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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: _____

2. Applicant: _____Hamlet of Kugluktuk_____
Municipality and Region

3. Contacts: ____Derrick Power_____
Name of Contact

_Senior Administrative officer_____
Position

_____ _____
_____
Telephone #867-982-6500 Fax #867-982-3060 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 # ___NWB 3KUG0308_____

II. ATTACHMENTS

1. Attach current or up-to-date detailed map(s) showing the locations of the:

For Water System – Please see attached drawings from FSC Architects and Engineers and Preliminary Engineering report on Water Supply Improvements – A.D.Williams Engineering Inc.

a. Raw water intake;
b. Water storage and treatment facilities;
c. Fuel and chemical storage;
Xd. Sewage treatment facilities (lagoon, honey bag pit, wetland);
Xe. Wastewater treatment area and discharge outlets;
Xf. Solid waste disposal areas and drainage patterns;
Xg. Hazardous waste disposal area;
Xh. 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.
Nuna Burnside Engineering and Environmental Ltd.
A.D.Williams Engineering Inc.
FSC Architects and Engineers

III. WATER SUPPLY

Water Source

1. Type of source: __ Lake _X_River __Well __Other _____

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

_Water Supply Line_____	_____None_____
Primary Source	Secondary Source

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

Water Intake

Please see preliminary Engineering Report – Water Supply improvements – A.D.Williams Engineering Inc.

1. Please provide short descriptions for the following:

a. Freshwater intake facility

_____

b. Operating capacity of pump used

_____

c. Intake screen size

_____

Water Storage

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

___ Reservoir/Pond _X__ 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:	_X__good	____ fair	_ __ poor
Fall:	__X_good	_ ___ fair	___ poor
Winter:	_X__ good	____ fair	___ poor
Spring:	__X_good	____ fair	___ poor

2. Describe.

Please see preliminary Engineering Report – Water Supply improvements – A.D.Williams Engineering Inc.

3. Type of water treatment.

_X___ 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	**1302 in 2006**	**211 M3/Day**	**77,015 M3 on annual basis**
		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

   If unsatisfactory, explain.

Modifications

1. Are there any changes *planned* for the water supply system?
   _ **X** __ 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 _ **X** __ 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)*

1. Describe the Wetland wastewater treatment system.

Sewage Lagoon and Solid Waste Facilities - Kugluktuk reports – NunaBurnside Engineering & Environmental Ltd.
Drawings of Sewage Lagoon and Solid Waste Facilities – Kugluktuk Project

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.

c. Dams, diversion dykes, berms X __ Satisfactory __ Unsatisfactory
If unsatisfactory, explain.

Modifications

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

As built drawings of Sewage Lagoon and Solid Waste Facilities – Kugluktuk Project will be sent to NWB once available.
Sewage Lagoon and Solid Waste Facilities - Kugluktuk reports – NunaBurnside Engineering & Environmental Ltd.

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.

Construction of New Sewage Lagoon and solid Waste Facilities Project is complete . As built drawings of Sewage Lagoon and Solid Waste Facilities – Kugluktuk Project will be sent to NWB once available. As Built drawings work is in progress.

Abandonment and Restoration

1. List and describe abandoned or restored sewage treatment facilities.
   Refer to original attachment maps.
   Please see attached Sewage Treatment Facility Operation and Maintenance (O & M) Plan 3.7.5
   New Work plan is under design phase.

Identification

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

V. SOLID WASTE DISPOSAL

1. Briefly describe how solid wastes are collected and delivered to the disposal area.
   Solid Waste is regularly collected by Hamlet Staff. Bulky metals and hazardous waste materials are segregated. Municipal solid waste is burned pit and compacted in the land fill.

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.

Municipal solid waste is placed in a pit and burned on a regular basis before being compaction in fill area.
Recently, Hamlet bought incinerator
Burned Periodically

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

X__ Yes ____ No

If yes, describe

In past Kugluktuk had recycling program for pop cans. Generally People can go on dump site to find recycling materials.

Reuse of vehicle, heavy equipment and snowmobile parts occurs at the bulky metal disposal area.

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

Now we have Hazardous waste facilities and contaminated site land farm facilities.

Please see attached O & M manuals facilities with drawings

Waste Oil Pit

1. Describe the waste oil storage area.

Yes, Facility is available in Kugluktuk for waste oil Storage area. Please see attached reports & M Manuals from NunaBurnside Engineering and Environmental Ltd. with drawings.

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.

Please see attached Detailed Design Report and O & M manual from Nunaburnside Engineering and Environment Ltd.

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?

__X Yes ___ No

Please see attached Report, O & M manuals and drawings of Sewage Lagoon and Solid Waste Facilities – Kugluktuk Project by Nuna Burnside Engineering & Environmental Ltd.

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

Facilities improvements are complete.

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.

There are none.

Abandonment and Restoration

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

There are none.

Identification

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

__ Yes __ No

Signage work in progress

VI. INSPECTION AND MONITORING

1. When were municipal facilities inspected by?

_X__ Indian and Northern Affairs Inspector Date: Sept.05/06

___ Municipal and Community Affairs Date: 2004-2005 ___Waste Water
Samples were taken by Nuna Burnside and C&GS – jointly in FY 2004 – 2005 other:
_____ Date: ___October 2005_

2. Is there a system in place for reporting spills?
_X__ Yes ___ No
If yes, describe.
The Hamlet Senior Administrative officer or designated reports all spills to the 24 hr Spill report line. (Refer Environmental Emergency Contingency plan)
Please See attached O& M Manuals
Environment Emergency Contingency Plan
Sewage Treatment Facility – O & M plan
Nunaburnside Engineering and Environmental Ltd.
Please see attached O & M manuals of these facilities.

3. Is there a contingency plan for clean up of spills?
_X__ Yes ___ No
If yes, describe.
Please see attached O & M manuals of these facilities.

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?
Don't know

Monitoring Program

1. Is water sampling and analysis done?
_X_ Yes ___No
Please see preliminary Engineering Report – Water Supply improvements – A.D.Williams Engineering Inc.

If Yes, answer the questions a to e:

a. Briefly describe how samples are taken and sent to the laboratory.
Periodic sampling
Please see attached Sewage Treatment Facility O & M plan Section 3.7.2, 3.7.3, 3.7.3, 3.7.4

b. Briefly describe any monitoring done for wastewater effluent and leachate.
Please see attached Sewage Treatment Facility O & M plan Section 3.7.2, 3.7.3, 3.7.3, 3.7.4

d. Who is responsible for water sampling?
Water License Compliance sampling is undertaken by INAC.

No Sampling is currently undertaken by hamlet.

Name: _____

Position: _____

Telephone **#:** __867-982-6500_____

Fax #: ___867-982-3060_

Level of training: Plain language waste water and water sampling manuals supplied to Hamlet Staff.

d. Recognized laboratory performing analysis of samples.

Name: _____Taiga_____

Address: _Yelloknife, NT, X1A 2R3
Telephone #: __867-669-2788_____

Fax #: ____867-669-2718_

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.

Occasionally turbidity problems experienced by Hamlet. Currently, Cartridge filters and Water Storage Reservoir are being used by hamlet to address turbidity problem.

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

1. Date: _____2008-11-25_____

2. Municipality: _____Kugluktuk_____

3. Contact: (Environmental Health Officer Contact)

_____

Telephone # ___867-975-2978___(EHO)_____

Fax #: _____

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

Water License Compliance sampling is undertaken by INAC

1. Does the Regional Health Board perform water quality sampling?
____ Yes _X__ 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: ____Kevin Buck_____ _

Position: __Mangaer, Water Resources
Telephone #: ____867-975-4555_____

Fax #: ____867-975-4585_____

Level of training: __

d. Recognized laboratory performing analysis of samples.

Name: ____**Taiga Environmental Laboratory**_____

Address: ____**4601—52 nd Avenue, P.O.Box-1500__,Yellowknife,NT**

Telephone #: _____

Fax #: _____

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: _____2008-11-25_____

2. Municipality: ____Kugluktuk_____

3. Contact: ____**Tom Livingston, Sudhir Kumar Jha**_____

Telephone #: __867-983-4156, 867-983-4008_____

Fax #: ___867-983-4124, 867-983-4123_____

4. Population: ___1302 in 2006_____

5. Estimated growth rate over next 5 years**:** _____**1.44% rate**_____
1,439 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?
_X_Yes __No

Please see attached Preliminary Engineering Report- Water Supply Improvements – A.D.Williams Engineering Inc.

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?

_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?

X_No _ _Yes

If yes, provide details below.

If no, are such studies being planned?

_X_ No ___Yes.

If yes, specify:

Attachments

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

Please see attached construction drawing of Sewage Lagoon and Solid Waste Facilities – Kugluktuk's Built drawings will be supplied to NWB once available(drawing work under progress).

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:

Please see attached construction drawing of Sewage Lagoon and Solid Waste Facilities – Kugluktuk.As Built drawings will be supplied to NWB once available (drawing work under progress).

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?

_X__ Yes ___No

Please see attached construction drawing of Sewage Lagoon and Solid Waste Facilities – Kugluktuk.As Built drawings will be supplied to NWB once available (drawing work under progress).

If yes, who has provided them?

NunaBurnside Engineering and Environmental Ltd.

Drawings of Sewage Lagoon and Solid Waste Facilities – Kugluktuk Project

Sewage Lagoon and Solid Waste Facilities - Kugluktuk reports – NunaBurnside Engineering & Environmental Ltd.

If no, indicate when they will be available.

As Built Drawings – Drawings production work is in progress. As Built drawing will be sent to NWB once 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? __ Yes _X_ No

Is a storage reservoir created in a natural channel? N/A__Yes _X_No

If yes to any of the above, briefly describe the expected change in flow or storage:

2. Drainage Area: Sewage Lagoon

What is the drainage area? ___15 ha___(Hectares)

What is the average elevation of the drainage basin? 25.4 meters
Is the drainage basin outlined on an attached map? _X__Yes ___No

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

Vegetation- Grasses, heather, mosses,sedges and lichen grow on limited soils. Willow and alder thickets grow in wetland areas.
Soil- Talus and deltaic deposits, sand and gravel

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? 600 to 675 L/Minute

2. Is water drawn from the source _____ intermittently__X__ ___continuously

3. If it is drawn intermittently, during what month(s) is it drawn? _____Not applicable___

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.
_____None_____

Water Intake

1. Please provide short descriptions of the following:
   a. freshwater intake facility

Please see preliminary Engineering Report – Water Supply improvements – A.D.Williams Engineering Inc.

   b. operating capacity of the pumps

Please see preliminary Engineering Report – Water Supply improvements – A.D.Williams Engineering Inc.

c. intake screen size:

Please see preliminary Engineering Report – Water Supply improvements – A.D.Williams Engineering Inc.

Water Storage

1. Is a dam or dyke being used to store or alter the flow of water? _X__Yes __No

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

Please see attached drawings from FSC Architects and Engineers

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?
   ____ m^3 _____ ha.

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. ____to be designed to have peak capacity 30 m3/Hour

2. What is the capacity of the water storage facility ____266,000_____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.

None

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
   __133,600M_____ m^3

3. Based on current population projections, the facility will meet the needs of the community until the year ___2026_____ .

4. Average depth of the wastewater lagoon __3.0___m.

5. What is the design freeboard? ___0.5_____ m.

6. Indicate the retention time of the sewage while in the treatment facility
   ____09 Months_____

7. Indicate the estimated rate of discharge of wastewater__12_____ L/sec.

8. Indicate the location of the discharge point 300 m north of Swage Lagoon

9. Is the discharge: _X___ seasonal ____
   If the discharge is seasonal, during what month(s) is it done? ___16 Weeks_____

   What is the duration of the discharge (days/weeks/months) ? 8 to 12 weeks

10. Are there any changes planned in the sewage disposal facilities?
    _X__ 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 ___100,700_____ m^3

2. The *average* depth of the solid waste disposal site __3.0___m.

3. The current facility will meet community needs until the year __2026_____.

4. Do any natural watercourses enter the solid waste disposal area? What methods are used to decrease the amount of runoff water entering these areas?

There is a perimeter ditching that directs surface runoff around the facility

5. Indicate the volume of water that may enter these areas from any source(s) and attach all pertinent details of the diversions.

There is a retention pond as part of the facilities to collect rainfall runoff inside the land fill; The water retention area has been designed to accommodate a 30 mm storm event. Assuming the 30 mm falls all within the landfill and retention area foot print, the total volume of runoff would accumulate in the water retention area. Any Solids collected in the runoff will settle out in the retention cell and clarified upper portion of the retained water will discharge out the overflow located on the north side berm.

6. Please describe any diversions of watercourses:
____No_____

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.