

P.O. Box 119 GJOA HAVEN, NT X0E 1J0

TEL: (867) 360-6338 FAX: (867) 360-6369 kNK5 wmoEp5 vtmpq NUNAVUT WATER BOARD NUNAVUT IMALIRIYIN KATIMAYINGI

Water Licence Application Supplementary Questionnaire for Municipalities

	GENERAL GENERAL • ADVANCE \\x 396 •		
"}	1.	Date:	29 June 200

29 June 2006

Municipality of Kugluktuk (Kitikmeot Region) 2. Applicant:

Mayor Derrick Power 3. Contacts: **Hamlet of Kugluktuk**

P/O Box 271

Qikiqtarjuaq, Nunavut X0B 0E0

Ph: (867) 982-6500 Fax: (867) 982-3060

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

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

__ New Application

X Renewal - Water Licence # NWBKUG0308 (Amendment)

ATTACHMENTS{tc " II.

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 (Detailed Design Report, Full Size Detailed Design Drawings)

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.

III. WATER SUPPLY

	Source – N/A – This amendment application does not involve any changes to the water supply n of the existing licence.
1.	Type of source: Lake RiverWell Other
2.	Name of water source and alternative, if any.
	Primary Source Secondary Source
3.	Usual break-up & freeze-up period: Break-up Freeze-up
Water 1.	Intake – N/A Please provide short descriptions for the following:
	a. Freshwater intake facility
	b. Operating capacity of pumps used
	c. Intake screen size
Water 1.	Storage – N/A Type of water storage facility. (check where applicable)
	Reservoir/Pond Storage tank None
	OtherDescription:
2.	If "reservoir" checked:
	Is the reservoir lined? Yes No
	What type of liner? When was it installed?
Water 1.	Treatment – N/A 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 (proposed).

		Chlorination None Other	·		_
			Description		
Water 1.		nd Distribution – None of water use:	<i>I/A</i>		
	Distr	ibution	Estimated number of people on the system A	Estimated average water consumption (Litres/capita/day) B	Total water consumption (Litres/day) A x B
				TOTAL	
Gene i 1.		dition of the Water	Supply Facilities		
	a.	Water Supply fac	ility Satisfactor	yUnsatisfactory	
	If uns	atisfactory, explain.			
	b.	Storage facility	Satisfacto	ryUnsatisfactory	
	If uns	atisfactory, explain.			
	c.	Distribution syste	m Satisfac	toryUnsatisfactory	
	If uns	atisfactory, explain.			
Modi	fication	es.			
1.	Are tl	here any changes pla	anned for the water supply	system? No	Yes
	If ye schee	_	py of the plan, or describe	changes. Provide informa	tion on the implementation
2.	Does Descr		eve changes needed to the	water supply, storage or tr	reatment facilities?
Ident	ification	n			
Are tl	nere sign	ns identifying drinki	ng water sources presently	used by the municipality?	Yes No

Filtration and chlorination

SEWA	AGE DISPOSAL {tc "
	Are there signs identifying drinking water sources presently used by the municipality? No Yes
	IV. SEWAGE DISPOSAL "}
1. Wha	at type(s) of sewage treatment does the community have?
	 X Lagoon Mechanical system X Wetland Honey bag Combination/Other: describe
Lagoo	n (if applicable)
1.	Have there been any operating problems with the lagoon? X Yes No If yes, describe
	The existing lagoon system does not provide any holding time or controlled discharge not sized to meet long term needs. The facility requires expansion to meet 20 year population projections, which is proposal under consideration (Please refer to the Detailed Design Report attached).
Mecha 1.	nical System (if applicable) – N/A Describe (type, specifications, operation and maintenance program for the mechanical wastewater treatment system).
2.	Are sludges produced? Yes No If yes, describe how the sludges are disposed of:
Wetlar 1.	nd (if applicable) Describe the Wetland wastewater treatment system.
	The amendment to the License includes the provision of a Wetland Treatment Facility, which has been designed to produce an effluent fully compliant with Section 36(3) of the <i>Fisheries Act</i> . Anticipated effluent quality (as determined by the Alberta Wetland Model, corrected for temperature parameters) will be below 45 mg/L for both BOD and TSS. Ammonia levels are anticipated to be below those required by Environment Canada to be non-acutely-lethal to fish.
Honey 1.	Does the municipality use a honey bag pit? Yes X No
	If yes, describe the location, drainage, and operation/maintenance of the site:

Old pit will be closed as part of the construction of the new facility.

IV.

Com	mercia	l, Industrial and/or Hazardous Wast	es		
1.	Are there any sources of commercial or industrial <i>liquid</i> 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 ye	s, indicate sources, types and quantiti	es.		
C	Dia	al mus a			
Sewa 1.	Are	<i>charge</i> fish, shell fish and other wildlife harve Yes X No	ested in or near the d	ischarge area ?	
	If ye	s, indicate species harvested, and leve	el of harvest.		
Gene 1.		ndition of the sewage treatment facilities and condition of the:	lities		
	a.	Sewage collection system	X Satisfactory	Unsatisfactory	
		If unsatisfactory, explain.			
	b.	Discharge control system	Satisfactory	X Unsatisfactory	
		If unsatisfactory, explain.			
		equate retention of sewage in lagoon nilation of effluent.	and point discharge	to environment does not provide adequate	
	c.	Dams, diversion dykes, berms	Satisfactory	X Unsatisfactory	
		If unsatisfactory, explain.	Lagoon berm do	oes not provide retention time.	
Modi	ficatio	ns			
1.	Are If ye	there any changes planned in the sew	_	es? No X Yes Provide information on the implementation	
	sche		-	-	

The facility requires expansion to meet 20 year population projections, which is the proposal under consideration (see Detailed Design Report). Upgrades will include an engineered expansion to the existing Wetland Treatment Facility, which has been designed to produce final effluent that will be compliant with Section 36(3) of the *Fisheries Act*. Anticipated effluent quality (as determined by the Alberta Wetland Model, corrected for temperature parameters) will be below 45 mg/L for both BOD and TSS. Ammonia levels @ < 10 mg/L are anticipated to be below those required by Environment Canada to be non-acutely-lethal to fish (Please refer to Detailed Design Report).

2	Does the municipality or residents	believe changes are needed	l at the sewage treatment facilities	z?
<i>-</i>	Does the mamerpant, or residents	beneve changes are necace	i at the seviage treathent facilities	<i>,</i> 。
	1 2	\mathcal{E}	\mathcal{C}	

Yes, the project is supported by the Hamlet. The Detailed Design Report recommendations have been adopted by the Hamlet.

Al	band	onment	and R	estoration

V.

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

The existing sewage lagoon and adjacent abandoned Honey Bay pit will be abandoned and closed once the new system is constructed. Closure will consist of bull dozing the berms into the pit and contouring to match the surrounding topography.

•	fication ere signs identifying past and present sewage disposal sites? X Yes No
SOLII	D 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 in a burn pit and compacted in the landfill.
2.	Is the solid waste site fenced? X Yes No
3.	Is the fence adequate? Yes X No
	If no, describe
	The existing fence is adequate for the current fill area but not adequate for the expansion. The fence will be replaced with a new higher fence during the proposed upgrades. Berms will be added to the Solid Waste Disposal Facility, to prevent off-site water impacts (Please refer to the Detailed Design Report attached).
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 compacted in the fill area.
2.	Has the municipality considered measures for waste reduction such as recycling or reuse? \mathbf{X} Yes $\underline{}$ No
	If yes, describe
	Active re-use of vehicle, heavy equipment and snowmobile parts occurs at the bulky Metals Disposal Area.

1.	Does the municipality have an area for the disposal of animal carcasses? Yes X No If yes, describe the location, drainage and operation/maintenance of the site.		
	Carc	ases are part o	of the municipal waste stream.
Waste 1.	Oil Pi		oil storage area?
	same	area as the p	Oil and Hazardous Material Storage Area is lined, bermed and located in the roposed sewage lagoon. A new lined and bermed area capable of storing 30 m ³ is proposed. See the Detailed Design Report.
Rulkv	Scran	Metal Waste I	Disposal Area
1.	Does	the municipali	ty have a scrap metal or bulky waste disposal area? X Yes No be its location and operation plan.
	Meta longe	ıls made availa	Disposal Area is operated adjacent to the Solid Waste Disposal Facility. Bulky able for re-use by community members, until such point as it is deemed no disposal well for bulky metals is proposed (Please refer to the Detailed Design
Comn 1.	Are the area?	here any comm (The municipa oved by the mu	d/or Hazardous Wastes Disposal Area hercial or industrial waste being discharged or deposited in the solid waste disposal hity should be aware that any discharge of commercial or industrial waste has to be hicipality) Yes X No s, please indicate sources, types and quantity.
2.		the municipality, describe its:	use a hazardous waste disposal area? X Yes No
	a.	Location	A lined area inside the waste disposal site. Please refer to the Detailed Design Report attached.
	b.	Structure	A lined area inside the waste disposal site. Please refer to the Detailed Design Report attached.
	c.	Operation ar	nd maintenance (describe special handling/disposal methods for these wastes)
		Please refer attached.	to Operations and Maintenance Manuals in the Detailed Design Report
Gener 1.		•	Holid Waste Disposal Area meral conditions of the:
	a.	Solid waste	disposal area Satisfactory X Unsatisfactory

Animal Carcasses Pit

If unsatisfactory, explain.

The existing facility does not have a hazardous waste storage area and the fill area is approaching capacity. A new larger facility with upgraded berms and fencing is proposed. The site will include a hazardous waste depot and land farm area. (Please refer to the Detailed Design Report attached).

	Mod	ifications
		Are there any changes planned for the solid waste disposal area?
		No X Yes
		If yes, attach a copy of the plan, or describe changes. Provide information on the implementation schedule.
		Refer to Detailed Design Report.
	2.	Are changes needed to the solid waste disposal area? Describe.
		Please refer to the Detailed Design Report attached.
	Abai	adonment and Restoration
	1.	List and describe abandoned or restored solid waste facilities. Indicate their location on a map.
		Not applicable. No facilities will be abandoned during the proposed upgrades. The existing site will be within the footprint of the proposed expansion.
	Iden	tification
	1.	Are there signs identifying past and present solid waste disposal sites? X Yes No
VI.	INSPE	ECTION AND MONITORING
	1.	When were municipal facilities inspected by?
		X Indian and Northern Affairs Inspector Date: See Reports attached.
		X Municipal and Community Affairs Date: August, 2003
		X Other: (Nuna Burnside inspected sewage Date: October 2005 and solid waste facilities)
	2.	Is there a system in place for reporting spills? X Yes No If yes, describe.
		The Hamlet/Senior Administrative Officer (SAO) or designate reports all spills to the 24 hr Nunavut Spill Report Line. (Refer to the Environmental Emergency Contingency Plan attached in the supporting documentation.)
	3.	Is there a contingency plan for clean up of spills? \mathbf{X} Yes No If yes, describe.

Please refer to the attached	Environmental Spill	Contingency Pla	n located in	the Appendices of
the Detailed Design Report.				

4.	Have a	any spills occurred in the past five years? Yes X No
	affecte {tc "Id	describe and show on a map the locations of the spills. What action has been taken to clean the d areas? entification ere signs identifying past and present solid waste disposal sites? No Yes
	VI.	INSPECTION AND MONITORING
		When were municipal facilities inspected by: n and Northern Affairs Inspector cipal and Community Affairs Date: Date:
	2. Yes If yes,	Is there a system in place for reporting spills? No describe.
	3. Yes If yes,	Is there a contingency plan for clean up of spills? No describe.
Monite	Monit	Have any spills occurred"} rogram{tc '' oring Program''}
1.	Is water	er sampling and analysis done? X Yes No
	If Yes	s, answer the questions a to e
	a.	Briefly describe how samples are taken and sent to the laboratory.
		See Reports attached.

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? \mathbf{X} Yes No If yes, describe.
	refer to the attached Monitoring Plan located in the Appendices of the Detailed Design t, which will be implemented by the Hamlet in the summer of 2007.

VII. PUBLIC CONCERNS

1.	What concerns does the municipality or residents have regarding the municipal water supply or
	waste disposal facilities? List the concerns and describe what steps have been taken to address
	those concerns.

Please refer to the Detailed Design Report attached.

VIII.	PI	RI	IC	HE	ΔT	TH
V 1 1 1 .				1 1 1 1 1 1	~ .	,

(Help may	be obtained	from the	Regional	Environmental	Health	Officer	if you	have	difficulty	with th	his sec	ction.)

-	3, 3, 3, 7, 3, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,
1.	Date: July 5, 2006
2.	Municipality: Hamlet of Kugluktuk
3.	Contact: (Environmental Health Officer Contact)
	Telephone #: (867) 982-4531 Fax #: (867) 982-3115
4.	Have there been any problems or health/environmental concerns with drinking water? Yes X No
	If yes, describe.
	Not part of our project scope to evaluate.
5.	Have there been any problems or health/environmental concerns with sewage disposal/treatment? \mathbf{X} Yes No
	If yes, describe
	Lagoon berms allow immediate discharge of sewage with little or no retention time.
6.	Have there been any problems or health/environmental concerns with solid waste disposal? Yes X No
	If ves. describe.

Monitoring Program

existing landfill is approaching capacity

1. Does the Regional Health Board perform water quality sampling? ___ Yes ___ No N/A

Waste batteries and waste oil are stockpiled in the open with no plan for disposal. The

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

- a. Briefly describe the sampling methodology.
- b. Briefly describe any monitoring of wastewater effluent and leachate.

No sampling is currently undertaken by the Hamlet. Water license compliance sampling is undertaken by Indian and Northern Affairs Canada (INAC).

c. Who is responsible for sampling?

Name: **Jim Roger**s

Position: Manager, 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 - 52nd Avenue P.O. Box 1500**

Yellowknife, Northwest Territories X1A 2R3

Telephone #: (867) 669-2781 Fax #: (867) 669-2718

e. Are any changes planned in the water quality monitoring program? **X** Yes __No If yes, describe.

Please refer to attached Monitoring Plan located within the Appendices of the Detailed Design Report for the proposed water quality monitoring program, which will implemented by the Hamlet in the Summer of 2006.

IX. TECHNICAL INFORMATION

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

1. Date: **July 5, 2006**

2. Municipality: **Hamlet of Kugluktuk**

3. Contact: Paul Wayne (SAO @ Hamlet of Kugluktuk)

867-982-6500 867-982-3060

4. Population (according to most recent census results): **1585**

5.	Estimated growth rate over next 5 years:						
	Please refer to Detailed Design Report attached.						
6.	Have 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? \mathbf{X} YesNo						
	If yes, provide a summary of program details or site title, authors, cities, and dates:						
	Please refer to the Detailed Design Report attached.						
	If no, are such studies being planned? NoYes (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 \mathbf{X} Yes						
	If yes, specify.						
	Community meetings and Hamlet Council has been consulted during all phases of the project to date.						
8.	Have 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 refer to Detailed Design Report attached.						
	If no, are such studies being planned? NoYes.						
	If yes, specify:						
Atta	chments						
1.	Attach detailed plan or drawing(s) of the present <i>solid waste disposal area</i> . 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 <i>sewage treatment system</i> . 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; (all sources of seepage presently encountered near these areas, including volumes (m³/da and directions) e. The volume of seepage flow (m³ / day); and f. The direction of each flow. 	y)					
3.	Are drawings for the solid waste disposal area and sewage treatment system attached? X YesNo						
	If Yes, who has provided them?						
	Nuna Burnside Engineering and Environmental Ltd.						
	If no, indicate when they will be available.						
Hydrol {tc "Hy	ogy drology "}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:						
	Seasonal discharges from the sewage lagoon will result in higher flows during the summer in the stream receiving the lagoon discharge.						
2.	Drainage Area:						
	What is the drainage area? 15 hectares (ha) What is the average elevation of the drainage basin? 25.4 meters (m) Is the drainage basin outlined on an attached map? X YesNo						
	Describe the drainage basin characteristics, (vegetation, general soil type, lakes, swamps and permafrost areas, etc.)						

		Vegetation – Grasses, heather, mosses, sedges and lichens grow on limited soils. Willow and alder thickets grow in the wetland areas.							
	Soil – Talus and deltaic deposits, breakdown of dolerite into sand and gravel								
3.	Channel chara	Channel characteristics:							
	Is the course of	Is the course of any channel changed? Yes $ \mathbf{X} $ No							
	If yes, describ	be measures to maintain stream bed and bank stability.							
4.	Will the cross	s-section of any watercourse be changed? Yes X No							
	If yes, describ	be the change and its effect on the flow capacity of the channel.							
Water 1.		(Not part of project scope) ate of withdrawal from the source?							
2.	Is water draw	on from the sourceintermittentlycontinuously							
3.	If it is drawn i	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 1.	* Intake – N/A Please provide	e short descriptions of the following:							
	a. freshw	vater intake facility							
	b. operat	ting capacity of the pumps							
	c. intake	e screen size							
Water	Storage – N/A	1							
1.	Is a dam or dy	yke being used to store or alter the flow of water? YesNo							
2.	What are the	dimensions of the dam or dyke?							
	Length: U/S slope:	Width: Height: 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? m ³ ha.						
4.	Will the dam or dyke affect fish migration or movement? Yes Yo						
	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 1.	Treatment – N/A Indicate the capacity of the treatment facility.						
2.	What is the capacity of the water storage facility?						
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.						
Sewag 1.	Indicate the level of sewage treatment: primary X secondary tertiary Pre-treatment (if applicable): screening maceration Lagoons (if applicable): anaerobic aerobic X facultative						
2.	Indicate the capacity of the sewage treatment facility.						
	See attached reports.						
3.	Based on current population projections, the facility will meet the needs of the community until the year 2026, <i>following proposed upgrades</i> .						
4.	Average depth of the wastewater lagoon? 4 m.						
5	What is the design freeboard? 1 m.						

6.	Indicate the retention time of	the sewage while in the treatment facility	days.
	Retention time is variable d when annual discharge of e	lependent upon when the sewage is dumped in ffluent begins.	to the lagoon and
7.	Indicate the estimated rate of	discharge of wastewater < 650 m ³ /d	
8.	Indicate the location of the di	scharge point.	
	Please refer to Detailed Des	ign Drawings attached.	
9.	9	sonalcontinuous uring what month(s) is it done? May to August scharge (days/weeks/months)? Months	
10.		d in the sewage disposal facilities? $__$ No X an or indicate changes and include an implementa	Yes ation schedule.
	Include excerpt from MACA	Capital Plan if available.	
	Please refer to the Detailed	Design Report attached.	
Solid 1.	Waste Disposal Indicate the capacity of the d	isposal area <u>83,055</u> m ³ .	
	Please refer to Detailed Des	ign Report attached.	
2.	The average depth of the soli	d waste disposal site m.	
	See Detailed Design Report	and Sealed Design Drawings attached.	
3.	The current facility will meet implementation of the propo	community needs until the year 2026, following a seed upgrades.	the
4.	Do any natural watercourse edecrease the amount of runof	enter the solid waste disposal area? What methods f water entering these areas?	s are used to
	Not Applicable. There are	no proposed diversions of natural watercourse	es.
5.	Indicate the volume of water details of the diversions.	that may enter these areas from any source(s) and	d attach all pertinent
	Source	Volume	

6.	Please c	describe	any c	liversions	of	watercourses:
----	----------	----------	-------	------------	----	---------------

Not Applicable. There are no proposed diversions of natural watercourses.

7. Are there any changes planned in the solid waste disposal facilities? ____ No X 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.

Please refer to the Detailed Design Report attached.

Other

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

Not Applicable.