Igloolik Water License Application

prepared for:

The Hamlet of Igloolik
Nunavut, Canada

prepared by:

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FSC Project No: 2002-1000-053

Date: January 2003

EXECUTIVE SUMMARY

Enclosed is a water licence application for the hamlet of Igloolik, Nunavut. The Hamlet is seeking a five year water licence, valid through 2008, to obtain water for municipal use from South Lake and Airport Lake. The projected population for Igloolik in 2008 is 1498 people, which corresponds to a water use projection of 67 million litres in that year. Thus, the Hamlet requests an annual water use rate of 67.5 million litres.

Water is stored in a 76,265,000 litre reservoir beside Airport Lake and is drawn from surface runoff flowing into South and Airport Lakes. Capacity of the reservoir will be sufficient for the Hamlet for a twenty-year period. Floridation of the water occurs before the water is pumped into the reservoir. Water is chlorinated at the truckfill station using a hypochlorinator.

Liquid sewage is treated in a series of exfiltration ponds located 1.6 km north of the Hamlet. These ponds are currently at capacity and are in the process of being upgraded (FSC 2001).

The Solid Waste disposal site is located 1.5 km north of the community. The site has a separate modified landfill (10,000 m^2) and bulky metal waste areas (15,000 m^2). The only concern noted is the lack of a fence around the landfill leading to windblown waste.

Overall, this project will not substantially affect the quality, quantity, or flow of water through Inuit Owned Lands.

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Section 1
Water Licence Application Form

P.O. BOX 119
GJOA HAVEN, NU X0E 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369
KATIMAYINGI

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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

Hamlet of Igloolik
P.O. Box 30
Igloolik, NU, Canada
X0A 0L0

Phone: 867-934-8830
Fax: 867-934-8757
e-mail: _____

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

Phone:_____
Fax: _____
e-mail: _____

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

Latitude: 69 ° 23' N Longitude: 81° 46' W NTS Map No. 47D/7 Scale 1:50,000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

The Hamlet's sewage lagoons are currently in the process of being redesigned and rebuilt.
The solid waste site has problems with wind blown refuse, requiring installation of a perimeter fence.

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): _____

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)

154,000 litres/day in 2002,
181,000 litres/day in 2008

The community is requesting an annual volume of 67,500,000 litres.

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

_√_ 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)

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.)

NIRB Screening __ Yes _√_ No If no, date expected _____

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)

N/A

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

Igloolik Sewage Lagoon, FSC 2002

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: 2003 Completion Date: 2008

__Lucas Ivvalu___	_Senior Administrative Officer	_____	_____.
Name (Print)	**Title (Print)**	**Signature**	**Date**

For Nunavut Water Board use only

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

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

Section 2
Information for the Water Licence Application

Information for the Water License Application for the Hamlet of Igloolik

INAC inspection reports state that the licence # is NWB3IGL9803

(1) Name and Mailing Address of Applicant /Licensee:

The Hamlet of Igloolik
P.O. Box 30
Igloolik, Nunavut
X0A 0L0

Phone: 867-934-8830
Fax: 867-934-8757

(3) Location of Undertaking:

Igloolik is located on Igloolik Island, in the Foxe Basin lowlands, at 69°23′ N latitude and 81°46′ W longitude. It is bounded on the north by the Fury and Hecla Straits and separated from the Melville Peninsula to the south by Hooper Inlet. Igloolik is 362 air km northeast of Repulse Bay and 1641 air km northeast of Yellowknife.

The glaciation, which shaped the landscape, retreated from this region five thousand years ago. The Island is composed of a dolomitic conglomerate, with sandstone, dolostone and siltstone interspersed throughout. Predominant features on the Island are the east and west ridges called "buttes".

Igloolik is very low, heavily-ponded and has extensive tidal foreshore flats. Most surficial deposits make up a thin layer on the Palaeozoic beds, with raised beaches being the most common features. Any drift deposits are subject to extensive frost action. Permafrost is present throughout the active layer, averaging 0.7 m in depth.

Mosses, lichens, and grasses are the predominant vegetation species found.

Igloolik's Arctic summer rarely lasts longer than three months. A true arctic desert location, precipitation in snowfall averages 19.1 cm per year. July mean high and low temperatures are 7.8° C and 3.3° C. January mean high and low temperatures are -23.3° C and -32.8° C. The winds are generally north and annually average 21 km/h.

Igloolik is one of the few locations in the Arctic that provides evidence of uninterrupted Inuit habitation. Among the many cultures of Inuit who settled there, the oldest are the Sarqaq (Denbigh) and Dorset peoples.

Thomas Button, a 17th-century explorer, first made European contact with the Iglulik Eskimo. In 1823, Captain W.E. Parry spent the winter at Igloolik. During the second half of the 19th century, whalers occasionally penetrated through the pack ice and into the Foxe Basin. In 1937, the Roman Catholic Mission was established. The Hudson Bay Trading Post followed in 1939. During the

1940's, the addition of a school and a government building led to Igloolik's emergence as a settlement of major status in the Baffin Region. The establishment of the DEW-line station at Hall Beach also impacted the economy of Igloolik.

The community remains very traditional. Marine mammal harvesting, hunting, fishing, and trapping are the major economic activities. The sale of handicrafts has helped to aid the tourism industry. Despite little private sector activity, the community has more Inuit business ownership than elsewhere in the Baffin. Some local businesses include building contractors, taxis, general retailers, food sales, sporting goods, hotels, outfitters, restaurants, and amusement centres. The Science Institute of the Northwest Territories operates a science laboratory in the Community.

Igloolik gained Hamlet status on April 1, 1976. The traditional name of the Community, "Iglulik", means 'place of houses'.

(4) Description of Undertaking:

Water Supply and Treatment:

Prior to the construction of the new reservoir, three sources were used for potable water, depending upon seasonality:

- Airstrip Lake from late May to July following the spring thaw. Its recharge is not sufficient to supply the community year-round. The lake freezes to the bottom in winter;

- North Lake was the source from July to September. Its use was limited due to its shallow depth; and

- East Lake was used during the winter. It is 3 - 6 m deep, 2.4 km long, and has a large capacity. However, it is only accessible by winter road across Turton Bay.

The present source of water is surface runoff entering South Lake and Airport Lake, at a point about 3.5 km from the community. The intake screen at South Lake is positioned approximately 2 m below the surface of the lake. The system to fill the reservoir near Airport Lake is used only during the summer months. A portable pump used to pump water to the pump house has replaced the skid-mounted portable pump house, which was used for this task previously.

The truck fill station contains a Wallace and Tiernan Series A-745 hypochlorinator and other equipment. Fluoridation injection equipment was installed in 1990 to provide fluoride solution to the raw water en route to the reservoir. Fluoridation has been discontinued in recent years (2001 INAC report)

Water Storage and Distribution:

In 1979-80, a water reservoir was built beside Airport Lake. The reservoir, designed to provide an accessible year-round water supply, had its capacity increased (1991-92) by blasting.

Water is pumped 2 km from the South Lake pumphouse to the reservoir, located near the airstrip; the water mixes with the water from Airport Lake. Although the watersheds are relatively small, sufficient annual recharge is available to supply the Hamlet over a 20-year period. The estimated capacity of the reservoir is 76,265,000 L. A pumping station and truckfill point are located at the reservoir.

All water used in Igloolik is supplied by a trucked system. Individuals, who melt snow for drinking water, supplement the delivered supply, to some extent. Actual consumption rates are generally higher than the delivered rates.

Water delivery is provided by the Hamlet using three water trucks, a 1986 model (4546 L), a 1988 model (5683 L) and a 1992 model (6819 L). Homes with pressure systems receive water every other day, while those homes using bagged sewage service receive water twice per week. Water is trucked approximately 3.5 km from the fill point to the residential area. All water deliveries are metered.

Water Quality:

There are no major concerns with Igloolik's water supply. Refer to 2002 INAC inspection report.

Sewage Collection and Disposal:

Two trucks (4546 L and 6810 L) are used to collect pumpout sewage. Bagged sewage, stored in 204 L barrels, is collected by the Hamlet stake truck, a Ford model F-350 (1980). A couple of households are still on the bagged sewage system and eventually will be converted to the pumpout system.

The sewage treatment site is located 1.6 km north of the Hamlet, directly beside the landfill. Currently the lagoon consists of three active cells with a working volume of 17, 000m^3. The honey bag pit is at the north end of the lagoon. It has a volume of 10,000 m^2.

Solid Waste Collection and Disposal:

Garbage is stored in wooden boxes in front of each home prior to collection. At least twice per week a two-person crew uses the Ford model F-350 stake truck to collect wastes. The same vehicle is used to collect bagged sewage wastes twice per week. Each year the community participates in a spring clean up.

The solid waste management site is located 1.5 km north of the community. The site has a separate modified landfill (10,000 m^2) and bulky metal waste area (15,000 m^2). Waste oil and other hazardous materials are segregated from the main waste stream.
When possible, wastes are burned daily. Once per year the site is compacted and covered with gravel.

The only recommendation offered in the 2002 INAC Municipal Water Inspection Report was that a fence be erected at the site to contain windblown debris.

(5) Type of Undertaking:

Municipal

(6) Water Use:

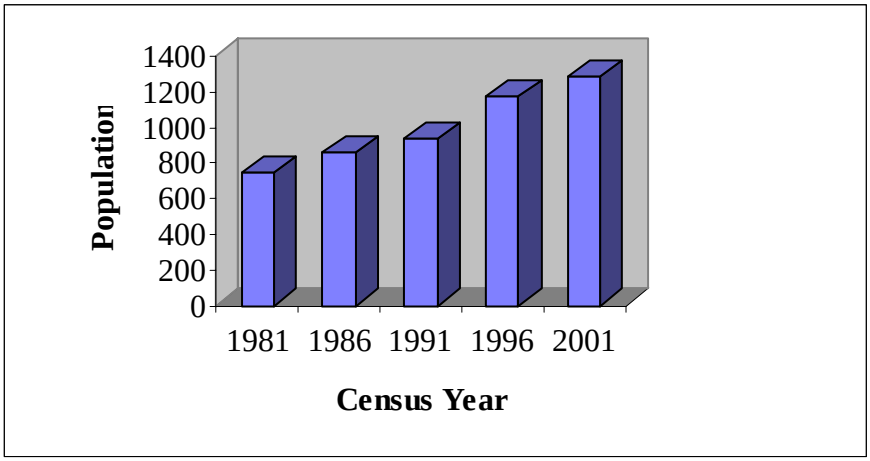
To obtain water

(7) Quantity of Water Involved:

Water Generation Projections:

The 2001 Census report shows the population of the hamlet to be 1286. A per capita growth rate of 2.20% was determined from data found in "Nunavut: Community Population Projections 2000-2020". Figure 1 illustrates the population increase.

Figure 1 - Population Increase in the Hamlet of Igloolik



Water Use Projection:

CG&T planning guidelines suggest that the increase in the projected per capita water use in a trucked service community should be modeled as follows:

(1) RWU x (1.0 + (0.0023 x Population)) Population <2000

The RWU or residential water use is estimated to be 90 litres per capita (Lpcd) for populations lower than 2000.

Ln is the natural logarithm.

The water use is projected as follows:

- The current amount of water use was estimated to be 56,967,890 L annually. This corresponds to a per capita water use of 116.6 Lpcd.

- In the year 2008, the per capita water use would be 122.5 Lpcd corresponding to an annual water use of 66,988,366 L.

Therefore, the community is requesting an annual volume of 67,500,000 litres.

Table 1 - Water Use Projection for the Hamlet of Igloolik

				Daily	Annual
Planning	**Calendar**	**Total**	**Projected**	**Projected**	**Projected**
Year	**Year**	**Population**	**Water Use**	**Volume**	**Volume**
		#	Lpcd	Litres	Litres
	2001	1286	116.6	149,974	54,740,356
0	2002	1314	117.2	154,043	56,225,587
	2003	1343	117.8	158,236	57,755,991
	2004	1373	118.4	162,556	59,333,117
	2005	1403	119.0	167,010	60,958,573
	2006	1434	119.7	171,600	62,634,031
5	2007	1465	120.3	176,332	64,361,223
	2008	1498	121.0	181,211	66,141,948
	2009	1531	121.7	186,241	67,978,077
	2010	1564	122.4	191,429	69,871,548
	2011	1599	123.1	196,779	71,824,379
10	2012	1634	123.8	202,298	73,838,662

(8) Waste Generated:

Sewage:

Sewage generation is assumed to equal water use. For Igloolik in 2002 the volume of sewage generation is 56,967,890 litres corresponding to the annual water use. In 2008, the annual volume of sewage generated by the hamlet of Igloolik will be 66,988,366 litres.
The sewage treatment lagoon, first used in 1989, is located 1.6 km north of the Hamlet, directly beside the landfill. The honey bag pit is at the north end of the lagoon. It has a volume of 10,000 m². Honey bag materials are buried annually.

The sewage treatment system was designed as an exfiltration lagoon. In this design, sewage discharged to the lagoon in winter would freeze and be retained. In the spring the sewage would melt and liquid would exfiltrate. Sewage solids would be retained in the lagoon. Exfiltrated liquid discharges over a wetland area where some additional treatment is provided.

The three active cells have a working volume of approximately 17,000 m^3. The sewage lagoon is approximately 0.4 km from the ocean. The wetland, comprised of mosses, grasses and sedges, appears to be healthy and flourishing.

The cells are near maximum capacity. The fourth cell has been built for overflow and it is in the process of being commissioned. It will have a working volume of between 1,500 m^3 and 2,000

m^3. (Igloolik Sewage Lagoon, FSC 2002)

According to INAC's August 2002 Inspection Report, effluent samples collected 100 yards downstream were within the parameters of the Municipal Water Licence.

Solid Waste Treatment:

The solid waste management site is located 1.5 km north of the community. The site has separate modified landfill (10,000 m²) and bulky metal waste areas (15,000 m²). When possible, wastes are burned daily. Once per year the site is compacted and covered with gravel.

Solid Waste Volume Projections:

The types and quantities of materials in the Igloolik waste stream available for reuse, recycling, recover and composting programs was estimated in by reviewing current information and by literature.

A recent solid waste composition study has not been conducted in Igloolik. The literature provides an insight. The Heinke and Wong study (1989) used by MACA in their planning studies to determine waste volumes suggests a certain volume and mix of MSW.

A study by Quay and Heinke (1992) in Inuvik, Tsiigehtchic, and Fort McPherson suggests similar waste stream mix shown in the table that follows.

Table 2 - Estimated Solid Waste Composition

Food Wastes	20.3 %
Cardboard	9.8 %
Newsprint	2.4 %
Other Paper Products	14.8 %
Cans	4.4 %
Other Metal Products	6.2 %
Plastic, Rubber, Leather	14.0 %
Glass, Ceramics	5.7 %
Textiles	3.8 %
Wood	9.9 %
Diapers	3.8 %
Dirt	4.9 %
	100.0 %

NAPP Protocol

The National Packaging Protocol is an initiative by CCME in 1992 to respond to municipalities and the public over the proliferation of disposable consumer packaging. While per capita consumption of new packaging has decreased overall in the south where the data was generated, the implications for the North and, specifically, for Igloolik is not as clear.

Southern reductions were primarily a result of recycling, an opportunity not available in Igloolik. It is assumed that packaging for shipping foodstuff and consumer products has increased proportionately with population.

However, southern data for post-consumer packaging has shown an increase for various "sectors" of between 100 to 200 percent over a 5-year period (1992-1996). These sectors include: accommodation, food & beverage, amusement, and recreational services; retail; aluminium packaging; plastic; and paper sacks and bags. This data may have a direct implication in Igloolik for increased quantities of waste as the data may transfer directly to current disposal practices.

The classes, "Other paper products", "Cans", and "Plastic, Rubber, Leather" may represent the increasing sectors as per the NAPP data. These first two classes currently account for approximately 19.2% of the estimated waste stream in Igloolik. If it can be assumed equal contribution from each waste in the third stream, then plastics account for an additional 5%. It appears then, increasing packaging impacts on approximately 24% of the waste stream. Assuming worst case, then, the 200% increase over 5 years is about 40% per year and causes an overall increase of approximately (40% of 24%) 10% per year. This value may over estimate the additional contribution and is unlikely to remain at this level during the entire planning horizon.

Regardless, it is prudent to assume some increase during the planning horizon not directly attributed to a population increase, assuming that recycling programs may not be cost-effective, or implemented in Igloolik.

Therefore, a 1% increase in the overall garbage generation rate has been incorporated in the volume estimations.

The following assumptions were made to prepare this table:

- Per capita volume described by Heinke and Wong (1990) has been increasing at a rate of 1 % per year
- The per capita population growth rate of the Hamlet of Igloolik is 2.20% per year.
- The waste density is 0.099 tonnes/m^3 (Bryant et al., 1996)

Table 3 - Solid Waste Projection estimates for the Community of Igloolik

Planning Year	Calendar Year	Total Population	Projected Daily Rate (m3pcd)	Projected Daily Volume (m3/day)	Projected Daily Weight (tonnes)	Projected Annual Volume (m3/day)	Projected Annual Weight (tonnes)	Running Total m3
	2001	1268	0.014	17.8	1.8	6479	641	6479
0	2002	1296	0.014	18.3	1.8	6688	662	13167
	2003	1324	0.014	18.9	1.9	6904	683	20071
	2004	1354	0.014	19.5	1.9	7126	705	27197
	2005	1383	0.015	20.2	2.0	7356	728	34553
	2006	1414	0.015	20.8	2.1	7593	752	42146
5	2007	1445	0.015	21.5	2.1	7837	776	49983
	2008	1477	0.015	22.2	2.2	8090	801	58073
	2009	1509	0.015	22.9	2.3	8351	827	66424
	2010	1542	0.015	23.6	2.3	8620	853	75044
	2011	1576	0.015	24.4	2.4	8897	881	83941
10	2012	1611	0.016	25.2	2.5	9184	909	93125

Solid Waste Water Runoff Quality:

According to INAC inspection reports, no leachate was detected during the 2001 and 2002 visits to the facility.

Bulky Waste:

Bulky wastes are stored in a separate area (15,000m²) at the solid waste disposal site.

Honey Bag Pit:

There are still a couple of housing units with honey bag service. The honey bag pit located at the north end of the lagoon has a volume of 10,000 m². Honey bag materials are buried annually. (Igloolik Sewage Lagoon, FSC 2002)

Waste Oil:

The waste oil in the community and some from the Nunavut power corporation are burned in a furnace in the Hamlet garage.

Hazardous Waste:

There is a sealift container in place for collecting other hazardous materials.

(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

(12) Contractors and Sub-Contractors:

None

(13) Studies Undertaken to Date:

Igloolik Sewage Lagoon, FSC 2002

(14) The Following Documents must be Included With the Application for the Regulatory Process to Begin:

Supplementary Questionnaire (where applicable: see section 5)	Yes
Inuktitut/English Summary of Project	Yes
Application Fee of $30.00 (c/o Receiver General for Canada)	Yes

Section 3
Water Licence Application
Supplementary Questionnaire
For Municipalities

P.O. BOX 119
GJOA HAVEN, NT X0E 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

kNK5 wmoEp5 vtmpq
NUNAVUT WATER BOARD
NUNAVUT
MALIRIYIN KATIMAYING

Water Licence Application
Supplementary Questionnaire
for Municipalities

I. GENERAL

1. Date:

2. Applicant:

Municipality and Region: The Hamlet of Igloolik, Igloolik Island, Nunavut

Contacts:

Name of Contact: Lucas Ivvalu
Position: Senior Administrative Officer
Telephone: 867-934-8830
Fax: 867-934-8757

4. Community Status:

__ Village
__ Town
__ City
√ Hamlet
__ Settlement Corporation

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

√ New Application
__ Renewal Water Licence #

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
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
j. Outline drainage basin
k. Traditional use areas outlined on site map and areas around the community used for recreation, camping, fishing, etc.

l. Abandoned and/or restored water treatment, sewage, and solid waste disposal facilities.

Are maps attached?

√ Yes ___ No

If no, please indicate when they will be available.

Indicate which organization has provided the various maps or diagrams.

III. WATER SUPPLY

Water Source

1. Type of source:

   √ Lake
   ___ River
   ___ Well
   ___ Other

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

   Primary Source: South Lake and Airport Lake
   Secondary Source:

3. Usual break-up & freeze-up period:

   Break-up:
   Freeze-up:

Water Intake

1. Please provide short descriptions for the following:

   a. Freshwater intake facility

   The present source of water is surface runoff entering South Lake and Airport Lake, at a point about 3.5 km from the community. The intake screen at South Lake is positioned approximately 2 m below the surface of the lake. The system to fill the reservoir near Airport Lake is used only during the summer months. A portable pump is used to transfer water to the pump house

b. Operating capacity of pumps used:

c. Intake screen size

Water Storage

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

√ Reservoir/Pond
___ Storage tank
___ None
___ Other

Description:

2. If "reservoir" checked:

Is the reservoir lined?

What type of liner?

When was it installed?

Water Treatment

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.

According to the 2002 INAC inspection report, there are no major concerns with Igloolik's water supply.

3. Type of water treatment.

___ Filtration and chlorination
√ Chlorination only
___ None
___ Other

Describe:

The truckfill station contains a Wallace and Tiernan Series A-745 hypochlorinator and other equipment. Fluoridation injection equipment was installed in 1990 to provide fluoride solution to the raw water en route to the reservoir. Currently the water supply is not being fluoridated.

Water Use And Distribution

1. Volume of water use:

Distribution	Estimated number of people on the system **A**	Estimated average water consumption (Litres/capita/day) **B**	Total water consumption (Litres/day) **A x B**
PIPED			
TRUCKED	1314	117.2	56,225,587
TOTAL			

General Condition of the water supply facilities

1. General condition of the:

Water supply facility

_√_ Satisfactory __ Unsatisfactory

If unsatisfactory, explain

b. Storage facility

_√_ Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

c. Distribution system

_√_ Satisfactory ___Unsatisfactory

If unsatisfactory, explain.

Modifications

1. Are there any changes *planned* for the water supply system?

_√_No ___Yes

If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

2. Does the community believe changes needed to the water supply, storage or treatment facilities? Describe.

Identification

1. Are there signs identifying drinking water sources presently used by the municipality?

_√_ Yes __ No

(warning sign at reservoir and SNP at South Lake)

IV. SEWAGE DISPOSAL

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

_√_ Lagoon
___ Mechanical system
_√_ Wetland
_√_ Honey bag
___ Combination/Other: describe:

Currently the lagoon consists of three active cells with a working volume of 17, 000 m^3. There is a new (fourth) cell for overflow. It is estimated that it will have a working volume of 1,500 m^3 to 2000 m^3. (Igloolik Sewage Lagoon, FSC 2002)

There is limited Wetlands treatment of liquid exfiltrating from the lagoon.

There are still a couple of residences on the honey bag system.

Lagoon *(if applicable)*

1. Have there been any operating problems with the lagoon?

_√_ Yes ___ No

If yes, describe

There is trouble with seepage from two of the cells.

Mechanical System *(if applicable)*

1. 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:

Wetland *(if applicable)*

1. Describe the Wetland wastewater treatment system

   Liquid sewage exfiltrates from the lagoon, to the wetland area populated with mosses, grtasses and sedges

Honey Bag Pit

1. Does the municipality use a honey bag pit?

   _√_ Yes _ _ No

   If yes, describe the location, drainage and operation/maintenance of the site:

   The honey bag pit, 10,000 m² is located, on the north side of the sewage lagoon. Materials are buried annually.

Commercial, Industrial and/or Hazardous Wastes

1. Are there any sources of commercial or industrial *liquid* waste being discharged or deposited to the wastewater treatment system that may affect the quality of the effluent or leachate produced? *(The municipality should be aware that any commercial or industrial discharge has to be approved by the municipality)*

   ___ Yes _√_ No

   If yes, indicate sources, types and quantities.

Sewage Discharge

1. Are fish, shellfish and other wildlife harvested in or near the discharge area?

   ___Yes __ No

General Condition of the sewage treatment facilities

1. General conditions

a. Sewage collection system

_√_Satisfactory ___ Unsatisfactory

If unsatisfactory, explain.

b. Discharge control system

___ Satisfactory _√_Unsatisfactory

If unsatisfactory, explain.

Problems with discharge from two of the cells, pumps were used to transfer waste water to the more functional cell.

c. Dams, diversion dykes, berms

___ Satisfactory _√_ Unsatisfactory

If unsatisfactory, explain.

There are serious erosion issues with most of the cells. There is also prevalent longitudinal cracking around the rims of the cells (up to 0.3 m wide a 5+ m long). (Igloolik Sewage Lagoon, FSC 2002)

Modifications

1. Are there any changes *planned* in the sewage treatment facilities?

_√_ No __ Yes

If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

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

Abandonment and Restoration

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

Identification

Are there signs identifying past and present sewage disposal sites?

__ Yes √ No

V. SOLID WASTE DISPOSAL

1. Briefly describe how solid wastes are collected and delivered to the disposal area.

   Garbage is stored in wooden boxes in front of each home prior to collection. At least twice per week a two-person crew uses the Ford model F-350 stake truck to collect wastes. The same vehicle is used to collect bagged sewage wastes twice per week. Each year the community participates in a spring clean up.

2. Is the solid waste site fenced?

   __ Yes √ No

3. Is the fence adequate?

   __ Yes __ No

   If no, describe:

Waste Reduction

1. Does the municipality burn garbage?

   √ Yes __No

   If yes, describe how and when this is done.

   All refuse is burned in this area when the wind is blowing away from town. Once per year the site is compacted and covered with gravel.

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

   ___ Yes √ No

   If yes, describe

Animal Carcasses Pit

1. Does the municipality have an area for the disposal of animal carcasses?

__ Yes _√_ No

If yes, describe the location, drainage and operation/maintenance of the site

Waste Oil Pit

1. Describe the waste oil storage area.

Waste oil is disposed of in the municipal garage furnace.

Bulky Scrap Metal Waste Disposal Area

1. Does the municipality have a scrap metal or bulky waste disposal area?

_√_ Yes __ No

The site has a separate bulky metal waste area (15,000 m²)

Commercial, Industrial and/or Hazardous Wastes Disposal Area

1. Are there any commercial or industrial waste being discharged or deposited in the solid waste disposal area? *(The municipality should be aware that any discharge of commercial or industrial waste has to be approved by the municipality)*

___ Yes ___ No

If yes, please indicate sources, types and quantity.

2. Will the municipality use a hazardous waste storage area?

_√_Yes ___ No

If yes, describe:

a. Location Solid Waste Disposal Site

b. Structure Sealift Container

c. Operation and maintenance

General Condition of the Solid Waste Disposal Area

1. Comment on the general conditions of the:

a. Solid waste disposal area

_√_Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

Modifications

1. Are there any changes planned for the solid waste disposal area?

_√_ No __Yes

If yes, attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

2. Are changes needed to the solid waste disposal area? Describe.

The dump area should be fenced to contain wind blown debris.

Abandonment and Restoration

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

Identification

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

___ Yes _√_ No

VI. INSPECTION AND MONITORING

1. When were municipal facilities inspected by:

_√_Indian and Northern Affairs Inspector Date: August 21, 2002
___Community Government and Transportation Date:
___Other: Date:

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

_√_ Yes ___ No

If yes, describe.

RWED's spill line.

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?

See attached spill report.

Monitoring Program

1. Is water sampling and analysis done?

_√_Yes ___No

If Yes, answer questions a through e

a. Briefly describe how samples are taken and sent to the laboratory.

Done by INAC, reports attached

b. Briefly describe any monitoring done for wastewater effluent and leachate.

Done by INAC, reports attached

c. Who is responsible for water sampling?

Name:
Position:
Telephone:
Fax:
Level of training:

d. Recognized laboratory performing analysis of samples.

Name: Taiga Environmental Laboratory
Address: 4601 52nd Ave. PO Box 1500
Yellowknife, NT, Canada, X1A 2R3
Telephone #: (867) 669-2788
Fax #: (867) 669-2718

e. Are any changes planned in the water quality monitoring program?

___ Yes ___No

If yes, describe.

VII. PUBLIC CONCERNS

1. What concerns does the municipality or residents have regarding the municipal water supply 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.

1. Date:
2. Municipality:
3. Contact: Phillip Reeve
   Telephone: (867) 975-4815
   Fax: (867) 975-4830

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

Fencing is needed to prevent windblown wastes from contaminating surrounding areas.

Monitoring Program

1. Does the Regional Health Board perform water quality sampling?

___No ___ Yes

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.

1. Date:
2. Municipality:
3. Contact:
   Telephone #
   Fax #
4. Population (according Hamlet Government):
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.

   Prepared by:
   Title:
   Completion Date:

If no, are such studies being planned?

_√_No __Yes

If yes, specify:

Attachments

1. Attach detailed plan or drawing(s) of the present *solid waste disposal area*. Include the following information:
   a. Details of pond size and elevation:
   b. Details of all retaining structures:
   c. Details of the drainage basin, and existing and proposed drainage modifications:
   d. Details of all decant, siphon mechanisms etc., 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 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:
   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, including volumes (m^3/day) and directions:
   f. The volume of seepage flow (m^3 / day):
   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:

What is the average elevation of the drainage basin?

50 m to 0 m (drains to Foxe Basin)

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.)

The glaciation, which shaped the landscape, retreated from this region five thousand years ago. The Island is composed of a dolomitic conglomerate, with sandstone, dolostone and siltstone interspersed throughout. Predominant features on the Island are the east and west ridges called "buttes".

Igloolik is very low, heavily ponded and has extensive tidal foreshore flats. Most surficial deposits make up a thin layer on the Palaeozoic beds, with raised beaches being the most common features. Any drift deposits are subject to extensive frost action. Permafrost is present throughout the active layer, averaging 0.7 m in depth. Mosses, lichens, and grasses are the predominant vegetation species found.

3. Channel characteristics:

Is the course of any channel changed?

____ Yes _√_No

If yes, describe measures to maintain streambed 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?

2. Is water drawn from the source

_√_ intermittently
___continuously

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

The system to fill the reservoir near Airport Lake is used only during the summer months.

4. For what period is it drawn (days/weeks/months)? *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.

There should be sufficient annual recharge to moderate effects of water usage.

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?

3. Does the proposed dam create a reservoir in a natural watercourse?

If yes, what is the storage capacity and surface area of the reservoir?

Approximately 76,265,000 L.

4. Will the dam or dyke affect fish migration or movement?

   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:

   Water is treated at truck fill station

2. What is the capacity of the water storage facility:

   76,265,000 L (reservoir)

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.

   The truckfill station contains a Wallace and Tiernan Series A-745 hypochlorinator.

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:

   _√_ primary
   ___ secondary
   ___ tertiary

   Pre-treatment (if applicable):

   ___ screening
   ___ maceration

Lagoons (if applicable):

___ anaerobic
___ aerobic
___ facultative

2. Indicate the capacity of the sewage treatment facility:

   17,000 m^3

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

   With implementation of planned changes the facility will meet 20 year requirements. (Igloolik Sewage Lagoon, FSC 2002)

4. Average depth of the wastewater lagoon

5. What is the design freeboard:

6. Indicate the retention time of the sewage while in the treatment facility
   days:

7. Indicate the estimated rate of discharge of wastewater:

8. Indicate the location of the discharge point:

9. Is the discharge:

   _√_ seasonal
   ___ continuous

   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

1. Indicate the capacity of the disposal area: 10,000 m^2

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

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

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

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?

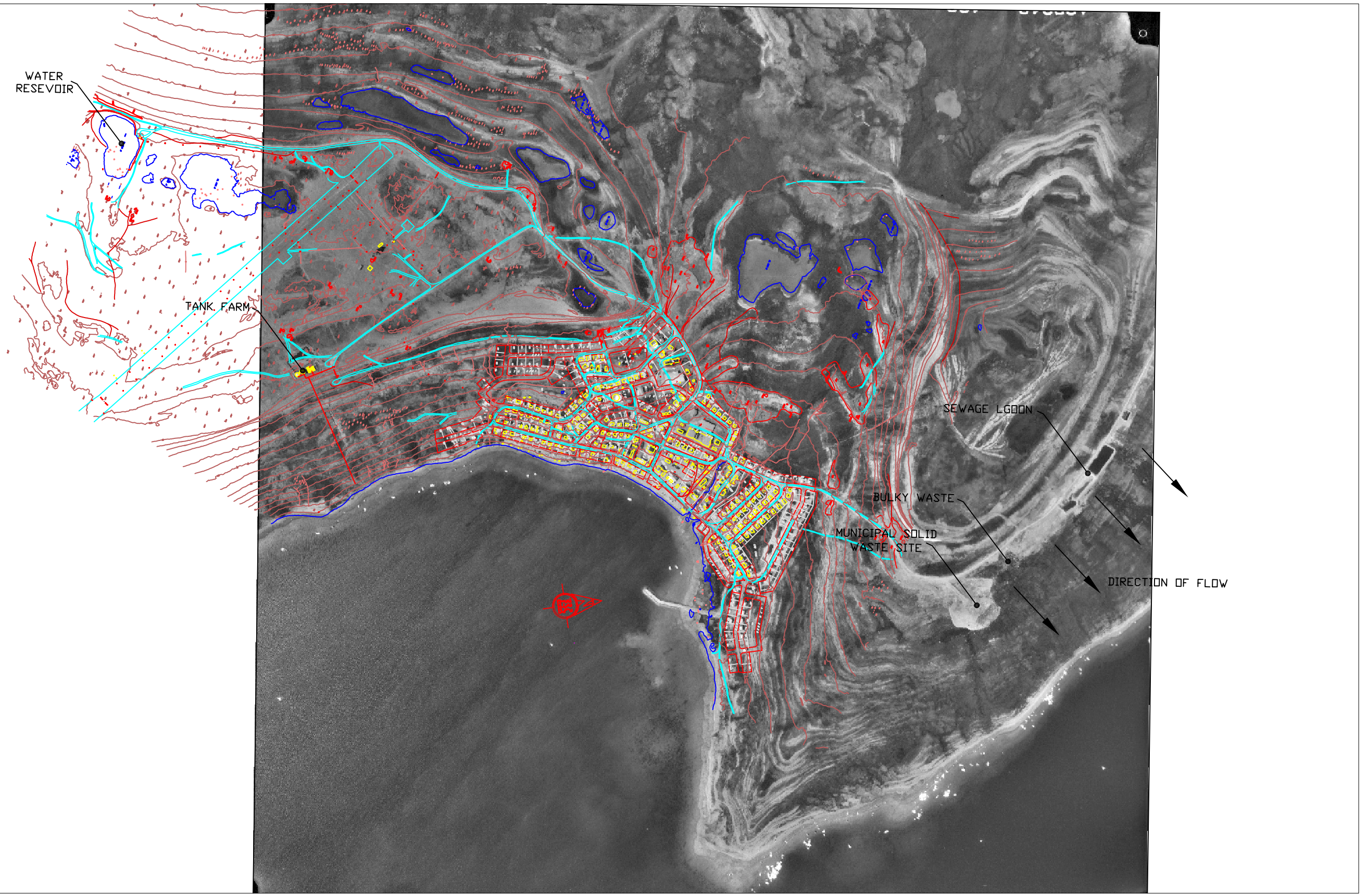
   __ No __Yes

   If yes, attach a copy of the plan or indicate changes and include an implementation schedule. Include excerpt from MACA Capital Plan if available.

Other

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

Appendix 1
Maps and Drawings



FSC GROUP

FERGUSON SIMEK CLARK

ENGINEERS AND ARCHITECTS

NO	REVISION	DATE	BY	APP'D

JOB TITLE

IQLOOLIK
WATER LICENCE

IQLOOLIK, NU

DRAWING TITLE

IQLOOLIK
HAMLET FACILITIES
DRAFT

DESIGNED BY: KH	SCALE: NTS
DRAWN BY: KH	DATE: DEC 19, 2002
CHECKED BY: RJK	CLIENT PROJECT NO.
F.S.C. FILE NO.	F.S.C. JOB NO. 2002-1000-053
SHEET 1 OF 1	DRAWING NO 1

Appendix 2
Hazardous Materials Spill Reports

Northwest Territories
Resources, Wildlife and Economic Development

Hazardous Materials Spill Database

Environmental Protection Service of RWED

600, 5102-50th Avenue; Yellowknife, NT X1A 3S8
Phone: (867) 873-7654 Fax: (867) 873-0221

Wednesday, January 08, 2003

Sorted by Spill Number for the year(s) : 1998-2003

Spill No	Spill Date	Region	Location	Description	Commodity	Quantity (L or kg)	Party	Source	Agency
1998141	22-Aug-98	BAF	Igloolik	Hamlet Parking Garage	Diesel Fuel	1136	Two Adolescents	ST<	GNWT
2000143	04-Jun-00	BAF	Igloolik	House #301	Heating Fuel P-50	1137	Unknown	ST<	GN
2001155	08-May-01	BAF	Igloolik	Attagutaluk Elementary School	Diesel P-50	725	-	ST<	GN
2002514	14-Sep-02	BAF	Igloolik	Igloolik Tank Farm	Fuel Oil P-50	0	Igloolik Co-op	TRU	GN

Total Spills on this Report: 4

This report contains information regarding spills that were reported to the NWT 24-Hour Spill Line. The absence of information on any particular location in no way guarantees that contamination has not occurred at that location.

LEGEND

Region:
BAF - Baffin
DEH - Deh Cho
INU - Inuvik
KEE - Keewatin
KIT - Kitikmeot
NSL - North Slave
SAH - Sahtu
SSL - South Slave

Source:
AIR - Aircraft
DRUM - Drum or Barrel
MV - Marine Vessel
NS - Natural Seepage
OTH - Other Transportation
PL - Pipe or Line
RT - Rail Train
SL - Sewage Lagoon
ST< - Storage Tank <4000 litres
ST> - Storage Tank >4000 litres
TP - Tailings Pond
TRU - Truck
UK - Unknown
WELL - Wet Wells Flaring Boom

Agency:
CCG - Canadian Coast Guard
EP - Environment Canada
GN - Government of Nunavut
GNWT - Government of the Northwest Territories
ILA - Inuvialuit Land Administration
INAC-Indian and Northern Affairs Canada
NEB - National Energy Board

Appendix 3
INAC Inspection Reports

INAC, Nunavut District Office
P.O. Box 100
Iqaluit, NU
X0A 0H0

tel.: (867) 975-4275
fax.: (867) 979-6445

Your file / Votre référence

Our file / Notre référence
NWB3IGL9803

September 21, 2001.

Nicolas Arnatsiaq
Senior Administrative Officer
Municipality of Igloolik
P.O. Box 30
Igloolik, NU X0A 0L0

July 12, 2001 Municipal Water Use Inspection - Report

Firstly, I wish to thank David Haulli for the much appreciated time and assistance provided during the tour of the Municipality's water use and waste disposal facilities. Attached for your records is the Municipal Water Use Inspection Report pertaining to the July 12, 2001 inspection; overall, water use and waste disposal facilities appeared quite efficiently managed. However, the following considerations were nonetheless noted and will need to be addressed:

- **Water supply:** No concern was noted at either of the water use facilities. Further, the attached analytical results relating to a sample collected from South Lake indicate that the raw water meets the *Guidelines for Canadian Drinking Water Quality*, save for a slight exception: a field pH value of 8.6, which rests faintly above the 8.5 aesthetic objective.

- **Sewage disposal:** During the inspection it was mentioned that, apprehending overflow from the sewage lagoon cells this past winter/springtime, the municipality had restructured the municipal water delivery calculation in order to decrease the volume of water use, and therefore waste disposal. The Inspector commends the Licensee for taking such a proactive stance, and shares its concerns relating to the impact the high fluid level may have on the integrity of the sewage lagoon berms. Indeed, undeniable signs of erosion were observed along the outer berms of two of the three sewage lagoon cells. As such, cracking of the inner face of cell 3 (figure 1), and slumping of the outer face of cell 2 (figure 2) were noted. However, the berms of cell 1 seemed intact, and seepage along the toe of its berm (figure 3) was the most effective of the three sewage lagoon cells. Accordingly, sewage effluent was sampled along the main discharge path from cell 1 (figure 4). The attached analytical results relating to a sample taken roughly 10 metres from the outer berm reveal that although pH, biological oxygen demand (BOD_5), and total suspended solids are well within licenced thresholds, the concentration of faecal coliform (63 000 CFU/100ml) potentially breaches Water licence NWB3IGL9803 effluent quality standards (10 000 CFU/100ml), set at a station just prior to entering the ocean.

In addition, levels of ammonia (52.5 mg/L vs 2.2 mg/L) and iron (1.43 mg/L vs 0.3 mg/L) exceed the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*. Moreover, the Microtox sample, which constitutes a reliable toxicity indicator (IC_{50}), shows that half of light-producing bacteria were inhibited by a sample concentration of 23.3%, whereas 50% and over is considered non-toxic.

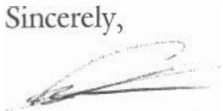
This being said, it was related that plans were underway to build an additional sewage lagoon cell before freeze up, and that an engineer from Community Government and Transportation (CG&T) was expected during the summer pertaining to sewage disposal considerations. At the time of the inspection, the Inspector outlined the need for the Licensee to inform the Nunavut Water Board (NWB) as soon as possible when major water use or waste disposal works are planned; even though the Licensee was told by CG&T officials that their department would handle the work and the dealings with the NWB. The Inspector acknowledges that the Licensee has since notified the NWB, and trusts that in light of the Licensee's generally conscientious approach to waste management, the application can be processed in a timely manner and thus avoid possible complications next winter/springtime.

- **Solid waste disposal:** Other than the installation of a perimeter fence which would minimize the extent of windblown garbage, no obvious improvement appeared necessary at the very adequately managed solid waste disposal facility (figure 5). In parallel, should the Licensee wish to proceed with its plan to bury some of the bulky metal wastes (figure 6) along the roadside to the cemetery area, notification ought to be provided to the NWB so as to ensure that leachate prevention measures are sufficiently assessed.

- **Non-compliance of Act or Licence:** As was pointed out during the inspection, the Licensee has not provided the NWB with an Operation and Maintenance (O&M) plan for municipal the waste disposal facilities, nor 1998, 1999, and 2000 Annual Reports.

Please feel free to contact me at (867) 975-4298 or lavalleep@inac.gc.ca should any questions/comments arise.

Sincerely,



Philippe Lavallée
Water Resources Officer
INAC, Nunavut District

c.c. - Nunavut Water Board, Gjoa Haven
- CG&T, Iqaluit (Doug Sitland)
- Baffin Health & Social Services, Iqaluit (Shaun Mackie)
- EC Environmental Protection, Yellowknife (Anne Wilson)

Indian and Northern Affairs Canada | Affaires Indiennes et du Nord Canada

MUNICIPAL WATER USE INSPECTION FORM

Date: 2001/07/12 **Licensee Rep.** (Name/Title): David Haulli / Director, Municipal Public Works

Licensee: Municipality of Igloolik **Licence No.:** NWB3IGL9803

WATER SUPPLY

Source(s): South Lake / Reservoir **Quantity used:** recorded @ truck delivery

Owner:/Operator: GN/Municipality

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities: A **Storage Structure:** A **Treatment Systems:** A **Chemical Storage:** A

Flow Meas. Device: NA **Convey. Lines:** A **Pumping Stations:** A

Comments: No concerns with the water intake facility and the well-kept truckfill station. No freeze up problems since recharging the reservoir earlier (August). Warning sign installed at the reservoir, but not at South Lake. Chlorination in use, but fluoridation discontinued in recent years.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.): primary; discharge overland to ocean

Natural Water Body: **Continuous Discharge** (land or water):

Seasonal Discharge: x **Wetlands Treatment:** limited **Trench:**

Solid Waste: **Owner/Operator:** GN/Municipality

Landfill: **Burn & Landfill:** x **Other:**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: sampled **Decant Structure:** NA **Erosion:** U

Discharge Meas. Device: none **Dyke Inspection:** NA **Seepages:** A

Dams, Dykes: U **Freeboard:** A **Spills:** none reported

Construction: NA **O&M Plan:** U **A&R Plan:** NA

Periods of Discharge: A **Effluent Discharge Rate:** not measured

Comments: Signs of erosion, slumping and cracking, were noticeable along the outer berms of two of the three sewage lagoon cells. Sewage effluent seeps through the base of the lagoon berms and flows overland. The honeybag pit is satisfactory condition; a single house still relies on honey buckets. Considerable waste segregation occurs at the unfenced solid waste disposal site. Household wastes are burnt and compacted regularly, covered once to twice per year. Hazardous materials are stored in a sealift container, while waste oil is disposed of via the municipal garage's furnace; an additional furnace has been ordered. The bulky metal wastes disposal facility covers a relatively broad area. No flow of leachate was noted below the dump or metal dump, although pooled water and signs of previous runoff were present. An Operation and Maintenance (O&M) plan for the municipal waste disposal facilities has not been submitted.

FUEL STORAGE

Owner/Operator:

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners: **Water within Berms:** **Evidence of Leaks:**

Drainage Pipes: **Pump Station & Catchment Berm:**

Pipeline Condition: **Not Applicable:** x **Condition of Tanks:**

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** none

INAC: raw water @ South lake (IGL-1), sewage lagoon cell 1 discharge @ berm

Signs Posted **SNP:** none **Warning:** yes

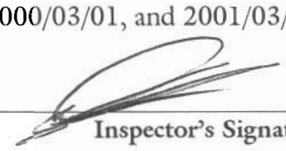
Records & Reporting: no O&M plan, no 1998, 1999, 2000 Annual Reports

Geotechnical Inspection: CG&T engineer expected during the summer

Non-Compliance of Act or Licence: O&M plan, 1998, 1999 and 2000 Annual Reports not submitted; respectively due by 1999/04/01, 1999/03/31, 2000/03/01, and 2001/03/01.

Philippe Lavallée

Inspector's Name



Inspector's Signature

figure 1. Erosion along the inner face of sewage lagoon cell 3; 2001/07/12.

figure 2. Seepage and erosion along the outer face of sewage lagoon cell 2; 2001/07/12.

figure 3. Seepage along the outer face of sewage lagoon cell 1; 2001/07/12.

figure 4. Effluent discharge from sewage lagoon cell 1; 2001/07/12.

figure 5. Solid waste disposal facility; 2001/07/12.

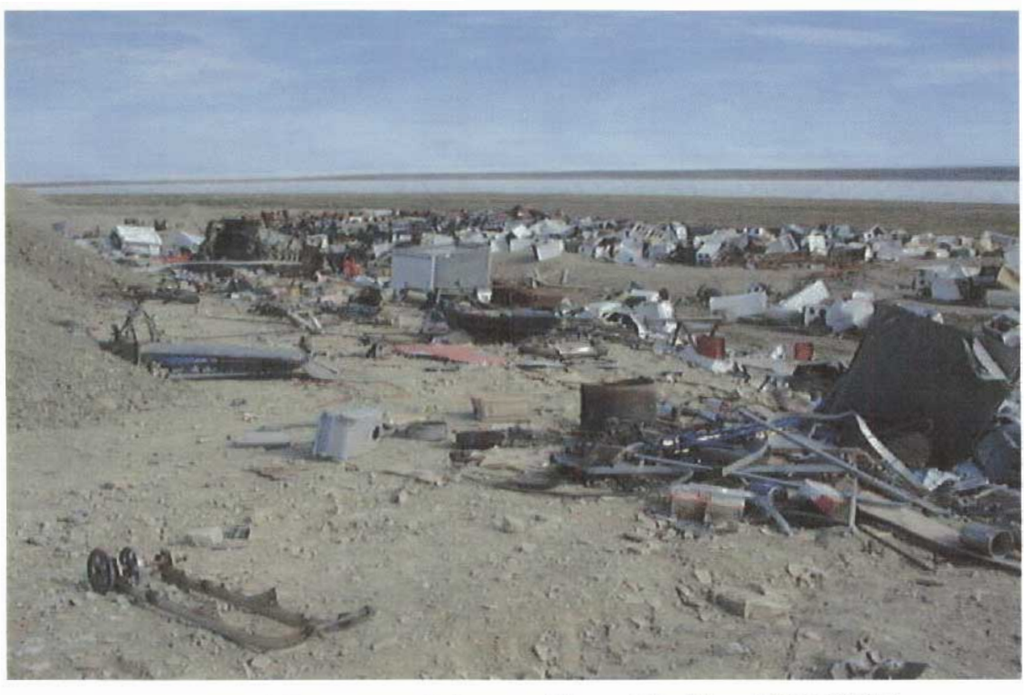


figure 6. Bulky metal wastes, solid waste disposal facility; 2001/07/12.

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788
Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND District Office : Nunavut DIAND Operations *Attn:* Philippe Lavalllee

Sample ID: Igloolik Raw Water IGL-1 **Taiga Sample ID: 211514**

Client Project: **Sample Type:** sewage **Received Date:** 13-Jul-01

Location: Igloolik **Sampling Date:** 12-Jul-01

Report Status: **Final** ***Approved by:***

Lab Section	Test Parameter	Result	Units	Detection Limit	Analysis Date
Major Ions	Chloride	55.2	mg/L	0.2	21-Jul-01
	Sodium	31.0	mg/L	0.02	20-Jul-01
	Sulphate	12	mg/L	3	07-Aug-01
Microbiology	Coliforms, Fecal	<1	CFU/100mL	1	13-Jul-01
Nutrients	Ammonia as N	0.006	mg/L	0.005	25-Jul-01
	Biological Oxygen Demand	4	mg/L	2	13-Jul-01
	Nitrate+Nitrite as N	<0.008	mg/L	0.008	31-Jul-01
Physicals	Colour	<5		5	16-Jul-01
	Solids, Total Dissolved	256	mg/L	10	30-Jul-01
	Turbidity	0.8	NTU	0.1	16-Jul-01
Total Metals	Arsenic	<1.0	µg/L	1.0	30-Jul-01
	Cadmium	<0.3	µg/L	0.3	19-Jul-01
	Chromium	<3	µg/L	3	19-Jul-01

RECEIVED AUG 22 2001

Report Date: August 9, 2001

Taiga Environmental Laboratory
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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND District Office : Nunavut DIAND Operations *Attn:* Philippe Lavalllee

Sample ID: Igloolik Raw Water IGL-1 **Taiga Sample ID:** 211514

Total Metals	Cobalt	<1	µg/L	1	19-Jul-01
	Copper	<2	µg/L	2	19-Jul-01
	Iron	63	µg/L	30	27-Jul-01
	Lead	<1	µg/L	1	19-Jul-01
	Manganese	3	µg/L	1	19-Jul-01
	Mercury	<0.01	µg/L	0.01	03-Aug-01
	Nickel	2	µg/L	1	19-Jul-01
	Zinc	<10	µg/L	10	19-Jul-01

Field Data (01/07/12) **IGL-1**
Temperature: 11.0 °C
Conductivity: 353 µS/cm
pH: 8.6 **Time:** 09:26

Report Date: August 9, 2001

Taiga Environmental Laboratory
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- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND District Office : Nunavut DIAND Operations *Attn:* Philippe Lavalllee

Sample ID: Igloolik Lagoon Discharge IGL-3 **Taiga Sample ID:** 211515

Client Project: **Sample Type:** sewage **Received Date:** 13-Jul-01

Location: Igloolik **Sampling Date:** 12-Jul-01

Report Status: **Final** *Approved by:*

Lab Section	Test Parameter	Result	Units	Detection Limit	Analysis Date
Major Ions	Calcium	54.7	mg/L	0.05	19-Jul-01
	Magnesium	19.8	mg/L	0.02	19-Jul-01
	Potassium	24.3	mg/L	0.03	20-Jul-01
	Sodium	105	mg/L	0.02	20-Jul-01
	Sulphate	46	mg/L	3	07-Aug-01
Microbiology	Coliforms, Fecal	63000	CFU/100mL	1	13-Jul-01
Nutrients	Ammonia as N	52.5	mg/L	0.005	17-Jul-01
	Biological Oxygen Demand	56	mg/L	2	13-Jul-01
	Nitrate+Nitrite as N	1.16	mg/L	0.008	31-Jul-01
Organic	Oil and Grease	3.5	mg/L	0.2	30-Jul-01
	Phenols	< 2	µg/L	2	19-Jul-01
Physicals	Solids, Total Suspended	18	mg/L	3	26-Jul-01
Total Metals	Cadmium	< 0.3	µg/L	0.3	19-Jul-01

Report Date: August 9, 2001

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Tel: (867)-669-2788
Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND District Office : Nunavut DIAND Operations *Attn:* Philippe Lavalllee

Sample ID: Igloolik Lagoon Discharge IGL-3 **Taiga Sample ID: 211515**

Total Metals	Chromium	4	µg/L	3	19-Jul-01
	Cobalt	4	µg/L	1	19-Jul-01
	Copper	23	µg/L	2	19-Jul-01
	Iron	1430	µg/L	30	27-Jul-01
	Lead	2	µg/L	1	19-Jul-01
	Manganese	116	µg/L	1	19-Jul-01
	Nickel	11	µg/L	1	19-Jul-01
	Zinc	14	µg/L	10	19-Jul-01

Field Data (01/07/12) **IGL-3**
Temperature: 12.5 °C
Conductivity: 1 153 µS/cm
pH: 7.8 **Time:** 10:16

Report Date: August 9, 2001

REPORT OF TOXICITY USING MICROTOX

COMPANY/LOCATION: **Igloolik Lagoon Discharge**

Sample Collected By: Philippe Lavallee

Date/Time Sampled: July 12, 2001

Date/Time Received: N/A

Date/Time Test Start: July 16, 2001

Sample Type: Elutriate
Sampling Method: Grab

Method: ***Environment Canada Laboratories SOP#830.0 Revision 1, for Microtox Testing in Compliance with November 1992: Biological Test Method: Toxicity Test Using Luminescent Bacteria Photobacterium phosphoreum), November 1992, EPS 1/RM/24.***

RESULTS: **TOXIC - IC_{50} Concentration: 23.3% (Toxic 0 to 50%)**

TEST ORGANISMS:
Species: Vibrio fisheri (Photobacterium phosphoreum)
Test Apparatus: Model 500 Analyzer

TEST SUBSTANCE/CONDITIONS

pH of Sample: _N/A_ (No pH adjustment)

Sample Appearance: Clear, no colour adjustment

Lot # of OAS: OSA007
(Osmotic Adjusting Solution)

Lot # of Reconstitution Solution: RSN099Y

Lot # of Diluent: DIL034L

TEST METHODS AND CONDITIONS

Test Start Date/Time: July 16, 2001 / 03:45 PM

Test Method: Basic 45% Test, 15 minute incubation.

QUALITY CONTROL

Reference Toxicant: Zinc Sulfate Standard

Analyst: Ron Bujold

Date of Test: July 16, 2001

Reagent Lot #: ACV022-2

IC_{50} - 15 minutes mg/L: 7.6 mg/L

IC_{50} Confidence Range: 4.9 to 12.2 mg/L

TEST ANALYST: Ron Bujold **INITIAL:** RB

[redacted]

Indian and Northern Affairs Canada
www.inac.gc.ca

Affaires indiennes et du Nord Canada
www.ainc.gc.ca

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Your file - Votre reference

Our file - Notre référence
NWB3IGL9803

December 2, 2002

Nick Arnatsiaq
Senior Administrative Officers
Municipality of Igloolik
P.O. Box 30
Igloolik, NU XOA OLO

Re: August 21, 2002 Municipal Water Inspection - Report

I would like to thank David Hauli for his time and assistance provided during the tour of the Municipality's water use and waste disposal facilities. Attached for your records is the Municipal Water Use Inspection Report along with the Certificate of Analysis Report pertaining to the August 21, 2002 inspection. Considering the limited resources at its disposal, the municipality appears to manage its facilities fairly well. However, there is one (1) issue that must be addressed that relates to the postings of Surveillance Network Program (SNP) signs.

1. **Water supply:** No concerns were noted regarding the water intake and supply facility. Further, the attached analytical results relating to samples taken in the vicinity of the supply lake and intake station indicate the tested parameters exceed the *Guidelines for the Canadian Drinking Water Quality.* Samples taken from supply lake shows turbidity of (1.2 NTU vs 1 NTU) and samples collected from the intake station shows turbidity of (2.4 NTU vs 1 NTU) above maximum concentration recommended level. (Figure 1-2 Refers to Water Sources) *Surveillance Network Program* - **SNP-IGL-1** *Refers to water supply prior to treatment, and is monitoring point for the quantity being withdrawn from source,(not the quality).*

2. **Sewage disposal:** As noted in the inspection report, two cells within the lagoon system had trouble with seepage. This may have been caused due to delayed thawing or clogging of the berm wall.. Sewage effluent was pumped into the center cell to assist with seepage. It was noted there is a fourth cell for overflow. Samples collected a hundred yards down stream shows the attached analytical results are within the Municipal Water Licence. Duplicate samples collected in this area. (Figure 3-4 Refers to Sewage Disposal) **SNP-IGL-3** *Refers to discharge from the sewage lagoon just prior to entering the ocean.* (Part D: Section Two (2) under Conditions Applying to Waste Disposal). " All Sewage effluent discharged from

the sewage disposal facilities at SNP station number IG-3 shall meet the following effluent quality standards". (Faecal Coliforms 1 × 10 to the power four CFU/100ml, BOD 120 mg/l, Total Suspended solids 180 mg/l. The waste discharge shall have a pH between 6 and 9 no visible sheen of oil and grease.

3. **Solid waste disposal:** During the time of inspection, the solid waste disposal site appeared very well managed. The only recommendation would be to fence-in the dump area, to prevent windblown refuge from contaminating the surrounding area land. No samples collected in this area, as the area was dry. (Figure 5-6 Refers to Solid waste) **SNP-IGL-2** *Refers to runoff from the solid waste disposal facilities.*

4. **Non-compliance of the licence:** The inspector did not observe Surveillance Network Program Station Numbers at any of the sites noted. As per the General Condition of the Water Licence, **Part B: Item 5 Notes:** *The Licensee Shall by October 1, 1999, post signs, where possible, to identify the station of the* ***"Surveillance Network Program".*** All postings shall be located and maintained to the satisfaction of the Inspector. The inspector will assist in determining locations next year.

If you have any concerns or questions, please feel free to contact me.

Sincerely,

James Lee Noble
Water Resource Officer
INAC - Nunavut District Office
P.O. Box 100, Iqaluit, NU, X0A 0H0
(867) 975-4289
(867) 975-6445
noblej@inac.gc.ca

cc. Nunavut Water Board, Gjoa Haven, NU
DIAND Water Resources Division, Iqaluit, NU
CG&T, Iqaluit, NU (Doug Sitland)
Baffin Health & Social Services, Iqaluit, NU
EC, Environmental Protection, Yellowknife, NT (Anne Wilson)

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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 1 Potable Water **Taiga Sample ID:** 222650

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** *Approved by:*

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	84.8	mg/L	0.3	22-Sep-02
Colour	<5		5	06-Nov-02
Conductivity, Specific	408	µS/cm	0.3	22-Sep-02
pH	8.02	pH units	0.05	22-Sep-02
Major Ions				
Calcium	30.2	mg/L	0.05	10-Sep-02
Chloride	64.9	mg/L	0.2	17-Sep-02
Hardness as CaCO3	125	mg/L	0.17	10-Sep-02
Magnesium	12.0	mg/L	0.02	10-Sep-02
Potassium	1.50	mg/L	0.03	11-Sep-02
Silica, Reactive	0.33	mg/L	0.02	12-Sep-02
Sodium	33.1	mg/L	0.02	11-Sep-02
Sulphate	6	mg/L	3	04-Sep-02

Report Date: Thursday, November 07, 2002

Taiga Environmental Laboratory
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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 2 Potable Water **Taiga Sample ID:** 222651

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Dissolved	231	mg/L	10	08-Oct-02
Solids, Total Suspended	11	mg/L	3	08-Oct-02
Turbidity	1.2	NTU	0.1	17-Sep-02
Nutrients				
Ammonia as N	0.016	mg/L	0.005	09-Sep-02
Nitrate+Nitrite as N	< 0.008	mg/L	0.008	09-Sep-02
Organic Carbon, Dissolved	3.4	mg/L	0.5	07-Oct-02
Organic Carbon, Total	4.5	mg/L	0.5	07-Oct-02
Ortho-Phosphate as P	< 0.002	mg/L	0.002	23-Sep-02
Phosphorous, Dissolved	0.050	mg/L	0.004	20-Sep-02
Phosphorous, Total	0.063	mg/L	0.004	18-Sep-02

Report Date: Wednesday, November 06, 2002

Taiga Environmental Laboratory
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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 3 Potable Water **Taiga Sample ID:** 222652

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Dissolved	267	mg/L	10	08-Oct-02
Solids, Total Suspended	11	mg/L	3	08-Oct-02
Turbidity	2.4	NTU	0.1	17-Sep-02
Nutrients				
Ammonia as N	0.014	mg/L	0.005	09-Sep-02
Nitrate+Nitrite as N	0.035	mg/L	0.008	09-Sep-02
Organic Carbon, Dissolved	3.4	mg/L	0.5	07-Oct-02
Organic Carbon, Total	4.6	mg/L	0.5	07-Oct-02
Ortho-Phosphate as P	< 0.002	mg/L	0.002	23-Sep-02
Phosphorous, Dissolved	0.047	mg/L	0.004	20-Sep-02
Phosphorous, Total	0.068	mg/L	0.004	18-Sep-02

Report Date: Wednesday, November 06, 2002

Taiga Environmental Laboratory
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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 6 Sewage **Taiga Sample ID:** 222653

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Dissolved	1220	mg/L	10	08-Oct-02
Solids, Total Suspended	62	mg/L	3	08-Oct-02
Turbidity	17.5	NTU	0.1	17-Sep-02
Nutrients				
Ammonia as N	92.7	mg/L	0.005	09-Sep-02
Nitrate+Nitrite as N	0.010	mg/L	0.008	09-Sep-02
Organic Carbon, Dissolved	34.0	mg/L	0.5	07-Oct-02
Organic Carbon, Total	45	mg/L	0.5	07-Oct-02
Ortho-Phosphate as P	3.51	mg/L	0.002	23-Sep-02
Phosphorous, Dissolved	4.90	mg/L	0.004	20-Sep-02
Phosphorous, Total	5.37	mg/L	0.004	18-Sep-02

Report Date: Wednesday, November 06, 2002

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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 4 Potable Waters **Taiga Sample ID:** 222654

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	86.9	mg/L	0.3	22-Sep-02
Colour	<5		5	06-Nov-02
Conductivity, Specific	456	µS/cm	0.3	22-Sep-02
pH	8.00	pH units	0.05	22-Sep-02
Major Ions				
Calcium	29.0	mg/L	0.05	10-Sep-02
Chloride	60.7	mg/L	0.2	17-Sep-02
Hardness as CaCO3	121	mg/L	0.17	10-Sep-02
Magnesium	11.8	mg/L	0.02	10-Sep-02
Potassium	3.64	mg/L	0.03	11-Sep-02
Silica, Reactive	0.36	mg/L	0.02	12-Sep-02
Sodium	46.5	mg/L	0.02	11-Sep-02
Sulphate	5	mg/L	3	04-Sep-02

Report Date: Thursday, November 07, 2002

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788
Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 5 Sewage **Taiga Sample ID:** 222655

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	615	mg/L	0.3	02-Oct-02
Colour	150		5	06-Nov-02
Conductivity, Specific	2430	µS/cm	0.3	22-Sep-02
pH	7.34	pH units	0.05	22-Sep-02
Major Ions				
Calcium	120	mg/L	0.05	10-Sep-02
Chloride	240	mg/L	0.2	17-Sep-02
Hardness as CaCO3	469	mg/L	0.17	10-Sep-02
Magnesium	41.1	mg/L	0.02	10-Sep-02
Potassium	38.7	mg/L	0.03	11-Sep-02
Silica, Reactive	4.78	mg/L	0.02	12-Sep-02
Sodium	221	mg/L	0.02	11-Sep-02
Sulphate	22	mg/L	3	04-Sep-02

Report Date: Thursday, November 07, 2002

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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 7 Sewage **Taiga Sample ID:** 222656

Client Project: **Sample Type:** wastewater **Received Date:** 03-Sep-02

Location: Igloolik, NU **Sampling Date:** 21-Aug-02

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	611	mg/L	0.3	02-Oct-02
Colour	80		5	06-Nov-02
Conductivity, Specific	2440	µS/cm	0.3	22-Sep-02
pH	7.52	pH units	0.05	22-Sep-02
Major Ions				
Calcium	117	mg/L	0.05	10-Sep-02
Chloride	249	mg/L	0.2	17-Sep-02
Hardness as CaCO3	473	mg/L	0.17	10-Sep-02
Magnesium	44.0	mg/L	0.02	10-Sep-02
Potassium	39.0	mg/L	0.03	11-Sep-02
Silica, Reactive	4.60	mg/L	0.02	12-Sep-02
Sodium	233	mg/L	0.02	11-Sep-02
Sulphate	21	mg/L	3	04-Sep-02

Report Date: Thursday, November 07, 2002

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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: 8 Sewage

Taiga Sample ID: 222657

Client Project:

Sample Type: wastewater

Received Date: 03-Sep-02

Location: Igloolik, NU

Sampling Date: 21-Aug-02

Report Status: **Final**

Approved by:

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Dissolved	1240	mg/L	10	08-Oct-02
Solids, Total Suspended	49	mg/L	3	08-Oct-02
Turbidity	11.8	NTU	0.1	17-Sep-02
Nutrients				
Ammonia as N	84.5	mg/L	0.005	09-Sep-02
Nitrate+Nitrite as N	< 0.008	mg/L	0.008	09-Sep-02
Organic Carbon, Dissolved	28.0	mg/L	0.5	07-Oct-02
Organic Carbon, Total	39	mg/L	0.5	07-Oct-02
Ortho-Phosphate as P	3.21	mg/L	0.002	23-Sep-02
Phosphorous, Dissolved	4.50	mg/L	0.004	20-Sep-02
Phosphorous, Total	5.10	mg/L	0.004	18-Sep-02

Report Date: Wednesday, November 06, 2002

Indian and Northern Affairs Canada
www.inac.gc.ca

Affaires indiennes et du Nord Canada
www.ainc.gc.ca

Nunavut District Office
P.O. Box 100
Iqaluit, NU, X0A 0H0

Your file - Votre référence

August 21, 2002

Our file - Notre référence

Community Site Inspections / Waypoint Information

SNP-IGL-1	Sample One, Water Reservoir	N69 21 05.2 W81 51 49.5
Igloolik 2	Water Reservoir / Truck Fill	N69 21 43.2 W81 49 51.8
Igloolik 3	Community Tank Farm	N69 21 59.5 W81 48 32.6
Igloolik 4	Sewage Disposal Area	N69 23 30.9 W81 47 53.3
SNP-IGL-3	Sample Two Sewage Runoff	N69 23 27.5 W81 47 19.0
Igloolik 6	Sample Three Sewage Runoff	N69 23 23.5 W81 47 28.1
SNP-IGL-2	Waste Disposal (Main / Solid)	N69 23 16.6 W81 47 13.7
Igloolik 8	Site Overlooks Lagoon/ Waste sites	N69 23 17.8 W81 47 31.3

James Leo Noble
Water Resource Officer
INAC, Nunavut District
Iqaluit, Nu.

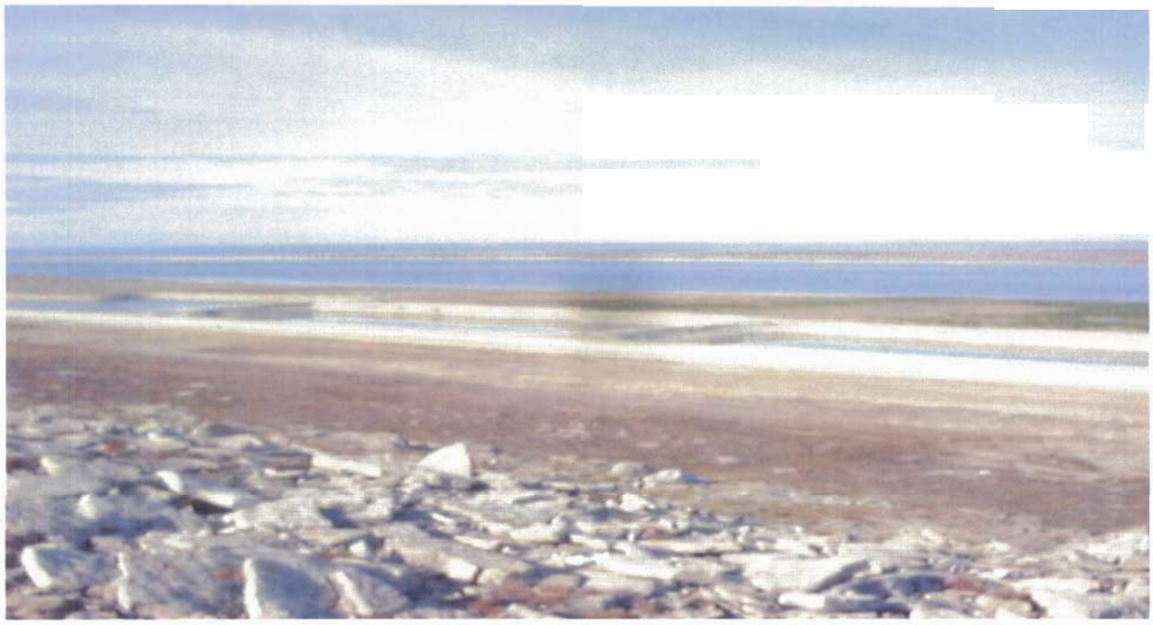
Canada

(Figure 1 SNP-IGL-1)

- Igloolik, Water Supply Lake (Main Water Source) Site: N69 21 05.2 W81 51 49.5

(Figure 2)

- Igloolik, Water Reservoir (truck Fill Station) Site:N69 21 43.2 W81 49 51.8



(Figure 3 SNP-IGL-3)

- Igloolik, Three Cells System, (Sewage Disposal) Site: N69 23 30.9 W81 47 53.3

(Figure 4 SNP-IGL-3)

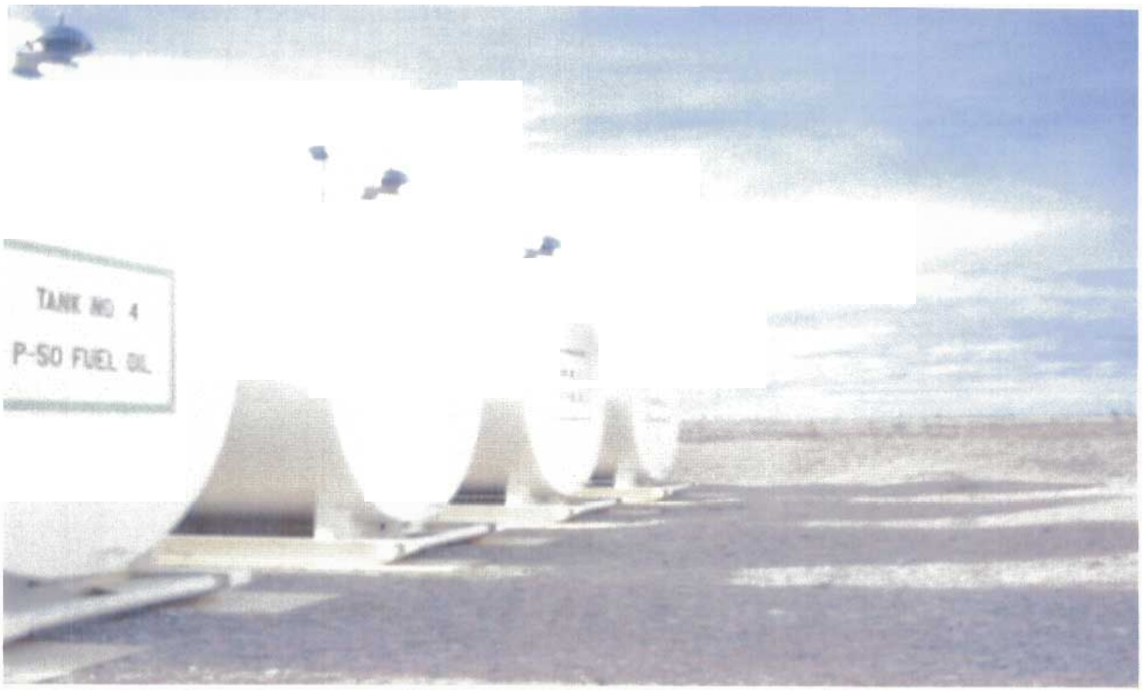
- Igloolik, Sewage Discharge from The Lagoon, Site: N69 23 23.5 W81 47 28.1

(Figure 5 SNP-IGL-2)

- Igloolik, Solid Waste Disposal (Main Dump) Site: N69 23 16.6 W81 47 13.7

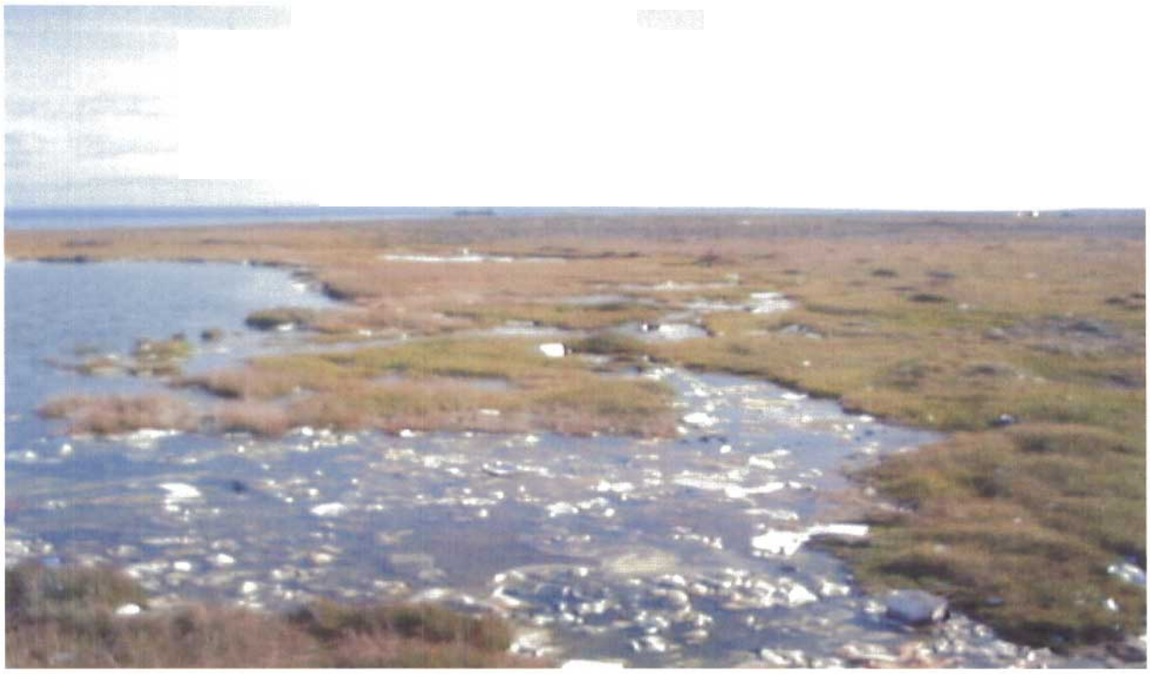
(Figure 6 SNP-IGL-2)

- Igloolik, Solid Waste Disposal (Metal Dump) Site: N69 24 23.0 W81 47 15.0



- Igloolik, Community Tank Farm, Site: N69 29 59.5 W81 48 32.6

- Igloolik, Community Tank Farm, Site: N69 29 59.5 W81 48 32.6



- Igloolik, Windblown Garbage, Next To The Main Dumping Area.

- Igloolik, Batteries, Dangerous Goods (Waste) Container, Solid Waste Site.

Indian and Northern Affairs Canada | Affaires Indiennes et du Nord Canada

MUNICIPAL WATER USE INSPECTION REPORT

Date: August 21, 2002 **Licensee Rep.** (Name/Title)**:** David Hauli / Hamlet Foreman

Licensee: Municipality of Igloolik **Licence No.:** NWB3IGL9803

WATER SUPPLY

Source(s): South Lake / Reservoir **Quantity used:** Truck delivery record only

Owner:/Operator: GN / Municipality

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities: A	**Storage Structure:** A	**Treatment Systems:** A	**Chemical Storage:** A
Flow Meas. Device: N/A	**Conveyance Lines:** A	**Pumping Stations:** A	

Comments: No problems to note, very well kept station, good records of chlorine mixture.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.)**:** Primary; discharge overland to ocean

Natural Water Body: **Continuous Discharge** (land or water)**:**

Seasonal Discharge: X **Wetlands Treatment:** **Trench:**

Solid Waste: **Owner/Operator:** GN / Hamlet

Landfill: **Burn & Landfill:** x **Other:**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: A	**Decant Structure:** A	**Erosion:** A
Discharge Meas. Device: N/A	**Dyke Inspection:** A	**Seepages:** A
Dams, Dykes: A	**Freeboard:** A	**Spills:** None reported
Construction: A	**O&M Plan:** A	**A&R Plan:** NA
Periods of Discharge: A	**Effluent Discharge Rate:** Not measured	

Comments: It was brought to the attention of the inspector, that two cells this year had problems with discharging, and so water pumps were used to transfer from cell to cell to allow seepage through the center cell. Also an addition was made to the following three cells to act as a reserve should anything occur. Also note; couple of housing units are still on the honey bucket service, an open pit is in place for the honey bag, which is satisfactory. No further problems to note.

FUEL STORAGE

Owner/Operator: Community co-op / GN

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners: A	**Water within Berms:** A	**Evidence of Leaks:** A
Drainage Pipes: A	**Pump Station & Catchment Berm:** NI	
Pipeline Condition: A	**Not Applicable:**	**Condition of Tanks:** NI

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** None

INAC: Water supply lake, intake station, sewage lagoon

Signs Posted **SNP:** Sign posted @ south lake **Warning:** yes

Records & Reporting: None

Geotechnical Inspection: unknown at this time.

Non-Compliance of Act or Licence: Nil Report

James Leo Noble

Inspector's Name **Inspector's Signature**