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KATIMAYINGI

kNK5 wmoEp5 vtmpq
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN

WATER LICENCE APPLICATION FORM

Application for: (check one)

___ **New** ___ **Amendment** _√_ **Renewal** ___ **Assignment**

LICENCE NO:
(for NWB use only)

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

The Hamlet of Rankin Inlet
Rankin Inlet, Nunavut
X0C 0G0

Phone: (867) 645-2895
Fax: (867) 645-2146
e-mail: _____

2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)

N/A

Phone: _____
Fax: _____
e-mail: _____

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

Latitude: 64° 49' W Longitude: 92° 05' W NTS Map No. _____ Scale _____

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

See attached additional information.

5. TYPE OF UNDERTAKING (A supplementary questionnaire must be submitted with the application for undertakings listed in **"bold"**)

___ Industrial
___ **Mine Development**
___ **Advanced Exploration**
___ **Exploratory Drilling**
___ **Remote/Tourism Camps**
_√_ **Municipal**
___ Power
___ Other (describe): _____

FINAL

ST	
EO	
CEO	
BRD	
EXT.	

6. WATER USE

√ To obtain water
___ To modify the bed or bank of a watercourse
___ To alter the flow of , or store, water
___ To cross a watercourse
___ To divert a watercourse
___ Flood control
___ Other (describe): _____

7. QUANTITY OF WATER INVOLVED (litres per second, litres per day or cubic metres per year, including both quantity to be used and quality to be returned to source)

1035.12 m^3/day at the end of the ten-year licence period.

8. WASTE (for each type of waste describe: composition, quantity, methods of treatment and disposal, etc.)

See attached additional information.

√ Sewage
√ Solid Waste
___ Hazardous
√ Bulky Items/Scrap Metal
___ Waste oil
___ Greywater
√ Sludges
___ Other (describe):_____

9. PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

None.

Land Use Permit

DIAND √ Yes ___ No If no, date expected _____

Regional Inuit Association ___ Yes ___ No If no, date expected _____

Commissioner ___ Yes ___ No If no, date expected _____

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

See attached additional information.

NIRB Screening ___ Yes ___ No If no, date expected _____

NIRB had not reviewed this project.

11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement?

No

11. (Continued)

If yes, has the applicant entered into an agreement with the Designated Inuit organization to pay compensation for any loss or damage that may be caused by the alteration. If no compensation agreement has been made, how will compensation be determined?

12. CONTRACTORS AND SUB -CONTRACTORS (name, address and functions)

None

13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

See attached additional information.

14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) √ Yes ___ No If no, date expected _____

Inuktitut/English Summary of Project √ Yes ___ No If no, date expected _____

Application fee $30.00 (c/o of Receiver General for Canada) ___ Yes ___No If no, date expected _____

15. PROPOSED TIME SCHEDULE

___ Annual (or) √ Multi Year

Start Date: 2002 Completion Date: 2012

Ron Roach	Senior Administrative Officer		May 17, 2002
Name (Print)	**Title (Print)**	**Signature**	**Date**

For Nunavut Water Board use only

APPLICATION FEE **Amount: $_____** **Receipt No.:**

WATER USE DEPOSIT **Amount: $_____** **Receipt No.:**

Rankin Inlet water Licence Application

(1) Name and Mailing Address of Applicant:

Hamlet of Rankin Inlet
Rankin Inlet, NU

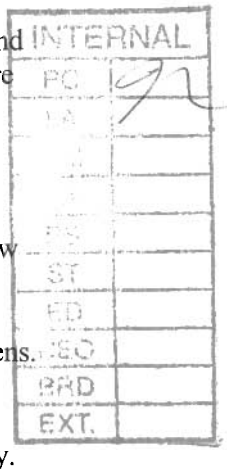
Telephone: (867) 645-2895
Fax: (867) 645-2146

(2) Address if Head Office in Canada if Incorporated: N/A

(3) Location of Undertaking:

The Hamlet of Rankin Inlet is located on Rankin Inlet, on the west coast of Hudson Bay. It is 96 air km south-west of Chesterfield Inlet and 1088 air km east of Yellowknife, at 62°49'N latitude and 92°05'W longitude.

Surface material consists mainly of exposed volcanic or sedimentary Precambrian rock and various types of re-worked ground moraine, notably marine terraces. The soil is a mixture of organic material, gravel, sands and fines. Numerous eskers provide a good source of granular material. The shoreline is composed of recently deposited sands and silts.



The Hamlet is within the continuous permafrost zone, with an estimated permafrost thickness of 300 m. The active layer of permafrost is very shallow, extending 0.3 m below the ground surface.

Areas with developed soil layers support hardy grasses, while rock outcrops support lichens. Clusters of small willow bushes grow in well-sheltered areas.

Rankin Inlet receives an average of 16.0 cm of rainfall and 118.1 cm of snowfall annually. Mean annual precipitation totals 27.8 cm. July mean high and low temperatures are 13.1° C and 4.5° C. January mean high and low temperatures are -27.9° C and -35.2° C. Winds are generally from the north and annually average 24 km/h.

Although Inuit settlement had been common in the area for many years, Rankin Inlet was not established as a community until 1957, when North Rankin Nickel Mines Ltd. opened for business. Until the close of the mine in 1962, a wage economy propelled the settlement.

Concerned about the deteriorating conditions of the community, DIAND set up temporary housing, a school, and a workshop for those in need, approximately one km from the mine site. Although the program for change was slow to act and is considered a failure by some, the organization of arts and crafts manufacturing gave a boost to the community.

In the past generation, the establishment of a cannery and the program of natural resource harvesting have helped create a viable economy. As a Territorial Government Headquarters for the Keewatin Region Rankin Inlet is a key transportation and communication centre.

Economic activities now include government, commercial fishing, transportation/communications, carving/handicrafts, trapping, hunting, and tourism. Tourist activities include boat trips to historic Marble Island, fishing camps, tours to the Meliadine River, and the sale of arts and crafts. Arts and crafts include soapstone carvings and wall hangings.

In 1994/95 there were 20 million dollars worth of public and private sector activity in the community. There has been a substantial growth in new businesses and infrastructure designed to serve a growing population. The Inuit Cultural Institute, once located in Arviat, is now in Rankin Inlet.

Rankin Inlet gained Hamlet status on January 20, 1975. The Community's traditional name is "Kangiqtinq", meaning 'inlet'.

(4) Description of Undertaking:

Water and Sanitation

Water Supply and Treatment

The first water supply system at Rankin Inlet was constructed in 1955 to service the North Rankin Nickel Mine. Water was pumped directly from Nipissar Lake to the mine and the community distribution system through the 150 mm insulated main. The mine closed in 1962.

As a result of higher operating costs and the deterioration of the water main and its insulation between Nipissar Lake and the Community, repairs and revisions were made to the system in 1965.

Continuous pumping into the distribution system was then maintained from Williamson Lake.

The storage capacity of Williamson Lake was increased by raising the lake level about 1.5 m with low earth dykes. The 150 mm supply main from Lake Nipissar to Lake Williamson was operational during the summer months only, pumping storage water into Williamson Lake. A new pumphouse at Williamson Lake was also built on the northeast corner of the lake. The water distribution system consisted of heated utilidors with a continuously circulating water supply from the Lake Williamson pumphouse to the town distribution system, and back to the lake.

The system was further upgraded by the GNWT in 1975/1976. The Lake Nipissar pumphouse was completely rebuilt to include new pumps, a standby diesel generator and a long-term oil storage facility. A new 150 mm diameter insulated water supply line and a 75 mm diameter insulated re-circulating or return line, were also constructed between Lake Nipissar and Williamson Lake. A new pumping station was constructed at Williamson Lake to provide adequate pumping capacity for future development. Along with chlorination facilities, a standby diesel generator, and an oil storage facility we have developed. A boiler installation capable of heating the Lake Nipissar/Williamson Lake transfer system and distribution system were added to the pumping station following the initial improvements.

The GNWT upgraded or replaced various parts of the old water distribution system of surface wooden utilidors, buried concrete utilidors and surface corrugated metal pipe utilidors, with a new shallow-buried piped system.

Water Supply

The community continues to draw its water from Lake Nipissar, located 2 km northwest of the Hamlet. Lake Nipissar has a usable storage of about 1,400,000 m^3. The Lake's estimated annual recharge of 600,000 m^3 per year is considerably higher than the Hamlet's annual consumption of 292,000 m^3.

The 1976 Nipissar Lake pumphouse is still in use but the original centrifugal pumps were replaced in 1984 by vertical turbine submersible pumps installed inside the twin intake lines. Each of the 10 Hp pumps has a 1020 L/min. capacity. Only one pump operates at a time. Operation of the pump is controlled by the water level in the water storage tank adjacent to the Williamson Lake pumphouse. An air compressor aerates water around the intake to prevent taste and odour problems.

Water from the Lake Nipissar pumphouse is pumped to the community through a shallow buried insulated main, which operates year-round. In 1995, new supply and return lines were constructed and the old lines were abandoned.

New Piping System Data	
Length	2000 m
Supply Line	200 mm diameter insulated HDPE
Return Line	150 mm diameter insulated HDPE
Access Vaults	7 vaults, each 1600 mm diam HDPE. Inside the vaults, each line is fitted with a butterfly valve and two 75 mm diam thaw ports.

The lines slope continuously upward from Lake Nipissar to Williamson Lake; there are no intermediate drain points.

The supply line passes through the Williamson Lake pumphouse where most of the water is chlorinated and discharged into the bottom of the water storage tank adjacent to the

pumphouse. A small portion of the water is heated in the Nipissar heat exchanger in the Williamson Lake pumphouse and then pumped back to the Nipissar pumphouse through the return line. Most of the heated water arriving in the Nipissar pumphouse is injected back into the supply line. Some of the heated water is bled into the Lake Nipissar intake casings to prevent freezing of the intake lines.

The Williamson Lake pumphouse, completed in 1976, is located on the north berm of Williamson Lake, in the centre of the community. The pumphouse contains two wetwells, four distribution pumps, two hot water boilers, three heat exchangers (one for the Nipissar supply line, one for the town and one spare), chlorination equipment, a diesel standby generator, valves, alarms, and controls.

Water flows by gravity from the water storage tank through a valve into the two wetwells; the valve is regulated by the water level in the wetwells. The four 22.4 kW distribution pumps, each rated at 25 L/s, pump water from the wetwells into the distribution system through a common header. The pump system is sized for maximum daily demand and fire flow needs. One pump operates continuously, circulating heated water through the distribution loops with a portion returning to the pumphouse. As demand in the distribution system increases, additional pumps activate according to pressure drop in the system.

The heat for the distribution water is produced by two fuel oil fired boilers. The heated water circulates through the Town heat exchanger, which in turn heats water for injection into the distribution header. Modulating valves, located on each loop where the loop returns to the pumphouse, control water temperatures in the loops by varying their flow rates. If a loop return temperature falls below a set point, the modulating valve for that loop opens to increase the return flow rate. If the temperature rises above the set point, the valve closes to reduce the loop's return flow rate.

The boilers also provide heat for the building heating system through the Town heat exchanger and for the Nipissar supply line through the Nipissar heat exchanger.

Water Treatment

Rankin Inlet's supply water is of good chemical quality for domestic use. Based on chemical analysis, the water is clear, moderately hard, well buffered, neutral and has a moderate amount of dissolved solids.

Comparison of raw and treated water samples to the Guidelines for Canadian Drinking Water Quality shows that the parameters tested are below the recommended limits except for pH and turbidity. The analysis of samples taken on August 27, 2001 showed that the pH was 8.7 as opposed to the 6.5-8.5 guideline value and the turbidity was 1.3 NTU. This value lies between the 5.0 NTU aesthetic objective and the 1.0 drinking water quality guideline. Microbiological analysis of treated water shows that chlorination eliminates or reduces bacterial presence to moderate or low concentrations.

Water for the water storage tank and the distribution system is chlorinated by new gas chlorinators, installed in 1996. A fluoridation system injects hydrofluosilicic acid directly into the water. In addition, compressed air is injected into the raw water at the Nipissar Lake intake.

Water Storage and Distribution

Water Storage

In 1965, Williamson Lake, then located on the outskirts of the community, was chosen as the community's water reservoir. Berms were constructed on the east side to raise the water level by about 1.5 m. However, this caused water to seep out of the reservoir through a talik under the berm. In 1995, the Hamlet installed an overflow pipe to keep the Lake at a low level, stopping the sewage from seeping.

From 1965 to 1976, water was pumped into Williamson Lake from Lake Nipissar only during the summer. With the rebuilding of the system in 1976, year-round pumping began. This reduced the need for storage and the lake level was lowered by 0.8 m. As years passed the community expanded to surround the Lake; in 1979, a road to the airport was constructed through the southern part of the Lake. Increasingly, concerns were raised about contamination.

In the 1980's, Williamson Lake was replaced as the storage reservoir. After consideration of many options, including concrete and earthen reservoirs, it was decided to build an insulated steel tank with two-day storage capacity to replace Williamson Lake. The tank was completed in 1993. The Lake was then removed from the system and the intake pipe from the Lake to the pumphouse was sealed. In case of an emergency lasting longer than two days, the Lake could still be accessed by means of a portable pump, flexible hose, and ice auger.

Water Storage Tank Data	
Height	12.8 m
Diameter	18.3 m
Usable Storage	
2 hour fire demand	545,000 L
2 day emergency storage	2,030,000 L
peak balance	473,000 L
total	3,364,000 L

Water Distribution

There are two systems of water distribution in Rankin Inlet. Approximately 99% of the population receives piped water while the remainder is on trucked service. Trucked water delivery is handled by the Hamlet of Rankin Inlet; an 8172 L capacity water truck is used. The truck is filled from the truckfill arm, located on the northwest side of the Williamson Lake pumphouse. Trucked water is delivered three to five days per week. Most deliveries

are to buildings presently not serviced by the piped system in the Nuvuk subdivision. All water deliveries are metered.

The piped water distribution system consists of shallow-buried and insulated mains, usually installed in the same trenches as the sewer mains to save installation costs. Since the mains both originate and terminate at the Williamson Lake pumphouse, they are known as loops. As part of the freeze protection system, the water is constantly circulating in the loops. Water not consumed is returned to the wetwells at the pumphouse.

There are presently four loops in operation. The two loops that serve the downtown core and the older residential areas leave the pumphouse as a single 250 mm diameter main. This main serves about 20 lots in the core before it branches into the two loops. One loop serves 130 lots, mainly located in Expansion Area 1 and the downtown core, before it returns to the pumphouse. The two loops are mostly 200 mm diameter although some 150 mm diameter pipes are in the downtown area. The oldest sections of these two loops were installed in 1972 and the newest in 1993.

A third loop leaves the pumphouse as a 200 mm diameter line, serves about 46 lots in area 5 and then returns to the pumphouse as a 50 mm diameter line.

The fourth loop leaves the pumphouse as a 150 mm diameter line and serves Kivalliq Hall, a student residence located across Sivulliq Street from the pumphouse. It returns as a 50 mm diameter line.

In 1995, construction was completed on a 200 mm diameter fifth loop and one sub-loop, which will serve part of the 200 lot Nuvuk subdivision. These loops will become operational when the new sewage disposal system comes on line.

In case of heavy fire flow demand at a hydrant on either of the two core loops or on the Nuvuk loop, automatic controls in the Williamson Lake pumphouse will reverse the flow direction in the return portion of the affected loop. This brings water to the hydrant from two directions rather than one. The two shorter loops are not equipped with this type of control.

Access vaults are placed throughout the distribution system at about 100 m intervals, or at bends or intersections. Vault type depends on the year of construction. Vaults constructed prior to 1976 are of insulated corrugated metal pipe. Vaults constructed from 1977 to 1979 are rectangular concrete structures. Vaults from 1979 onward are prefabricated insulated double-walled steel structures.

In current designs, the water main passing through the vault is constructed of steel and is typically fitted with a butterfly valve, two 50 mm thaw access ports and two 25 mm drain ports. Many vaults are fitted with electrical outlets but the present design is limited to an access conduit to allow electrical cables and hoses into the vault without keeping the hatch open. The vaults also house cleanouts on the sewer mains to allow access to the sanitary sewer system in the event of a frozen or plugged sewer line.

Water service connections to single-family residential buildings consist of uninsulated 25 mm HDPE supply and return lines taped together, wrapped in a self-limiting heat tape and inserted into a 100 mm diameter insulated HDPE carrier pipe. Water flows from the main through the supply line to a circulation pump and flow switch, located inside the building. Water required for consumption then flows through a water meter into the building's water fixtures. Water not required for consumption flows into the return line and then back into the main.

By maintaining a constant flow, the circulation pump keeps the water in the service lines from freezing. The heat trace cable, controlled by the floor switch on the supply line, keeps the water from freezing when flow is reduced or stops due to circulation pump failure or other causes. This dual-line circulating system has been found to be the most economical and reliable method of providing water service to the buildings.

Installed service connections are valved at the main and can be shut off by means of valve extensions that extend to above ground level. Older service connections cannot be shut off from above the ground.

For multi-family residential, commercial or industrial buildings, the water service connections are individually designed but use basically the same system as described above.

Sewage Collection and Disposal

There are two systems of sewage collection in Rankin Inlet: approximately 75% of the population has piped sewage service while the remainder receives trucked pumpout service. Pumpout sewage is collected by the Hamlet's 1993 - 4540 L tank truck. The truck discharges the sewage into the piped system through a temporary facility in an old lift station, located just west of the macerator. Most of the trucked service customers live in the Nuvuk subdivision.

The remainder of the buildings in the community are on the piped sewage collection system. The sewage mains are 150 mm or 200 mm diameter insulated shallow-buried HDPE pipes. They are usually installed in the same trenches as the water mains to save installation costs. Sewage from the buildings enters the mains through 100 mm diameter insulated HDPE service connections.

The oldest mains still in service were installed in 1972. Some of the older mains suffer frequent freezing and breakage due to inadequate flow, insufficient slope, backgrading, insufficient cover, damaged insulation, or freezing between the pipe and the insulation. In winter, bleeding from the water mains into the sewer mains is practiced to mitigate some of these problems. Each summer the system is inspected with a sewer camera. The sections of piping in poor condition are repaired or replaced. No problems have been reported in the recently installed mains, except for occasional freezeups of the service connections.

Sewage from the collector mains flow by gravity into the wetwell of the macerator station (which has not been operational for many years), located on the eastern edge of the community. From the macerator, the untreated sewage flows 425 m through a buried/submerged outfall line and discharges into the bottom of Johnston Cove, a confined bay that serves as a small boat harbour and recreational area. For many years, the community expressed concern about the adverse aesthetic and environmental impact of this disposal system and its possible threat to public health. Studies by the Department of Fisheries and Oceans and by MACA in 1990 and 1991 confirmed that the disposal system was unacceptable for health, environmental, and aesthetic reasons.

In response, MACA hired a consultant (1992) to evaluate alternate sewage disposal options. Various treatment processes, such as primary and secondary mechanical treatment, and a lagoon were evaluated and various outfall locations were studied.

The concept selected was a mechanical treatment plant with rotating drum screen to provide partial primary treatment. The recommended ultimate disposal point was in the deep waters of Prairie Bay to the northeast of the community, a location that will provide good conditions for mixing and dispersal of the effluent. Two liftstations with forcemains will be required to pump the sewage to the treatment plant. Design of the system components began in 1993 and construction began in 1994.

Effluent from the treatment plant flows by gravity through a 300 mm diameter buried insulated HDPE pipe to the outfall, completed in 1995. The waste eventually reaches a point near the bottom of Prairie Bay.

To protect against ice scour, the top of the filled-in trench was armoured with rock for the last 35 m of the land section and all of the submarine section. To aid dispersal and mixing, the three steel bellmouths of the diffusor, set 90° apart, will divide the effluent into three separate streams as it enters the receiving waters.

Ferguson Simek Clark is currently working on a sewage study. The objectives of this project are to determine the volume and quality of sewage generated by the community of Rankin Inlet. This project is due to be completed in March 2003.

Solid Waste Collection and Disposal

Solid waste is collected once per week by a three-person crew using a 1995 15 m^3 packer truck. Prior to pickup, waste is placed in 205 L drums in front of each home. During the last week of June the community participates in the annual spring clean-up.

The solid waste management site (55,000 m^2) is located 1 km south-east of the community on sloping land. Bulky wastes are stored on the margins of the site. Used oil is burned in a trench. Surveys in 1992 determined that the site had sufficient capacity to meet the Hamlet's needs until the year 2006. In 1995, the Hamlet completed construction of a 2 m high chain-link fence on the berm, surrounding the site. This fence is now considered inadequate because it has fallen over in some areas.

Gravel cover for the site must be hauled 8.5 km, a process of great time and expense to the Hamlet. Therefore, wastes are only covered once a year in the summer. The wastes are not compacted.

The existing solid waste disposal site in Ranking Inlet, NU does not meet current standards. These standards include Nav Canada's 3 km setback from an airstrip and the Department of Health's 450 m setback from residential dwellings. Scavenging and unauthorized fires in the solid waste disposal area is common because of the close proximity to the community. The site is also impeding the community's use and enjoyment of a prime coastal recreational area.

The community's solid waste is collected and hauled to the site by a 15.3 m^3 garbage compactor. Separation of the waste is not done except in the case of the fenced off area that receives solids from the wastewater treatment plant.

Stanley and North Tech Consulting performed a study in 1998/99 that identified alternative landfill sites with cost analysis performed on construction and operation. Controlled air incineration was considered in this study but was determined impractical based on the high cost of auxiliary fuel, operational complexity and siting difficulties

This study recommended the construction of a new solid waste disposal area at site S3 which is located 7.7 km from the community's centre and more than 3 km from the airstrip's centre. Detailed surveys were completed of S3 in November 2001.

The development of a closeout plan for the existing solid waste disposal site will be submitted in the summer of 2002. The abandonment and restoration of the current solid waste site will not commence until the new site is commissioned. The new site is scheduled to be commissioned by the summer of 2004.

Annual Water Consumption:

Currently, the annual water consumption in the community is approximately 292,000 m^3, and this volume is increasing annually. The population of the hamlet is expected to increase to approximately 2907 during the period of this licence. Consumption is then expected to increase to approximately 377,819 m^3 annually over the next ten years.

(5) Type of Undertaking:

Municipal

(6) Water Use:

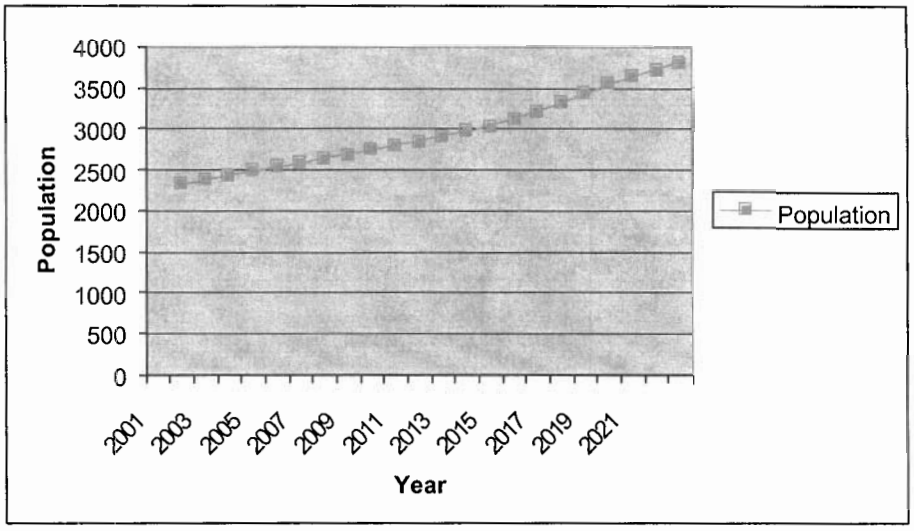
To obtain Water

(7) Quantity of Water Involved:

Population Estimates:

The Nunavut Bureau of Statistics has released population estimates for the Hamlet of Rankin Inlet. The population is estimated to be 2327 in the Year 2001 and to be growing at 2.37 % per year. The population by ethic distribution is 79% Inuit and 19% non-aboriginal. The population by age and sex distribution is as follows: 0-4 (15%), 5-14 (23%), 15-64 (60%), 65+ (2%); 52% male and 48% female. Figure 1 show the expected rate of growth for the Hamlet over the next twenty years.

Figure 1 – Population Growth for the Hamlet of Rankin Inlet



Average 2001 water consumption is about 800 m^3 per day corresponding to an annual water consumption of 292,000 m^3. Table 1 provides a water use projection using the population growth rate. At the end of the 10-year water licence the water use will be approximately 377,819 m^3 per year.

Therefore, the Hamlet requests an annual water use rate of 380,000 m^3.

Table 1 – Water Demand Projections

Planning Year	Calendar Year	Total Population #	Daily Projected Volume m^3	Annual Projected Volume m^3
	2001	2327	800.00	292,000
0	2002	2376	818.96	298,920
	2003	2432	838.37	306,005
	2004	2483	858.24	313,258
	2005	2527	878.58	320,682
	2006	2576	899.40	328,281
5	2007	2629	920.72	336,063
	2008	2683	943.54	344,392
	2009	2734	964.88	352,181
	2010	2791	987.74	360,525
	2011	2848	1011.15	369,070
10	2012	2907	1035.12	377,819
	2013	2970	1059.65	386,772
	2014	3030	1084.76	395,937
	2015	3120	1110.47	405,322
	2016	3213	1136.79	414,928
15	2017	3314	1163.73	424,761
	2018	3429	1191.31	434,828
	2019	3537	1219.55	445,136
	2020	3633	1248.45	455,684
	2021	3719	1278.04	466,485
20	2022	3807	1308.33	477,534

(8) Waste Deposited:

Sewage:

The current volume for the year 2001 of sewage generated by the Hamlet of Rankin Inlet is 292,000 m^3 annually corresponding to the annual water use. The community is applying for a 10-year water licence. In 2012, the annual volume of sewage generated by the Hamlet of Rankin Inlet will be 379,038 m^3.

Sludges:

Sludges are generated through the mechanical system. The sludges are taken to the municipal dump and put into a landfill site for disposal.

Solid Waste:

The current solid waste disposal site in the community is an open dump/landfill. The waste that is deposited is spread with a bulldozer weekly or more if required. Covering with granular materials occurs only once a year because it is expensive for the community.

The study prepared for the Municipality of Rankin Inlet by Stanley Consulting Group and NorthTech Consulting details the types of solid wastes generated by the community as well as the composition, quantity, and current methods of treatment and disposal. In addition, this study suggests options and recommendations for the new solid waste disposal site.

Bulky Waste:

The hamlet does have an area set aside for bulky scrap metal. However, there is no operation plan in place to deal with this type of waste.

Animal Carcasses:

The community has an animal carcass pit located towards the back of the solid waste site. When an animal is disposed of it is covered with dirt.

(9) Persons or Properties Affected by this Undertaking:

Land Use Permit

DIAND 2000/07/27

Regional Inuit Association

Commissioner

(10) Predicted Environmental Impacts of Undertaking and Proposed Mitigation:

The disposal of solid waste may have local site effects due to the clearing of vegetation, and contamination at the site. In addition, there may be some contamination of groundwater.

Procedures such as the segregation of wastes, promotion of recycling or salvaging will be used to minimize the volume of disposed solid waste. Fencing will be installed to limit the spread of debris by wind and will be used to reduce litter.

The disposal of sewage may have local site effects due to the increased nutrients available. The Hamlet Council has expressed some concern about the raw sewage that is

being discharged into the ocean. However, the Department of Public Works has assured the Council that this is done at acceptable rates.

(11) Contractors and Sub-Contractors:

None.

(12) Studies Undertaken to Date:

1. Facey, R. M., and Smith, D. W., Northwest Territories Water Quality Study, Rankin Inlet, N.W.T., for MACA, July 1991.

2. Reid Crowther and Partners Ltd., Water and Sewer Infrastructure Assessment, Rankin Inlet, Nunavut, for Hamlet of Rankin Inlet, May 1999

3. Stanley Associates Engineering Ltd., Sewage Disposal Facilities – Final Design Report, for Dept. of Public Works and Services, GNWT, October, 1994.

4. Stanley Associates Engineering Ltd., Nipissar Lake Watershed Model, for Dept. of Public Works and Services, GNWT, February 1996

5. Stanley Consulting Group and NorthTech Consulting Nunavut Ltd., Rankin Inlet Solid Waste Study, for the Municipality of Rankin Inlet, 2001

(13) Proposed Time Schedule:

Multi-year

Start Date: 2002 Completion Date: 2012

(14) Other Relevant Information to the Water Licence Application:

Operations and Maintenance Manuals

During the summer of 2005 after the new solid waste site has been commissioned, an operations and maintenance manual in addition to as-built drawings will be completed. This manual will address all issues related to the current operation of the facility, ongoing management, and future growth of the facility.