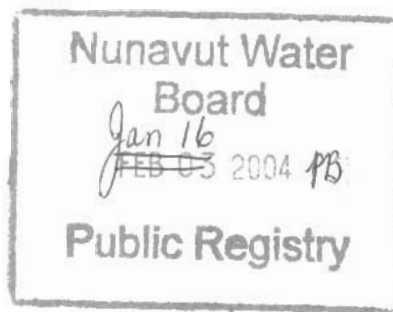


January 16, 2004

Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0E 1J0



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Re: City of Iqaluit Water Licence

Dear Sir or Madam:

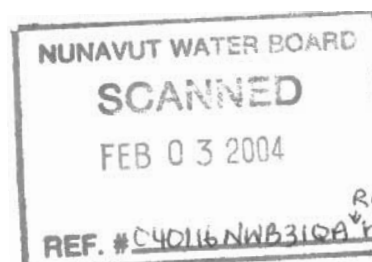
Please find attached the City of Iqaluit's Water Licence Application. A hard copy, including all relevant drawings and reports, is currently being forwarded to the Nunavut Water Board office in Gjoa Haven.

The Iqaluit Sewage Treatment Plant is currently in the pre-design stage. Once a preliminary design is accepted it will be submitted to the Nunavut Water Board. A copy of the final design will be forwarded upon receipt from the consultant.

If you have any questions or comments or require any further assistance please do not hesitate to contact the undersigned.

Sincerely,


Brad Sokach, P.Eng.
Director of Engineering



Renewal
Water Licence - ILAE - Part 1-3

**City of Iqaluit
Water Licence NWB3IQA9900
Application for Renewal**

December 22, 2003

Municipality of Iqaluit Water Licence Renewal

- 1. Executive Summary(English and Inuktitut)**
- 2. Water Licence Application**
- 3. Additional Information for Water Licence Application Form**
- 4. Water Licence Application Supplementary Questionnaire For Municipalities**
- 5. Drawings**
- 6. Reports**
- 7. Spill Reports**
- 8. Bibliography**

Executive Summary

Enclosed is the City of Iqaluit, Nunavut's water licence application. The City is seeking a three-year licence, valid through 2006, to obtain water for municipal use from Lake Geraldine. The City requests an annual water use of 1,100,000 m³.

Lake Geraldine supplies raw water to the City. During the spring and summer, water flows fill the lake from the surrounding watershed. During the winter, there is no overland flow so there must be sufficient storage for over-winter consumption. Water is stored over the winter by a dam on Lake Geraldine. From the dam outfall, water is transmitted by gravity to the water treatment plant where it is treated by sand filtration, chlorination and lime stabilization. Treated water is stored in two clear wells (combined capacity of 575 m³), two filtered water tanks (combined capacity of 110 m³) and a main storage reservoir (2280 m³) located at the water treatment plant prior to entering the main distribution system. Networks of pipes or trucks deliver water to the City. The water treatment plant is currently being expanded to meet the demands of the growing population and modified to include ultraviolet treatment.

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2. Water Licence Application



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

City of Iqaluit
P.O. Box 460
Iqaluit, Nunavut
X0A 0H0

Phone: 867-975-8500
Fax: 867-975-8505
e-mail: bsokach@city.iqaluit.nu.ca

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

Phone: N/A
Fax: _____
e-mail: _____

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

Latitude: 63°45' N Longitude: 68°31' W NTS Map No. 25 N/9, 25 N/10, 25 N/15, 25 N/16 Scale 1/50000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

The City of Iqaluit requires the taking of water from Lake Geraldine for Municipal purposes, both residential and commercial.

Drawings attached.

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

<input type="checkbox"/> Industrial	<input type="checkbox"/> Remote/Tourism Camps
<input type="checkbox"/> Mine Development	<input checked="" type="checkbox"/> Municipal
<input type="checkbox"/> Advanced Exploration	<input type="checkbox"/> Power
<input type="checkbox"/> Exploratory Drilling	<input type="checkbox"/> 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 quantity to be returned to source)

The City of Iqaluit is requesting an annual water use volume not to exceed 1,100,000 m³.

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?

N/A

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

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

City of Iqaluit Dam Safety Review For Lake Geraldine Dam, Trow Consulting Engineers Ltd, March 2002.
Municipality of Iqaluit Water Treatment Plant Pre-Design Brief, Earth Tech (Canada) Inc., March 2002.
Water and Sewer Study, Trow Consulting Engineers Ltd., May 2002.
City of Iqaluit Dam Safety Review for Sewage Lagoon, Trow Consulting Engineers Ltd., October 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: January 2004 Completion Date: December 2006

Brad Sokach
Name (Print)

Director of Engineering
Title (Print)


Signature

December 20/03
Date

For Nunavut Water Board use only

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

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

3. Additional Information for Water Licence Application Form

Additional Information for the Water Licence Application Form for the City of Iqaluit

(1) Name and Mailing Address of Applicant/Licencee

Contact: Brad Sokach

City of Iqaluit
P.O. Box 460
Iqaluit, Nunavut
X0A 0H0

Ph: 867-975-8500
Fax: 867-975-8505

(4) Description of Undertaking

Water Supply, Treatment, Storage and Distribution

The infrastructure system in the City of Iqaluit was first installed in the 1960's. The system now consists of:

- a raw water supply dam,
- a water treatment plant,
- a main water storage reservoir,
- a water booster station,
- a water distribution system
- and, 4 re-heat and re-circulation stations.

Lake Geraldine supplies raw water to the City. During the spring and summer, water flows fill the lake from the surrounding watershed. During the winter, there is no overland flow so there must be sufficient storage for over-winter consumption.

Water is stored over the winter by a dam on Lake Geraldine. From the dam outfall, water is transmitted by gravity to the water treatment plant where it is treated by sand filtration, chlorination and lime stabilization. Treated water is stored in two clear wells (combined capacity of 575 m³), two filtered water tanks (combined capacity of 110 m³) and a main storage reservoir (2280 m³) located at the water treatment plant prior to entering the main distribution system.

Networks of pipes or trucks deliver water to residents. To prevent the water from freezing in the distribution system, re-heat stations continuously circulate and temper the water. Bleeders also maintain circulation.

(5) Type of Undertaking

Municipal

(6) Water Use

To obtain water to service the City of Iqaluit.

(8) Waste Generated

Sewage:

The sewage production rate for the City of Iqaluit is estimated to be 1,800 m³ per day. The retention time of the sewage lagoon varies between 6 and 14 days. The lagoon provides a primary facultative treatment before release into Koojesse Inlet.

Solid Waste:

The landfill consists of a approximately 1.5 hectare solid waste management site. Wastes are currently spread in lifts, compacted and then covered to reduce predation by wildlife, odour and scattering of debris through wind. The quantity of solid waste generated by the City of Iqaluit is approximately 40,000m³ per year.

Hazardous Waste:

Hazardous waste is currently set aside at the landfill site and stored to await shipment to a southern destination for disposal. It is sent south once per year.

Bulky Waste:

Scrap metals and bulky waste are currently stored at the most southerly portion of the landfill site. These are separated from the regular waste stream, compacted and covered.

Waste Oil:

Waste oil is currently collected and stored at the public works garage. It is separated from the regular waste stream and sent to a local contractor who sends the waste to a southern destination for disposal or uses it for heating fuel.

(13) Studies Undertaken to Date

City of Iqaluit Dam Safety Review For Lake Geraldine Dam, Trow Consulting Engineers Ltd, March 2002.

Municipality of Iqaluit Water Treatment Plant Pre-Design Brief, Earth Tech (Canada) Inc., March 2002.

Water and Sewer Study, Trow Consulting Engineers Ltd., May 2002.

City of Iqaluit Dam Safety Review for Sewage Lagoon, Trow Consulting Engineers Ltd., October 2002.

4. Water Licence Application Supplementary Questionnaire for Municipalities

NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

**Water Licence Application
Supplementary Questionnaire
For Municipalities**

I. GENERAL

1. Date: November 24, 2003
2. Applicant: City of Iqaluit
Municipality and Region
3. Contacts: Brad Sokach
Name of Contact
Director of Engineering
Position
867-975-8500 867-975-8505
Telephone # Fax #
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 # NWB31QA9900

II. ATTACHMENTS

1. Attach current or up-to-date detailed map(s) showing the locations of the:
 - a. raw water intake;
 - b. water storage and treatment facilities;
 - c. fuel and chemical storage;
 - d. sewage treatment facilities (lagoon, honey bag pit, wetland);
 - e. wastewater treatment area and discharge outlets;
 - f. solid waste disposal areas and drainage patterns;
 - g. hazardous waste disposal area;
 - h. transportation access routes;
 - i. existing water bodies/courses and any changes to these water bodies/courses that have or may occur as a result of water use or waste disposal facilities, locations of environmental monitoring sites. (Outline drainage basin);
 - j. Traditional use areas outlined on site map and areas around the community used for recreation, camping, fishing, etc.
 - k. abandoned and/or restored water treatment, sewage, and solid waste disposal facilities.

Are maps attached? ☒ Yes ☐ No
If no, please indicate when they will be available.

Indicate which organization has provided the various maps or diagrams.

Town of Iqaluit Water Licence Renewal – Overall Plan: Dillon Consulting Ltd.

Town of Iqaluit Waste Management Plan – Existing Waste Disposal Sites: UMA Engineering Ltd.

Solid Waste Disposal Area: UMA Engineering Ltd.

III. WATER SUPPLY

Water Source

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

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

Lake Geraldine
Primary Source

Secondary Source

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

Water Intake

1. Please provide short descriptions for the following:

a. Freshwater intake facility

Raw water leaves Lake Geraldine and enters the water treatment plant through a 360 m long, 250 mm diameter cast iron intake pipe, insulated with 50 mm of foam glass and protected with a gauge metal jacket. The injection of tempered water from the plant prevents the line from freezing.

b. Operating capacity of pumps used

Raw water supply is gravity fed to the water treatment plant.

c. Intake screen size

Not applicable as there is no intake screen.

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? ____ Yes ✓ No

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

Water Treatment

1. Indicate the quality of the water.

Summer:	<u>✓</u> good	____ fair	____ poor
Fall:	<u>✓</u> good	____ fair	____ poor
Winter:	<u>✓</u> good	____ fair	____ poor
Spring:	<u>✓</u> good	____ fair	____ poor

2. Describe.

The water is of good to excellent chemical quality for domestic use. The water is clear and low in dissolved solids. Treated water is below the recommended limit with respect to corrosiveness.

3. Type of water treatment.

____ Filtration and chlorination
____ Chlorination only
____ None
✓ Other UV, Chlorination, Filtration, Caustic Soda addition

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	3600	277	997,200
TRUCKED	2400	123	295,200
TOTAL			1,292,400

General Condition of the water supply facilities

1. General condition of the:

- a. 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.

1. Increase the capacity of the water treatment plant by constructing 4 new filters, extending the existing building structure to house them and install new backwash pumps.
2. Utilize UV treatment as the primary means of disinfection.
3. Replace the existing lime handling system with a caustic soda system.
4. Provide a PLC – based control system and desktop computer, to automate certain plant functions and provide data logging capability.

Water treatment plant upgrade is currently underway and scheduled for completion in February 2004.

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

No

Identification

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

☒ Yes ☐ No

IV. SEWAGE DISPOSAL

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

☒ Lagoon
☐ Mechanical system
☐ Wetland
☐ Honey bag
☐ Combination/Other: describe

Lagoon (if applicable)

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

☐ Yes ☒ No

If yes, describe

Mechanical System (if applicable)

1. Describe (type, specifications, operation and maintenance program for the mechanical wastewater treatment system).

N/A

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.

N/A

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:

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, shell fish and other wildlife harvested in or near the discharge area?

☐ Yes ☒ No

If yes, indicate species harvested, and level of harvest.

General Condition of the sewage treatment facilities

1. General condition of the:

a. Sewage collection system

☒ Satisfactory ☐ Unsatisfactory
If unsatisfactory, explain.

b. Discharge control system
☒ Satisfactory ☐ Unsatisfactory
If unsatisfactory, explain.

c. Dams, diversion dykes, berms
☒ Satisfactory ☐ Unsatisfactory
If unsatisfactory, explain.

Modifications

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.

Municipality is currently in the pre-design stage of converting the non-commissioned sewage treatment plant to a conventional secondary activated sludge treatment plant.

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

Yes, in general the public may perceive that the retention time and treatment of sewage is not adequate, i.e. that the quality of discharge could be improved. The lagoon was design to provide only primary treatment. The new facility will address these concerns.

Abandonment and Restoration

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

N/A

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.

Residential waste is placed into waste box or holding room by residents. It is picked up twice a week by the Municipality. Commercial waste is placed in waste box or waste room and picked up daily by the Municipality.

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.

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

☒ Yes ☐ No

If yes, describe

Municipality currently employs a recycling program.

Animal Carcasses Pit

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 currently collected and stored at Public Works yard. It is separated from the regular waste stream and given to a private contractor who sends the waste to a southern destination for disposal or uses it for heating fuel.

Bulky Scrap Metal Waste Disposal Area

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

☒ Yes ☐ No

If yes, briefly describe its location and operation plan.

Scrap metal and bulky waste is currently stored at the existing landfill. It is separated and compacted.

Commercial, Industrial and/or Hazardous Wastes Disposal Area

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.

Commercial waste is classified as waste which does not come from a residential area. It includes waste which comes from businesses, office buildings and schools etc. This does not include hazardous waste.

Will the municipality use a hazardous waste disposal area?

☒ Yes ☐ No

If yes, describe its:

a. Location

Hazardous waste is stored inside the fenced Solid Waste site on the northeast side. Commercial and Industrial waste is held at the place of business generating it and disposal is the responsibility of the generator.

b. Structure

N/A

c. Operation and maintenance (describe special handling/disposal methods for these wastes)

A Household Hazardous waste collection program takes place four times per year and individuals may also bring it to the facility throughout the year. After each collection the waste is neutralized or recycled. Every two to four years waste that cannot be neutralized or recycled is shipped south for proper disposal.

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.

No

Abandonment and Restoration

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

Upper Base, North 40 Dump, Dump Site #1 - Sylvia Grinnell Park Dump, Dump Site #2 - Summer Camp Dump, Dump Site #3 - The Existing Landfill, Dump Site #4 - Municipal Dump, Dump Site #5 - Apex Dump.

Identification

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: Unknown

☐ Municipal and Community Affairs

Date: Unknown

☐ Other:

Date: Unknown

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

☒ Yes ☐ No

If yes, describe.

The Department of Public Works and Engineering personnel with the City of Iqaluit have access to vehicular mobile radios and in some cases, cellular phones; they are therefore able to communicate immediately with City dispatch who in turn can contact a response team.

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?

Please see attached Spill Reports

Monitoring Program

1. Is water sampling and analysis done?

☒ Yes ☐ No

If Yes, answer the questions a to e

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

Water sampling started in September 2003. Results will be made available as soon as possible. In general, sampling and analysis is conducted in accordance with the methods prescribed in the current edition of the "Standard Methods for Examination of Water and Wastewater."

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

No monitoring done.

- c. Who is responsible for water sampling?

Name: Bob Brouillet

Position: Water Treatment Plant Operator

Telephone #: 867-979-5643

Fax #: 867-979-4166

Level of training: Water Treatment Plant Operator Level I

- d. Recognized laboratory performing analysis of samples.

Name: Taiga Environmental Laboratory

Address: Box 1500, 4601 – 52nd Avenue, Yellowknife, NWT

Telephone #: 867-669-2788

Fax #: 867-669-2718

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

✓ Yes No

If yes, describe.

The City plans to monitor water quality as per the Surveillance Network Program.

VII. PUBLIC CONCERNS

- i. 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.

None

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

Despite repeated attempts the City has been unable to contact the Regional Environmental Health Officer.

1. Date:
2. Municipality:
3. Contact: (Environmental Health Officer Contact)

Telephone #: 867-979-7656

Fax #: 867-979-7659

4. Have there been any problems or health/environmental concerns with drinking water?
☐ Yes ☒ No

If yes, describe

5. Have there been any problems or health/environmental concerns with sewage disposal/treatment?
☐ Yes ☒ No

If yes, describe

6. Have there been any problems or health/environmental concerns with solid waste disposal?
☐ Yes ☒ No

If yes, describe

Monitoring Program

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

☐ No ☒ If Yes, answer questions (a) to (e)

Unable to complete the rest of this section as Health Board representatives did not return repeated phone calls.

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).*

The City has been unable to contact a representative from CG&T

1. Date: November 2003
2. Municipality: City of Iqaluit
3. Contact: Kriss Sarson
(Community Government and Transportation Representative)

Telephone #: 867-975-5314

Fax #: 867-975-5318
4. Population (according to most recent census results): Approximately 6000
5. Estimated growth rate over next 5 years: Approximately 3%
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

Unknown

If yes, provide a summary of program details or site title, authors, cities, and dates:

Prepared by

Title

Completion Date

If no, are such studies being planned?

☐ No ☐ Yes (If yes, when and by whom):

Unknown

7. Have Elders been consulted in the collection of baseline data on main water bodies in the area?
☐ No ☐ Yes

If yes, specify.

Unknown

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

Unknown

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 (dimensions, materials of construction, etc.);
 - c. details of the drainage basin and existing and proposed drainage modifications;
 - d. details of all decant, siphon mechanisms etc., including sewage treatment facilities;
 - e. details regarding direction and path of wastewater flow from the area;
 - f. distance from watercourses and fish bearing waters;
 - g. location and construction of liners;
 - h. leachate and groundwater collection systems; and
 - i. control structures.
2. Attach detailed plan or drawing(s) of the present *sewage treatment system*. The drawing(s) should include the following:

- a. details of all retaining structures (dimensions, materials of construction, etc.);
 - b. details of the drainage basin and existing and proposed drainage modifications;
 - c. details regarding direction and path of wastewater flow from the area;
 - d. indications of the distance from watercourses and fish bearing waters;
 - e. all sources of seepage presently encountered near these areas, including volumes (m^3/day) and directions.
 - f. The volume of seepage flow (m^3 / day); and
 - g. The direction of each flow.
3. Are drawings for the solid waste disposal area and sewage treatment system attached?
☒ Yes ☐ No

If yes, who has provided them?

Solid Waste Disposal area – UMA Engineering Ltd.
 Sewage treatment Facilities -

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:

There are no expected changes; all are from previous projects that have been approved and in operation for several years.

2. Drainage Area:
 What is the drainage area? 3.85 km^2
 What is the average elevation of the drainage basin? 110 metres ASL
 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.)

A rolling terrain surrounds the community. The subsoil is made up of glacial drifts over a predominantly granite Precambrian bedrock. The layer of overburden, silty sand, gravel and boulders vary from 0 to 18 m thick and has numerous surface depressions. As a result ponds are prevalent in the summer months. The depth of thaw in the permafrost ranges from 1 to 1.8 m. The water table is very high and segregated lenses may be found. The vegetation consists of lichens, mosses, hardy flowers and grasses.

3. Channel characteristics:

Is the course of any channel changed? ☐ Yes ☒ No

If yes, describe measures to maintain stream bed and bank stability.

4. Will the cross-section of any watercourse be changed? ☐ Yes ☒ No

If yes, describe the change and its effect on the flow capacity of the channel.

Water Supply

1. What is the rate of withdrawal from the source? 2000 m³/day.

2. Is water drawn from the source ☐ intermittently ☒ continuously

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

4. For what period is it drawn (days/weeks/months)? Continuously 365days/year

5. What is the rate of flow of source (if river) or size (if lake)? Approximately 20ha

6. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn.

No effect

Water Intake

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

Raw water leaves Lake Geraldine and enters the water treatment plant through a 360 m long, 250 mm diameter cast iron intake pipe, insulated with 50 mm of foam glass and protected with a gauge metal jacket. The injection of tempered water from the plant prevents the line from freezing.

- b. operating capacity of the pumps

Raw water supply is gravity fed to the water treatment plant.

- c. intake screen size

Not applicable as there is no intake screen.

Water Storage

1. Is a dam or dyke being used to store or alter the flow of water? ☒ Yes
☐ No
2. What are the dimensions of the dam or dyke?
Length: 117.3 m Width: 1.63 m Height: 8.14 m
U/S slope: 1.25H:1.0V D/S slope: 1.5H:1V – 3H:1V
3. Does the proposed dam create a reservoir in a natural watercourse?
☒ Yes ☐ No
If yes, what is the storage capacity and surface area of the reservoir?
586,000 m³ 20 ha
4. Will the dam or dyke affect fish migration or movement?
☐ Yes ☒ No
If yes, describe all measures for compensation of fish habitat lost due to the dam or dyke, and mitigation for fish migration or movement.

Water Treatment

1. Indicate the capacity of the treatment facility. 1050 m³/day
2. What is the capacity of the water storage facility? 2967 m³
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.

UV treatment provides primary disinfection. Caustic soda is then added to adjust Ph levels. At the end of the system chlorine is added to provide continuous disinfection. Water is then stored.

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.

1. Increase the capacity of the water treatment plant by constructing 4 new filters, extending the existing building structure to house them and install new backwash pumps.
2. Utilize UV treatment as the primary means of disinfection.
3. Replace the existing lime handling system with a caustic soda system.
4. Provide a PLC – based control system and desktop computer, to automate certain plant functions and provide data logging capability.

Water treatment plant upgrade is currently underway and scheduled for completion in February 2004.

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 18,900 m³

3. Based on current population projections, the facility does not currently meet the community's needs.
4. Average depth of the wastewater lagoon 2.0 m.
5. What is the design freeboard? 1.0 m.
6. Indicate the retention time of the sewage while in the treatment facility 7 days.
7. Indicate the estimated rate of discharge of wastewater 17 L/sec.
8. Indicate the location of the discharge point West Dyke at Koojesse Inlet.
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.

Municipality is currently in the pre-design stage of converting the non-commissioned sewage treatment plant to a conventional secondary treatment plant.

Solid Waste Disposal

1. Indicate the capacity of the disposal area 250,000 m³.
2. The *average* depth of the solid waste disposal site 4.5-5.0 m.
3. The current facility will meet community needs until the year 2009-2010.
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?

A drainage ditch has been constructed to divert water around the facility.

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

This is currently being studied.

Source

Volume

6. Please describe any diversions of watercourses:

Ditches have been constructed around the landfill to divert water from entering the facility.

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 its review.

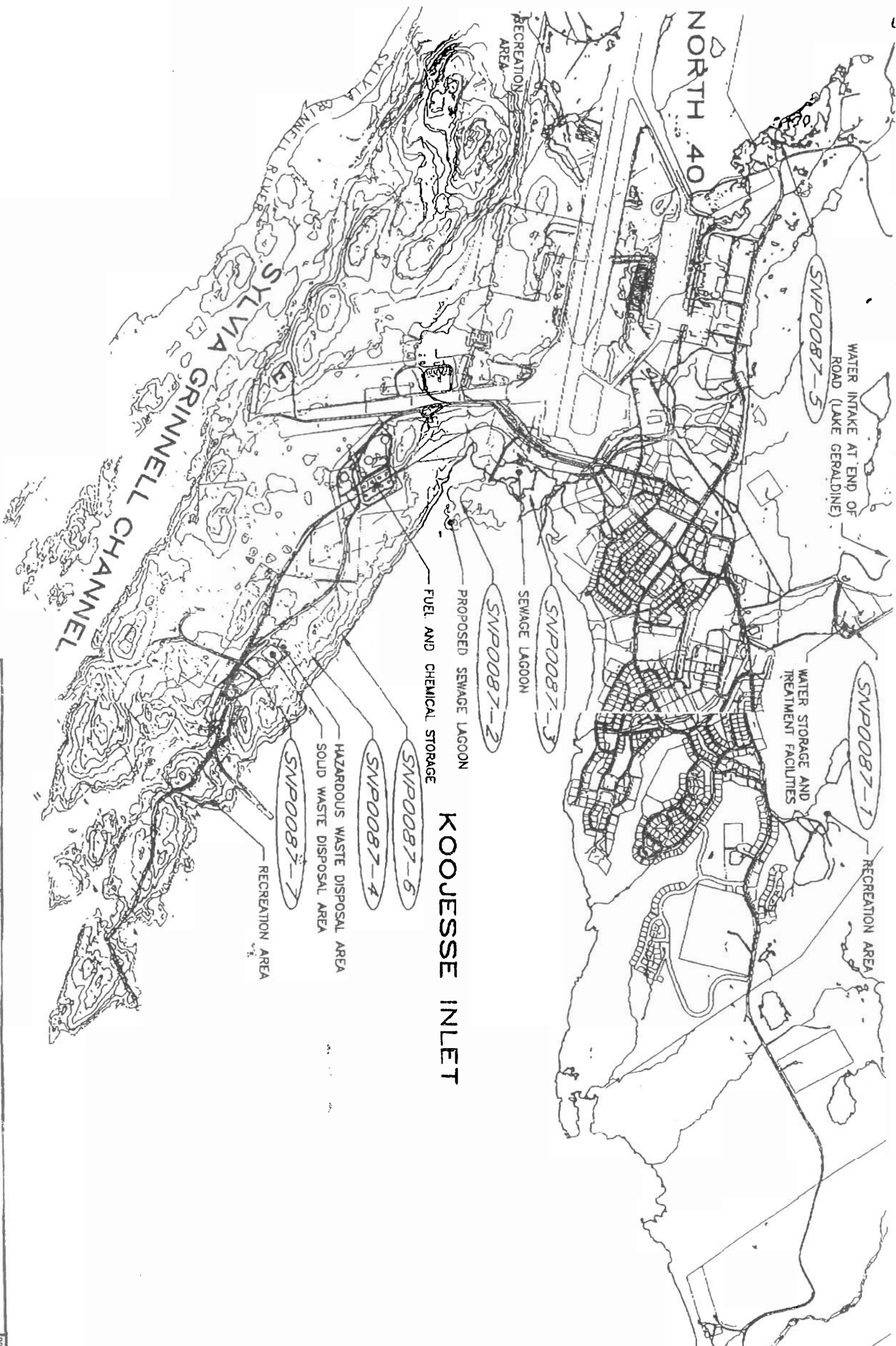
The Municipality of Iqaluit is devoted to being responsible environmentally to the community and complying with the regulatory requirements set out in the water licence. It strives to supply the highest level of service possible to the fast growing community. It not only responds to current needs but is committed to solid planning for the future. The Municipality is dedicated to continuously improving infrastructure associated with the water supply system, solid waste management and sewage treatment facilities.

5. Drawings

Town of Iqaluit Water Licence Renewal, Overall Plan, Figure 1, Dillon Consulting Ltd.


Existing Waste Disposal Sites, Figure 1, UMA Engineering Ltd.

Solid Waste Facility Operation and Maintenance Manual, Dillon Consulting Ltd.



SCALE 1:20000

KOOJESSE INLET

	<p>PROJECT</p> <p>TOWN OF IOALUT</p> <p>WATER LICENSE RENEWAL</p> <p>OVERALL PLAN</p>	<p>PROJECT NUMBER</p> <p>98-5583-01</p> <p>DATE</p> <p>JAN 99</p> <p>FIGURE NUMBER</p> <p>FIGURE 1</p>
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SITE EXPLANATIONS

- SITE 1** Inactive metal waste site used by the military. The exposed areas consist mostly of scrap metals, barrels and truck bodies.
- SITE 2** Inactive municipal waste site used for less than a one year period, subsequent to the closure of Site No. 5.
- SITE 3** Inactive metal waste site of unknown origin.
- SITE 4** Active municipal waste site situated on old honey bag disposal area presently used for all municipal wastes, with the exception of large bulky wastes. Waste is burned at this site, therefore the exposed wastes are mainly non-organic. This site has been developed beyond capacity.
- SITE 5** Inactive municipal waste site used until 1979. Substantial amounts of gravel were used to cap the site, however the face is still exposed.
- SITE 6** Active bulky waste site currently used for disposal/storage of scrap metal, bulk materials and 45 gallon steel drums. The gravel extraction and waste disposal operations are in conflict on this site.

TOWN OF IQUALUIT
WASTE MANAGEMENT PLAN
EXISTING WASTE
DISPOSAL SITES

Figure 1



NOTE:
 CONTOURS WITHIN THE LANDFILL CELL
 ARE PRE-CONSTRUCTION ELEVATIONS



DILLON
 CONSULTING

6. Reports

The following reports are available for review at the City of Iqaluit's Engineering office.

City of Iqaluit Sewage Lift Station Spill Contingency Plan, Dillon Consulting Ltd., May 2003.

Town of Iqaluit Landfill Operation And Maintenance Manual For Site 3 in West 40, UMA Engineering Ltd., December 1994.

City of Iqaluit Spill Reports (April 2001 – Present).

Municipality of Iqaluit Water Treatment Plant Pre-Design Brief, Earth Tech (Canada) Ltd., March 2002.

7. Spill Reports



N.W.T. SPILL EPORT (Oil, Gas, Hazardous Chemicals or other Materials)

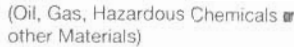
24-Hour Report Line

ᓄᑦ ᐃᑲᑦᑲᓄᑦ ᐃᓂᑲᑦᑲᓄᑦ ᐃᓂᑲᓄᑦ

Phone/ᐃᑲᓄᑦ (403) 920-8130

Fax/ᑲᑦᑲᓄᑦ (403) 873-6924

A Report date and time ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ		B Date and time of spill (if known) ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ		C Original report ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ Update no. ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ		Spill number ᐃᓂᑲᓄᑦ	
D Location and map coordinates (if known) and direction (if moving) ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ							
E Party responsible for spill ᐃᓂᑲᓄᑦ							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ ᐃᓂᑲᓄᑦ							
G Cause of spill ᐃᓂᑲᓄᑦ							
H Is spill terminated? ᐃᓂᑲᓄᑦ yes/ᐃ no/ᐃᑲ		I If spill is continuing, give estimated rate ᐃᓂᑲᓄᑦ		J Is further spillage possible? ᐃᓂᑲᓄᑦ yes/ᐃ no/ᐃᑲ		K Extent of contaminated area (in square metres if possible) ᐃᓂᑲᓄᑦ	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) ᐃᓂᑲᓄᑦ				M Containment (natural depression, dikes, etc.) ᐃᓂᑲᓄᑦ			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials ᐃᓂᑲᓄᑦ							
O Do you require assistance? ᐃᓂᑲᓄᑦ no yes, describe: ᐃᓂᑲᓄᑦ				P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife ᐃᓂᑲᓄᑦ			
Q Comments and/or recommendations ᐃᓂᑲᓄᑦ						FOR SPILL LINE USE ONLY ᐃᓂᑲᓄᑦ Lead Agency ᐃᓂᑲᓄᑦ Spill significance ᐃᓂᑲᓄᑦ Lead Agency contact and time ᐃᓂᑲᓄᑦ is this fire now closed? ᐃᓂᑲᓄᑦ	
Reported by ᐃᓂᑲᓄᑦ		Position, Employer, Location ᐃᓂᑲᓄᑦ			Telephone ᐃᓂᑲᓄᑦ		
Reported to ᐃᓂᑲᓄᑦ		Position, Employer, Location ᐃᓂᑲᓄᑦ			Telephone ᐃᓂᑲᓄᑦ		

NW1 172/0593



N.W.T. SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

Phone/D56CDD (403) 920-8130

Fax/D6CDD (403) 873-6924

A Report date and time D56CDD D56CDD D56CDD		B Date and time of spill (if known) D56CDD D56CDD D56CDD		C Original report Update no.		Spill number D56CDD	
D Location and map coordinates (if known) and direction (if moving) A 402 on ring road across from Northwest							
E Party responsible for spill City of Igloolik							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) Sewage approx 1500 L							
G Cause of spill adverse weather caused small freeze							
H Is spill terminated? yes/Δ no/D56CDD		I If spill is continuing, give estimated rate D56CDD		J Is further spillage possible? yes/Δ no/D56CDD		K Extent of contaminated area (in square metres if possible) D56CDD	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) Site				M Containment (natural depression, dykes, etc.) D56CDD			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials weather next to spill							
O Do you require assistance? no/D56CDD yes, describe:				P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife D56CDD			
Q Comments and/or recommendations no						FOR SPILL LINE USE ONLY Lead Agency D56CDD Spill significance D56CDD Lead Agency contact and time D56CDD is this file now closed? Ca D56CDD	
Reported by Robert Brundage		Position, Employer, Location Acting Utilities Manager Igloolik				Telephone D56CDD	
Reported to D56CDD		Position, Employer, Location Director T&E				Telephone D56CDD	

A Report date and time Date and time of spill (if known) MAR 17/02 11:14h		B Date and time of spill (if known) Date and time of spill (if known) MAR 17/02 ?		C Original report Update no. Spill number dax' aDC	
D Location and map coordinates (if known) and direction (if moving) BCC YOUNG OFFENDERS AV. 4 → AV 5					
E Party responsible for spill Municipality of Iqaluit					
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) SEWAGE 300 -- 1000GALS.					
G Cause of spill POSSIBLE BLOCKAGE AND HIGH VOLUME OF FLOW FROM NUNATTA RES. ARCTIC WINTER GAMES					
H Is spill terminated? yes/Δ no/Δb		I If spill is continuing, give estimated rate No		J Is further spillage possible? yes/Δ no/Δb	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) NONE		K Extent of contaminated area (in squaremetres if possible) DITCH HOME			
M Containment (natural depression, dykes, etc.) DITCH					
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials SEWAGE WILL BE MIXED WITH SNOW AND REMOVED TO LAGOON					
O Do you require assistance? yes, describe: Δ - aadl'ad		P Possible hazards to persons, property, or environment, eg: fire, drinking water, fish or wildlife UNKNOWN			
Q Comments and/or recommendations FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time Is this file now closed?					
Reported by CHRIS FREDN		Position, Employer, Location Municipality of Iqaluit		Telephone 977-5648	
Reported to Pj'd'ac D'acDCD'ac		Position, Employer, Location Municipality of Iqaluit		Telephone D'acDC	



N.W.T. SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

Phone/D 664-1111 (403) 920-8130

Fax/763-0111 (403) 873-6924

A Report date and time 2:40 APRIL 29/02		B Date and time of spill (if known) 11:00 AM 29/02		C Original report Update no. _____ Date of update _____		Spill number 0111	
D Location and map coordinates (if known) and direction (if moving) BETWEEN 111 M.H. #89 AND M.H. #91 BESIDE HS #405							
E Party responsible for spill MUNICIPALITY OF ILLINOIS							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) 3000 LITRE → 6000 LITRES							
G Cause of spill PARTIAL LINE BLOCKAGE (POSSIBLE GREASE) CAUSED SEWAGE TO BACK UP INTO HS #405							
H Is spill terminated? yes/Δ no/Δ		I If spill is continuing give estimated rate N/A		J Is further spillage possible? yes/Δ no/Δ		K Extent of contaminated area (in square metres if possible) 40 SQ METRES	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) RUN OFF				M Containment (natural depression, dykes, etc.) LOCATED IN DEPRESSION			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials WORKERS WILL MIX SEWAGE WITH SAND AND REMOVE TO LANDFILL							
O Do you require assistance? no/Δ yes, describe: Δ - additional				P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife NO HAZARDS			
Q Comments and/or recommendations D 664-1111						FOR SPILL LINE USE ONLY Lead Agency Δ 664-1111 Spill significance Δ 664-1111 Lead Agency contact and time Δ 664-1111 Is this file now closed? C 664-1111	
Reported by 0111		Position, Employer, Location 0111				Telephone 0111	
Reported to 0111		Position, Employer, Location 0111				Telephone 0111	



N.W.T. SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

Phone/D'becDC (403) 920-8130

Fax/ᐅᐅᐅᐅᐅᐅ (403) 873-6924

A Report date and time 9/07/02		B Date and time of spill (if known) 17/02/02		C Original report <input checked="" type="checkbox"/> Update no.		Spill number d'becDC	
D Location and map coordinates (if known) and direction (if moving) By sea lift compound on beach Igloodit							
E Party responsible for spill City of Igloodit							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) raw sewage (100 gal) 378 L							
G Cause of spill old repair clamp that broke down							
H Is spill terminated? <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no		I If spill is continuing, give estimated rate /c d'becDC		J Is further spillage possible? <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no		K Extent of contaminated area (in square metres if possible) 10 ³ meter of sand	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) N/A				M Containment (natural depression, dykes, etc.) N/A			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials New repair clamp was installed. A permanent repair is being scheduled in the near future. All liquids and contaminated sand were removed to sewage lagoon.							
O Do you require assistance? <input checked="" type="checkbox"/> no / <input type="checkbox"/> yes, describe:				P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife N/A			
Q Comments and/or recommendations Robert Hanson						FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time Is this file now closed?	
Reported by Robert B. Brouillet		Position, Employer, Location R L Hanson constation				Telephone 1-867-979-6004	
Reported to Robert B. Brouillet		Position, Employer, Location Acting Utilities Foreman				Telephone 1-867-979-5648	



N.W.T. SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

Phone/D'beD'c (403) 920-8130

Fax/7b'c'j'd'c (403) 873-6924

A Report date and time 21/07/02 9 AM		B Date and time of spill (if known) 20/07/02 12 AM		C <input checked="" type="checkbox"/> Original report <input type="checkbox"/> Update no. _____	Spill number d'beD'c
D Location and map coordinates (if known) and direction (if moving) Lift station #1 #2 Igloolik NU					
E Party responsible for spill City of Igloolik					
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) Raw Sewage (gray water) 3000					
G Cause of spill Traffic Accident, van hit a fire hydrant					
H Is spill terminated? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		I If spill is continuing, give estimated rate N/A		J Is further spillage possible? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
K Extent of contaminated area (in square metres if possible) N/A				L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) N/A	
M Containment (natural depression, dykes, etc.) N/A					
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials The water system serving the fire hydrant was shut down to access the main hole and make repairs					
O Do you require assistance? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes, describe: _____		P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife UNKNOWN			
Q Comments and/or recommendations The van hit the fire hydrant breaking it off to side of a concrete hole below the point where the hydrant should seal itself closed. The gate valve below the fire hydrant snapped off and filled all the lift stations over flowing them					FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time Is this file now closed?
Reported by Bob Brownell		Position, Employer, Location Utilider for Igloolik		Telephone 962 929 5648	
Reported to SAME		Position, Employer, Location SAME		Telephone SAME	



N.W.T. SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

4-865-666-6666 (403) 920-8130

Phone/Dial (403) 920-8130

Fax/Telex (403) 873-6924

A Report date and time JAN 11/03 9:30AM		B Date and time of spill (if known) JAN 10/03 8AM		C <input checked="" type="checkbox"/> Original report <input type="checkbox"/> Update no. _____ Spill number 4444	
D Location and map coordinates (if known) and direction (if moving) LOCATED BESIDE HOSPITAL FLOW TOWARDS CREEK BETWEEN HOSPITAL AND INUKSUK HIGH SCHOOL					
E Party responsible for spill CITY OF IQALUIT					
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) 2000 - 4000 GALS OF SEWAGE					
G Cause of spill PIPE JOINT ON SEWER SERVICE RIPPED APART					
H Is spill terminated? <input checked="" type="checkbox"/> yes/ <input type="checkbox"/> no		I If spill is continuing, give estimated rate 1000 GALS PER HOUR		J Is further spillage possible? <input type="checkbox"/> yes/ <input checked="" type="checkbox"/> no	
K Extent of contaminated area (in square metres if possible) 500 SQ FT					
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) TERRAIN			M Containment (natural depression, dikes, etc.) DITCH AND CREEK		
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials MATERIAL IS FROZEN IN CREEK BED. THE CITY WILL ATTEMPT TO REMOVE WITH HEAVY EQUIPMENT AND TRANSPORT TO SEWAGE LAGOON DUMP SITE					
O Do you require assistance? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes, describe: _____			P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife UNKNOWN.		
Q Comments and/or recommendations THE AREA WHERE THE SEWAGE COLLECTED IS HARD TO REACH AND MAY CAUSE PROBLEMS WITH REMOVAL.					
FOR SPILL LINE USE ONLY Lead Agency 4444 Spill significance 4444 Lead Agency contact and time 4444 Is this file now closed? YES					
Reported by CHRIS FREDA		Position, Employer, Location UTILITIES FOREMAN IQALUIT NU		Telephone (867) 979 5648	
Reported to 4444		Position, Employer, Location 4444		Telephone 4444	



N.W.T. SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

Phone/D 664 403 920-8130

Fax/D 664 403 873-6924

A Report date and time FEB/19/03 8:30am		B Date and time of spill (if known) FEB/19/03		C <input checked="" type="checkbox"/> Original report <input type="checkbox"/> Updated no. D 664 403 873-6924		Spill number D 664 403 873-6924	
D Location and map coordinates (if known) and direction (if moving) LIFT STATION #1 TOWARDS OCEAN							
E Party responsible for spill MUNICIPALITY OF Iqaluit							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) SEWAGE.							
G Cause of spill FUSE ON TOWER POLE BLOWN - NO POWER TO PUMPS OR ALARMS.							
H Is spill terminated? <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no		I If spill is continuing, give estimated rate N/A		J Is further spillage possible? <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no		K Extent of contaminated area (in squaremetres if possible) UNKNOWN.	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) HIGH TIDE AND CRACKS IN ICE				M Containment (natural depression, dykes, etc.) SOME CONTAINMENT IN ICE Pools			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials WILL ATTEMPT TO SCRATCH UP SEWAGE AND REMOVE TO LAGOON.							
O Do you require assistance? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes, describe:				P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife UNKNOWN.			
Q Comments and/or recommendations						FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time Is this file now closed?	
Reported by CHRIS FREDA		Position, Employer, Location UTILITIES FOREMAN CITY OF Iqaluit				Telephone 867 979-5648	
Reported to D 664 403 873-6924		Position, Employer, Location UTILITIES FOREMAN CITY OF Iqaluit				Telephone D 664 403 873-6924	



N.W.T. SPILL REPORT

(Oil, Gas, Hazardous Chemicals or other Materials)

24-Hour Report Line

Phone/Dial (403) 920-8130

Fax/Tele (403) 873-6924

A Report date and time 1/12/2003 9:30 AM		B Date and time of spill (if known) 1/12/2003 7:57		C Original report Update no.		Spill number 001	
D Location and map coordinates (if known) and direction (if moving) BEACH ROAD 109							
E Party responsible for spill MUNICIPALITY OF INUVUIT (CITY)							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) SEWAGE 100 - 1000 GALS							
G Cause of spill LINE BURSTAGE BETWEEN M.H. 30 & M.H. 31 BEACH ROAD 109							
H Is spill terminated? yes/Δ no/Δb		I If spill is continuing, give estimated rate /c Δb Δc Δd Δe Δf Δg Δh Δi Δj Δk Δl Δm Δn Δo Δp Δq Δr Δs Δt Δu Δv Δw Δx Δy Δz		J Is further spillage possible? yes/Δ no/Δb		K Extent of contaminated area (in square metres if possible) 10m ²	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) P/R ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ						M Containment (natural depression, dykes, etc.) DITCH	
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials MIXED SEWAGE WITH SOIL AND PILES NEAR SITE TO FREEZE - WILL REMOVE TO SEWAGE LAGOON WITH DUMP TRUCK							
O Do you require assistance? yes, describe: Δ - additional				P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ			
Q Comments and/or recommendations: ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ						FOR SPILL LINE USE ONLY Lead Agency ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ Spill significance ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ Lead Agency contact and time ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ Is this file now closed? C/A ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ	
Reported by JAMES FREED		Position, Employer, Location CITY OF INUVUIT, INUVUIT				Telephone 807 974-5076	
Reported by P/O ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ		Position, Employer, Location ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ				Telephone ΔC ΔD ΔE ΔF ΔG ΔH ΔI ΔJ ΔK ΔL ΔM ΔN ΔO ΔP ΔQ ΔR ΔS ΔT ΔU ΔV ΔW ΔX ΔY ΔZ	



NWT SPILL REPORT

(Oil, Gas, Hazardous Chemicals or other Materials)

24 - Hour Report Line

Phone: (867) 920-8130

Fax: (867) 873-6924

A Report Date and Time Apr 13/03 9:15 AM		B Date and Time of spill (if known) Mar 13/03 8:00 AM		C <input checked="" type="checkbox"/> Original Report <input type="checkbox"/> Update no. _____		Spill Number	
D Location and map coordinates (if known) and direction (if moving) AV 331. ACCESS FROM JOANIE SCHOOL							
E Partly responsible for spill CITY OF JOANIE							
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) SEWAGE TOWARDS TOXICAL							
G Cause of spill LINE BUCKAGE BETWEEN AV. 330 → AV 331.							
H Is spill terminated? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		I If spill is continuing, give estimated rate		J Is further spillage possible? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		K Extent of contaminated area (in square meters if possible) 15M ²	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.)				M Containment (natural depression, dikes, etc.) DITCH + SNOW			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials WILL MIX SEWAGE WITH SNOW AND REMOVE TO LANDFILL							
O Do you require assistance? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes, describe:				P Possible hazards to person, property, or environment; eg: fire, drink water, fish or wildlife UNKNOWN			
Q Comments or recommendations						FOR SPILL LINE USE ONLY	
						Lead agency	
						Spill significance	
						Lead Agency contact and time	
						Is this file now closed? <input type="checkbox"/> yes <input type="checkbox"/> no	
Reported by CHRIS FREDA		Position, Employer, Location CITY OF JOANIE, JOANIE N.T.				Telephone (867) 929 5648	
Reported to		Position, Employer, Location				Telephone	

A Report date and time Date and time of spill (if known) JULY 20/03 9:30AM		B Date and time of spill (if known) Date and time of spill (if known) JULY 20/03 9:30AM		C Original report Update no. 1000-20002	
D Location and map coordinates (if known) and direction (if moving) LIFT STATION #1 (SEWAGE) OVERFLOW TO OCEAN.					
E Party responsible for spill Municipality of Iqanuit.					
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) SEWAGE.					
G Cause of spill MUNAUT POWER CORP. WHILE CHANGING LINES NEAR HOSPITAL HOURED UP ONE LINE WRONG. RESULTED IN A CHANGE IN PHASE CAUSING LIFT STATION PUMPS TO RUN IN REVERSE.					
H Is spill terminated? yes/Δ no/Δ		I If spill is continuing, give estimated rate Δ/Δ		J Is further spillage possible? yes/Δ no/Δ	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) SAND AND TIDE.		M Containment (natural depression, dykes, etc.) UNKNOWN.			
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials UNABLE BY TIME A LOADER WAS ON SITE SPILL HAD BEEN STOPPED (LESS THAN 30MINS)					
O Do you require assistance? no yes, describe: Δ/Δ		P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife UNKNOWN.			
Q Comments and/or recommendations FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time					
Reported by Chris FREDERICK		Position, Employer, Location City of Iqanuit Utilidade Foreman		Telephone 979-5648	
Reported to Chris FREDERICK		Position, Employer, Location City of Iqanuit Utilidade Foreman		Telephone 979-5648	

A Report date and time JULY 20/03 9:30 AM		B Date and time of spill (if known) JULY 20/03 9:30 AM		C <input checked="" type="checkbox"/> Original report <input type="checkbox"/> Update no. _____ Spill number 0000000000	
D Location and map coordinates (if known) and direction (if moving) LIFT STATION #2 (SEWAGE) OVERFLOW TO OCEAN					
E Party responsible for spill MUNICIPALITY OF IOANUIT					
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) SEWAGE 1000 L					
G Cause of spill MUNAUIT POWER CORP. WHILE CHANGING LINES NEAR HOSPITAL HOOKED ONE LINE UP WRONG. THIS RESULTED IN A CHANGE OF PHASE CAUSING PUMPS TO RUN IN REVERSE					
H Is spill terminated? <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no		I If spill is continuing, give estimated rate /		J Is further spillage possible? <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no	
K Extent of contaminated area (in square metres if possible) UNKNOWN					
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) SAND AND TIDE				M Containment (natural depression, dykes, etc.) DRAINAGE DITCHES	
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials BY TIME LOADER HAD ARRIVED ON SITE SPILL HAD BEEN STOPPED (LESS THAN 30 MINS)					
O Do you require assistance? <input checked="" type="checkbox"/> no / <input type="checkbox"/> yes, describe: _____			P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife UNKNOWN		
Q Comments and/or recommendations FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time Is this file now closed?					
Reported by CURS FREDA		Position, Employer, Location UTILITOR FOREMAN CITY OF IOANUIT		Telephone 979-5648	
Reported to DUBOIS		Position, Employer, Location UTILITOR FOREMAN CITY OF IOANUIT		Telephone DUBOIS	

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A Report date and time 09/04/03 8:15 AM		B Date and time of spill (if known) 09/03/03 8:15 PM		C Original report <input checked="" type="checkbox"/> Update no. Spill number DAI-64DC	
D Location and map coordinates (if known) and direction (if moving) Lift Station # 1					
E Party responsible for spill City of Iqaluit					
F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible) Raw Sewage 500 Lt.					
G Cause of spill Power failure NPC					
H Is spill terminated? <input checked="" type="checkbox"/> yes/ <input type="checkbox"/> no		I If spill is continuing, give estimated rate yes/ <input type="checkbox"/> no		J Is further spillage possible? <input type="checkbox"/> yes/ <input checked="" type="checkbox"/> no	
				K Extent of contaminated area (in square metres if possible) 10m ²	
L Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.) The lift station over flow spills into sewage inlet				M Containment (natural depression, dykes, etc.) Dike/wall made of earth and rocks	
N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials Hydrated lime spread on effected area					
O Do you require assistance? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes, describe: DAI - 64DC			P Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife DAI-64DC (known)		
Q Comments and/or recommendations DAI-64DC				FOR SPILL LINE USE ONLY Lead Agency Spill significance Lead Agency contact and time Is this file now closed?	
Reported by Robert Brouillet		Position, Employer, Location Utilidor Foreman City of Iqaluit		Telephone 867 979 5648	
Reported to Jim Gilmore		Position, Employer, Location Director of Public Work City of Iqaluit		Telephone 867 975 1774	

Bibliography

City of Iqaluit Dam Safety Review For Lake Geraldine Dam, Trow Consulting Engineers Ltd., March 2001.

Municipality of Iqaluit Water treatment Plant Pre-Design Brief, Earth Tech (Canada) Inc., March 2002.

Water and Sewer Study, Trow Consulting Engineers Ltd., May 2002.

City of Iqaluit Dam Safety Review for Sewage Lagoon, Trow Consulting Engineers Ltd., October 2002.

City of Iqaluit Public Works, Chris Freda.

City of Iqaluit Public Works, Bob Brouillet.