUNAVUT IMALIRIYIN KATIMAYINGI

Fax: (867) 360-6369

OFFICE DES EAUX DU NUNAVUT

Water Licence Application Supplementary Questionnaire For Municipalities

I. GENERAL

1. Date: March 30, 2012
2. Applicant: Hamlet of Cambridge Bay
Municipality and Region
3. Contacts: Stephen King
Name of Contact
Senior Administrative Officer
Position
- 867 983-4658 867 983-2193 sking@cambridgebay.ca
Telephone # Fax # Email

Amendment: Arlen Foster, E.I.T., Stantec, (867) 920-2882 (arlen.foster@stantec.com)

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 # 3BM-CAM0914

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? ☒ Yes ☐ No (ONLY THOSE ASSOCIATED WITH THE AMENDMENT – INTAKE STRUCTURE)

If no, please indicate when they will be available.

Indicate which organization has provided the various maps or diagrams.

STANTEC ARCHITECTURE LTD.

III. WATER SUPPLY (ONCE UPGRADES ARE COMPLETE)

Water Source

1. Type of source: ☒ Lake ___ River ___ Well ___ Other _____

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

_____ Water Lake	_____ None
Primary Source	Secondary Source

3. Usual break-up & freeze-up period: May/June October/November
Break-up Freeze-up

Water Intake

1. Please provide short descriptions for the following:

a. Freshwater intake facility

Amendment issued for upgrades to the facility such that: Freshwater is pumped from Water Lake through dual intake lines located approximately 140m offshore at a depth of approximately 5m below surface. Water is pumped through a buried water line to Town for distribution trucks. Intake pumphouse has a truckfill arm and chlorination for emergency uses. Aeration is considered at the intake.

b. Operating capacity of pump used

Two 1200 LPM Pumps (operating alternately)

c. Intake screen size

Johnson Intake screen with maximum opening size = 2.5mm

Water Storage

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

___ Reservoir/Pond ___ Storage tank ___ none

☒ other currently a steel storage tank in town – no modifications/changes proposed for this project

2. If “reservoir” checked:

Is the reservoir lined? ___ Yes ___ No

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

Water Treatment (No changes proposed)

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. Currently only chlorination is completed.

3. Type of water treatment. (ONCE UPGRADES ARE COMPLETE)

☐ Filtration and chlorination

☒ Chlorination only

☐ None

☒ Other Aeration considered at the intake.

Description

Water Use And Distribution (No changes proposed)

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 (Liters/day) A x B
PIPED	-	-	9,589
TRUCKED	1639	118	193,528
TOTAL			203,117

General Condition of the water supply facilities (ONCE UPGRADES ARE COMPLETE)

1. General condition of the:

- a. Water supply facility

☒ satisfactory ☐ Unsatisfactory

If unsatisfactory, explain.

- b. Storage facility

☐ satisfactory ☒ Unsatisfactory

If unsatisfactory, explain.

Undersized and ageing infrastructure; Stantec currently assessing into required modifications/improvements. Not part of this amendment.

- c. Distribution system
___ satisfactory ☒ Unsatisfactory

If unsatisfactory, explain.

Undersized and ageing infrastructure; Stantec currently assessing into required modifications/improvements. Not part of this amendment.

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.

Intake structure and pumphouse only, as per this amendment; see attachments.

2. Does the community believe changes needed to the water supply, storage or treatment facilities? Describe. Yes, the Government of Nunavut required the proposed upgrades to the intake facility. Assessment and design to remaining portions of the water storage and treatment facilities is currently underway although not part of this amendment.

Identification

Are there signs identifying drinking water sources presently used by the municipality?
___ Yes ☒ No

IV. SEWAGE DISPOSAL – *NOT APPLICABLE*

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

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

Lagoon (if applicable) – NOT APPLICABLE

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

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) – NOT APPLICABLE

1. Describe the Wetland wastewater treatment system.

Honey Bag Pit– NOT APPLICABLE

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 – NOT APPLICABLE

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 – NOT APPLICABLE

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– NOT APPLICABLE

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.

Modifications – NOT APPLICABLE

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

Abandonment and Restoration– NOT APPLICABLE

1. List and describe abandoned or restored sewage treatment facilities.

Identification– NOT APPLICABLE

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

V. SOLID WASTE DISPOSAL– NOT APPLICABLE

1. Briefly describe how solid wastes are collected and delivered to the disposal area.
2. Is the solid waste site fenced? ☐ Yes ☐ No
3. Is the fence adequate? ☐ Yes ☐ No
If no, describe:

Waste Reduction– NOT APPLICABLE

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?
☐ Yes ☐ No
If yes, describe

Animal Carcasses Pit– NOT APPLICABLE

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– NOT APPLICABLE

1. Describe the waste oil storage area.

Bulky Scrap Metal Waste Disposal Area– NOT APPLICABLE

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

Commercial, Industrial and/or Hazardous Wastes Disposal Area– NOT APPLICABLE

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?

☐ Yes ☐ 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– NOT APPLICABLE

1. Comment on the general conditions of the:

a. Solid waste disposal area ☐ Satisfactory ☐ Unsatisfactory

If unsatisfactory, explain.

Modifications– NOT APPLICABLE

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 – NOT APPLICABLE

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

Identification– NOT APPLICABLE

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

☐ Yes ☐ No

VI. INSPECTION AND MONITORING– *NOT APPLICABLE*

1. When were municipal facilities inspected by?
____ Indian and Northern Affairs Inspector Date: _____
____ Municipal and Community Affairs Date: _____
____ Other: _____ Date: _____
2. Is there a system in place for reporting spills?
____ Yes ____ No
If yes, describe.
3. Is there a contingency plan for clean up of spills?
____ Yes ____ No
If yes, describe.
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?

Monitoring Program– NOT APPLICABLE

1. Is water sampling and analysis done?
____ Yes ____ No

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.
 - c. Who is responsible for water sampling?
Name: _____

Position: _____

Telephone #: _____

Fax #: _____

Level of training:

- d. Recognized laboratory performing analysis of samples.

Name: _____

Address: _____

Telephone #: _____

Fax #: _____

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

If yes, describe.

VII. PUBLIC CONCERNS – *NOT APPLICABLE*

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.

VIII. PUBLIC HEALTH (*Help may be obtained from the Regional Environmental Health Officer if you have difficulty with this section.*) – ***NOT APPLICABLE***

1. Date: _____

2. Municipality: _____

3. Contact: (Environmental Health Officer Contact)

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– NOT APPLICABLE

1. Does the Regional Health Board perform water quality sampling?
____ Yes ____ No
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: _____
Address: _____

Telephone #: _____
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 difficulty with this section*). – **NOT APPLICABLE**

1. Date: _____

2. Municipality: _____

3. Contact: _____

Telephone #: _____

Fax #: _____

4. Population: _____

5. Estimated growth rate over next 5 years: _____

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.

If no, are such studies being planned?

___ No ___ Yes.

If yes, specify:

Attachments– NOT APPLICABLE

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, 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?
___ 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? Unknown km²

What is the average elevation of the drainage basin? Unknown 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.)

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

1. What is the rate of withdrawal from the source? 203 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)? 0.64 km²

6. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn. Water withdrawal for municipal uses will lower the storage of water during winter months but is expected to be replenished during spring/summer seasons. Aeration is being considered at the intake during winter months; this may increase temperature and oxygen during use.

Water Intake

1. Please provide short descriptions of the following:
 - a. freshwater intake facility
Amendment issued for upgrades to the facility such that: Freshwater is pumped from Water Lake through dual intake lines located approximately 140m offshore at a depth of approximately 5m below surface. Water is pumped through a buried water line to Town for distribution trucks. Intake pumphouse has a truckfill arm and chlorination for emergency uses. Aeration is considered for the intake. See attached Issued for Tender Drawings for further information.
 - b. operating capacity of the pumps
Two 1200 LPM pumps (operating alternately).
 - c. intake screen size:
Johnson Intake screen with maximum opening size = 2.5mm

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?
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

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.

Only changes are as per this amendment and the attachments (new intake pumphouse and emergency truckfill).

Sewage Disposal – NOT APPLICABLE

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 _____
4. Based on current population projections, the facility will meet the needs of the community until the year _
4. Average depth of the wastewater lagoon _____ m.
5. What is the design freeboard? _____ m.
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.
8. Indicate the location of the discharge point:
9. Is the discharge: ____ seasonal ____
If the discharge is seasonal, during what month(s) is it done? _____
What is the duration of the discharge (days/weeks/months) ? _____

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 – NOT APPLICABLE

1. Indicate the capacity of the disposal area _____m³
2. The *average* depth of the solid waste disposal site _____m.
3. The current facility will meet community needs until the year _____.
5. Do any natural watercourse enter the solid waste disposal area? What methods are used to decrease the amount of runoff water entering these areas?
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: _____
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 – NOT APPLICABLE

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