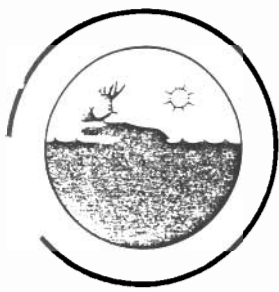


TOWN OF IQALUIT

Municipal Water Licence

N5L3-0087

PUBLIC HEARING SUBMISSIONS



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

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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

July 11, 1999

Distribution List

Subject: Written Submissions and Order of Events
NWB Hearing - Application for Renewal of Licence N5L3-0087

In accordance with the Nunavut Water Board's *Rules of Practice and Procedure for Public Hearings*, a party who intends to rely on a document in a hearing shall file the document on the Public Register at least ten days before the date of the hearing in order that it may be distributed to other parties. I enclose for your consideration the following submissions received with respect to the above-mentioned hearing. Upon request, we will provide an Inuktitut translation of these submissions.

Letter and submission dated July 9, 1999 from Laura Johnston, Environment Canada, to the NWB;

Letter, submission and photos from Marcel Mason, Iqaluit, to the NWB, dated July 9, 1999;

Letter and submission from David Livingstone, Indian and Northern Affairs Canada, to the NWB, dated July 9, 1999;

Submission from Fisheries and Oceans Canada to the NWB, dated July 9, 1999;

Letter from Nicole Ritchie, Baffin Regional Health Services, to the NWB, dated July 9, 1999;

Letter and submission from Earle G. Baddaloo, Sustainable Development Nunavut, to the NWB, dated July 9, 1999.

I also attach the order of events that will be followed at the hearing.

Do not hesitate to contact our office should you have any question about this matter.

Sincerely,

David Porter
Licence Administrator

DISTRIBUTION LIST

Denis Bédard, Town of Iqaluit
Marcel Mason, Iqaluit
Tina Price, Qikiqtani Inuit Association
David Livingstone, Indian and Northern Affairs Canada
Laura Johnston, Environment Canada
Earle Badaloo, Sustainable Development, GNT
Michele Bertol, Community Government, Housing and Transportation, GNT
Nicole Ritchie, Baffin Regional Health and Social Services Board
Margaret Keast, Fisheries and Oceans Canada
Joe Ahmad, Nunavut Impact Review Board
Luke Coady, Nunavut Planning Commission
Jim Noble, Nunavut Wildlife Management Board
Secretary-Manager, Amarok Hunters' and Trappers' Organization
Qikiqtaaluk Wildlife Board
Nunavut Tunngavik Inc.





Environment
Canada

Environnement
Canada

NWT DIVISION
ENVIRONMENTAL PROTECTION BRANCH
PRAIRIE AND NORTHERN REGION
#301 - 5204 - 50TH AVE
YELLOWKNIFE, NT X1A 1E2
PH. (867) 669-4700



July 9, 1999

Our File: 4782-012

Thomas Kudloo
Chairperson
Nunavut Water Board
P.O. Box 119,
Gjoa Haven, NT X0E 1J0

By Facsimile: (867) 360-6369

Dear Mr. Kudloo:

Attached please find Environment Canada's submission to the Nunavut Water Board in connection with the scheduled Public Hearing concerning the Town of Iqaluit's application for the renewal of Water Licence N5L4-0087. Anne Wilson, Environment Canada, will be in attendance at the public hearing to make a formal presentation and to answer any questions which the Water Board members, Town representatives, or the public may have concerning the issues contained in the submission.

Should you wish clarification on any aspect of the submission prior to the public hearing please contact Anne Wilson at (867) 669-4735 or me at (867) 669-4724.

Sincerely,

Laura Johnston
Manager, Northern Division
Environmental Protection Branch
Prairie and Northern Region
Environment Canada
Yellowknife

cc: Peter Blackall Director, Environmental Protection, Environment Canada, Edmonton

Environnement Canada - Prairie et Nord



Canada

ENVIRONMENT CANADA'S

Submission to the

NUNAVUT WATER BOARD

**On an Application for Water Licence Renewal
N5L4-0087**

**By the
TOWN OF IQALUIT, Nunavut**

July 9, 1999

1. INTRODUCTION

Environment Canada's (EC) intervention to the Nunavut Water Board presents concerns and recommendations with respect to the Town of Iqaluit's renewal application for Water Licence N5L4-0087. The Town of Iqaluit has applied to use up to 1,100,000 cubic metres per year of water, and to dispose of sewage and solid waste. Significant upgrades are under consideration for the sewage treatment system and solid waste site, as well as for water supply and infrastructure improvements. However, at the time of the licence renewal application, no final plans or design documents were available.

This submission describes our concerns and recommendations regarding :

- a) Sewage Treatment and Disposal
 - i) Upgrade of treatment system
 - ii) Operation of the existing system
 - iii) Abandonment and reclamation of existing lagoon
- b) Solid Waste Disposal Sites
 - i) Improved practices
 - ii) New landfill facility
 - iii) Reclamation of abandoned waste disposal sites
- c) Monitoring and Surveillance Network Program Stations
- d) Pollution Prevention Measures
- e) General Process Issues
 - i) Identification of funding and finalization of plans
 - ii) Review of draft licence
 - iii) Term of licence

The recommendations presented in this submission are based on information supplied to date by the Town of Iqaluit and at the pre-hearing meeting in Iqaluit. Should new or additional information be brought forward by the Town of Iqaluit or identified during the public hearing this submission will be re-examined. Any changes will be brought to the attention of the Nunavut Water Board.

2. ENVIRONMENT CANADA'S MANDATE

The general mandate of EC is defined by the *Department of the Environment Act*. This Act provides the Department with a general responsibility for environmental management and protection in terms of the need to foster harmony between society and the environment for the economic, social, and cultural benefit of present and future generations of Canadians. The Department shares this responsibility with provinces and territories. EC is also responsible for providing environmental advice to federal government agencies and for the preservation and enhancement of environmental quality.

Municipal operations of the Town of Iqaluit are subject to the following statutes administered by Environment Canada: the *Fisheries Act*, the *Canadian Environmental Protection Act* (CEPA), the *Migratory Birds Convention Act* and *Canada Wildlife Act*. Environment Canada's submission is based primarily on its mandated responsibility for the enforcement of Section 36 of the *Fisheries Act*. Subsection 36(3) of the *Fisheries Act* prohibits the "...deposit of a deleterious substance of any type in water frequented by fish...". A first step towards compliance with this requirement is demonstrating that the effluent is non-acutely lethal. This may be demonstrated by an acute lethality determination such as *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout* (Reference Method EPS 1/RM/13, July, 1990) and amendments (May, 1996), or other techniques and procedures.

3. TECHNICAL COMMENTS AND RECOMMENDATIONS

a) Sewage Treatment and Disposal

i) Upgrade of treatment system:

The Town has selected a membrane/bioreactor treatment facility which is to be installed adjacent to the existing sewage lagoon. The new system is to meet effluent quality standards, as outlined by the Nunavut Water Board, which are considerably more stringent than those permitted under the current licence for the lagoon system. Design, operation and performance details on the proposed system have not been provided for review, and should be circulated for technical evaluation prior to final commitment for implementation. The proposed timing for the new facility is for commissioning in fall of 2000.

Effluent discharged by the treatment facility will enter Frobisher Bay, which contains fish. To determine the level of compliance with Subsection 36(3) of the *Fisheries Act*, trout and daphnia bioassay tests should be done with the final effluent. ***EC recommends that bioassay tests be included as a condition of the licence SNP, on a four times yearly basis. EC is available to assist the Municipality in arranging such testing.***

The sewage treatment plant proposal suggests the option for the Town to continue using the existing lagoon for trucked sewage, relying on dilution with treated effluent to meet the more stringent licence limits from the lagoon. ***EC recommends that full transition be made to the new system as soon as possible, in order to improve the quality of effluent entering Frobisher Bay.***

ii) Operation of the existing lagoon system:

Until the new system is commissioned, the existing lagoon system will continue to be used, maintaining the current licence discharge limits for effluent Total Suspended Solids, BOD5, and Fecal Coliforms. Recent problems with dyke seepage have resulted in the need to operate the lagoon at lower levels, shortening the retention and treatment time. Leakage from the lagoon's West Dyke must be monitored and minimized, and overall dike integrity evaluated. ***EC recommends that a geotechnical inspection be done during this open water season, and necessary remedial measures identified.***

iii) Decommissioning of the existing lagoon:

The existing lagoon will require reclamation measures such as decanting and sludge removal. There remains a possibility that the existing lagoon (with some upgrading) could be used as a component of the new treatment system. For example, it could be used as a holding pond for trucked sewage prior to the trucked sewage being routed through the new treatment system, as a surge pond for temporary storage of unexpectedly high short-duration sewage flows, as a temporary storage pond for sewage during both planned and emergency shutdowns of the new system, or for extra polishing of the effluent from the new system prior to release to the environment. ***EC recommends that the Town be required to evaluate these options before deciding on the final fate of the existing lagoon. If the result of this evaluation is that the existing lagoon is no longer needed, the Town should prepare a practical reclamation plan for approval. The plan should address supernatant treatment, sludge testing and disposal options, and final reclamation measures.***

b) **Solid Waste Disposal Sites**

i) Improved practices:

Open burning has been an ongoing practice at the landfill. In addition to posing potential health and safety risks, open burning generates emissions which may contain unacceptable levels of contaminants, such as hydrocarbons, dioxins, and metals which are deposited or transported by rain and runoff to the adjacent land and water. ***EC recommends that open burning be discontinued.*** Other issues such as the handling, storage and disposal of hazardous wastes and the effective management of recyclables should be addressed. ***EC recommends that the hazardous materials waste stream should be characterized, and provision made for secure storage and handling of hazardous materials.***

ii) New landfill facility:

The existing facility is nearing the end of its operational life, and planning studies completed to date haven't identified siting or provided operational details for a new landfill. Development of the new facility should be on a "cradle to grave" basis, and include investigation of any feasible volume reduction technologies (for example, compaction and incineration). A segregated, secure area for hazardous wastes should be included in the designs. ***EC recommends that the Town develop a practical plan for a new landfill site, including planning for site engineering, operation, and final abandonment and reclamation. EC also recommends that the new landfill include an area for land-farming of hydrocarbon-contaminated soils.***

iii) Reclamation of abandoned waste disposal sites:

The reclamation of the abandoned West 40 landfills (four non-military sites) and the Apex dump have been the subject of several planning reports, however engineered closure plans have not been developed. Plans submitted under the expiring licence have not been approved, and new plans are required to address: an assessment of type and extent of contamination, full plans for remediation measures and drainage management, a long-term monitoring plan, and the timetable for implementation. ***EC recommends that development of such detailed closure plans and a schedule for implementation, subject to regulatory approval, be a requirement of the licence.***

c) **Changes requested in the Surveillance Network Program Stations**

The application requests removal of the sampling stations and frequency for PAHs and PCBs at three stations. ***EC recommends that the Town provide all past sample results and a rationale explaining why these sites and parameters should no longer be monitored.***

d) **Pollution Prevention Measures**

In the water licence application, the Town of Iqaluit has expressed its commitment to being environmentally responsible. EC commends this attitude, and is available to discuss such pollution prevention measures as water conservation and waste minimization, and provide information on available programs. ***EC recommends that the Town of Iqaluit be required to develop a proactive plan aimed at reducing waste generation, which identifies practical measures for implementation.***

e) **General Issues**

i) Identification of funding and finalization of plans:

The renewal application refers to numerous upgrades which are identified in the capital plans of the Town. Scheduled for construction this year are the sewage system upgrade, the water treatment plant upgrade, the Astro Hill trunk main re-route, and improvement of the existing pipe system capacity. ***EC recommends that the licence renewal require that the Town provide firm funding commitments, and final designs and schedules for high priority items such as the new sewage system and solid waste site.***

ii) Review of draft licence:

The current licence renewal application references conceptual plans for the upgrades to the sewage and solid waste systems, which will not have been finalized or passed through a technical review at the time of the public hearing. Because of the uncertainty surrounding proposed changes to systems, and the potential for new information to be presented at the public hearing, ***EC recommends that the licence renewal be circulated as a draft for review by intervenors such that comments can be made for consideration by the Nunavut Water Board.***

iii) Term of licence:

EC recommends that the licence duration be limited to the time frame of the implementation schedule for the proposed system changes.

4. SUMMARY

Changes to the key facilities which fall under the water licence are described in the application largely in conceptual terms, and no indication of timing is provided. Without this information, a thorough review of the application is not possible. ***EC recommends that a very short-term licence be issued until final designs are available and funding is fully committed. EC believes that upgrading of the sewage disposal system and solid waste practices are priorities, and should be key conditions of the renewal.***

NUNAVUT WATER BOARD

JUL 09 1999

PUBLIC REGISTRY

Nunavut Water Board
Gjoa Haven
Nunavut

July 9, 1999

Via Email

Re: Municipality of Iqaluit
Water License N5L3-0087
Application for Renewal
(Dated February 3, 1999)

Dear Sir/Madam:

With respect to the above application I would like to discuss issues related to Section V Solid Waste Disposal.

Waste Reduction (part 1 of Section V)

The Municipality states in its application that:

"As outlined in the Town of Iqaluit Landfill Operation and Maintenance Manual for site 3 in West 40, controlled burning occurs under the favourable conditions with respect to the tank farm and the community."

And further that:

"Burning does not take place during the following circumstances:

- Air temperature is above 15 C*
- Wind is from the northwest between May 1st and September 30th*
- the tanks are being filled*
- A spill occurs at the tank farm*
- Venting tanks during high wind"*

While I have little doubt that the Municipality makes every effort to adhere to these guidelines there are many instances where the wind switches direction during a Municipal burn and the smoke from the landfill moves over the community in a smog like cloud that has a very unpleasant odor.

Additional to the community of Iqaluit itself there are 2 areas of community use that are affected by Municipal burns.

- (1) The Sylvia Grinnell park is generally north of the Municipal landfill. Many residents of Iqaluit have either been picnicking at the park and/or fishing near the waterfalls on the Sylvia Grinnell during a Municipal burn when the wind has been coming from a southerly direction and smoke from the dump contaminates the area;
- (2) Residents of Iqaluit use an area known locally as "the causeway" as a small out of town camping and picnic area. The causeway is generally south of the Municipal landfill and when the wind is from a northerly direction smoke from the dump contaminates the area.

Under the Consolidation of Environmental Rights Act (R.S.N.W.T. 1988, c83(Supp.)) "contaminant" is defined as:

"...any solid, liquid, gas, odour, heat, sound or vibration, or any combination of them, the release of which into the environment
(a) causes or contributes to the impairment of the quality of the environment,
(c) causes harm or material discomfort to any person, or adversely affects or impairs the health or safety of any person, or
(d) renders the environment unfit for use by any plant or animal life or by any person;"

"environment" is defined as:

"...the components of the Earth within the Territories and includes
(a) all air, land, water, snow and ice..."

It is my understanding that these Acts, as well as other Acts of the Government of the Northwest Territories, have been grandfathered into Government of Nunavut legislation and as such would continue to apply as a legal definitions.

Under this definition smoke from the Municipal burn does create an odour that contributes to the impairment of the

* Lee Weber

environment both within the actual community of Iqaluit and its surrounding area.

Due to the nature of waste being disposed of by burning (plastics, plastic compounds, and chemicals such as found in detergents, various household cleaners, drain openers, etc...) it is quite possible that the gasses created when these items are mixed together and burned could impair the health of people, most notably young children, elders, and individuals with respiratory problems. With respect to this I have contacted the Environmental Protection Office for the Government of Nunavut in Iqaluit asking of there have been any tests completed regarding this and what the results were and that of no tests have been completed if any are contemplated.

In regard to the definition of contaminate(d): when smoke from the Municipal burn enters the community, the park area, or the causeway area, the affect area basically becomes unfit for use due to the odour and, in some cases, quantity of smoke created.

Waste Reduction (part 2 of Section V)

The Municipality states in its' application that:

"Reusable materials are separated at the site for future use. A local contractor operates a recycling program to handle aluminum cans and glass bottles. Both are crushed to reduce the volume. The Municipality has also considered implementing a blue box program that would encourage more recycling."

The separation of materials at the site seems to be fairly basic in nature, domestic waste is not separated other than to put it in a separate area of the Municipal landfill from metal debris.

The recycling program operated by a local contractor consists of a crusher for aluminum cans (and possibly glass) however it is not a full time operation and not publicized well. I would like to emphasize that I do not wish to detract at all from the effort local contractor who is I am sure doing the best work possible given the funding, equipment and storage area available to the operation. The

fact is that at this time there is a severe backlog of aluminum cans to be crushed and according to previous reports in the local media some material is being stored at the Municipal landfill.

With respect to the Municipalities consideration of a blue box program this would be a start to a more proactive waste management system however with out an actual plan in place consideration of the matter may not go further than just that.

The application states that:

"A new group has been recently been formed in Iqaluit called the Iqaluit Environmental Beautification Society. High on their list of priorities is further reduction of waste in the community, more re-use and recycling."

Again, I do not want to detract at all from the activities of the group mentioned in this application. The group has been, to date, fairly low profile within the community and, if it has followed through with discussions as outlined at the public meeting where it was formed, generally concerned the visible aspect of the community, ie... community clean-ups, public education regarding littering, and general community beautification projects. All are valuable contributions to the community however they have little to do with waste management.

The "Commercial, Industrial and/or Hazardous Wastes Disposal Area section of the application states":

"Commercial waste from hotels, restaurants, retail stores, contractors, and other private business is deposited in the landfill. This would include food waste, cardboard and paper, construction materials, cans and other metal, plastic or rubber. No hospital waste is deposited at the site. Only household hazardous waste is accepted."

One would have to assume that included with the various items deposited in the landfill from commercial sources stated in the application that industrial solvent & cleaner containers would also be deposited, and burned with other waste materials they have been mixed up (by dumping ...)

at the landfill site. Again, there is the concern of toxic elements being either created or emitted into the community and surrounding areas from the landfill when this waste is burned.

With respect to Abandonment & Restoration of previously used solid waste facilities there are 2 areas in need of restoration.

The area known as the "old metal dump" is a large jumble of car, truck, heavy equipment, and (at least one) airplane bodies, in addition to the other assorted metals & metal wastes stored there. This area needs immediate attention.

The last used waste facility is located on the side of a bank across the inlet from the community. During the summer months refuse is still visible on the side of this hill, spring and rain runoff goes through this area into the waters of the inlet. Restoration of the site as well as diversion of runoff needs to be completed for this site.

Section VII - Public Concerns

It is stated in the application that one public concern is:

- *Smoke and debris from open burning*

and that the Municipal action will be:

- *Further restricting the hours of burning*
- *More segregation of waste prior to burning*

Many people within the community are concerned with the health & safety issues created by the Municipal open burn as well as the effect it has on their enjoyment of the land surrounding the community.

Further restrictions should include:

- no burning during any time of the year when the wind direction could cause smoke from the landfill to move into the community,
- no burning between April 15th & October 1st when the wind direction could cause smoke from the open burn to move over the causeway area or the Sylvia Grinnell Park area.

The application states that action will be "more segregation of waste prior to burning":

- this should be further expanded upon to state how the Municipality will achieve this additional separation.

It is stated in the application that a public concern is:

- not enough recycling

And that the Municipal action will be:

- further separation of wastes at solid waste site
- more re-use and recycling encouraged

Again, these actions should be expanded upon to state:

- how further separation of waste will be accomplished at the solid waste site, and
- how the Municipality will be encouraging re-use and recycling of waste materials

Thank you
Web addresses

Conclusion

- (1) Open burning of waste materials should be extremely limited as opposed to the primary method of community waste disposal for health & safety reasons, environmental reasons as well as economic considerations as the open burn is one of the first sites seen by many tourists & travelers as they land at the airport.
- (2) The potential health risks created by smoke from the open burn that move into the community, the causeway area, and the Sylvia Grinnell park area should not be ignored by either the Municipality, the Government of Nunavut, or the Nunavut Water Board.
- (3) Cleanup and restoration of previously used waste disposal areas needs to be made a much higher priority than it seems to be at the present time for health & safety reasons, environmental considerations, as well as economic reasons as they have an impact on potential tourism resources as well.
- (4) Many responsible Municipal Corporations all over Canada have, and are, engaging in waste management education programs such as separation of household waste at the household point. This has been done at both the community information level as well as the legislation level where separation of biodegradable, non-biodegradable, and waste that can be recycled is made mandatory by Municipal By-Law. The Municipality of Iqaluit should begin moving in the same direction as other Canadian Municipalities in this regard.

operation & maintenance
Marcel Mason
contained

2 prior

West 40
Submission

Marcel Mason
P.O. Box 16
Iqaluit, Nunavut
X0A 0H0

Fax: 867-979-1513
Email: marcel@nunanet.com

[Handwritten signature]

D. H. F.
Apex
Iqaluit
Incense
12 & 13
Ab 740
M. Mason
Board
ALEX 201
Approval & the

Some
Dienne
Ward
Board
Subsequent
material


Subject: Municipal Fire June 21

Date: Fri, 9 Jul 1999 14:35:00 -0400

From: "Marcel Mason" <mmason@nunanet.com>

To: <dionne@polarnet.ca>

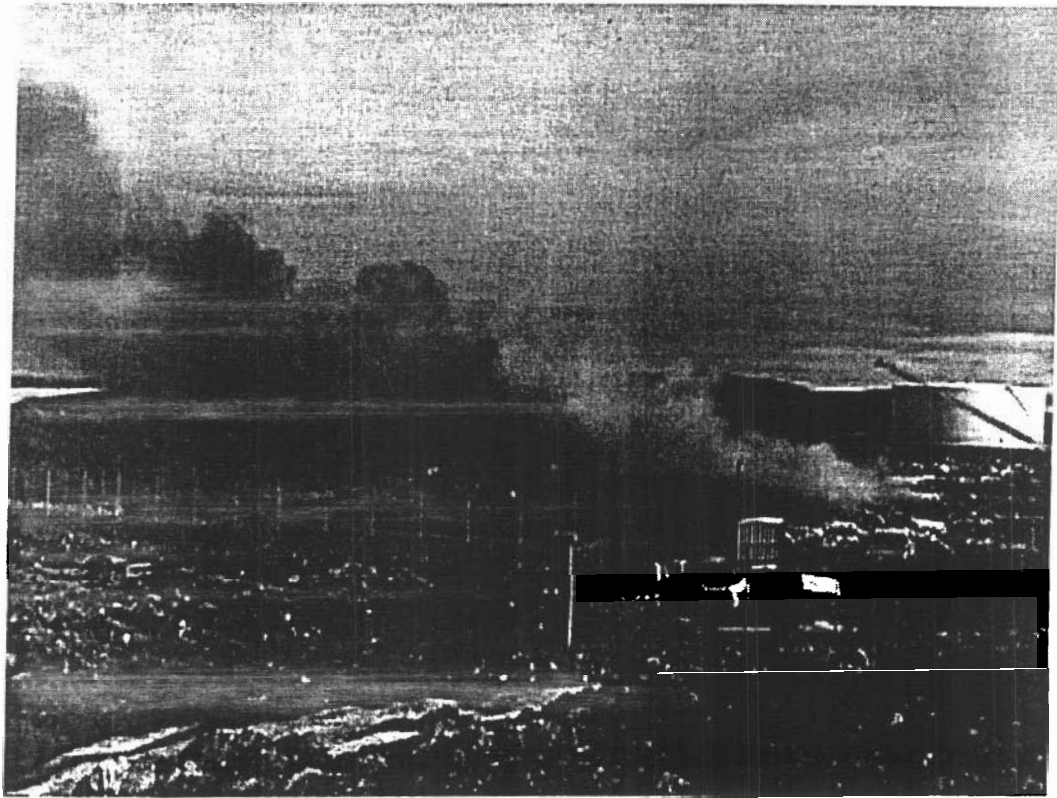
On June 21st there was a fire at the municipal landfill that required the attendance of the fire department. The white smoke is from general waste that is burned on a regular basis, the black smoke is generated by other (described as "commercial") waste.

 [general_view.jpg](#)

Name: general_view.jpg

Type: JPEG Image (image/jpeg)

Encoding: base64



Subject: West 40 unrestored landfill

Date: Fri, 9 Jul 1999 14:44:29 -0400

From: "Marcel Mason" <mmason@nunanet.com>

To: "Nunavut Water Board" <dionne@polarnet.ca>


For inclusion with intervention statement.


These 2 photos were taken on June 14 at the previous municipal landfill.

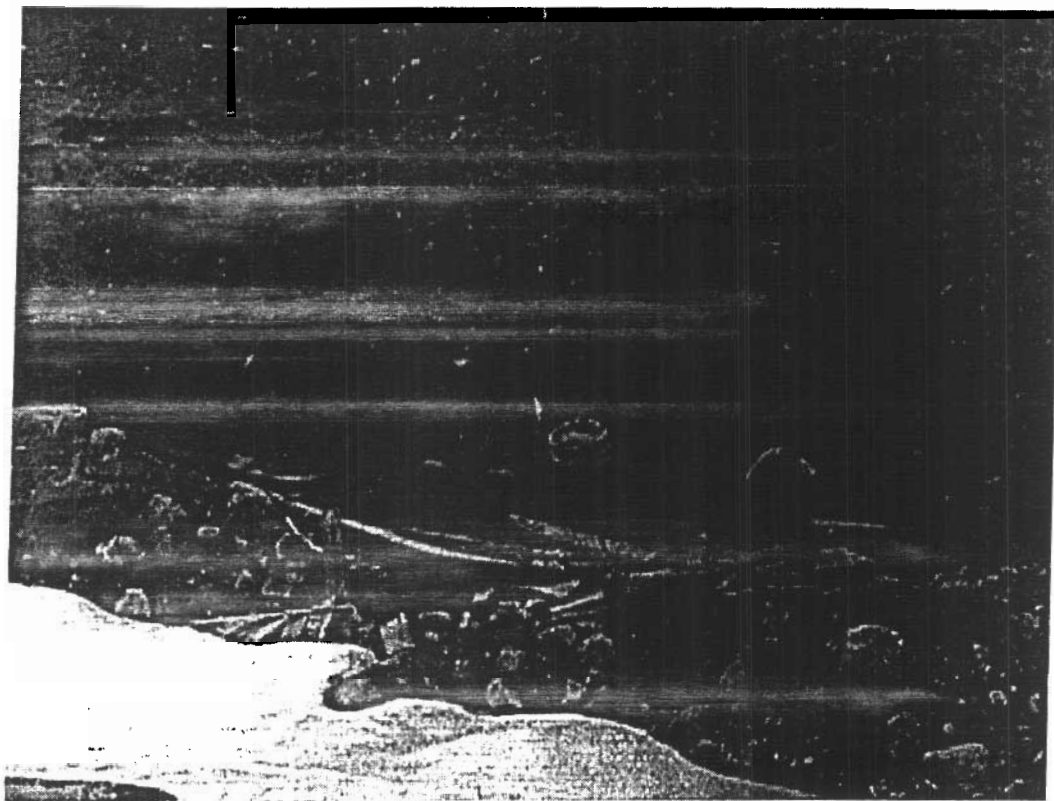
As can be seen in the image unrestored2_full.jpg there is still a lot of work to be done. It appears that gravel has been dumped on the area however it still remains in "piles" and has not been leveled which has led to water pooling between piles of gravel with waste in it.

The image unrestored1_full.jpg is an image from the same area showing unrestored areas of the previous landfill on the side of the hill by the inlet that separates the community from the west 40 area

Marcel

 unrestored2_full.jpg	Name: unrestored2_full.jpg Type: JPEG Image (image/jpeg) Encoding: base64
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 unrestored1_full.jpg	Name: unrestored1_full.jpg Type: JPEG Image (image/jpeg) Encoding: base64
---	--





Subject: municipal landfill area

Date: Fri, 9 Jul 1999 14:54:38 -0400

From: "Marcel Mason" <mmason@nunanet.com>


To: "Nunavut Water Board" <dionne@polarnet.ca>

For inclusion in intervention statement


These 2 photos were taken June 14/99 from just outside the current municipal landfill.

Both images show a considerable amount of metal waste that has not been addressed since the new landfill was opened.

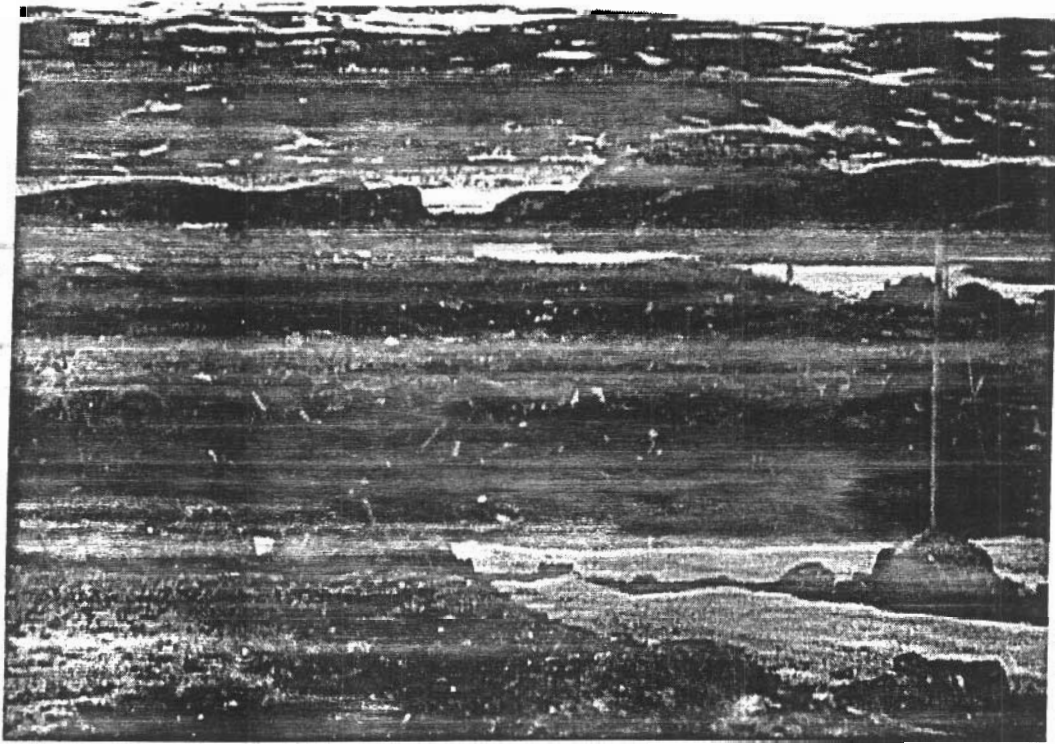
Marcel

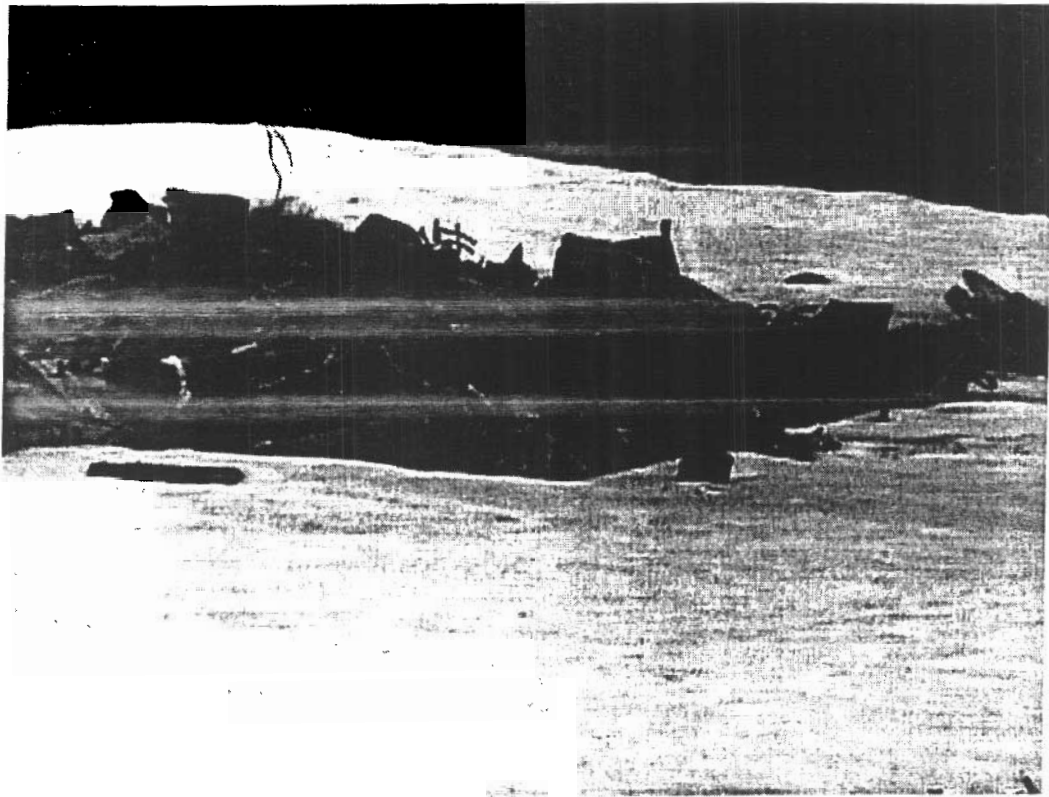
 [abandoned1_full.jpg](#)

Name: abandoned1_full.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64

 [abandoned2_full.jpg](#)

Name: abandoned2_full.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64





Subject: municipal landfill

Date: Fri, 9 Jul 1999 14:56:41 -0400

From: "Marcel Mason" <mmason@nunanet.com>


To: "Nunavut Water Board" <dionne@polarnet.ca>

For inclusion in intervention statement


These photo's were taken June 14 at the municipal landfill.

As can be seen there is actually very little seperation of waste taking place at the landfill

Marcel

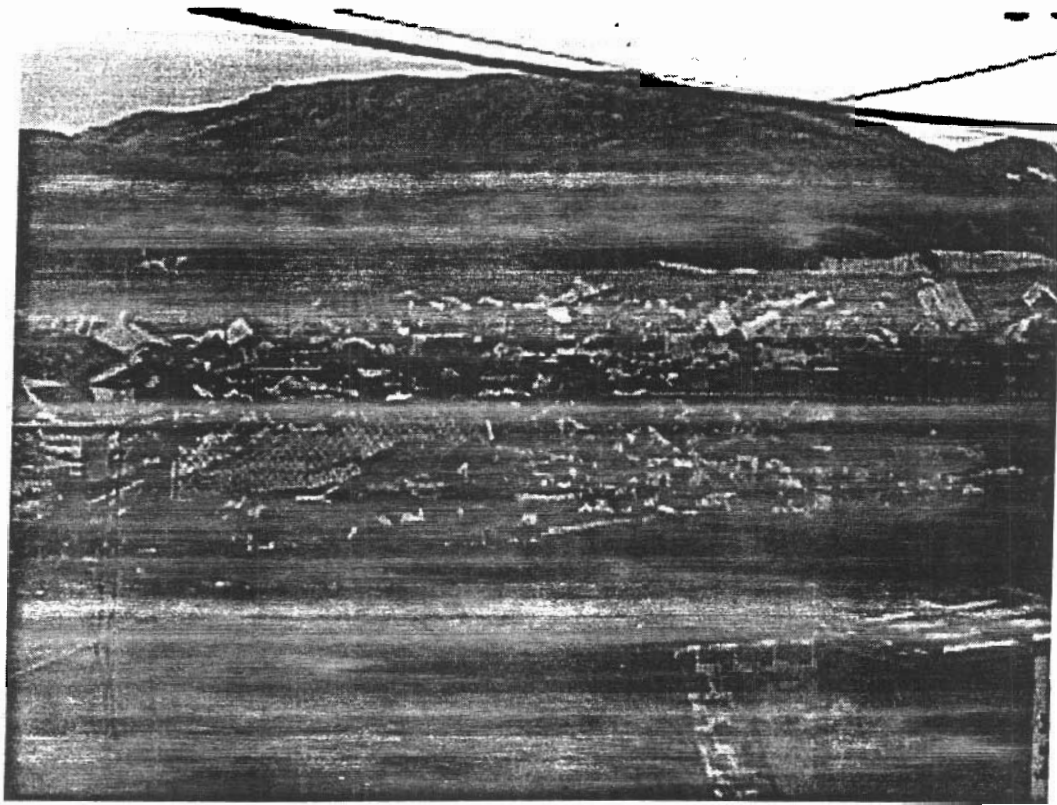
 [current_full.jpg](#)

Name: current_full.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64

 [current1_full.jpg](#)

Name: current1_full.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64





Subject: June 21 landfill fire

Date: Fri, 9 Jul 1999 15:09:33 -0400

From: "Marcel Mason" <mmason@nunanet.com>

To: "Nunavut Water Board" <dionne@polarnet.ca>

For inclusion with intervention statement.


As can be see by these photos smoke from both the "commercial" fire and regular Municipal waste are generating smoke that is drifting towards the community (specifically the Tundra Valley subdivision).

The Municipality states that they do not burn when the winds are from this direction (ie .. a direction that would move smoke over the town).


In the image titled smk_drift2.jpg house can be clearly seen to the left of the photo.

Marcel

PS: resending this one ... forgot to attach photos

 [smk_drift1_full.jpg](#)

Name: smk_drift1_full.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64

 [smk_drift2_full.jpg](#)

Name: smk_drift2_full.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64





Subject: june 21 landfill fire

Date: Fri, 9 Jul 1999 15:19:15 -0400

From: "Marcel Mason" <mmason@nunanet.com>

To: "Nunavut Water Board" <dionne@polarnet.ca>


For inclusion with intervention statement

This photo was also taken on June 21/99 during the landfill fire.

As can be seen there is a large pool of water within the landfill, the drainage pipe leads to a ditch outside the landfill berm.

As can also be noted there is little seperation of waste types, to the right hand side of the photo is a large pile of tires near old household appliances and other waste. At least one tire is floating around in the water.

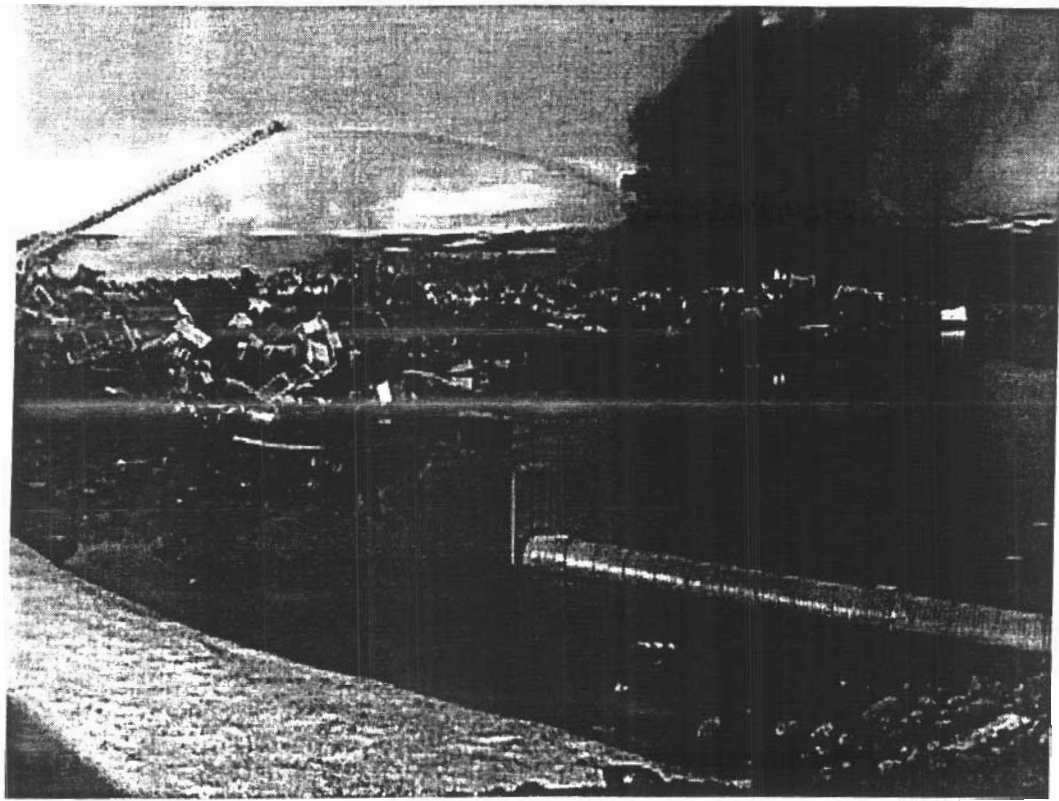
to the best of my knowledge the material burning that required the attention of the fire department and created the large cloud of black smoke that dirfted over areas of the town was ever publicaly identified.

 [fire_pic_full.jpg](#)

Name: fire_pic_full.jpg

Type: JPEG Image (image/jpeg)

Encoding: base64



Subject: West 40 dump site

Date: Fri, 9 Jul 1999 15:23:11 -0400

From: "Marcel Mason" <mmason@nunanet.com>

To: "Nunavut Water Board" <dionne@polarnet.ca>

This and all other emails to be included in intervention statement.

This image was taken June 14/99 from the town beach area towards the side of the hill across the inlet where the prior landfill was located.

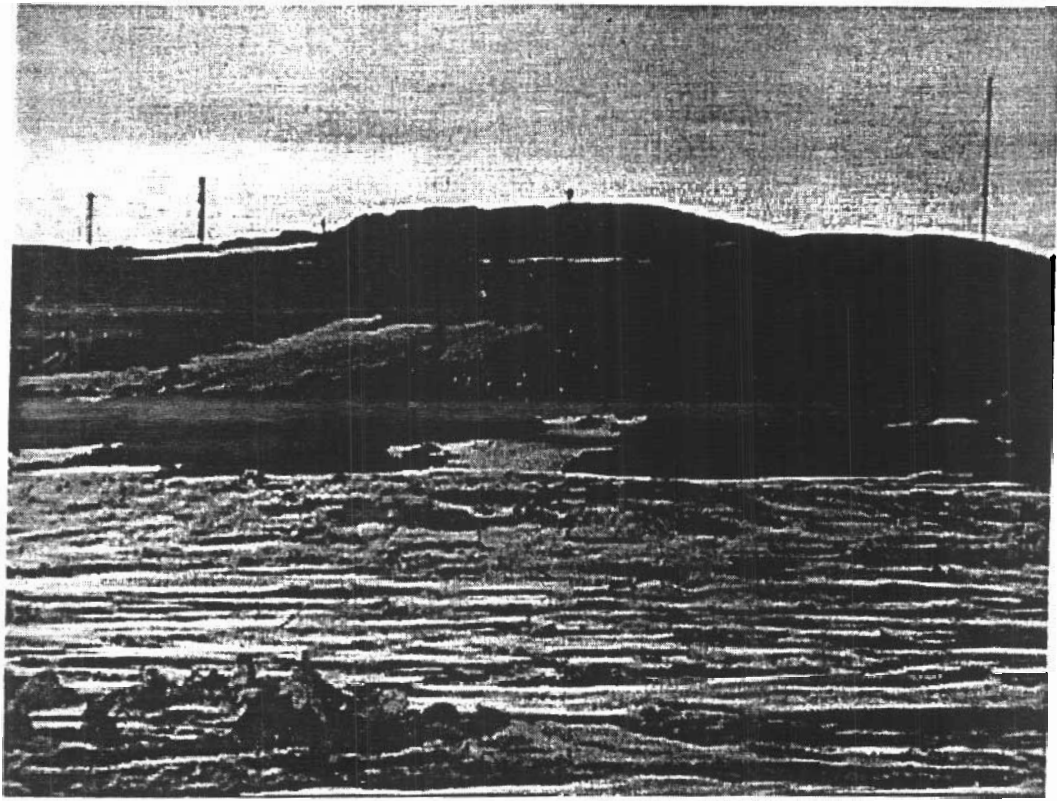
As can be seen (inside the red circle) there is a considerable amount of waste from the old dump site which has never been addresses or restored.

Any run-off from rain or snow that passes through this area goes directly into the inlet.

Marcel

 sidehill_red.jpg

Name: sidehill_red.jpg
Type: JPEG Image (image/jpeg)
Encoding: base64





P.O. Box 1500
Yellowknife, NT X1A 2R3

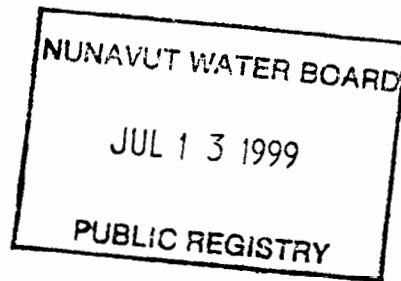
your file / votre référence

July 9, 1999.

NWB3IQA
your file / votre référence

N5L3 - 0087

Mr. Thomas Kudloo
Chairman
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NT X0E 1J0



Dear Mr. Kudloo:

Re: Municipality of Iqaluit - Water Licence Renewal

On behalf of the Department of Indian and Northern Affairs Canada, I am pleased to submit to the Nunavut Water Board, our Intervention for the renewal of the Municipality of Iqaluit's Water Licence N5L3-0087. Departmental representatives will also be participating in the Public Hearing scheduled for July 20, 1999 in Iqaluit.

If the Board has additional comments on our Intervention, please contact Mr. David Jessiman, Regional Coordinator at (867) 669 - 2660 or Mr. David Milburn, Manager, Water Resources at (867) 669 - 2650.

Yours sincerely,

David Livingstone
Director
Renewable Resources and Environment

Attach.

PUBLIC HEARING SUBMISSION TO THE

NUNAVUT WATER BOARD

ON THE APPLICATION BY THE

MUNICIPALITY OF IQALUIT

FOR A MUNICIPAL WATER LICENCE RENEWAL

JULY 1999

**DEPARTMENT OF
INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
N.W.T. REGION**

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APPENDICES

Appendix I - 1995 -1999 Compliance Report

1. INTRODUCTION

This Intervention to the Nunavut Water Board is made on behalf of the Department of Indian Affairs and Northern Development (the Department) on the renewal of a Water Licence for the Municipality of Iqaluit, Nunavut Territory.

The previous Water Licence was granted by the Northwest Territories Water Board under the authority of the *Northwest Territories Waters Act and Regulations* and was effective from January 1, 1996 to December 31, 1998. The Nunavut Water Board granted an extension of that licence “until such time as the Board completes their review”.

This intervention will follow the format of the current water licence and will contain the Department’s recommendations where applicable. In the past, the Department has provided a compliance summary as a major component of the intervention, however, this submission will not. Inspection reports and compliance reviews are submitted to the Board on a regular basis and form part of the public register. The Department is prepared, however, to answer any questions regarding the Municipality of Iqaluit’s compliance with the terms and conditions of their Licence. This Intervention is prepared based on available information supplied from the Nunavut Water Board and the Department’s records. The Department may wish to seek additional advice or expertise for any new information presented to the Board.

2. ENVIRONMENTAL SCREENING

In October 1993, DIAND, through its inter-agency Environmental Screening Committee, approved the environmental screening of the Municipality of Iqaluit’s Water Licence Renewal application that was submitted to the Northwest Territories Water Board pursuant to its obligations under Section 5 of the *Canadian Environmental Assessment Act* (CEAA). The CEAA Law Regulations List requires environmental screening of Water Licence renewals under the *Northwest Territories Waters*

Act, Section 18. (1). Based upon comments and advice received, the Department determined that the project could proceed through the regulatory process as it was not likely to cause significant adverse environmental effects.

The Department considered the results of the screening and consultation process, and the consideration of any potential accidents, malfunctions, or cumulative environmental effects that the overall project might have in the area. The two primary and ongoing concerns that were identified during the 1993 environmental screening, dealt with the Municipality's problems with its waste disposal facilities, and specifically the development of improved sewage treatment plans and further solid waste clean up study options. The mitigative measures suggested by the reviewers were considered in the drafting of the terms and conditions of Water Licence.

According to the Nunavut Land Claims Agreement and Schedule 12-1 specifically, projects occurring within an established municipality are exempt from screening by the Nunavut Impact Review Board. Although this absolves Nunavut Impact Review Board and the Nunavut Water Board from any further obligation, the Department maintains a fiduciary obligation in ensuring the project is not likely to cause significant adverse environmental effects. The Department has commenced an environmental screening of the Water Licence Renewal Application and anticipate the completion of the final report prior to the drafting of the new Water Licence. The Department will be pleased to forward a copy of the final screening report to the Nunavut Water Board when it is completed.

3. CONDITIONS APPLYING TO WATER USE

Water Source and Anticipated Volumes

The Municipality of Iqaluit obtains raw water from Lake Geraldine where it is pumped to the Water Treatment Plant(WTP) and reservoir. The raw water is treated through the use of pre-chlorination, pH control, settling tanks, filtration, and fluoridation. Potable water is distributed through a heated pipe system and truck delivery system. The current Water Licence water use limit is 1.1 million m

³/year. Water consumption for 1996, 1997, and 1998 were 471, 627 m³, 438, 778 m³, and 391, 555 m³ per year respectively. The Municipality has forecasted the water consumption rates are expected to steadily rise during the proposed licence term of six years (July 1, 1999 to July 1, 2005) and during the proposed 20-year design life of Water Treatment Plant Upgrade (ie: 2017). The Municipality of Iqaluit has requested the approval of 1.1 million m³/year of raw water from Lake Geraldine.

The Department recommends approving this amount to reflect the increasing population. The Department recommends that the Municipality continue to provide the annual water use volumes during the next licence term.

The Department is aware that a natural rock ridge exists within Lake Geraldine; during low water conditions, water may be trapped within this section of the lake. During periods of high water use with ice cover, prior to the runoff period, Lake Geraldine may not recharge quickly enough to compensate for increased water consumption.

The Department recommends to the Board that the Municipality address access options of this portion of the lake and address water conservation methods to ensure that the raw water supply is available throughout the year and licence term.

In recent years, the Department has been approached to sample and analyse water within small lakes adjacent to Lake Geraldine. The Municipality previously indicated that they may require additional and an emergency raw water sources, if not available from the Lake Geraldine Water Reservoir.

The Department recommends to the Board that the Municipality addresses whether additional water sources may be required during this licence term. The Department also recommends that if the water sources are required, then the Municipality should ensure that their local watersheds are protected and water samples are obtained annually.

The Department recommends that the Lake Geraldine Reservoir Dam be inspected within six (6) months of licence issuance and during open and high water conditions by a qualified geotechnical engineer following the Canadian Dam Association's 1999 Dam Safety Guidelines. The Department also recommends that engineer's report be submitted to the Board within 60 days of the inspection and include a covering letter from the Licensee outlining an implementation plan to respond to the engineer's recommendations. The Licensee should provide documentation and rationale of any decisions that deviate from the engineer's recommendations.

4. CONDITIONS APPLYING TO WASTE DISPOSAL

4.1 Sewage Disposal

The current Water Licence required the Municipality to submit to the Northwest Territories Water Board for approval a proposed Terms of Reference (TOR) for a study of options for sewage treatment using wetlands within an economically feasible distance from the Municipality. The Northwest Territories Water Board approved the TOR on May 29, 1996. In April of 1997, the Municipality submitted this report titled "Wetlands and Snowfluent Study, Municipality of Iqaluit, Northwest Territories," in compliance with Part D, Item 9 of the Licence. The Board advised the Municipality that the document did not require Board approval but suggested that "... given the limitation for locating a wetlands treatment system, this option does not appear to be a valid alternative for the municipality of Iqaluit." The Board added that the Municipality will have to be careful in the selection of a sewage treatment option and will have to meet the Board's effluent quality requirements.

In August 1997 the Municipality also submitted to the Nunavut Water Board a document titled "Iqaluit Sewage Treatment Planning Study - Final Report". The Nunavut Water Board indicated that the report "... was reviewed as a conceptual plan of the various options under consideration by the Town of Iqaluit to improve existing sewage treatment and compliance with the federal and

territorial government requirements.” The Board indicated that the “options considered in the report seemed technical sound, but we believe that the Town of Iqaluit should carry out extensive community consultation before selecting any of the options.” The Board noted that seasonal and permanent camps occupied areas adjacent to a proposed discharge point near the mouth of the Sylvia Grinnell River and this area was also used for a local char fishery.

Following meetings with regulatory agencies, the Nunavut Water Board clarified their position and expectations on the proposed modifications to the sewage treatment facilities. The Board provided the Municipality with the revised effluent quality levels to ensure that public health and the fisheries in Koojesse Inlet would be protected. The Board requested that the Municipality file a modification or an amendment to the current licence, prior to any modifications to the existing sewage treatment system.

The Municipality indicated that a design draft of a new sewage treatment, revised capital plans, and funding sources would be included in the licence renewal application.

In March 1998, the Municipality submitted to the Nunavut Water Board a document titled “Iqaluit Sewage Lagoon Investigation - Final Report.”. The Board notes that the report is not a Water Licence requirement, but wishes that reviewers are aware of the Municipality’s sewage lagoon problems, and would forward any comments to the Licensee. The Inspector provided comments on this report to the Board. The Department was advised by the Board’s staff, that the Board did not receive any significant concerns with the document and, as such, did not send a response to the Municipality.

The Municipality submitted a document titled “Proposal for the Design, Installation, Operation and Maintenance of a Water Reclamation Facility for the Municipality of Iqaluit” with the Water Licence application and the Board is currently reviewing the document.

The Department supports of the efforts of the Municipality of Iqaluit to address secondary sewage treatment and will provide comments on the document if required. The Department recommends to the Board that due to the long-standing concerns with the operation and maintenance of existing sewage disposal facilities and effluent quality discharges into the receiving environments; the Nunavut Water Board should adopt a key leadership role and works closely with the Municipality of Iqaluit, Government of Nunavut, and stakeholders to coordinate the Water Licence conditions, timing and funding commitments, and the review and implementation of a new sewage treatment plant.

The March 1, 1999 Water Licence Renewal application has requested that the Nunavut Water Board remove Part D: Conditions Applying to Waste Disposal, Items 6 to 9 inclusive that addresses a proposed mechanical screening system for a primary sewage treatment and a study of options for sewage treatment using wetlands from the Water Licence.

The Department recommends that the Board accepts the Municipality of Iqaluit's requests as these conditions have been met.

4.2 Spill Contingency Plan

The current Water Licence required the Municipality to submit a Spill Contingency Plan (re: Part D, Item 10) to the Northwest Territories Board for approval by June 30, 1996. The Licensee was also required to include the identification of high spill risk areas, spill prevention measures, spill response procedures, and spill follow-up and reporting procedures. In the Water Licence Renewal application the Municipality has requested that the Nunavut Water Board revise Part D: Conditions Applying to Waste Disposal, Items 10 to 11 to address the requirement to submit a Spill Contingency Plan.

The Nunavut Water Board received the Municipality of Iqaluit's Spill Contingency Plan in June 1998. The Department has provided comments to the Nunavut Water Board, however, the Board has not completed its review of the plan.

The Department recommends that Nunavut Water Board complete their review of this plan and provide their comments to the Municipality. The Department further recommends that any plans submitted to the Board for review and approval are reviewed in a timely manner. The Department is concerned that the lengthy review periods may diminish the importance to the plans which may create unnecessary confusion by the Licensee and affected stakeholders.

The Department also recommends that the Spill Contingency Plan requirements remain in the Renewed Water Licence. The Department suggests that the condition be subject to minor wording changes which are dependent on the Board's review and/or additional concerns raised during the Public Hearing.

4.3 Solid Waste Disposal

The current Water Licence required the Municipality to submit a Waste Management Plan to the Board for approval by January 1, 1997 (re: Part D, Item 13). The Board requested that the plan address the long term waste management needs for the Municipality. In September 1998, the Municipality submitted a document titled "Municipality of Iqaluit Solid Waste Management Study".

The Nunavut Water Board advised the Municipality that the plan cannot be approved as submitted and provided comprehensive and detailed comments to the Licensee for consideration in the next submission. The Department notes that the Board did not request the revised plan be resubmitted to the Board's office by a specific date.

In the Water Licence Renewal Application, the Municipality has requests that the Nunavut Water Board consider revising Part D: Conditions Applying to Waste Disposal, Items 13 to 14 that addresses the requirement to submit a Waste Management Plan.

The Department recommends to the Board that due to the complex issues surrounding waste management in Iqaluit, that the Nunavut Water Board adopts a key leadership role and works

closely with the Municipality of Iqaluit, Government of Nunavut, and stakeholders to coordinate the Water Licence requirements.

The Department recommends that the Board and the Municipality work together during plan reviews to ensure that all parties are fully aware of the legislative requirements, standards, and guidelines. The Board is encouraged to meet with the Municipality of Iqaluit and their consultants to ensure those future plans which are subject to review by the Board and outside reviewers are complete. It is suggested that the Board may wish to organize meetings with the Municipality, stakeholders, and consultants to discuss the major issues and respective understandings, prior to the submission of a significant plan such as the Waste Management Plan.

The Department also recommends that the Nunavut Water Board request that Municipality of Iqaluit submit the revised Waste Management Plan is submitted by a specific date. The Department suggests the revised plan be submitted by September 10, 1999 or at a date set following the concerns that may be raised during the Public Hearing.

5. CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

5.1 Existing Sewage Lagoon

In the event that a new sewage treatment plant be constructed, the Department recommends that the Municipality of Iqaluit should submit to the Board for approval a reclamation plan and implementation schedule for the existing sewage lagoon, six (6) months prior to the commencement of the work. The Department also recommends that the Municipality addresses the sludge volume and composition, sludge disposal options and reuse, sludge disposal locations, and the potential effluent quality run-off.

5.2 Apex and West 40 Landfill Sites

The current Water Licence requires the Municipality to submit to the Board an Abandonment and Restoration Plan for approval a minimum of six months prior to abandoning any waste disposal facilities (re: Part F, Item 1), except the West 40 and the Apex Waste disposal sites (re: Part F, Items 3 and 5). The Board also required that the Licensee include: a contaminated site remediation; leachate prevention; an implementation schedule; maps delineating all disturbed areas, borrow material locations, and site facilities; consideration of altered drainage patterns; type and source of cover materials; future area use; and hazardous wastes.

The Department notes that Municipality has not submitted a "general" Abandonment and Restoration Plan for the Municipality of Iqaluit.

The Department recommends to the Nunavut Water Board that one Abandonment and Restoration Plan be submitted by Municipality of Iqaluit to form the framework for all additional site specific waste disposal sites.

The current Water Licence required the Municipality to submit to the Board an Abandonment and Restoration Plan for approval for the West 40 (site 4) and Apex Waste disposal sites by January 1, 1997 and June 30, 1997 respectively (re: Part F, Items 3 and 5). The Board also required the Licensee to include the same specific issues as noted in the general Abandonment and Restoration Plan.

In August 1997, the Municipality submitted to the Nunavut Water Board documents titled "Abandonment and Restoration Plan - Iqaluit Landfill Site, and Apex Landfill Site, Iqaluit, Northwest Territories.". After the Board requested revisions, the documents titled "Drainage Plan - Iqaluit Landfill Site West 40, Site #4", October 1997; "Drainage Plan - Apex Dump Site," October 1997; and Remediation Plan - Iqaluit Landfill and Apex Dump," Iqaluit, Northwest Territories." December 1997 were submitted. The Nunavut Water Board advised the Municipality the noted documents cannot be approved as submitted. The Board provided comprehensive and detailed

comments to the Licensee which was also copied to local and regional organizations. The Department notes that the Board did not request the revised plan be resubmitted to the Board's office by a specific date.

The Department recommends to the Board that the plans submitted to their office for review and approval are reviewed in a timely manner. The Department also recommends that the Licensee be provided comments within a reasonable time to allow the licensee to implement the plan and Board recommendations, and secure any potential additional resource and funding requirements. The Department also recommends that any plan that the Board requires our comments are promptly submitted to Department and we be allowed a reasonable amount of time to provide comments to the Nunavut Water Board's office.

The Department recommends to the Board that all plans that are subjected to review and approval, but the Licensee's are provided specific dates as to when the revised plan are due for re-submission.

6. CONDITIONS APPLYING TO CONSTRUCTION

The current Water Licence requires the Municipality of Iqaluit to submit to the Board prior to construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or wastes for approval, design drawings stamped by a qualified engineer in the Northwest Territories (re: Part G, Items 1 and 2). During the Licence period, the Municipality submitted design plans for the water reservoir building and the 1.5 metre raise of the Lake Geraldine Reservoir Dam. The as-built drawings were submitted to the Nunavut Water Board.

The Department recommends that the Licensee should submit the construction approvals to the Nunavut Water Board a minimum of 60 days prior to the commencement of the project. The suggested time frame would allow sufficient time for the Board to review the approval

request. The Department also suggests that the design drawings may require to be stamped by a qualified geotechnical engineer in the Northwest Territories and those principal field of specialization is the design and construction of earthworks in a permafrost environment. The Department suggests that large permanent waste disposal facilities may require assessments and approvals by geotechnical engineers as opposed to civil or non-speciality engineers. The Board may wish to contact the Northwest Territories Association of Professional Engineers, Geologists, and Geophysicists for additional information.

The Department recommends that design drawings be supplemented by a construction report that should include as-built drawings, documentation of field decisions that deviate from the original plans, and any data used to support these decisions.

7. CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

The current Water Licence requires the Municipality of Iqaluit to operate and maintain the existing Waste Disposal Facilities by following the approved Operation and Maintenance Plan (re: Part H, Item 1). The Licensee is also required to review the approved plan on an annual basis and revise as required. The Licence also requires the Municipality to submit the Board for approval, plans for the Operation and Maintenance of any new Waste Disposal Facilities prior to the commissioning of such facilities. The Northwest Territories Water Board approved the revised Operations and Maintenance Plan in March 1995.

As changes have occurred over time, the Department suggests that sections of the approved Plan be revised by the Municipality of Iqaluit and issues further discussed with the Board and stakeholders. The Departmental Inspector has expressed concerns to the Municipality such as uncontrolled open burning, burning after normal business hours, limited recycling programs, expansion of the metal recycling program, and the addition of the recently constructed berm to restrict the previous uncontrolled discharge of water into two cells of the current waste disposal site.

The Department recommends that the existing and approved plan require to be revised (ie: burning and water diversion methods). The Department recommends that the Nunavut Water Board advises the Municipality of Iqaluit whether the existing plan is acceptable and identifies which sections require revision.

The Department further recommends that if the Nunavut Water Board does not accept the existing plan and requires comprehensive revisions, then the Department recommends that the Municipality of Iqaluit submits a revised Operation and Maintenance Plan to the Nunavut Water Board for approval within six months of licence issuance, that addresses the current waste disposal facilities.

The Department recommends that the Plan be revised immediately after the Board approves any new, amended, or revised waste disposal facility.

The Department recommends to the Board that the plans submitted to their office for review and approval are reviewed in a timely manner.

The Department recommends to the Board that all plans that are subjected to review and approval, but the Licensee's are provided specific dates as to when the revised plan are due for re-submission.

8. SURVEILLANCE NETWORK PROGRAM (SNP)

The existing SNP requires that the Municipality of Iqaluit to sample and analyse effluent from the sewage lagoon and run-off from the waste disposal sites. The Municipality is also required to record the monthly and annual water usage in cubic metres from the Lake Geraldine Reservoir and the record the annual quantity of sewage solids from the sewage disposal facility.

The Department recommends that the existing SNP station locations should remain and

additional stations may have to be added to address the proposed Sewage Disposal Facility and monitoring of any additional waste disposal sites.

In the Water Licence Renewal application, the Municipality of Iqaluit has requested approval to discontinue the sampling at SNP stations 0087-4 (Run-off from the West 40 solid Waste disposal site) and 0087-6 (Run-off from the abandoned solid Waste disposal site located at site 4 of the West Forty area).

The Department recommends that the sampling and analyses requirements remain in the Renewed Water Licence, until the Municipality have implemented the Abandonment and Restoration Plan and can demonstrate that the run-off is not affecting downstream waters. The Department suggests that if additional effort was made by the Municipality to collect the required samples, the Nunavut Water Board would have sample results and rationale to consider the request.

The Municipality has also requested that the monitoring of PAH's and PCB's at SNP stations 0087-5 (Run-off from the North 40 solid Waste disposal site), 0087-6 (Run-off from the abandoned solid Waste disposal site located at site 4 of the West Forty area), and 0087-7 (Run-off from the Solid Waste Disposal Facility located at site 8 in the West Forty area) be reduced to only PCB monitoring at SNP stations 0087-5 and 0087-7, and the sampling frequency be reduced to every two years.

The Department recommends that the sampling and analyses requirements remain in the Renewed Water Licence, until the Board and regulatory agencies have reviewed the original intent and Licence requirements.

The Department also recommends that the Municipality provides justification to remove and reduce the sampling requirements. The Municipality should also implement the Abandonment and Restoration Plan and demonstrate that the run-off is not affecting downstream waters.

The Municipality of Iqaluit is required to collect water and effluent quality samples (eg: sludge and sewage effluent, landfill leachate, and waste disposal run-off) and provide the samples to an accredited environmental laboratory. Through the recent efforts of the Department Inspector and the Municipality, the water samples are provided to the Department's Taiga Environmental Laboratory for analyses. On May 22, 1998, the Nunavut Water Board approved the Municipality's request to use the laboratory. The Departmental laboratory is certified and approved by the Canadian Association for Environmental Analytical Laboratories (CAEAL).

The Department recommends that the Municipality be required to submit a Quality Assurance/Quality Control Plan to the Departmental Analyst designed under the *Northwest Territories Waters Act* for approval within three (3) months following licence issuance. The plan should include analysis of field blanks and certified reference material, and replicate sampling in order to assess accuracy, precision, and field contamination.

9. RECOMMENDED TERM OF WATER LICENCE

The Municipality of Iqaluit has requested a Water Licence term of six years.

The Department recommends that a Municipality of Iqaluit's Water Licence be renewed for a period 10 years. The Department believes that a longer term licence will allow the Government of Nunavut, Nunavut Water Board, and the Municipality of Iqaluit with greater certainty to initiate a long term financial and resource planning to address a Renewed Water Licence. A long term licence will allow the Nunavut Water Board and the Municipality to work with the regulatory agencies to address their specific mandates and concerns.

The suggested Licence term allows the Board to address the ongoing and major Water Licencing issues such as the Water Treatment Facility improvements, Secondary Sewage

Treatment Facility options, a Waste Disposal Plan, Waste Management Plan, and Abandonment and Restoration Plan.

The Department recommends to the Board that the Draft Water Licence be closely coordinated with the Government of Nunavut, Municipality of Iqaluit, Interveners, and regulatory agencies to ensure the timing of terms and conditions of the Licence are reasonable and achievable.

The Department suggests to the Board that if the Municipality are experiencing difficulties meeting the terms and conditions of the Renewed Water Licence, the Nunavut Water Board may wish to hold additional Public Hearings to further discuss and resolve issues.

10. LICENCE REVIEW

The new licence may contain several conditions that should be reviewed by the Municipality and other interested parties.

The Department recommends that the draft licence be sent to the Municipality and interveners for review prior to it being approved by the Minister.

1995 - 1999 COMPLIANCE REPORT

TYPE "A" WATER LICENCE

WATER REGISTER N5L3 - 0087

MUNICIPALITY OF IQALUIT

NUNAVUT

Prepared by:

Paul Smith

Water Resource Officer
Inspector under the *Northwest Territories Waters Act*
Iqaluit, Nunavut

June 1999

1995 Compliance

There are some outstanding 1995 compliance issues that are relevant to the current licence.

The laboratory that the Licensee was using (NovaMann International) was not able to provide faecal coli form results in an acceptable manner. Their standard notation was ">1600." It took the Licensee an extended period of time to switch labs in order to correct this reporting error. In addition to this, the laboratory did not receive approval for the analytical techniques used to determine nitrogen ammonia and mercury.

The long term Waste Management Plan was a requirement of the previous licence. This condition was not

met and the condition restated in the renewed licence. The revised date was January 1, 1997 and the Licensee also did not meet this meet this revised dates.

1996 Compliance

The Licensee did not address the faecal coli levels reporting requirements. (as noted above).

The Licensee was failing to maintain the required one metre of freeboard at the lagoon. At the time, the Licensee committed to establishing a reference marker. This was not done in 1996. Additionally, the Licensee never received approval from a geotechnical engineer to run the lagoon level with less than one metre of freeboard.

The Licensee did not meet the deadline of providing the design proposal related to mechanical screening of sewage. The Municipality was advised to notify the Board and request an extension.

The Licensee was more than three (3) months late in submitting the report on Wetlands Sewage Treatment options.

The Licensee was to have submitted a Spill Contingency Plan by June 30, 1996. The Plan was not submitted until 1998.

The Licensee did not conduct all SNP sampling. The Licensee reported in their Annual Report that there was no flow at SNP stations 0087-5 for the months of August, September and October. During October, the Inspector collected a water sample. PCB and PAH samples should have also been collected. On June 11, the Licensee was advised that there was flow at SNP station 0087-6. No samples were collected by the Licensee.

The Licensee did not get NovaMann International approved for the analysis of ammonia nitrogen and mercury. The Licensee did not report which laboratory (ie: NovaMann) processed their samples.

The Licensee did not provide the as-built drawings for the 1.5 metre extension to the dam and completion of a treated water reservoir within the required 90 days. Drawings were provided at a later date.

The Licensee did not revise their Operation and Maintenance Plan for the Solid Waste Disposal facility as

a result of directions made to the Licensee by the Inspector relating to the discharge pipe (SNP station 0087-7). The Inspector required that the discharge pipe should be kept in the closed position until such time that if the need arose that it would be opened, at which point a sample could be collected.

1997 Compliance

The Licensee did not address the units of measurement for reporting total and faecal coli form levels. This concern was first identified in 1996 and was not addressed until 1998 when the Licensee switched to Taiga Laboratory. The concerns with ammonia nitrogen and mercury analysis were resolved when the Licensee switched laboratories.

The Licensee continued to experience problems maintaining the required one metre freeboard at the sewage lagoon. In early 1998, Dillon Consulting Ltd. surveyed the lagoon level and determined that the level was approximately 10% over the allowable freeboard limit (i.e., 10cm).

In the fall/early winter of 1997, the primary lagoon dyke at SNP station 0087-02 was observed to be seeping. The dyke did not seep until the mid-to-late-1980's and again in 1990 and 1991. It is reported that the dyke has no structural problems since it was rebuilt.

The Licensee did not submit the Spill Contingency Plan until June of 1998. The Plan was due by June 1996. The Licensee did not request an extension from the Board, although the Inspector advised the Licensee to request an extension.

The Licensee did not submit the long term Waste Management Plan until August of 1998. The Plan was due by January 1, 1997. The Licensee did not request an extension.

The Licensee was late in submitting the Abandonment and Restoration Plans for both the West 40 and Apex abandoned waste disposal sites. When submitted, the Nunavut Water Board was found deficient and the Licensee was required to resubmit by December 31, 1997. The Licensee met the new deadline, but the Plan was not accepted by the Board on September 21, 1998. To date, the Licensee has not resubmitted the Plans. The Board did not request the Licensee submit the plans by a specific date.

Immediately after the Municipality submitted the Abandonment and Restoration Plan for the West 40 site to the Board for approval, the Licensee initiated work on the site. The Inspector requested that work be halted, until the plan was approved.

1998 Compliance

The Nunavut Water Board determined that the long term Waste Management Plan was deficient. The Inspector advised the Board that the Plan did not to address the requirements of the licence.

The Spill Contingency Plan was submitted two years late.

The Inspector observed that the NE corner of the current Solid Waste Disposal site had experienced settling and erosion problems. The area was observed to collect run off waters. When this area was constructed, this area was not bermed, as it was near the high point. The erosional effects had resulted in water from within the dump to flow out at this corner and bypassing SNP station 0087-7. The Inspector identified this concern in the last inspection and the Municipality was ordered to correct it. The Municipality extended the existing berm, to eliminate water flow in the waste disposal area to the Inspector's satisfaction.

In the fall/early winter of 1998, the dyke at the sewage lagoon was observed to be seeping.

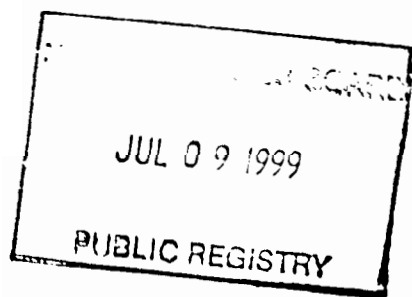
Department of Fisheries & Oceans

Submission to the

Nunavut Water Board

**On an Application for Water Licence Renewal
N5L4-0087**

By the Town of Iqaluit, Nunavut



1. Introduction

The Department of Fisheries & Oceans, Habitat Management (DFO-HM) has reviewed the information supplied by the Town of Iqaluit, on its Water Licence Renewal Application, N5L4-0087. The renewal is for the use of water (1,100,000 cubic metres per year) and the deposit of sewage and solid waste.

This submission discusses the following:

- A). New Sewage Facility
- B). Exiting Sewage Lagoon
- C). Present Solid Waste Disposal Site
- D). Abandoned waste disposal sites at West 40 and Apex

The recommendations and positions presented are reflective of the information supplied by the Town of Iqaluit and the results of the Pre-Hearing Meeting in Iqaluit. Should new or additional information be brought forward by the Town of Iqaluit or identified during the public hearing this submission will be re-examined. Any variations to DFO-HM's recommendations or positions, brought about by the addition of new information, will be brought to the attention of the Nunavut Water Board.

2. Mandate of the Department of Fisheries & Oceans-Habitat Management

Under the Habitat provisions of the Fisheries Act, the Department of Fisheries & Oceans, Habitat Management (DFO-HM) is responsible for the conservation and protection of fish and their supporting habitats, which are part of, or support a commercial, sport or subsistence fishery. These habitat provisions do provide mechanisms to allow development projects to occur while providing protection of fish and fish habitat. Section 35 of the Act, which prohibits the harmful alteration, disruption or destruction (HADD) of fish habitat, provides the Minister with the power to authorize terms and conditions which would allow projects to proceed in compliance with the Act. DFO-HM's responsibilities and decision-making procedures are set out in a number of guidance documents. One such document is The Policy for the Management of Fish Habitat (1986). This policy outlines a standard approach through the application of the No Net Loss (NNL) Guiding Principle.

The long-term objective of the department is to achieve an overall Net Gain in the productive capacity of fish habitats. Productive capacity is the measure of the capability of a habitat to produce fish and/or food organisms in natural or restored conditions. A fundamental strategy for achieving this is to prevent further erosion of the productive capacity of existing habitat by applying the No Net Loss Guiding Principle. Under this principle, DFO-HM works with developers and/or other government agencies so those projects are designed in a way that maintains the fish habitat's productive capacity. In cases where this is not possible, unavoidable losses in the habitats

Iqaluit
26-7-99
Municipal
Inspector
1999
MR. HANSON
Water Resources
Officer

productive capacity are compensated by habitat replacement or enhancement on a case-by-case basis.

3. Department of Fisheries & Oceans- Habitat Management Concerns

Sewage Disposal

A). New Sewage Treatment Facility:

The new Sewage Treatment Facility designed by Hill, Murray and Associates Inc. (HM&A) will be a significant improvement over the existing sewage lagoon. HM&A has included information in their proposal which indicates the new facility will be able to meet the new effluent quality standards set by the Nunavut Water Board (letter sent to the Municipality of Iqaluit on March 18, 1998).

Raw sewage treated by the new facility will produce a liquid effluent and a sludge-like material. The effluent is to be released into Frobisher Bay, and the sludge is to be stored. Additional information is required on what is to be done with the sludge. This should include information about proper storage and management of the sludge to ensure the material or runoff from the material does not enter fish-bearing waters.

Recommendations:

DFO-HM recommends:

1. A construction/operational schedule is submitted for the new facility.
2. The above schedule is incorporated as a condition of the water licence renewal.
3. The Town of Iqaluit provides additional information on the sludge which should include:
 - composition of the sludge
 - the method and location of sludge storage
 - the length of time required to compost the sludge in a northern environment
 - the potential use as a greening material

B). Existing Sewage Lagoon

The existing sewage lagoon is a facultative lagoon with a continuous discharge. The retention time is approximately 5 days (pers. Comm. Doug Sitland, Community Government and Transportation). Previous study results from bioassay tests have indicated that during warmer months effluent from facultative lagoons is non-toxic. However, shortly after ice cover forms, the performance of the lagoon deteriorates and does not improve until after spring breakup (Heinke *et al.*, 1988). These studies indicate that facultative lagoons with continuous discharge cannot consistently meet the

Fisheries Act requirements throughout the year (taken from the document *Municipal Wastewater Treatment Technologies Capable of Achieving Compliance with the Fisheries Act in the Northwest Territories*, prepared by UMA Engineering Ltd., March 1993). HM&A has included information in their proposal which indicates the new facility will be able to meet the new effluent quality standards set by the Nunavut Water Board.

An additional problem associated with the existing lagoon is the integrity of the dykes. The level of the sewage lagoon was reduced in 1997 due to seepage through the West Dyke. Until the new facility is fully operational, DFO-HM is concerned with the lagoon's capacity to retain all the sewage produced by the town and with the stability of the dykes. Uncontrolled seepage poses a threat to fish.

Recommendations:

DFO-HM recommends:

1. The Town monitors the integrity of the existing dykes while it is using the sewage lagoon.
2. The town submit an abandonment and restoration (A & R) plan for the sewage lagoon in advance of the opening of the new sewage facility. This should include environmental studies to identify the composition of the sludge from the existing lagoon, and determine whether the new facility is able to process it. If the composition is such that the new facility cannot process it, the Town's A & R Plan must provide an alternative disposal plan.
3. The Town investigates the possibility of leaving the lagoon intact as a backup facility should problems be encountered with the new treatment facility. This would require revisions to the A & R Plan.

C). Solid Waste

Existing Solid Waste Disposal Site

There has been no finalization of plans for a new solid waste facility. The expected life of the current facility could be as soon as next summer. This site was initially designed as an interim site for a period of five years. A condition of the 1996 water licence renewal, Part D Item 13, states that a long term waste management plan be submitted by January 1st, 1997. This is still to be done.

Wind blows garbage from the dump across the tundra or into the water. This is not only unpleasant to the eye, but plastic debris is harmful to aquatic life. The practice of open burning is a health concern to both wildlife and humans. Emissions from burning garbage, such as dioxins, are released into the air and are transported to the surrounding area, where they may fall in the water. Runoff from the rain and spring

Paul Crowley Intervene Funding



melt may carry contaminants from the dump to the surrounding land and into water bodies. The deposit of deleterious substances into fish bearing waters is prohibited under Section 36 of the Fisheries Act.

Open and uncontrolled burning has been an ongoing practice at the land fill sites. Due to uncontrolled burning the fire department has been called to the site 10 times from June 1st, 1998 to June 30th, 1999 (pers. comm., Neville Wheaton, Fire Chief, Iqaluit).

Recommendations:

DFO-HM recommends:

1. Plans for a new facility are a priority and a condition of the licence renewal. New technologies need to be investigated such as incinerators. If an incinerator is the chosen method, it is recommended the Town modifies and utilizes the existing site to house the ash so that a new facility would not be required.
2. There is no uncontrolled burning at the site.
3. An Abandonment and Restoration plan is developed for this site.
4. The Town ensures that garbage is sorted when brought to the dump.
5. The Town examines the amount of waste produced by the abundance of construction activity and considers a proportional fee structure for these industrial users.

D). Abandoned waste disposal sites at West 40 and Apex

DFO-HM received the document "Municipality of Iqaluit Solid Waste Management Study" from the NWB on January 18th, 1999. The document listed six abandoned solid waste sites around Iqaluit. The management plan was not approved by the NWB.

At the pre-public hearing the Town indicated they would not be responsible for any abandoned military sites. Of the six sites identified, two of these were used by the military.

The site at Apex, one of the remaining four, literally spills into the tidal flats. The tidal flats are littered with metal and other debris. The composition of this site is still unknown and is a potential hazard to aquatic life.

Site 6 was the previous solid waste site used by the municipality. This site over looks Koojesse Inlet and has been partially covered. There is a potential for run-off from this site into the Inlet during rain or spring thaw. Koojesse Inlet is fish-bearing waters and the deposit of deleterious substances is prohibited.

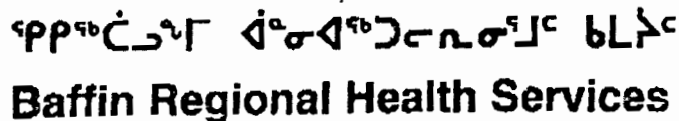
Recommendations:

DFO-HM recommends:

1. The Town initiates a study to determine what is in the abandoned sites.
2. The Town identifies drainage patterns around the sites which may affect receiving water bodies.
3. Upon completion of the above study the Town submit a revised A & R Plan for the abandoned sites. This should include an implementation schedule, subject to regulatory approval of the plan. The plan should include a long-term monitoring program for potential runoff.
4. The Town determines ownership of the remaining abandoned sites and the responsibility for their restoration.

4. Conclusions

DFO-HM recommends CGT consult regulatory agencies early in the planning stages before implementing changes to existing operations or proceeding with designs of new waste facilities. Early consultations would enable CGT to meet the requirements of the various regulatory agencies and alleviate problems before the construction phase.



July 9th, 1999

RE: IQALUIT WATER LICENSE APPLICATION COMMENTS

In review of the Municipality of Iqaluit's water license application, it is apparent that further clarification will be required on various licensing issues during the upcoming Water Board hearing. Major issues of health concern are summarized as follows:

1. The Municipality has not indicated commitment to ensure or seek methods of providing:

SOLID WASTE DISPOSAL

- A short and/or long term Solid Waste Management Plan (note: not a study).
- A New Solid Waste Facility
- Recycling initiatives as well as recycling program and system development.

WATER TREATMENT AND DISTRIBUTION SYSTEM

- System upgrades (to meet increasing community water demand - i.e. adequate to support residential expansions).

2. More information is required on:

SEWAGE DISPOSAL SYSTEM

- Proposed O&M Plans for the Waste Water Reclamation Facility.
- Proposed method of treating and disposing of de-watered sludge from the Waste Water Reclamation Facility.
- Proposed method and schedule for the abandonment and restoration of the present sewage lagoon.

WATER TREATMENT AND DISTRIBUTION SYSTEM

- Specific short term upgrades planned for this system including a schedule for completion.

Consideration must be given to the concern that what the Municipality intended to provide as outlined in their application in March, 1999, may vary significantly from what was actually approved for partial or full funding by the Department of Community Government, Housing, and Transportation.

The opportunity to express my concerns is greatly appreciated, and I hope to be able to more fully understand the direction the Municipality wishes to take in addressing water use and waste disposal issues. Details on departmental expectations with regard to the above systems can be obtained at any time, upon request.

Sincerely,

Nicole Ritchie

Nicole Ritchie
Environmental Health Officer

BRHSSB
Bag # 200
Iqaluit, NT
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(867)979-7654
fax (867)979-7659

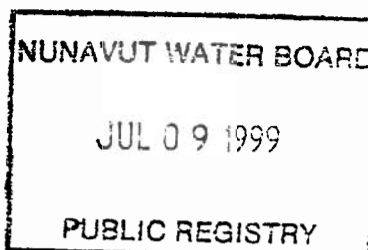
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Nunggulaituliginikut Havakviat
Department of Sustainable Development
Ministère du Développement Durable

July 09, 1999

Dionne Filiatrault
Technical Advisor
Nunavut Water Board
P.O. Box 119
GJOA HAVEN, NU
X0E 1J0



Dear Ms. Filiatrault:

SUBJECT: IQALUIT WATER LICENCE APPLICATION

Thank you for the opportunity to review the application for the above-mentioned water licence.

In my discussions with the Government of the Northwest Territories (GNWT), they have expressed concerns with regard to the Town of Iqaluit's past operational activities relating to its water licence. As a result I requested the Department of Resources, Wildlife and Economic Development (RWED) of the GNWT to review the above application. My attachment comments include submissions from RWED.

Please feel free to contact my office (867-979-5119) at any time if you require any further information.

Sincerely,

Earle G. Baddaloo
Manager,
Environmental Protection

c.c. Robert Eno, Industrial Waste Specialist, RWED
Nicole Ritchie, Environmental Health Officer, BRHS

Comments on Iqaluit's Water Licence Application

Environmental Protection (EP) of the Department of Sustainable Development, Government of Nunavut, has a mandate to protect and enhance the environmental quality of Nunavut on behalf of all of its citizens. EP derives its regulatory power from the **Environmental Protection Act**, which prohibits the discharge of a contaminant into the environment. The Act applies to the whole of Nunavut, however, by convention and by agreement with other regulatory agencies, our jurisdiction is generally restricted to Commissioner's Lands, which includes but is not restricted to, the land occupied by the communities of Nunavut.

EP has reviewed the water licence application and the information distributed at the pre-hearing meeting of May 18th, 1999 and is providing the following comments:

WATER LICENCE APPLICATION

PROPOSED SEWAGE TREATMENT FACILITY

The sewage treatment system (ZenoGem Filtration) that is being proposed by the Municipality will go a long way towards bringing Iqaluit into the 21st century. The Municipality has indicated that the old sewage lagoon will be remediated and filled in, and that the sludge will be composted/treated.

Recommendation

EP suggests that the existing sewage lagoon be upgraded and left in place, as an emergency discharge repository in the event that the new system experiences failure (which invariably happens at the most inconvenient time, such as in the middle of winter during a storm).

EP is in favour of composting as a means of treating the sludge, however we recommend that the Municipality conduct a pilot-scale composting experiment during the summer of 1999 to determine if this option is feasible. Furthermore, the sludge should be characterized in order to check whether composting is an appropriate method of treatment. Determination of the treatment process will be dependent upon an assessment of the treated sludge product. At the same time, the Municipality should be considering other options, in the event composting proves to be inappropriate or unsuccessful.

WATER TREATMENT

In October 1997, EP responded to a chlorine leak that occurred at the water treatment plant, an incident which the Town was ill-prepared to handle. Subsequent

note
management

reading

apps

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Approval - I did not know
I had money -
Valume

inspection of the facility revealed a number of hazards associated with improperly stored chemicals.

Recommendation

EP recommends that the water licence contain a provision for the Municipality of Iqaluit to develop a spill contingency plan for the water treatment plant. This plan should include a training program for water treatment plant employees that would enable them to safely and effectively respond to any accidents involving water treatment chemicals, such as chlorine. The plan should also incorporate a description and use of available spill response equipment. The Town should further be required to provide safe and chemically-compatible storage facilities for chemicals that are being stored at the treatment plant.

GENERAL CONDITION OF EXISTING SEWAGE TREATMENT FACILITIES

EP disagrees with the statement on Page 9 of the Water Licence Application, that the dykes are satisfactory. There is well-documented history of dyke breaches. The licence application correctly points out that seepage was discovered in 1997 and as a result, according to Municipal officials, the lagoon level was lowered in order to prevent another dyke failure. Officials further noted that the dyke is now closely monitored. EP supports the development of the new facility planned for 1999/2000. There is concern, however, that the present facility may not have the capacity to deal with the increased volumes until the new facility becomes operational. This statement is made in light of the expanding Iqaluit population, and having to maintain low lagoon levels as a result of a faulty dyke.

Recommendation

EP recommends that the water licence include a provision to ensure that the Municipality of Iqaluit closely monitor the structural integrity of the dyke. If it becomes apparent that the new sewage treatment facility will not be in place and operating on schedule (1999/2000) then the Town should retain a qualified engineering firm {registered with the NWT Association of Professional Engineers, Geologists, Geophysicists (NAPEGG)} to conduct a thorough inspection of the dyke. Recommendations made as a result of this investigation/inspection should be implemented.

WASTE REDUCTION

EP would like to refer to page 13 of the application, which states: "Regulatory agencies would like to see a further segregation of wastes prior to burning".

This statement is misleading. It seems to imply that regulatory agencies sanction the practice of open burning; in fact, the opposite is true. Open and uncontrolled burning is not an effective method for reducing the volume of solid waste. Furthermore,

dump fires pose a risk to the environment and to human health. EP has in the past, and continues to, receive complaints from the public with regard to the noxious smoke emanating from the dump. We have over the years, discussed this issue with the local environmental health officers and they too, have expressed concerns regarding this practice. The Department of Health has further indicated that they will not tolerate this practice for much longer.

Most if not all, regulatory agencies would like to see an end to open burning. We recognize also that in the short term, burning will continue and we have therefore requested that only paper products and untreated wood be burnt. It is also noted that this is difficult to achieve, given the heterogeneous waste stream and the fact that it would need to be segregated at the source (i.e. in the home). The solution to the problem of volume reduction is for the Municipality to install and operate a proper municipal waste incinerator.

Recommendation

EP recommends that the waste management plan, required by the water licence, include a stipulation that properly addresses solid waste volume reduction of garbage in the proposed new solid waste disposal facility. The municipality should pursue the feasibility of obtaining an incinerator for Iqaluit.

Numerous letters and notices have been sent to the Municipality of Iqaluit over the years concerning solid waste disposal activities and nothing has been done. During the last water licence application hearing in 1994, plans for this temporary solid waste disposal facility were being discussed and the regulatory agencies, including EP, granted approval for the site. The approval included open burning as a means of volume reduction *provided that the Municipality of Iqaluit developed a long-term (post temporary site) plan within two years (by 1996)*. This period has lapsed more than three years ago and there is still no long-term plan in place nor apparently is one being pursued. The Municipality of Iqaluit continues the practice of garbage fires. This present licence application, like the previous one, also promises that a planning study will be conducted in 1999/2000.

Recommendation

EP wants some assurances that this time a study will be carried out as promised.

EP is concerned that a long-term plan was not developed, yet the proposed new facility, if it is ever built, will presumably be included under the renewed water licence. In the absence of adequate information pertaining to this proposed new facility, EP is unable to assess the potential environmental impacts and to recommend licensing conditions on any landfill management activity. Furthermore, the Municipality recently indicated, at the May 18th, 1999 pre-hearing meeting, that the current facility is expected to reach capacity in about 1.5 years; the Municipality, however, did not have any immediate plans as to what actions are being planned for solid waste management at the end of 1.5 years.

Recommendation

EP recommends that the water licence contain a stipulation that requires the Municipality of Iqaluit to develop and present for review, a plan for the establishment of a new solid waste disposal facility and accompanying comprehensive waste management plan. This should be done for both current and future solid waste disposal sites, within one year of the issuance of the water licence. The plan should address, in detail, hazardous waste management, waste segregation, recycling, and methods for volume reduction, other than open dump fires. The current plan, which was included with the licence application, does not, in EP's opinion, adequately address these concerns. Acceptance of this proposed plan should be subject to approval by the appropriate regulatory agencies, such as, but not restricted to, DIAND, Health, Sustainable Development, Environment Canada and DFO.

RECYCLING

Based on EP's observations, there is a pressing need for an effective recycling program in Iqaluit. For example, a local Coca Cola bottling plant, which was presumably given a business licence by the Municipality, is contributing significantly to the bulk of waste in the landfill. Approximately 12,000 plastic bottles are produced every day at the Iqaluit plant. The bottles are not recycled and therefore they ultimately reach the landfill where they are burned. Burning plastic produces highly toxic smoke, which further contributes contaminants to our atmosphere.

The present attempt at recycling in Iqaluit is not adequate. Initially EP was in support of a recycling program after being convinced that the original operation was efficient and feasible. Currently, however, it appears that the operation is having difficulties. Last summer EP noted that there was a large pile of aluminium cans located at one corner of the landfill site. The explanation provided by the landfill operator was that the owner/operator of the recycling depot was short of space on his own property due to a tremendous backlog of stored material. He, then asked to store some of the recyclable wastes at the landfill.

Recyclable materials are part of the municipal waste stream, and as such, the Municipality should pursue the development of a program to address this concern. Furthermore the viability of the recycling program should not be contingent upon realizing profits. The intent of recycling is to reduce the volume of waste going into the landfill as well as to conserve resources and protect the environment. EP will be willing to work with the Municipality to plan, initiate and develop a program to address recycling concerns in the Municipality of Iqaluit.

Recommendation

EP is concerned that the current recycling program (in Iqaluit) is not effectively diverting recyclable material from the general waste stream. Recycling

provides an efficient and environmentally sound means for reducing the volume of material entering into the landfill, thus extending the life of the site and in the long-term, saving millions of dollars. EP therefore recommends that the Municipality of Iqaluit develop and execute a program to address recycling options as a means of reducing the volume of solid waste. These recycling options should be incorporated, in a meaningful way rather than as a cursory reference, into the current and long term waste disposal plans.

HAZARDOUS WASTES

The Municipality appears to have made an honest attempt at addressing the problem of hazardous waste management, however, more emphasis needs to be placed on training municipal employees to safely handle and dispose of hazardous waste and hazardous materials. The current system that the Municipality has in place, serves more as long-term storage instead of being used for actual disposal and/or treatment.

Recommendation

EP therefore recommends that the current and long term solid waste management plans fully-address the issue of hazardous waste disposal by including in the plan, a description of employee training, available equipment, and disposal and recycling facilities approved by the Municipality of Iqaluit. EP further suggests that the Municipality consult with other jurisdictions in Canada where such programs are already in place. EP will be happy to provide references and assistance with this development.

Abandonment and Restoration

The abandonment and restoration plans listed in the application were reviewed and found to be deficient.

Recommendation

EP recommends that the water licence contain a stipulation that requires the Municipality of Iqaluit to develop and present for review, comprehensive and realistic abandonment and restoration plans for all former and current waste disposal sites in Iqaluit, within one year of the issuance of the water licence. Acceptance of the plans should be subject to approval by the appropriate regulatory agencies, such as, but not restricted to, DIAND, Health, Sustainable Development (EP), Environment Canada and DFO.

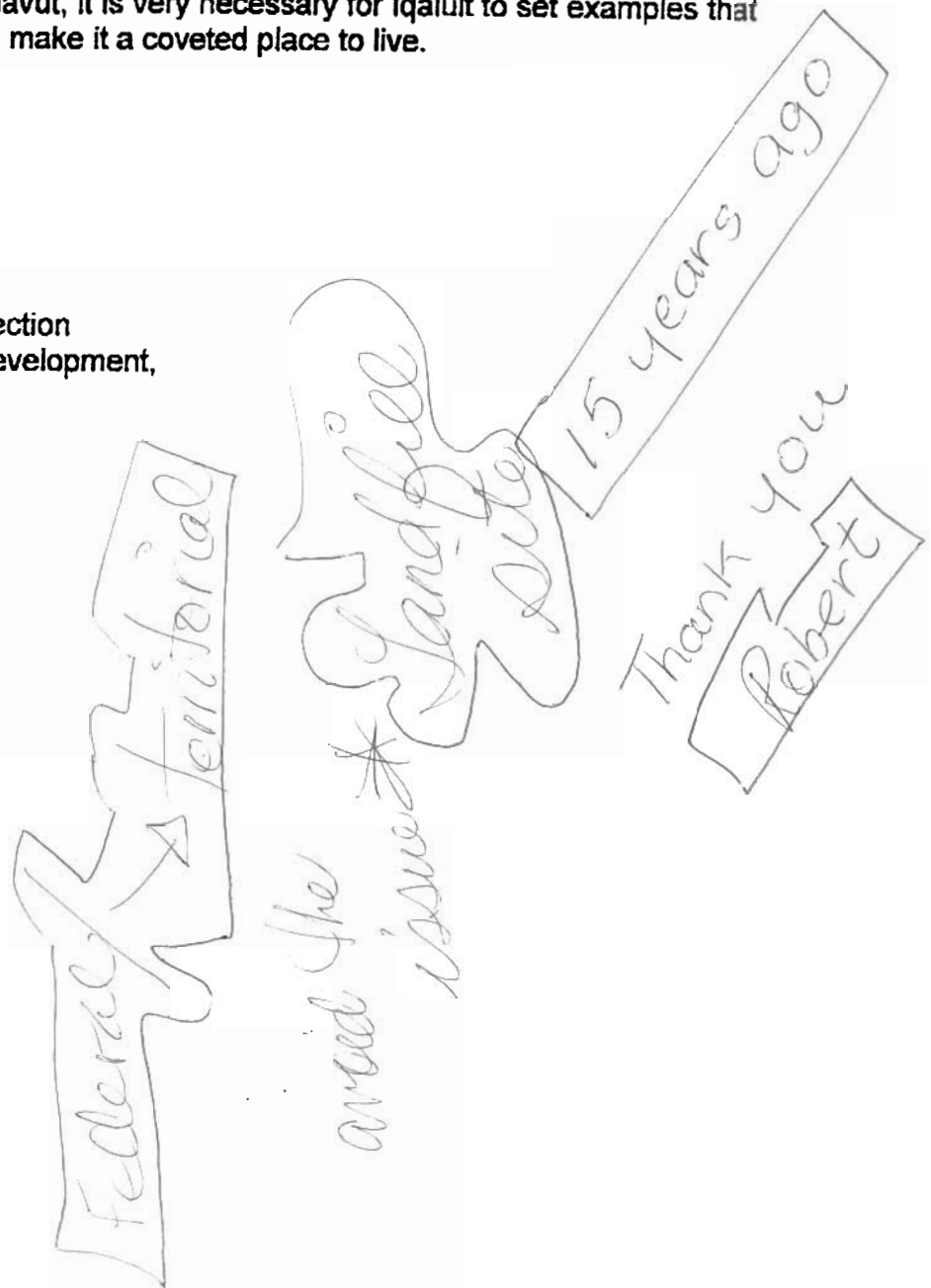
General Comments

The Municipality of Iqaluit must also recognize that due to a steadily increasing population, there will also be a commensurate increase in industrial activities. This,

in turn, results in more exotic materials and chemicals being deposited into the waste water systems and solid waste disposal facilities. The coke bottling plant is a good example of this, as is the dry-cleaning business that was established in Iqaluit a few years ago. **The Municipality of Iqaluit should ensure that before issuing business licences, they should first determine what kind of wastes will be generated by that business and how these will affect their waste management systems, the environment and the human population.**

The population of Iqaluit is projected to grow considerably over the next decade; therefore it is incumbent upon the town to develop acceptable management practices that will move it into the next millennium. Because of its present classification as the Capital of the Territory of Nunavut, it is very necessary for Iqaluit to set examples that will reflect its prominence and make it a coveted place to live.

Earle Baddaloo
Manager, Environmental Protection
Department Of Sustainable Development,
Government of Nunavut
Iqaluit, NU,
X0A 0H0



Amarok Hunters & Trappers Association

Box 629

Iqaluit, Nunavut

X0A 0H0

Phone: (867) 979-6848 Fax: (867) 979-3390

Ms. Dionne Filiatrault, ~~P. Eng.~~
Technical Advisor
Nunavut Water Board
Gjoa Haven, Nunavut
X0A 0H0

18 May 1999

Dear Ms. Filiatrault,

I am writing in response to your request to provide feedback with regards to Iqaluit's Municipal Water License Application currently before you.

With regards to Iqaluit's current solid waste treatment, open burning, Amarok Hunters and Trappers Association is deeply concerned with this type of technology. We are concerned that it is polluting our ecosystem, land, air and marine. We wish to see a more environmentally-friendly waste treatment technology introduced to Iqaluit as soon as is possible. Further, West 40 is not a suitable location to situate a solid waste treatment system. Many residents of Iqaluit use West 40 for camping, fishing and other recreational purposes, as well as West 40 is the location of the Sylvia Grinnell Territorial Park.

With regards to the current sewage treatment technology Iqaluit uses, sewage lagoons, we have long been concerned that this lagoon is negatively affecting our marine ecosystem. We understand that the Municipality of Iqaluit is aiming to replace this sewage treatment technology with a more environmentally-friendly technology; we are pleased with this news.

With respect to the Town's plans to remediate the old dumps, prompt cleanup is urgently required. This applies especially to the Apex Dump, as we are concerned that the toxic leachate running through the dump and into Tarr Inlet is another source of pollution our marine ecosystem should not continue to be subjected to.

Finally, a general comment, Inuit have always lived in harmony with the land and the animals. Taking care of our waste in the most environmentally-friendly way possible should be at the top of our Municipality of Iqaluit and Government of Nunavut's priorities, just as Inuit have practiced for hundreds of years..

I trust that our input to your review process is satisfactory. Please contact our Office Manager, Sytukie Joamie, should you wish to have any supplementary information regarding our position.

Thank you for providing the opportunity to respond to this application.

Yours Sincerely,

Pitseolak Alainga
Chairman



Amarok Hunters and Trappers Association

cc: DIAND - Lands & Waters Office, Nunavut
Fisheries & Oceans Canada, Nunavut
Nunavut Wildlife Management Board
Qikiqtaaluk Wildlife Board
Dept. of Community, Housing & Transportation, Government of Nunavut
Mayor + Council, Mun. of Iglood

IQALUIT LICENCE RENEWAL

DISTRIBUTION LIST

Denis Bédard, Town of Iqaluit	(867) 979-5910 ✓
Marcel Mason, Iqaluit	(867) 979-1513 ✓
Tina Price, Qikiqtani Inuit Association	(867) 979-3238 ✓
David Livingstone, Indian and Northern Affairs	(867) 669-2707 ✓
Laura Johnston, Environment Canada	(867) 873-8185 ✓
Earle Badaloo, Sustainable Development, GNT	(867) 979-6791 ✓
Michele Bertol, Community Gov't Housing and Transportation, GNT	(867) 979-4779 ✓
Nicole Ritchie, Baffin Regional Health and Social Services Board	(867) 979-7659 ✓
Margaret Keast, Fisheries and Oceans Canada	(867) 979-8039 ✓
Joe Ahmad, Nunavut Impact Review Board	(867) 983-2594 ✓
Luke Coady, Nunavut Planning Commission	(867) 983-2732 ✓
Jim Noble, Nunavut Wildlife Management Board	(867) 979-7785 ✓
Secretary-Manager, Amarok Hunters' and Trappers' Organization	(867) 979-3390 ✓
Qikiqtaaluk Wildlife Board	(867) 979-1491 ✓
Nunavut Tunngavik Inc.	(867) 979-3240 ✓
Tanya Smith. Dillon Consulting	(867) 979-0345 ✓

NORTHWEST TERRITORIES WATER BOARD

Pursuant to the Northwest Territories Waters Act and Regulations the Northwest Territories Water Board, hereinafter referred to as the Board, hereby grants to

TOWN OF IOALUIT

(Licensee)

P.O. BOX 450

of

IOALUIT, NORTHWEST TERRITORIES XOA OH0

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water subject to the restrictions and conditions contained in the Northwest Territories Waters Act and Regulations made thereunder and subject to and in accordance with the conditions specified in this Licence.

Licence Number

N5L3-0087

Licence Type

"A" (RENEWAL)

Water Management Area

NORTHWEST TERRITORIES 05

Location

IOALUIT, NORTHWEST TERRITORIES

Purpose

WATER USE AND WASTE DISPOSAL

Description

FOR MUNICIPAL UNDERTAKINGS

Quantity of Water Not to be Exceeded

1,100,000 CUBIC METRES PER YEAR

Effective Date of Licence

JANUARY 1, 1996

Expiry Date of Licence

DECEMBER 31, 1998

This Licence issued and recorded at Yellowknife includes and is subject to the annexed conditions.

NORTHWEST TERRITORIES WATER BOARD

Ronald R. LeMoine
Witness

Gordon W. [Signature]
Chairman

APPROVED BY

[Signature]
Minister of Indian Affairs
and Northern Development

PART A: SCOPE AND DEFINITIONS

1. Scope

- a) This Licence allows for the use of water and disposal of Waste for municipal purposes at the Town of Iqaluit, Northwest Territories, (63° 44' N. Latitude and 68° 31' W. Longitude);
- b) This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of Waste of any type in any waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Northwest Territories Waters Act, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations; and
- c) Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

In this Licence: N5L3-0087:

"Act" means the Northwest Territories Waters Act;

"Analyst" means an Analyst designated by the Minister under Section 35(1) of the Northwest Territories Waters Act;

"Board" means the Northwest Territories Water Board established under Section 10 of the Northwest Territories Waters Act;

"Inspector" means an Inspector designated by the Minister under Section 35(1) of the Northwest Territories Waters Act;

"Licensee" means the holder of this Licence;

"Minister" means the Minister of Indian Affairs and Northern Development;

"Regulations" means Regulations proclaimed pursuant to Section 33 of the Northwest Territories Waters Act;

"Waste" means Waste as defined by Section 2 of the Northwest Territories Waters Act;

"Average Concentration" means the arithmetic mean of any four consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the "Surveillance Network Program";

"Average Concentration For Faecal Coliform" means the geometric mean of any four consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the "Surveillance Network Program";

"Commercial Waste Water" means water and associated Waste generated by the operation of a commercial enterprise, but does not include Toilet Wastes or Greywater;

"Freeboard" means the vertical distance between water line and crest on a dam or dyke's upstream slope;

"Greywater" means all liquid Wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include Toilet Wastes;

"Pumpout Sewage" means all Toilet Wastes and/or Greywater collected by means of a vacuum truck for disposal at an approved facility;

"Sewage" means all Toilet Wastes and Greywater;

"Sewage Disposal Facilities" comprises the area and engineered structures designed to contain Sewage as identified in Drawing Number WS-02, titled "Domestic Sewer System Overall Plan", and dated August, 1995;

"Solid Waste Disposal Facilities" comprises the area and associated structures designed to contain solid Wastes as described in Drawing Number 100, titled "Town of Iqaluit New Landfill Site", and dated January 12, 1995;

"Toilet Wastes" means all human excreta and associated products, but does not include Greywater;

"Waste Disposal Facilities" means all facilities designated for the disposal of Waste, and includes the Sewage Disposal Facilities, Solid Waste Disposal Facilities, and Bagged Toilet Wastes Disposal Facilities; and

"Water Supply Facilities" comprises the area and associated intake infrastructure as identified in Drawing Number WS-01 titled "Domestic Water System Overall Plan", and dated August, 1995.

PART B: GENERAL CONDITIONS

1. The Licensee shall file an Annual Report with the Board not later than March 31st of the year following the calendar year reported which shall contain the following information:
 - a) the monthly and annual quantities in cubic metres of fresh water obtained from all sources;
 - b) the annual quantity of Sewage solids removed from the new Sewage Disposal Facilities for disposal once built;
 - c) a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures;
 - d) tabular summaries of all data generated under the "Surveillance Network Program";
 - e) a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - f) a summary of any studies requested by the Board that relate to Waste disposal, water use or reclamation, and a brief description of any future studies planned;
 - g) a list of unauthorized discharges;
 - h) updates or revisions to the approved Sewage and solid Waste Operation and Maintenance Plans; and
 - i) any other details on water use or Waste disposal requested by the Board by November 1st of the year being reported.
2. The Licensee shall comply with the "Surveillance Network Program" annexed to this Licence, and any amendment to the said "Surveillance Network Program" as may be made from time to time, pursuant to the conditions of this Licence.

3. The "Surveillance Network Program" and compliance dates specified in the Licence may be modified at the discretion of the Board.
4. Meters, devices or other such methods used for measuring the volumes of water used shall be installed, operated and maintained by the Licensee to the satisfaction of an Inspector.
5. The Licensee shall, within sixty (60) days of the issuance of this Licence, post the necessary signs, where possible, to identify the stations of the "Surveillance Network Program". All postings shall be located and maintained to the satisfaction of an Inspector.
6. The Licensee shall, within sixty (60) days of issuance of this Licence, post signs in the appropriate areas to inform the public of Water Supply and Waste Disposal Facilities. All postings shall be located and maintained to the satisfaction of an Inspector.
7. The Licensee shall immediately report to the 24 Hour Spill Report Line (403-920-8130) any spills of Waste, which are reported to or observed by the Licensee, within the municipal boundaries or in the areas of the water supply or Waste Disposal Facilities.
8. The Licensee shall ensure a copy of this Licence is maintained at the municipal office at all times.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all fresh water from Lake Geraldine using the Water Supply Facilities or as otherwise approved by the Board.
2. The annual quantity of water used for all purposes shall not exceed 1,100,000 cubic metres.
3. The water intake hose used on the water pumps shall be equipped with a screen with a mesh size sufficient to ensure no entrainment of fish.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall direct all piped and Pumpout Sewage to the Sewage lagoon using the Sewage Disposal Facilities or as otherwise approved by the Board.
2. All Sewage effluent discharged from the Sewage Disposal Facilities at "Surveillance Network Program" Station Number 0087-2 shall meet the following effluent quality standards during periods of open water in Koojesse Inlet:

Parameter	Maximum Average Concentration
Faecal Coliform	1×10^6 CFU/100 ml
BOD ₅	120 mg/L
Suspended Solids	180 mg/L

The Waste discharged shall have a pH between 6 and 9, and no visible sheen of oil and grease.

3. A Freeboard limit of 1.0 metre shall be maintained at all times or as recommended by a qualified geotechnical engineer and as approved by the Board.
4. The Sewage lagoon shall be maintained and operated in such a manner as to prevent structural failure.
5. The Licensee shall maintain the Sewage Disposal Facilities to the satisfaction of an Inspector.
6. The Licensee shall, by September 1, 1996, submit to the Board for approval, design details and an implementation schedule for a mechanical screening system which will fulfill the requirements of primary treatment of Sewage for the Town of Iqaluit. The submission shall include details of the Licensee's plans for the existing lagoon and altered drainage.

7. The Licensee shall implement the proposed mechanical screening system as described in Part D, Item 6 as and when approved by the Board.
8. The Licensee shall, by April 1, 1996, submit to the Board for approval the proposed Terms of Reference for a study of options for Sewage treatment using wetlands within an economically feasible distance of the Town.
9. The Licensee shall implement the study referred to in Part D, Item 8 as and when approved by the Board and shall complete the study no later than January 1, 1997. The study report shall include a rating of the wetland options relative to other forms of secondary treatment outlined in the report, "Iqaluit, NWT Sewage Treatment Improvements, Preliminary Engineering Report, Final Report, March 1995".
10. The Licensee shall, by June 30, 1996, submit to the Board for approval, a Spill Contingency Plan. The Plan shall include, but not be limited to:
 - a) identification of high spill risk areas;
 - b) spill prevention measures;
 - c) spill response procedures;
 - d) clean-up procedures; and
 - e) spill follow-up and reporting procedures.
11. The Licensee shall implement the Plan specified in Part D, Item 10 as and when approved by the Board.
12. The Licensee shall dispose of all solid Wastes at the Solid Waste Disposal Facilities or as otherwise approved by the Board.
3. The Licensee shall, by January 1, 1997, submit to the Board for approval, a Waste Management Plan. The Plan shall address the long term Waste management needs for the Town of Iqaluit.
4. The Licensee shall implement the Plan specified in Part D, Item 13 as and when approved by the Board.

PART E: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written approval from the Board, carry out modifications to the Water Supply and Waste Disposal Facilities provided that such modifications are consistent with the terms of this Licence and the following requirements are met:
 - a) the Licensee has notified the Board in writing of such proposed modifications at least sixty (60) days prior to beginning the modifications;
 - b) such modifications do not place the Licensee in contravention of either the Licence or the Act;
 - c) the Board has not, during the sixty (60) days following notification of the proposed modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
 - d) the Board has not rejected the proposed modifications.
2. Modifications for which all of the conditions referred to in Part E, Item 1, have not been met, can be carried out only with written approval from the Board.
3. The Licensee shall provide to the Board as-built plans and drawings of the modifications referred to in Part E, Item 1 within ninety (90) days of completion of the modifications.

PART F: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

1. The Licensee shall submit to the Board for approval an Abandonment and Restoration Plan at least six (6) months prior to abandoning any Waste Disposal Facilities except those facilities specified in Part F, Items 3 and 5. The Plan shall include, but not be limited to:
 - a) contaminated site remediation;
 - b) leachate prevention;
 - c) an implementation schedule;

- d) maps delineating all disturbed areas, borrow material locations, and site facilities;
- e) consideration of altered drainage patterns;
- f) type and source of cover materials;
- g) future area use; and
- h) hazardous Wastes.

2. Licensee shall implement the plan specified in Part F, Item 1 as and when approved by the Board.

3. The Licensee shall, by January 1, 1997, submit to the Board for approval, an Abandonment and Restoration Plan for site 4 in the West Forty area. The Plan shall include, but not be limited to: (Honey Bag Hill) →

- a) contaminated site remediation; (consolidation / cover)
(landfill)
- b) leachate prevention;
- c) an implementation schedule;
- d) maps delineating all disturbed areas, borrow material locations, and site facilities;
- e) consideration of altered drainage patterns;
- f) type and source of cover materials;
- g) future area use; and
- h) hazardous Wastes.

4. The Licensee shall implement the plan specified in Part F, Item 3 as and when approved by the Board.

The Licensee shall, by June 30, 1997, submit to the Board for approval, an Abandonment and Restoration Plan for the Apex Waste disposal site. The Plan shall include, but not be limited to:

a) contaminated site remediation:

- b) leachate prevention;
- c) an implementation schedule;
- d) maps delineating all disturbed areas, borrow material locations, and site facilities;
- e) consideration of altered drainage patterns;
- f) type and source of cover materials;
- g) future area use; and
- h) hazardous Wastes.

6. The Licensee shall implement the plan specified in Part F, Item 5 as and when approved by the Board.

PART G: CONDITIONS APPLYING TO CONSTRUCTION

1. Prior to construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or Wastes, the Licensee shall submit to the Board for approval design drawings stamped by a qualified engineer registered in the Northwest Territories.
2. Construction of designed structures shall be carried out as approved by the Board.

PART H: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Licensee shall operate and maintain the Waste Disposal Facilities in accordance with the approved Operation and Maintenance Plans.
2. The Licensee shall review, and amend as needed, the approved Operation and Maintenance Plans on an annual basis and shall advise the Board of any amendments in accordance with Part B, Item 1 of this Licence.

3. The Licensee shall submit to the Board for approval, plans for the Operation and Maintenance of any new Waste Disposal Facilities prior to commissioning such facilities. The plans shall include but not be limited to the following:
- a) frequency of inspection of dams, dykes and drainage courses;
 - b) removal of floating materials from the Sewage Disposal Facilities;
 - c) controlling effluent discharge quality;
 - d) run-off and drainage control within and around the facility, and restoration of erosion;
 - e) treatment of contaminated drainage;
 - f) prevention of windblown debris;
 - g) managing hazardous Waste;
 - h) segregation of domestic, metal and recyclable Waste materials;
 - i) method and frequency of site maintenance, including burning where permitted; and
 - j) alternatives designed to reduce burning.
4. The Licensee shall implement the plan specified in Part H, Item 3 as and when approved by the Board.

NORTHWEST TERRITORIES WATER BOARD

Donald R. LeMoine
Witness

Gordon S. Jay
Chairman

NORTHWEST TERRITORIES WATER BOARD

LICENSEE: TOWN OF IQALUIT

LICENCE NUMBER: N5L3-0087

EFFECTIVE DATE OF LICENCE
RENEWAL: JANUARY 1, 1996

EFFECTIVE DATE OF AMENDED
SURVEILLANCE NETWORK PROGRAM: JANUARY 1, 1996

SURVEILLANCE NETWORK PROGRAM

A. Location of Surveillance Stations

<u>Station Number</u>	<u>Description</u>
0087-1	Raw water supply from the Lake Geraldine Reservoir at the water treatment plant.
0087-2	Final discharge from the Sewage lagoon.
0087-3	Influent to the Sewage lagoon.
0087-4	Run-off from the West 40 solid Waste disposal site.
0087-5	Run-off from the North 40 solid Waste disposal site.
0087-6	Run-off from the abandoned solid Waste disposal site located at site 4 of the West Forty area.
0087-7	Run-off from the Solid Waste Disposal Facility located at site 8 in the West Forty area.

B. Sampling and Analysis Requirements

1. Water at Station Number 0087-2 shall be sampled monthly during periods of open water in Koojesse Inlet and analyzed for the following parameters:

pH
Faecal Coliform
Ammonia Nitrogen

Suspended Solids
BOD₅

2. Water at Station Numbers 0087-5, 0087-6, and 0087-7 shall be sampled monthly during periods of flow and analyzed for the following parameters:

pH ✓
Conductivity ✓
Potassium ✓
Total Phosphorous
Calcium ✓
Ammonia Nitrogen ✓
Total Arsenic
Total Copper
Total Lead
Total Nickel
Total Chromium

Suspended Solids ✓
Sodium ✓
Magnesium ✓
Sulphate ✓
Total Phenols ✓
Nitrate-Nitrite ✓
Total Cadmium
Total Iron
Total Mercury
Total Zinc

3. Water and suspended sediment at Station Numbers 0087-5, 0087-6 and 0087-7 shall be sampled once during a high runoff period and analysed for Polynuclear Aromatic Hydrocarbons (Environmental Protection Agency priority list) and total aroclor PCBs.
4. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater", or by such other methods approved by an Analyst.
5. All analyses shall be performed in a laboratory approved by an Analyst.

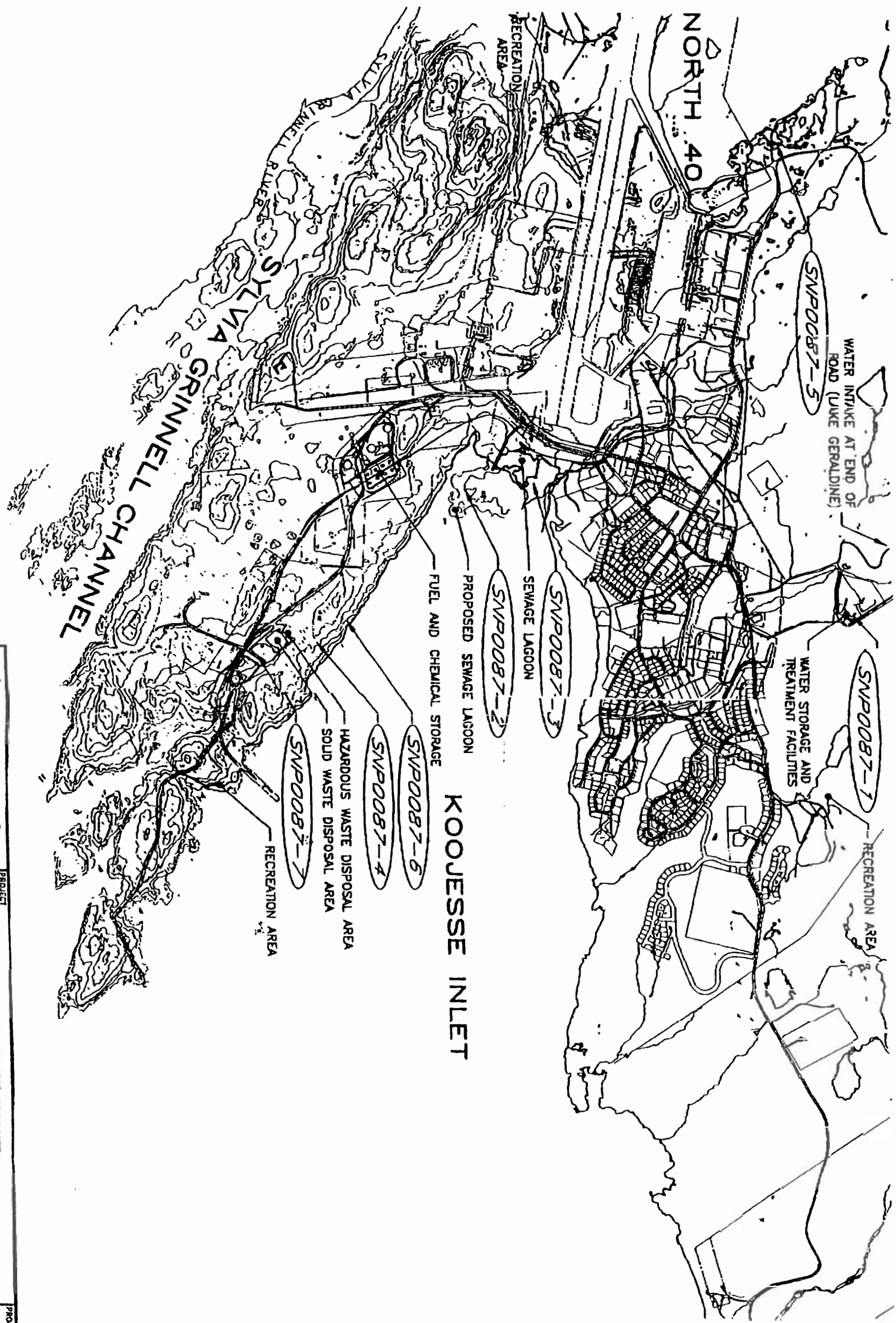
C. Flow and Volume Measurement Requirements

1. The monthly and annual quantities of water pumped from Surveillance Network Program Station Number 0087-1 for municipal purposes shall be measured and recorded in cubic metres.
2. The annual quantity of Sewage solids removed from the Sewage disposal facility shall be measured and recorded.

NORTHWEST TERRITORIES WATER BOARD


Rene L. LeMoine
Witness

Simon Dwyer
Chairman



SCALE 1:20000

KOOJESSE INLET

 <p>DILLON CONSULTING</p>	<p>PROJECT</p> <p>TOWN OF IQALUIT WATER LICENSE RENEWAL</p>	<p>PROJECT NUMBER 98-5583-01</p> <p>DATE JAN 99</p> <p>FIGURE NUMBER 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 IQALUIT
WASTE MANAGEMENT PLAN
EXISTING WASTE
DISPOSAL SITES**

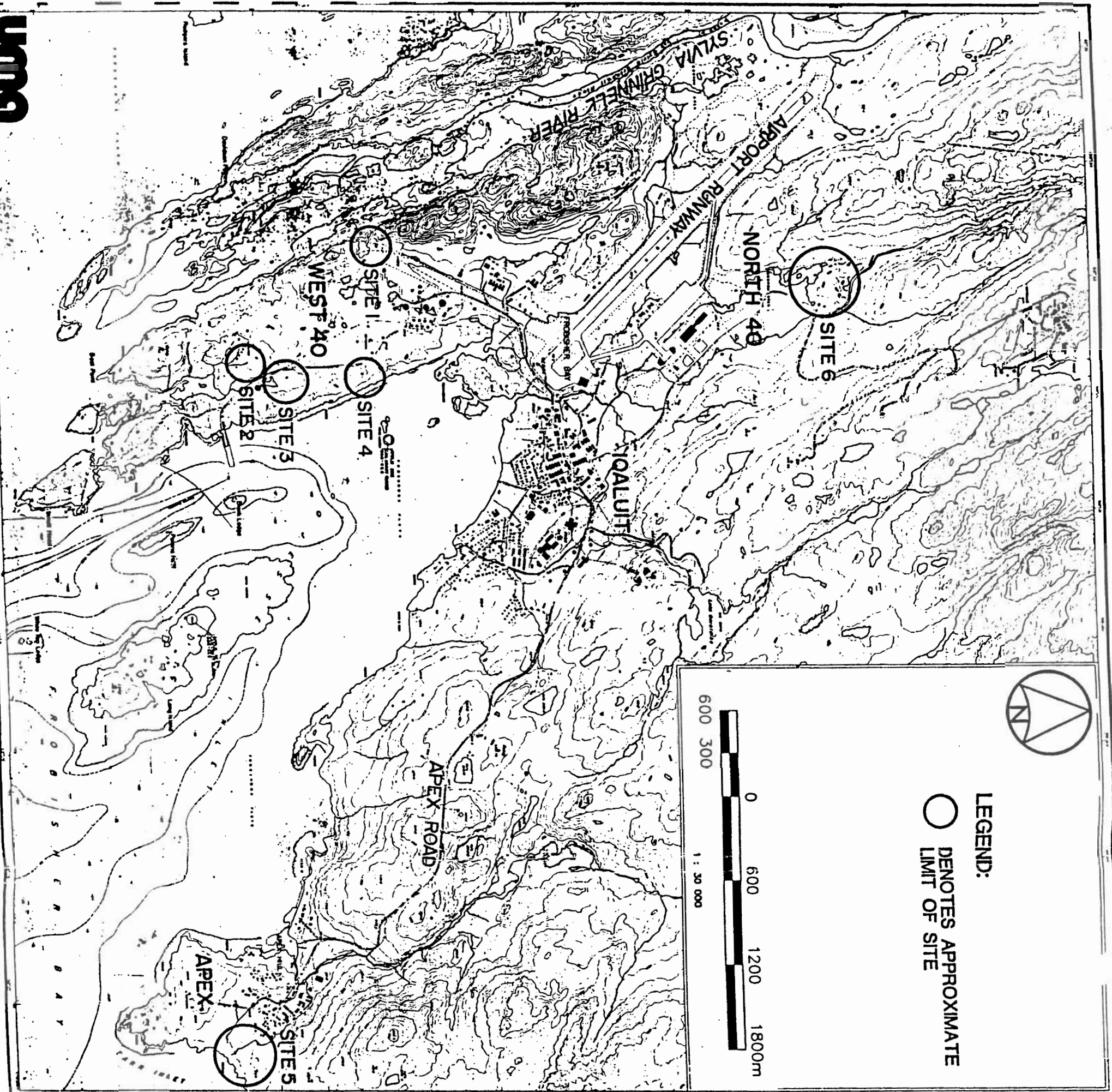


Figure 1