Nunavut Water Board File No. NWB3IQA0103

NUNAVUT WATER BOARD

REASONS FOR DECISION

January 26, 2001

Date of Hearing: ***November 22, 23 and 24, 2000***

Date of Decision: ***January 1, 2001***

IN THE MATTER OF Article 13 of the *Nunavut Land Claims Agreement,*

- and -

IN THE MATTER OF the renewal of the Town of Iqaluit's municipal licence.

Cite as: re: Iqaluit Licence Renewal 2000

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APPEARANCES

TOWN OF IQALUIT	Matthew Hough John Matthews John Tidball
DEPARTMENT OF COMMUNITY GOVERNMENT AND TRANSPORTATION NUNAVUT (CGT)	Douglas Sitland
DEPARTMENT OF SUSTAINABLE DEVELOPMENT - ENVIRONMENT PROTECTION NUNAVUT (EP)	Robert Eno
DEPARTMENT OF HEALTH AND SOCIAL SERVICES NUNAVUT (HEALTH)	Bonnie Segal
DEPARTMENT OF JUSTICE NUNAVUT (JUSTICE NUNAVUT)	Susan Hardy
DEPARTMENT OF FISHERIES AND OCEANS CANADA (DFO)	Jordan DeGroot
ENVIRONMENT CANADA (EC)	Anne Wilson
DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS (DIAND)	Paul Smith
DEPARTMENT OF JUSTICE CANADA (JUSTICE CANADA)	Lee F. Webber
CITIZENS	Marcel Mason Bill Mackenzie

SUMMARY

On September 15, 2000, the Nunavut Water Board received from the Town of Iqaluit an application for the renewal of licence NWB3IQA9900, due to expire December 31, 2000. The Board conducted a pre-hearing meeting in Iqaluit on September 25, 2000 to discuss procedural and other issues relating to the hearing. At the pre-hearing, the Board identified, with the help of all parties, a number of agreed-upon issues to be dealt with at the hearing. A hearing was then held on November 22, 23 and 24, 2000 to hear the submissions of the applicant and interested parties.

After hearing evidence from the Town of Iqaluit, the Government of Nunavut (Department of Sustainable Development, Department of Health and Social Services, Department of Community Government and Transportation) and the Government of Canada (joint submission from Fisheries and Oceans Canada, Environment Canada and Indian and Northern Affairs Canada), as well as Mr. Marcel Mason and Mr. Bill Mackenzie, both residents of Iqaluit, the Board decided to renew the Town's water licence for a term of three years effective January 1, 2001.

The three-year licence issued by the Board on January 1, 2001 contains several general and specific conditions, such as: a maximum use of 1.1 million cubic metres of freshwater for municipal purposes from Lake Geraldine; the submission of a report on the long-term assessment of the Town's fresh water needs; the authorization for the continued use of the current solid waste management with restrictions on open burning; the abandonment and restoration of abandoned solid waste facilities; the operation of a new sewage treatment plant and the short and long-term disposal of sludge removed from the plant; and the abandonment and restoration of the current sewage lagoon and its possible use as a back-up facility. The reasons for the decision were issued on January 26, 2001 in a separate document.

I. Procedural History, Background and Jurisdiction

Procedural History

This matter involves the renewal of the water licence of the Town of Iqaluit, in Nunavut. The Town is located on Commissioner's Land, and a water licence regulates water use and waste disposal activities for municipal purposes. The previous licence was issued by the Nunavut Water Board (the "Board") on December 31, 1999 for a term of one year, and authorized the Town of Iqaluit to use water and dispose of waste in conjunction with municipal services.

On September 15, 2000, the Town of Iqaluit filed an application for licence renewal. Initially, the Board decided to hold a public hearing on November 7th and 8th, 2000. Notice of the hearing was given in Nunatsiaq News and at local establishments within Iqaluit, and was also sent directly to interested parties. A pre-hearing meeting with the applicant and interested parties was held on September 25, 2000 to discuss procedural issues and to identify the matters to be dealt with at the hearing. Upon a motion made by the Government of Nunavut at the pre-hearing meeting, the Board decided to hold the hearing on November 22, 23, and 24, 2000. At the pre-hearing, the applicant also agreed to file its statement of evidence and an Inuktitut summary of its Solid Waste Management Planning Study no later that October 20, 2000. In accordance with the Board's Rules of Practice and Procedure for Public Hearing, the deadline for interventions was set for November 7, 2000. Revised notices of the hearing were posted locally and in Nunatsiaq News, a Nunavut-wide weekly newspaper.

By November 7, 2000, formal written intervention statements were received from the Department of Indian and Northern Affairs Canada (DIAND), Environment Canada (EC) and Fisheries and Oceans Canada (DFO), Nunavut's Departments of Health and Social Services (Health), Community Government and Transportation (CGT), and Sustainable Development (DSD), as well as from Mr. Marcel Mason, a resident of Iqaluit.

A public hearing was held on November 22, 23, and 24, 2000 in Iqaluit, and a site visit of the Town's municipal infrastructures was also held in conjunction with the hearing.

Background

Iqaluit, known as Frobisher Bay until January 1, 1987 when the community reverted to its original Inuktitut name, is located near the site of a traditional Inuit fishing camp, at 2,261 air kilometres east of Yellowknife, and 2,060 air kilometres north of Montréal. It is located on rocky, irregular coastline in a rocky lowland area, flanked by mountains on the northeast and southwest. The vegetation is typical of the sub-arctic tundra bio-region. Average annual precipitation is 19.2 centimetres of rainfall and 25.5 centimetres of snowfall, for a total of 44.7 centimetres precipitation. July mean high temperature is 11.4 degrees Celsius, and low is 3.7 degrees Celsius. January's mean high is -21.5 degrees Celsius, and low is -29.7 degrees Celsius. Winds are NW in the fall and SE in summer, at an annual average speed of 16.7 km/h. Iqaluit is located in the continuous permafrost area.

The site of Iqaluit remained relatively undisturbed since the first recorded contact with Europeans in 1576. Most of the development of Iqaluit occurred because of the United States Air Force's construction of the largest airbase in the North on the site in 1942-43. The USAF was active until 1963 with a variety of projects: construction of a radar station, expansion of in-flight refueling capabilities, sending men and supplies to the eastern part of the Distance Early Warning (DEW) line then under construction. Iqaluit is also the site of a Forward Operating Location (FOL) built at the beginning of the 1990s.

The Town of Iqaluit obtained Town status on October 1, 1980. Over the years, the community became the major administrative and political centre for the Baffin region; it is now the capital of the new territory of Nunavut, formally proclaimed on April 1, 1999.

Access to Iqaluit is by air. Access by sea is possible during the ice-free season, generally from July to October. Heavy machinery, vehicles, dry goods, construction material and supplies, and fuel and lubricants, are transported by ship from Southern Canada.

Jurisdiction

The Nunavut Water Board has jurisdiction to consider this application pursuant to the Nunavut Land Claims Agreement (NLCA), Article 13. Under Article 13.7.1, "no person may use water or dispose of waste into water without the approval of the NWB." By requiring permission from the Board before the use of water or the deposit of wastes into water, the NLCA gives the Board an obligation to protect the quantity and quality of the water within the Nunavut Settlement Area as much as possible.

We believe this duty is significant and far reaching because fresh water is such a fragile resource and the direct and indirect deposit of waste of any kind or form into it should be avoided as much as possible. The *Yukon Waters Act*,[1] the *Northwest Territories Waters Act*[2] and the *Mackenzie Valley Resource Management Act*[3] define waste to include:

> (a) any substance that, if added to water, would degrade or alter or form part of a process of degradation or alteration of the quality of the water to an extent that is detrimental to its use by people or by any animal, fish or plant, or
>
> (b) water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a),
>
> and, without limiting the generality of the foregoing, includes:
>
> (c) any substance or water that, for the purposes of the *Canada Water Act*,[4] is

[1] S.C. 1992, c. 40.
[2] S.C. 1992, c. 39.
[3] S.C. 1998, c.25.
[4] R.S.C. 1985, c. C-11.

> Waste is defined as: (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man, and
> (b) any water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a);
> …
> Prescribed substances and certain water deemed waste
> (2) Without limiting the generality of the definition "waste" in this Act,
> (a) any substance or any substance that is part of a class of substances prescribed pursuant to subparagraph 18(1) (a)(i),

deemed to be waste,

(d) any substance or class of substances prescribed by regulations made under subparagraph 33(1)(b)(i),

(e) water that contains any substance or class of substances in a quantity or concentration that is equal to or greater than a quantity or concentration prescribed in respect of that substance or class of substances by regulations made under subparagraph 33(1)(b)(ii), and

(f) water that has been subjected to a treatment, process or change prescribed by regulations made under subparagraph 33(1)(b)(iii);

A similar definition is found in the *Arctic Waters Pollution Prevention Act*:[5]

The word “deposit” has been defined broadly. In the *Fisheries Act*[6] for example, deposit means:

s. 34(1) ". . . any discharging, spraying, releasing, spilling, leaking, seeping, pouring, emitting, emptying, throwing, dumping or placing;

s. 40 (5) For the purpose of any proceedings for an offence under subsection (2) or (3),

(a) a "deposit" as defined in subsection 34(1) takes place whether or not any act or omission resulting in the deposit is intentional; and

(b) no water is "water frequented by fish", as defined in subsection 34(1), where proof is made that at all times material to the proceedings the water is not, has not been and is not likely to be

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(b) any water that contains any substance or any substance that is part of a class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to subparagraph 18(1)(a)(ii), and
(c) any water that has been subjected to a treatment, process or change prescribed pursuant to subparagraph 18(1)(a)(iii),
shall, for the purposes of this Act, be deemed to be waste.

[5] R.S.C. 1985, c. A-12.
s. 2 "waste" means
(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man, and
(b) any water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a),
and without limiting the generality of the foregoing, includes anything that, for the purposes of the Canada Water Act, is deemed to be waste.

[6] *R.S.C. 1985, c. F-14.*

frequented in fact by fish

When considering a water application, the Board may request a broad range of information from the applicant as listed in Article 13.8.1[7], including any steps taken to mitigate adverse impacts and "any other matters that the NWB considers relevant."

The Board therefore has broad jurisdiction to include terms and conditions it considers necessary to ensure protection of the waters in the Nunavut Settlement Area including jurisdiction with respect to freshwater, both surface and subsurface; for the purposes of the NLCA, water is defined as "waters in any river, stream, lake or other body of inland waters on the surface or under ground in the Nunavut Settlement Area, and includes ice and all inland ground waters, but does not include water or ice in marine areas."[8]

[7] Article 13.8.1 states: Consistent with subsection 13(2) of the *Northern Inland Waters Act*, RSC 1985, c. N-25, the NWB, when considering a water application, may issue guidelines to the applicant for provision of information with respect to the following:

a. project description;
b. any qualitative and quantitative effects of the proposed water use on the management area, including anticipated impacts on other water users of that area;
c. steps which the proponent proposes to take to avoid and mitigate adverse impacts;
d. steps which the proponent proposes to take to compensate interests adversely affected by water use;
e. the program the proponent proposes to establish for monitoring impacts of the water use;
f. interests in the lands and waters which the proponent has secured or seeks to secure;
g. options for implementing the project; and
h. any other matters that the NWB considers relevant.

[8] Article 1.1.1

II. Issues

Several issues were identified at the September 25, 2000 pre-hearing and the Board decided that the following would be the subject of the subsequent hearing, keeping in mind that this list was not exhaustive and that the Board would accept evidence on any matter relating to its jurisdiction with respect to the use of water and the disposal of waste into water pursuant to Section 13.7.1 of the Nunavut Land Claims Agreement:

A. The use of water for municipal purposes, and in particular the Town's long term water supply and the integrity and stability of Lake Geraldine's dam;
B. The status of the new sewage treatment plant;
C. The disposal of sludge that will be produced by the new sewage treatment plant;
D. The status of the current sewage lagoon, including the stability of its dykes and its decommissioning;
E. The current and proposed methods for solid waste disposal, including the operation of the current solid waste disposal facility and appropriate contingency during the transition period from the current method to the proposed system; and
F. The abandonment and restoration of the current and other solid waste disposal sites in Iqaluit.

III. Summary of Evidence and Analysis

A. The use of water for municipal purposes, and in particular the Town's long term water supply and the integrity and stability of Lake Geraldine's dam;

i. Long Term Supply of Water for the Town of Iqaluit

The Town's application states that in 2000 water use is averaging 1.1 million litres per day in Iqaluit. In its application, the Town asked the Board to maintain its maximum water use at 1.1 million cubic metres per year. The Town told the Board that as its population grows, its water requirements are expected to grow proportionately. The Town recognized that, while it may be possible to draw more water from Lake Geraldine for several more years, it has a finite capacity, and the Town is expecting that new long-term sources of water will be needed in about five years.

In their joint submission to the Board, DFO, DIAND and EC indicated that the Town of Iqaluit's water consumption for 1996, 1997, and 1998 was 471,627 m^3, 438,778 m^3, and 391,555 m^3 respectively, and that with population growth, water consumption rates would steadily rise over the course of the next five years and during the proposed 20-year design life of the water treatment plant upgrade (i.e. 2017). The Town of Iqaluit has requested the approval for the use of 1.2 million L/day of raw water from Lake Geraldine, which amounts to about 438,000 m^3/year. DFO, DIAND and EC noted that this amount did not allow any contingency for growth or for emergency needs of the town of Iqaluit, and recommends that the Board maintains licensed water use at 1.1 million m^3/year, as in the previous licence**. The Board agrees with DFO, DIAND and EC's recommendation and approves the use of freshwater to a maximum of 1.1 million cubic metres annually.**

The December 31, 1999 license issued by the Board required the applicant to submit a detailed hydrological assessment on the Lake Geraldine watershed. **The licensee failed to meet this requirement.** At the hearing, the Town of Iqaluit told the

Board that it was planning to retain a consultant in March 2001 to assess the ability of Lake Geraldine to meet Iqaluit's needs, to identify alternative water sources and, if Lake Geraldine's capacity was adequate, to plan for additional storage facility at the current water treatment plant. At the hearing, the Town said that it was prepared to submit such report to the Board, by no later than December 31, 2001.

In their joint submission, DFO, DIAND and EC again recommended the inclusion of this study as a water licence condition, and recommended that it include the hydrological assessment of Lake Geraldine and realistic predictions of future growth and water use as well as an assessment of the potential effects of water drawdown on fish populations in Lake Geraldine. Health noted that at this time the source and quality of the water was acceptable, but it also supported DFO, DIAND and EC's recommendation.

On the other hand, CGT noted that in May 1998, Reid Crowther & Partners Limited (RCPL) was retained to undertake a Water Treatment Plant Design Brief. CGT told the Board that the Design Brief concluded that the water quality was generally good and that, as a result of height increases to the Lake Geraldine Dam, provided the level of Lake Geraldine remained high, there was sufficient capacity to meet Iqaluit's water demand. In light of these conclusions, CGT questioned why attention was being placed on the long-term viability of Lake Geraldine as the municipal water source.

However, the Board agrees that an assessment of Iqaluit's freshwater needs is essential and instruct the Town to submit to the Board for approval at least six months before the expiry of the licence a report on the long-term water supply options for the Town of Iqaluit.

ii. Integrity of the Lake Geraldine Dam

In its 1999 decision, the Board had instructed the Town to confirm the stability and integrity of the Lake Geraldine Dam. In the 1999 Licence, Lake Geraldine Reservoir Dam had to be inspected within six months of the licence issuance during open and high water conditions, by a qualified geotechnical engineer in accordance with the *Canadian Dam*

Association's 1995 Edition of the *Dam Safety Guidelines*. **The Town failed to meet this licence requirement**, and furthermore told the Board at the hearing that it did not believe that the Lake Geraldine dam presented any concern. The Town told the Board that the level of Lake Geraldine Dam was raised and that improvements to the concrete dam and the earthen berms had been made in 1997; it indicated that since that time, the work was inspected several times by the consulting engineers for this project, and that final inspections were completed in July 2000. No problems with the alterations to the dam, or the dam itself, were noted, and superficial cracks on the surface of the concrete would be grouted later.

At the hearing, the Town also told the Board that a risk assessment has been commissioned by the Government of Nunavut to evaluate the risk involved in building a hospital at the bottom of the hill beneath the dam. According to the Town, the objective of the study was to prove whether or not a new hospital would be damaged if the Lake Geraldine dam failed. The overall condition of the dam is supposedly being considered as part of this study.

In light of the work that has recently taken place on the dam, and the risk assessment study currently underway, the Town requested the deletion of any requirement for geotechnical inspection of the Lake Geraldine dam from its new license. At the hearing, CGT supported the Town's position.

In reply to the Town, DFO, DIAND and EC said that without access to the inspection reports prepared either by or for the Town, it is not clear that concerns regarding dam stability have been adequately addressed. DFO, DIAND and EC furthermore agreed that if any of the consultant's report retained by the Town to monitor or repair the dam were incorporated in a summary report that would meet the Water Board requirements, then the Town could submit this inspection report to the NWB for approval *in lieu* of conducting a new assessment.

In contrast, DFO, DIAND and EC recommended to the Nunavut Water Board

that the Lake Geraldine Reservoir Dam be inspected once during the term of the licence, during open and high water conditions by a qualified geotechnical engineer following the *Canadian Dam Association's 1999 Dam Safety Guidelines*, and that the engineer's report should be submitted to the Board within 60 days of the inspection with a covering letter from the Licensee outlining an implementation plan to respond to the engineer's recommendations.

The Board is of the opinion that **regular inspection of dams and dykes is a sound engineering practice and relies on the recommendations of the Canadian Dam Association regarding the type and frequency of dam inspection**, and furthermore agrees with DFO, DIAND and EC that **the Lake Geraldine Dam should be inspected at least once during the term of the licence, in accordance with the Canadian Dam Association's January 1999 Edition of the *Dam Safety Guidelines***. The Board also agrees that if the Town can provide a detailed summary of the inspection work already conducted by their engineering consultants, and provided that the report meets the requirements of the Dam Safety Guidelines, then this report could be deemed satisfactory for the purpose of this licence.

B. The status of the new sewage treatment plant;

At the hearing, the Town told the Board that the construction of the Iqaluit Sewage Treatment Plant (STP) was almost completed in February 2000. However, during the hydrostatic test, leaks were noticed in the tank walls. Work was stopped on the project and a structural investigation revealed significant structural flaws in the walls of the tanks. The Town is currently working to repair the tanks before completing construction of the plant and expects that the repairs will be completed by the end of December 2000. If no further delay occurs, the plant is expected to be operational in the spring of 2001.

In the 1999 Licence, the Board ordered that all sewage be directed to the new plant no later than February 15, 2000 on the assurance by the Town's Principal Engineer that the STP would be operational long before that date. At the 2000 hearing, the Town told the

Board that it wished to see the STP in operation as soon as possible, but that imposing an artificial deadline would be counterproductive.

At the hearing, Health told the Board that the lagoon dykes breached in the past, and that a new STP should be in place to improve the situation.

Similarly, in their 1999 intervention, EP supported the Town of Iqaluit's plan to construct a modern STP. At the November 2000 hearing, EP said that they were still supporting this project, but that they were concerned about the delays and the difficulties that the Town of Iqaluit was experiencing with the contractor and with the project in general. However, EP recommended that the new water licence include a condition that requires the Town to submit a status report to the Board prior to the commissioning of the STP that would summarize the reasons for modifications and repairs made to the system, a discussion of how these would affect the efficiency of the system, effluent quality, and the life expectancy of the STP. However, EP agreed with the Town that if a deadline was imposed by the Board for the commissioning of the new STP, it should be realistic and flexible.

DFO, DIAND and EC also recommended to the Board that the licence require full transition to the new system as soon as possible, with a target date of no later than September 1, 2001, in order to improve the quality of effluent entering Frobisher Bay. If the plant is not operational by the deadline, DFO, DIAND and EC recommended that the Board require the Town to submit a detailed progress report beginning in September and monthly thereafter, describing activities undertaken and progress made during the reporting period towards the commissioning of the new system, and outlining any remaining work.

Mr. Marcel Mason, a resident of Iqaluit, told the Board that in the period of time since the Nunavut Water Board issued the Town's last water licence, the Town began looking at the various solid waste management and sewage disposal issues facing the community. Mr. Mason acknowledged that the progress made in these areas should be

recognized; however, he noted that the STP that was supposed to be operational almost a year ago is still not finished and that a growing population still depended on a sewage lagoon not designed for a community this size. Mr. Mason recognized that the problems with this project were the legacy of a previous Council and administration, but that the fact remained that these problems were the result of poor planning and monitoring by the Town of Iqaluit, and quite possibly the Government of Nunavut, and should have been avoided with appropriate monitoring and enforcement of licence conditions.

The Board agrees with DFO, DIAND and EC that the new STP should be operational as soon as possible but that some flexibility in the date of its commissioning is appropriate. Consequently, **the Board instructs the Town to direct all sewage to the STP as soon as the plant is operational but in any event no later than August 1, 2001.** The Board recognizes however that unexpected or uncontrolled events may prevent the Town from meeting that deadline, and consequently gives the Town the possibility of applying for a change of date should the STP not be operational by the August 1, 2001 deadline**.** The Board also decided to ask the Town to submit to the Board regular reports on the status of the completion of the Sewage Treatment Plant until the Sewage Treatment Plant is commissioned. **Until the STP is operational, the Board authorizes the disposal of all sewage in the current lagoon. Furthermore, as conditions have not changed since the issuance of the 1999 licence, the Board maintains in this licence the same effluent quality limits as in its 1999 licence for both the new STP and the sewage lagoon.**

Finally, in their written submission to the Board, CGT said that the effluent from the STP and the existing lagoon was released into Koojesse Inlet, and therefore that the Water Board may not have the jurisdiction to regulate these effluent discharges. On this question of jurisdiction, the Board notes that in *Canada (Environment Canada)* v. *Canada (Northwest Territories (Commissioner))*,[9] the trial judge and the appeal judge referred to the Iqaluit situation. In both cases, there was no issue of the NWT Water Board's jurisdiction with

[9] (1994), 15 C.E.L.R. (N.S.) 114 at 127.

respect to establishing standards for the quality of the discharge from the sewage lagoon. As the Nunavut Water Board has acquired the equivalent powers and responsibilities currently held by the Northwest Territories Water Board under the *Northern Inland Waters Act*,[10] this Board continues with at least the same authority–and responsibility–to include terms and conditions regarding the sewage lagoon system.[11]

C. The disposal of sludge that will be produced by the STP

In its 1999 licence, the Board instructed the Town to submit a plan for the interim treatment and disposal of sludge generated by the new STP. **This licence requirement was not met**. In response, the Town told the Board that the disposal of the plant's sludge was not an issue for the Town yet as the plant is not yet operational.

At the hearing, the Town told the Board that the current plan is to take the sludge from the STP to the current dump, to place them on a HDPE liner, then to cover and compost them. The Town proposes to take regular tests to ensure that the material is not dangerous to workers or to the environment. Once the material is in a suitable form, the Town would use the material as cover at the landfill, as greening material, or on the tundra, and as a long-term measure, the Town hopes that its proposed solid waste incinerator will be able to incinerate the sludge. In any case, the Town said that it was committed to preparing a more detailed plan for the disposal of sludge both in the short and long term, and agreed to submit such report prior to the commissioning of the STP.

At the hearing, Health told the Board that it was concerned about whether or not the proposed composting of sewage sludge will work. Health noted that composting requires proper aeration and specific temperatures, and that in the absence of these conditions, the process would be slower, create anaerobic conditions and odor, and that pathogenic organisms may not be completely destroyed due to lower temperatures.

[10] R.S.C. 1985, c. N-25.
[11] NLCA, Article 13.2.1.

On the issue of sludge disposal, EP advocated that the Town should plan their treatment and disposal before the commissioning of the STP. Additionally, EP felt that the Town of Iqaluit's proposal to compost the sludge in the current landfill site had not been tested under arctic conditions, and recommended that the Town conduct a pilot project to confirm the feasibility of this option. EP further proposed that the sludge be characterized to determine if composting would be an appropriate means of treatment, and finally suggested that the Town should investigate other treatment and disposal options in the event that composting proved to be inappropriate or unsuccessful. EP recommended that the Board require the Town to prepare short-term and long term sludge management plans and that these plans be submitted to the Board for review and approval.

DFO, DIAND and EC also remarked that the Town is planning to compost the sludge at the current dump in a HDPE-lined containment structure and told the Board that they needed additional information on the different options for the disposal of the STP sludge; for example, on their composition, the suitability of different storage techniques, the length of time required to compost, and the possibility of sludge incineration or alternatively their use as greening material; and would also like to see options for sludge management identified and presented to the Board for approval prior to implementation.

The Board agrees with the interveners that the Town must have in place a plan for the treatment and disposal of sludge before the sludge is produced by the new sewage treatment plant. Accordingly, the Board instructs the Town to prepare and submit to the Board for approval, plans for the disposal of sludge removed from the sewage treatment plant. **The Town shall submit to the Board for approval, at least two months before the planned commissioning of the STP, a plan for the interim disposal of sludge removed from the Plant. The Town is also required to submit to the Board for approval, by no later than December 31, 2001, a long-term plan for the disposal of sludge removed from the STP.** The long-term plan shall include, among other matters, the characterization and quantification of the sludge, their treatment and disposal alternatives - including composting, the details of the preferred option, the proposed monitoring program, and finally, an implementation schedule.

D. The status of the current sewage lagoon, including the stability of its dykes and its decommissioning

i. Integrity of Lagoon Dykes

The 1999 municipal licence issued by the Board required the Town to have the sewage lagoon dykes inspected by an engineer in accordance with the Canadian Dam Association guidelines for dam inspection. **The Board notes that the Town has not met this licence condition**.

In its submission, the Town indicated that the dyke at the west end of the lagoon facility failed in 1993, and that following this event, the dykes were re-engineered and rebuilt. The Town told the Board that the dykes are now approximately twice the size of the dykes that failed and that a spillway was constructed to ensure that the risk of a catastrophic failure was greatly reduced. The Town said that they are not aware of any signs of problems with the dykes at the sewage lagoon, and confirmed that the freeboard limits are verified by staff through inspections on a daily basis. The Town acknowledged that once last year, the lagoon came close to breaching the spillway, but that the level of the dam was quickly lowered by opening the runoff valve. The Town furthermore told the Board that the lagoon will be closed soon after the STP is commissioned, and that it would be a better use of time and money to prepare its closure plan rather than to investigate the integrity of its dykes.

On the other hand, EP thought that, until such time as the current sewage lagoon is decommissioned, dykes should be inspected by a qualified engineer for structural integrity because of increasing population and the pressure this exerts on the existing system, which already has a history of failures. EP maintained that, unless the Town of Iqaluit was able to provide compelling evidence confirming that an inspection was not necessary, this requirement should stay in the licence.

In their joint submission to the Board, DFO, DIAND and EC noted that until the

new STP is commissioned, the existing lagoon system will continue to be used, and that the existing effluent discharge limits for Total Suspended Solids, BOD_5, and Fecal Coliforms should be maintained. DFO, DIAND and EC also recommended that leakage from the lagoon's west dyke should be monitored and minimized, and overall dyke integrity evaluated. The Federal Departments consequently urged the Board to require that a geotechnical inspection of the existing sewage lagoon dykes be done annually while the lagoon is in use, starting with the next open water season, and that necessary remedial measures be identified and implemented.

On a related issue, DFO, DIAND and EC noted that the Town is required to submit to the Board plans for the Operation and Maintenance of Sewage and Solid Waste Disposal Facilities prior to the commissioning of such facilities, and that the Licensee is also required to review the approved plan on an annual basis and revise them as required. The Federal Departments confirmed that the Northwest Territories Water Board last approved the Town's Operation and Maintenance Plan in 1995, and that many changes have taken place in Iqaluit's municipal facilities since this plan was approved, and recommended that all operations and maintenance plans be updated to reflect current waste disposal facilities and practices. They recommended that the Board require these plans to be revised and resubmitted prior to the commissioning of any new or modified waste disposal facility.

The Board is aware that there have been serious problems with this lagoon and dyke in the past. In 1991, the party ultimately responsible for the maintenance of the lagoon, the Commissioner of the Northwest Territories, was convicted under section 36 of the *Fisheries Act*[12] of unlawfully depositing or permitting to be deposited a deleterious substance into water frequented by fish.[13] Bourassa Terr. Ct. J. found the effluent that was released from the lagoon when the dyke failed was a deleterious substance and did enter the waters of Koojesse Inlet. The Court also noted that the dyke had failed previously at least two times, and the defendant was aware of the requirements for the proper

[12] R.S.C. 1985, c. F-14.
[13] *Canada (Environment Canada)* v. *Canada (Northwest Territories (Commissioner))* (1993), 12 C.E.L.R.

construction, operation and maintenance of the lagoon.

The Court found the Defendant did not act with due diligence as it failed to maintain and monitor the lagoon even when it knew of the recommended procedures. Bourassa Terr. Ct. J. quoted Dickson J. in *R*. v. *Sault Ste. Marie (City)*, [1978] 2 S.C.R. 1299 with respect to due diligence:

> Has the defendant "exercised all reasonable care by establishing a proper system to prevent commission of the offence and by taking reasonable steps to ensure the effective operation of the system"?

The Court found the Defendant had the ability to prevent spillage from the lagoon. It did not take the required steps to prevent the spillage. The appeal judge agreed with the trial judge and added that a lack of action on the part of the Defendant to prevent the spill, which was foreseeable and could have been prevented through due diligence, violated section 36(3) of the *Fisheries Act*.[14]

In sentencing the defendant, Bourassa Terr. Ct. J. stated that the "courts are the protectors of the public welfare of the environment."[15] The Court believed that government defendants should not receive preferential treatment, as the government must act with the public interest in mind. The Court considered government conduct that results in a conviction as potentially a breach of trust, as the public relies on the government to protect the public interest. Citing Ayotte Terr. Ct. J. in *R*. v. *Echo Bay Mines Ltd.*, 3 F.P.R. 47 [AT P. 51] the Court emphasized that:

> The legislation is not intended to encourage compliance after an environmental mishap but rather to demand compliance before those mishaps occur so as to prevent them.

With these principles in mind, this Board strongly believes that not only the lagoon but also all aspects of the treatment of wastes must be considered and dealt with in the

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(N.S.) 37.

[14] *Canada (Environment Canada)* v. *Canada (Northwest Territories (Commissioner))* (1994), 15 C.E.L.R. (N.S.) 85.

[15] *Canada (Environment Canada)* v. *Canada (Northwest Territories (Commissioner))* (1993), 12 C.E.L.R. (N.S.) 55 at 60.

licence. The intent of the terms and conditions in the current licence is to prevent wastes from entering the surface or ground freshwater in and around Iqaluit.

The Board therefore agrees with DFO, DIAND and EC that as long as the sewage lagoon will be in use, the integrity and stability of its dyke must be assessed, and the Board decides to rely on the Canadian Dam Association guidelines regarding the type and frequency for the inspection of dykes and dams. **Accordingly, the Board instructs the Town to have the sewage lagoon dykes inspected by an engineer by no later than August 31, 2001. The Engineer's report shall meet the requirements of the Canadian Dam Association's January 1999 Edition of the *Dam Safety Guidelines*.**

ii. Closure, Abandonment and Restoration of the Sewage Lagoon

The Town's application for a licence states that the planned closure, abandonment and restoration of the sewage lagoon are scheduled to take place after the commissioning of the STP. The application also states that the preliminary plan for the closure of the sewage lagoon is to direct the sewage through the STP for treatment. The plan would be to allow the sludge in the lagoon to dry, then to remove it for disposal, and to leave the lagoon empty so that it could be used as a back up system in case of failure of the STP.

In its submission, the Town agreed to submit to the Board, within six months of the commissioning of the new STP, a formal abandonment and restoration plan prepared and submitted in accordance with the same requirements as those of the 1999 licence.

In its submission, Health told the Board that it was important that the licence contains provisions for ensuring the old lagoon is maintained in a condition that will allow it to act as an emergency repository should the STP fail. EP also told the Board that they were in favour of keeping the sewage lagoon in operation as a backup facility, but that

doing so would reinforce the need to ensure that the lagoon, and in particular its dykes, were maintained in an appropriate manner.

In their submission to the Board, DFO, DIAND and EC asked that the Board require the Town of Iqaluit to submit to the Board for approval a closure plan and implementation schedule for the existing sewage lagoon within six months of commissioning of the new STP. They also recommended that the plan include an assessment of supernatant treatment, runoff quality, sludge volume and composition, and sludge disposal options, and that a comprehensive plan be prepared by the Town that would deal with dyke stability and timing of dyke inspections, and the final configuration of the facility should the Board decide to approve the Town's proposal.

The Board agrees with DFO, DIAND and EC, and EP and Health, and instructs the Town to submit to the Board, within six months of the new STP becoming operational, a plan for the abandonment and restoration of the sewage lagoon and/or its conversion to a contingency back-up facility for short-term storage and treatment of sewage.

E. The current and proposed methods for solid waste disposal, including the operation of the current solid waste disposal facility and appropriate contingency during the transition period from the current method to the proposed system

i. Status of the New Solid Waste Disposal Facilities

The Town submitted its Solid Waste Management Planning Study[16] (SWMPS) to the Board on September 25, 2000. In their report, the authors recommended to the Town, the construction of an incinerator and a small landfill for ash and metal waste. At the hearing, the Town told the Board that the Town Council approved the recommendations of the SWMPS, that it was in the process of identifying and assessing potential sites, and that the

[16] "Solid Waste Management Planning Study. Town of Iqaluit". Golder Associates Ltd. And J. L. Richards

design of the selected facilities would be done early next year in time for completion by the end of the summer of 2001.

At the hearing, Health told the Board that the current solid waste disposal system was unacceptable, and that the SWMPS was too preliminary to comment upon. Indeed, Health would like the Board to give them and other intervenors the opportunity to review the details of the proposed option, including the location for new site(s), the type of system(s) selected, and operations and maintenance manual. At the hearing, CGT also told the Board that it should require the Town to submit its proposal to the Board and receive approval prior to constructing any new solid waste disposal facility.

In support of Health, EP also recommended that the water licence include a condition that requires the Town to submit their long-term solid waste management plan, once it is finalized, for review and approval, within four months of the issuance of the water licence or by no later than May 1st 2001. Additionally, EP would like the Town to be required to provide regular updates to the Board on the progress of its long-term solid waste plan.

At the hearing, DFO, DIAND and EC told the Board that they had an opportunity to conduct a cursory review of the SWMPS, and although a complete review of this report had not been completed, the Federal Government Departments told the Board that the report appeared to be comprehensive and that it identified available options for solid waste management. The Federal Departments confirmed that they will provide detailed comments to the Board when the Town submits its proposal for a new facility to the Board for approval. The joint submission noted that the current solid waste facility had less than a year's capacity remaining and was expected to be full by October 2001, and it agreed with the Town's proposal that a contingency plan be in place as soon as possible.

In their joint submission, DFO, DIAND and EC concluded their

& Associates Ltd. September 5, 2000.

recommendations by saying that the Town should be required to submit its final proposal for a new waste management facility to the Board, for approval, within three months of licence issuance.

The Board concludes that there is no question as to its jurisdiction over solid waste management, and that any proposal by the Town to build a new facility for the disposal of solid waste must be formally approved by the Board, and furthermore that all interested parties will have the opportunity to take part in that process. **Any proposal by the Town to construct a new facility, including a facility for the disposal of solid waste, shall meet the requirements of Part G of the licence.**

ii. Contingency Plan

At the hearing, the Town confirmed that the current dump is expected to be full by October 2001, but that the new incinerator facility may not be ready in time to service the town. The Town told the Board that it is currently preparing a contingency plan as a last resort, and that the contingency plan would likely involve earthwork at the current dumpsite, and a possible expansion of the site towards the old metal dump at the East end of the facility as well as the construction of berms to increase the height of the dump.

In their submission to the Board, EP agreed with the Town's intentions and recommended that the water licence include a requirement for the Town of Iqaluit to provide the NWB with a detailed contingency plan six months prior to the current site reaching capacity if it becomes apparent that the new solid waste management facility will not be ready on time. The contingency plan should be subject to review and approval by the appropriate regulatory agencies. Similarly, DFO, DIAND and EC recommended to the Board that the Town be also required to submit, within six months of licence issuance, a Contingency Plan for any interim period between facilities and an Abandonment and Reclamation plan for the existing dump, prior to closure. Health agreed with EP that such a plan was necessary. **Consequently, the Board decides that if a new solid waste disposal facility will not be operational before August 31,**

2001, the Licensee shall submit to the Board for approval, as soon as possible before that date, a contingency plan for the interim period.

iii. Operations of the Current Solid Waste Disposal Facilities

The Town's application stated that the current method of solid waste disposal in Iqaluit has been used on a continuous basis since the military presence of the late 1940's, and that this year the Town, through the preparation of a SWMP, has taken its first step toward adopting a new disposal method.

At the hearing, Town representatives told the Board that the Town Council has made it a priority to consider all issues involved in instituting a new waste disposal process, but that the cessation of burning was not possible. The Town said that a volume reduction of 85% was achieved through burning and that without burning, the current dump would be full very quickly. The Town said that they were burning garbage at the dump only from Tuesday to Friday, that no material was added to the burn after 3:30 p.m. and that wind direction was always taken into consideration before burning garbage. Additionally, the Town told the Board that without burning, the accumulation of garbage would be a danger to the planes at the nearby airport due to the congregation of birds at the site, and that it would cause additional pollution through increased leachate.

On the other hand, EP told the Board that the practice of open garbage fires has caused a lot of public concerns in Iqaluit. EP told the Board that this past summer it received numerous complaints from the public about garbage fire smoke drifting into the town, and that it issued a written warning to the Town in response to these public complaints. However, EP conceded that the Town had no choice but to burn garbage until a new facility is in place.

Nevertheless, EP recommended that the Board order the Town to take appropriate measures before setting garbage on fire.

As for the construction of a new facility, EP supported the Town's approach, but recommended that the Board impose stringent timelines in the water licence, together with realistic delivery dates for completion of the new facility.

In their joint intervention, the Federal Government Departments noted that the Town should be required to submit to the Board plans for the Operation and Maintenance of Sewage and Solid Waste Disposal Facilities prior to their commissioning, and that the Licensee was also required to review the approved plans on an annual basis and revise them as required. The Federal Departments remarked that the Northwest Territories Water Board last approved the Town's Operation and Maintenance Plan in March 1995, and that many changes have taken place in Iqaluit's municipal facilities since this plan was approved.

Again, the Departments recommended that the licence require the Town of Iqaluit to submit a revised Operation and Maintenance Plan to the Nunavut Water Board that reflects the current solid waste disposal facilities and practices. This Plan should be revised and resubmitted prior to the commissioning of any new or amended waste disposal facility. **The Board agrees with this recommendation and instructs the Town to review, and amend, as needed, the Operation and Maintenance Plan for all solid waste disposal facilities on an annual basis and to revise them prior to the operation of any new solid waste disposal facilities.**

At the hearing, Mr. Marcel Mason told the Board that the Town had contaminated the environment because of its open burning practices at the dump. Mr. Mason told the Board that despite what the Town told the Board at the November 1999 hearing –that it would restrict the hours of burning and segregate waste prior to burning, nothing appeared to have changed in the way the Town was operating its solid waste disposal facility. Mr. Mason also told the Board that the nature of the waste being disposed of by burning (plastics, plastic compounds, and chemicals such as found in household cleaners, detergents, drain openers, etc.) resulted in the creation of dioxins and furans which are hazardous to human and animal life and the environment. Mr. Mason told the

Board that on many occasions, wind has blown smoke from the landfill directly into the community, creating a health hazard for residents.

To address this problem, Mr. Mason urged the Board to impose further restrictions on open burning at the dump. For example, he suggested that no burning should occur during any time of the year when the wind direction could cause smoke from the landfill to move into the community, and between the 15th of April and the 1st of October when the wind direction could cause smoke from the landfill to move over the causeway area, the North 40 recreational area, or the Sylvia Grinnell Park area.

From our public hearings in Iqaluit in 1999 and 2000, garbage was a big issue. We would therefore like to clarify the Board's jurisdiction over activities such as the burning of wastes at the landfill sites in Iqaluit. From our perspective, the interconnectedness between the land and the water is clear, and even though there is no clear statute dealing comprehensively with Iqaluit's situation,[17] the link between land and water is recognized in several federal legal definitions of "environment." For example, the *Canadian Environmental Assessment Act*[18] provides this definition of the environment:

> "environment" means the components of the Earth, and includes,
>
> land, water and air, including all layers of the atmosphere,
> all organic and inorganic matter and living organisms, and
> the **interacting natural systems** that include components referred to in paragraphs (a) and (b). (emphasis added)

The *Canadian Environmental Protection Act*[19] defines environment as:

> "environment" means the components of the Earth, and includes,
>
> I. air, land, and water,
> II. all layers of the atmosphere,
> III. all organic and inorganic matter and living organisms and

[17] Many of the presenters acknowledged that there is no specific waste management legislation for Nunavut. See John Tidball, Tape 2, Side A, p. 7 and at Tape 3, Side B, p. 12; Lee Webber, Tape 3, Side B, p. 14; Marcel Mason, Tape 6, Side A, p. 9; and William Mackenzie, Tape 6, Side B, p. 14.
[18] S.C. 1992, c. 37, s. 2 as amended.
[19] R.S.C. 1985, c. 16 (4th Supp.), s. 3 as amended.

IV. the **interacting natural systems** that include components referred to in paragraphs (a) to (c). (emphasis added)

The *Northwest Territories Environmental Protection Act*[20] and *Environmental Rights Act*[21] both have broad definitions of environment. These definitions concur with the traditional belief of the Inuit regarding the land, or *nuna* in Inuktitut, which includes all of nature: the earth itself as well as the water, the ice, the wind, the sky, and the plants and animals. Water interacts with all other biophysical elements. This interaction requires that activities on land do not affect the water, both surface and underground sources, within the watershed. The courts have also recognized the interconnectedness within the environment. In *Canada* v. *Canada* cited above, de Weerdt, J. stated that "the environment is a seamless web of which no part is disconnected from the rest." This is consistent with the NLCA, which gives the Board the ability to consider the effect of any activity on the entire drainage basin.[22]

The connection of water to the environment has received a broad and liberal interpretation in the Federal Court and Supreme Court of Canada.[23] In *Qikiqtani Inuit Assn*. v. *Canada (Attorney General)*,[24] the Federal Court of Canada reviewed the Nunavut Water Board's decision with respect to the Nanisivik Mine in the Northwest Territories (Nunavut). The Trial Division Judge carefully scrutinized the Board's assessment of water-related

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[20] "environment" means the components of the Earth, and includes,
a. air, land and water,
b. all layers of the atmosphere,
c. all organic and inorganic matter and living organisms and
d. the *interacting natural systems* that include components referred to in paragraph (a) to (c).
(R.S.N.W.T. 1988, c. 75 (Supp.), s. 2(c)), (emphasis added).

[21] "environment" means the components of the Earth within the Territories and includes
a. all air, land, and water, snow, and ice,
b. all layers of the atmosphere,
c. all organic and inorganic matter and living organisms and
d. the *interacting natural systems* that include components referred to in paragraphs (a) to (c).
(emphasis added).

[22] Article 13.10.2: In the event that it is determined that the approval of a water application in the Nunavut Settlement Area would have significant bearing upon water use outside the Nunavut Settlement Area, the NWB may collaborate with the competent water authority in the review, if appropriate, of that water application.

[23] *Qikiqtani Inuit Assn.* v. *Canada (Attorney General)* (1998), 155 F.T.R. (Fed. T.D.); *Friends of the Oldman River Society* v. *Canada (Minister of Transport)*, [1992] 1 S.C.R. 3; *Quebec (Attorney General)* v. *Canada (National Energy Board)*, [1994] 1 S.C.R. 159.

[24] *Ibid.*

impacts as well as matters including air quality, wildlife and public health, and did not question the Board's authority to consider these factors.

In this application, the Board must balance the needs of the residents of Iqaluit with the many activities in the environment that affect fresh water. The Board must decide if the proposed project will provide a continued source of water for the community, and adequately protect all water sources by providing a water treatment facility and an environmentally acceptable solid waste management system for the Town of Iqaluit. Even though the sorting and management of town wastes is something that should ultimately be left with the Town,[25] all residents of Iqaluit are left with potential freshwater pollution concerns because of Iqaluit's *ad hoc* (and now *post hoc*) approach to waste management. Among other things, we know from the evidence that there are significant quantities of waste going into the landfill without being subjected to a proper recycling or environmental sorting program.

Wastes include, by their nature, explosive or reactive metals, acids and salts, hydrocarbons, flammable and organic wastes, toxic and heavy metals and so on. Without the proper waste management practice--which does not exist--the necessity of exercising the jurisdiction of the Board and its licensing authority is overwhelming. Indeed, different presenters agreed the Board should include terms in the water licence with respect to the landfill.[26] This is because polluted leachate from landfills is a significant threat to Nunavut fresh waters. In Iqaluit, we heard evidence that historically there was never a sorting program.[27]

Even today there is evidence that dry cleaning and photo-processing chemical wastes are ending up in the landfill and sewage lagoon.[28]

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[25] The presenters discussed the matter of jurisdiction regarding waste management. John Tidball (Tape 2, Side A, p. 7) noted that the Board does not have jurisdiction to regulate waste management. See also Lee Webber, Tape 3, Side B, p. 15

[26] See Anne Wilson, Tape 2, Side B, p.14 and Tape 4, Side A, p.2; Robert Eno, Tape A, Side B, p. 17, and Tape 7, Side B, p. 4; and Susan Hardy, Tape 6, Side A, p. 4.

[27] William Mackenzie, Tape 6, Side B, p. 15 and Tape 7, Side A, p. 2

[28] These concerns were mentioned by Marcel Mason, Tape 3, Side A, p. 1 and Matthew Hough, Tape 3, Side A, p. 3.

In understanding the pollution cycle of landfills, common sense dictates that rain and snow percolates through the waste, forming new waste constituents in the landfill until a contaminated soup exists. This toxic "soup" can enter groundwater aquifers and flow to other aquifers and/or to freshwater of marine ecosystems. The waste can potentially harm wildlife and/or humans who drink the water.

Another issue is whether the Board can regulate burning at the landfill site. In the licence issued in 1999, the Board stated how it has jurisdiction over air emissions at the landfill on the premise that all aspects of the environment are interconnected and that any emissions into the air *may* affect water.[29] Also, the Board believed then and believes now that airborne emissions, e.g. from the Town's dump, can be carried and deposited into water or onto snow that melts or runs into fresh water. The argument is strengthened knowing that emissions are defined as "waste." For example, the definition of waste in the *Northwest Territories Waters Act* and the *Yukon Waters Act* includes "any substance that, if added to water, would degrade or alter … the quality of the water…." "Any substance" would include airborne emissions that can degrade or alter the quality of water. At the hearing, Mr. Mason[30] told the Board that some "contaminants generated by the municipal open burn are toxic, specifically, plastics when burnt in low temperature create some very toxic materials … specifically … the dioxins and furans[31] … created during open burning."

Therefore, as the material at the landfill site is burned, particles from this process can enter the water cycle, thus becoming a waste as it can degrade the quality of the water. As no person is allowed to "dispose of waste into water without approval of the NWB," the Board can make conditions with respect to activities that can create air emissions that can ultimately affect fresh waters. In the previous licence, the Board ordered that appropriate studies be performed to determine the link that may exist between emissions from burning

[29] re: Iqaluit Licence Renewal 1999.
[30] Marcel Mason, Tape 6, Side A, p. 10
[31] According to the *Dictionary of Environmental Science and Technology* (A. Porteous. John Wiley & Sons Ltd. Third Edition. 2000.) these highly toxic organic compounds are created when compounds containing chlorine such as plastics and PVC are burnt in low temperature in improperly operated and designed domestic refuse incinerators. For example, a 20-kg piece of chipboard impregnated with Chlorophenol (a glue) creates as much dioxin when it burns as an entire incineration plant in a whole month (*Warmer Bulletin,* No. 9, March 1986).

waste at the landfill and deposits in fresh waters. **The Town did not complete these studies.** Until it can be conclusively established that there is no link, the Board will continue to make conditions to protect the environment and the waters within its jurisdiction. We know that the study to establish the link–or disprove it–costs money, and CGT reminded us of this.[32] However, we feel strongly about protecting the quality of the fresh waters of Nunavut, especially for humans, and we believe Nunavut's waters should be protected almost *regardless* of cost.[33] Though this statement seems extreme, we are not prepared to accept the alternative possibility, which is that humans become sick or in extreme cases die if pathogens or other toxic matters enter the public's water supply.

The Board has the authority to regulate solid or hazardous wastes in landfills due to the link with wastes and water. When it seems likely that a discharge into water may occur from a landfill site or garbage dump, the Board will request site-specific studies be completed by the applicant. This is consistent with guidelines established for treating municipal wastewater in the Northwest Territories.[34] The construction of the landfill site must also take into consideration the potential of contaminants entering water sources due to runoff from the landfill site. Using the definitions from the *Northwest Territories Waters Act* and the *Yukon Waters Act*, runoff from the landfill can be considered waste.[35] Material in the runoff can degrade or alter the freshwater it enters.

The Board, when determining the conditions and terms of the licence, realizes that the operation of the solid waste disposal site is a critical and costly issue. Although it may appear that the Board is being overly cautious in some of its licence conditions, it does not want to see problems arising as it has in the past. One of the problems from the current landfill – and to a large extent from the sewage lagoon - is *birds*. There are dozens if not hundreds of birds which surely pose an extreme public safety hazard; the bird strike

[32] Doug Sitland, Tape 5, Side A, p. 11 and Side B, p. 14.
[33] The study required under the previous licence to establish a link between air borne emissions and the effect on fresh waters has not been completed. In his closing remarks, J. Tidball stated that he did not feel it was practical to expend resources on the study at this time as the site is to be closed within the next year. (Tape 8, Side B, p. 17).
[34] Northwest Territories Water Board, "Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories" (1992: NWT Water Board).
[35] *Supra* note 11.

potential from ravens, seagulls and other birds must be high because of the proximity of the dump: it sits immediately south of Iqaluit's major runway. We also know that the landfill is not far from the flight path. During our site visits, both sites attracted flocks of birds concurrently with aircraft using the runway. We clearly do not have the authority over aviation matters but we are sending a copy of this decision to Transport Canada so that they may be aware of the situation. Again, for this and other reasons, we are *pleased* that the Town will be closing the current dump and replace it with a more acceptable alternative for the environment, the health or residents, and public safety.

However, the Board decides that it would be in the public interest that the Town not only improve its current practices of open burning at the solid waste disposal site but also adheres to its own Operation and Maintenance Manual for this site. With this in mind, **the Board authorizes the Town to continue open burning practices at the current solid waste disposal facilities under the following conditions: a 5-m buffer zone is maintained around the combustion area; the wind is from the north or the south and the air temperature is below 15 degrees Celsius; if the wind is not blowing towards the Town. If wind shifts during burnings, attempts to reduce the size of burn shall be made; if the wind does not blow from the northwest between May 1st and September 30th; burning is prohibited during periods of higher risk for the fuel tank farm (i.e., tank filling, venting of tank during high wind, or site spill at the tank farm). In addition, effective June 1, 2001, the Licensee shall limit open burning at the Solid Waste Disposal Facilities to food waste, paper products, paperboard packaging and untreated wood**, subject to the conditions listed above in this paragraph.

iv. <u>The abandonment and restoration of the current and other solid waste disposal sites in Iqaluit</u>

The Town's Statement of Evidence indicated that the Town was responsible for the closure of three waste sites in the community: the Apex dump and the two metal waste sites situated east of the current dump, which have been identified for closure. The Town told the Board that the metal dump in the West 40 area is the responsibility of Transport

Canada and is slated for clean up in the summer of 2001. The Town also told the Board that the metal dump located in the North 40 area is the responsibility of the Federal Government, and that it planned to lobby the government to close that site.

In its submission, the Town told the Board that its preliminary plans for the closure of the municipal sites include the removal of all above ground waste from the area and the use of earthworks to berm and cover the remaining site, and that scheduling for clean up will depend upon available funds.

In their intervention, CGT confirmed that there are numerous waste (sewage and solid waste) sites within the Town that have not been properly closed. As their individual impact on fresh water is unclear, CGT suggested that the NWB may wish to establish some guidelines on the abandonment and restoration of these sites, including the possible use of the existing lagoon as a back up facility for the sewage treatment plant (including repairs to the lagoon dykes). CGT further suggested that runoff from these sites may not impact on fresh waters and as such, the NWB may not have the authority to govern their closure. Regarding the existing solid waste disposal facility, CGT noted that it has the potential of runoff entering drainage channels, and although the existing facility is likely to be abandoned in the very near future, CGT recommended that the NWB should give consideration to requiring the Town to submit Abandonment and Restoration plans to ensure that no deleterious substances are leached from the site.

Similarly, EP agreed that abandoned solid waste sites in Iqaluit must be decommissioned and remediated, but would like to reserve their comments until such time as the Town of Iqaluit submits detailed plans for review. EP noted that any acceptance of such plans should be subject to regulatory approval by applicable agencies.

For their part, DFO, DIAND and EC confirmed that in August 1997, the Town submitted to the Nunavut Water Board abandonment and restoration (A&R) Plans for

the Iqaluit and Apex Landfill Sites. After the Board requested revisions, new documents were submitted (Drainage Plans for West 40 - Site #4 and the Apex Dump Site, October 1997), along with a Remediation Plan for the two sites (December 1997). The Board advised the Town the above-noted documents were not sufficient to meet the licence requirement and could not be approved. The Board provided comprehensive and detailed comments to the Licensee but did not request the revised plans be resubmitted to the Board's office by a specific date. Consequently, the Departments asked the Board to require from the Town the submission of appropriate A&R plans for the Apex and West 40 - Site #4 by specific dates within the licence period, and that these plans should include a schedule for implementation.

At the hearing, Mr. Mason told the Board that the North 40 landfill commonly referred to as "the old metal dump" was a mess of old vehicles and machinery. Mr. Mason noted that the Town believed this landfill was the responsibility of the Government of Canada but he remarked that the site had been used as a municipal landfill. Mr. Mackenzie, a long time resident of Iqaluit, confirmed Mr. Mason's statement.

Mr. Mason observed that the landfill previously used by the Town is located on the side of a bank directly across the inlet from the community, and that some attempts at covering material were previously made although remains visible on the side of the hill during the summer months and spring and rain runoff goes directly through this area into the waters of the inlet. He also pointed out that the old Apex landfill is located on the side of a steep hill leading directly into the ocean and that to date, restoration of this site has consisted of burying material on the top of the hill with rock and gravel fill and heavier material remains at the base of the hill directly in the inlet during periods of high tide. Mr. Mason told the Board that to the best of his knowledge, no studies were ever commissioned regarding either the effects these landfill sites are having on the environment or the ultimate restoration or remediation of any of the sites.

The Board agrees that all known solid waste sites within the municipal boundaries should be the object of proper abandonment and restoration and

acknowledges that, subject to further confirmation, some sites may be not the responsibility of the Town. **Consequently, the Board instructs the Town to submit to the Board, by no later than December 31, 2002, Abandonment and Restoration Plans for the current Solid Waste Disposal Facilities, the Apex dump, the two waste sites situated east of the current dump and, unless the Licensee disproves the ownership of the site, the North 40 dump.**

IV. Conclusion

In conclusion, the Board, when issuing this water licence, has added specific conditions with respect to steps the Town must take to protect water and to reduce potential risks. As the Board is concerned with any factor that may affect the quantity or quality of the water, it must consider activities that can indirectly affect the water as well as those that directly affect water. And since the potential for waste to enter freshwater exists from the polluted leachate and/or runoff from the landfill as well as air borne waste from the burning of debris at the landfill, the Board can include conditions with respect to these activities in the application made by the Municipality of Iqaluit.

For the reasons listed above and pursuant to Article 13 of the NLCA, the Board approves the application for the Town of Iqaluit to renew its water licence for a **three-year term effective January 1, 2001**, subject to the additional details and general and specific conditions of licence NWB3IQA0103 issued by the Board on January 1, 2001.

Dated January 26, 2001 at Baker Lake, Nunavut.

ORIGINAL SIGNED BY
Thomas Kudloo, Chairperson

APPENDIX A - LIST OF SUBMISSIONS AND CORRESPONDENCE

Application for water licence for the Municipality of Iqaluit received on:

- September 15, 2000: application form.
- September 22, 2000: supplementary questionnaire and English Executive Summary.
- September 25, 2000: Inuktitut Executive Summary and *Solid Waste Management Planning Study (SWMP),* September 5, 2000.
- October 2, 2000: application fee.
- October 20,2000: Statement of Evidence in English and Inuktitut; Inuktitut summary of SWMP Study.

Related Letters/ Intervention Statements/Reports:

Letter dated August 1, 2000 from Thomas Kudloo, Chairperson, Nunavut Water Board, Gjoa Haven.

Letter dated August 3, 2000. “Proposed Hearing,” from Rick Butler, Chief Administrative Officer, Municipality of Iqaluit, Iqaluit.

Fax dated August 3, 2000 from Philippe di Pizzo, Executive Director, Nunavut Water Board, Gjoa Haven.

Fax dated August 8, 2000 from Philippe di Pizzo, Executive Director, Nunavut Water Board, Gjoa Haven.

Letter dated August 28, 2000 from Philippe di Pizzo, Executive Director, Nunavut Water Board, Gjoa Haven. (English and Inuktitut).

Letter dated August 29, 2000. “Municipality of Iqaluit,” from John Tidball, Counsel to the Applicant Municipality of Iqaluit, Miller Thomson Barristers & Solicitors, Markham, Ontario. (English and Inuktitut).

Letter dated September 6, 2000 from Philippe di Pizzo, Executive Director, Nunavut Water Board, Gjoa Haven. (English and Inuktitut).

Letter dated September 7, 2000 from Lee Webber, Legal Counsel to the Intervener DIAND, Department of Justice Canada, Yellowknife.

Letter dated September 8, 2000 from John Tidball, Counsel to the Applicant Municipality of Iqaluit, Miller Thomson Barristers & Solicitors, Markham, Ontario.

Letter dated September 12, 2000 from Philippe di Pizzo, Executive Director, Nunavut Water Board, Gjoa Haven.

Electronic message dated September 12, 2000. “Iqaluit Water Licence Intervention,” from Robert Eno, Hazardous Substances Specialist, Department of Sustainable Development, Government of Nunavut, Iqaluit.

Electronic message dated September 13, 2000. “Re: Iqaluit – Request for Extension, from Marcel Mason, Iqaluit.

Electronic message dated September 14, 2000. “Re: Iqaluit – Request for Extension,” from Chris Nichols, Department of Sustainable Development, Government of Nunavut, Iqaluit.

Electronic message dated September 14, 2000. “Re: Iqaluit – Request for Extension,” from John Tidball, Counsel to the Municipality of Iqaluit. Miller Thomas LLP, Markham, Ontario.

Letter dated September 15, 2000. “Municipality of Iqaluit water licence – Request by Nunavut Department of Sustainable Development for extension of deadline for submitting intervention,” from Lee Webber, Legal Counsel to the Intervener DIAND, Yellowknife.

Electronic message dated September 18, 2000. “Intervention Deadline,” from Anne Wilson, Water Pollution Specialist. Environment Canada, Yellowknife.

Letter dated September 27, 2000. “Application for the Renewal of the Town of Iqaluit’s Municipal Licence,” from Philippe di Pizzo, Executive Director, Nunavut Water Board, Gjoa Haven.

Intervention Statement dated October 5, 2000. “Application for Renewal, Municipality of Iqaluit.” Marcel Mason, Iqaluit, Nunavut.

Intervention Statement dated November 2, 2000. “Iqaluit Water Licence,” from Robert Eno, Hazardous Substances Specialist, Environmental Protection Service, Department of Sustainable Development, Government of Nunavut. Iqaluit, Nunavut. (English and Inuktitut).

Intervention Statement dated November 6, 2000. “Municipality of Iqaluit Water Licence Renewal – 2000,” from Douglas Sitland, P. Eng., Manager, Capital Programs, Community Development Division, Department of Community Government and Transportation, Government of Nunavut. Iqaluit, Nunavut. (English and Inuktitut)

Intervention Statement dated November 7, 2000. “Renewal of Iqaluit Water Licence No. NWB3IQA9900,” from Bonnie Segal, Environmental Health Officer, Department of Health & Social Services: Baffin. Iqaluit, Nunavut. (English and Inuktitut)

Intervention Statement dated November 7, 2000. “Town of Iqaluit – Water Licence Renewal,” from David Livingstone, Director, Renewable Resources and Environment, Department of Indian & Northern Development; Burt Hunt, Director, Eastern Arctic Area, Fisheries and Oceans Canada; and Laura Johnston, Manager, Northern Division,

Environmental Protection Branch, Environment Canada. (English and Inuktitut).

Report dated November 7, 2000. “2000 Compliance Report,” from Philippe Lavallée, Inspector, Indian and Northern Affairs, Nunavut District, Iqaluit, Nunavut. (English and Inuktitut).

APPENDIX B – LIST OF EXHIBITS FILED AT NOVEMBER 22-24, 2000 PUBLIC HEARING.

1. Letter dated September 14, 2000 with Renewal Application Form for NWB3IQA9900. “Water License Renewal Application.” Matthew Hough, Ed. T., Director, Engineering and Public Works, Municipality of Iqaluit.

2. Water Licence Application Supplementary Questionnaire for Municipalities received September 22, 2000 from the Municipality of Iqaluit.

3. Submission received October 20, 2000. “Written Evidence of the Municipality of Iqaluit.” Municipality of Iqaluit.

4. Study dated September 5, 2000. “Solid Waste Management Planning Study, Municipality of Iqaluit.” Golder Associates Ltd. and J.L. Richards & Associates Limited. Kingston.

5. Slide Show presented November 23, 2000. “Municipality of Iqaluit – Iqaluit Water Licence Public Hearing, November 22-24, 2000.” Municipality of Iqaluit.

6. Submission presented November 23, 2000. “New Conditions Proposed by the Municipality of Iqaluit.” Municipality of Iqaluit.

7. Intervention Statement dated November 7, 2000. “Town of Iqaluit – Water Licence Renewal.” David Livingstone, Director, Renewable Resources and Environment, Department of Indian & Northern Development; Burt Hunt, Director, Eastern Arctic Area, Fisheries and Oceans Canada; and Laura Johnston, Manager, Northern Division, Environmental Protection Branch, Environment Canada. (English and Inuktitut).

8. Dam Safety Guidelines. Canadian Dam Association. Edmonton, January 1999.

9. Slide Presentation presented November 23, 2000. “Intervention of the Iqaluit Municipal Water Licence Renewal Application.” Department of Indian Affairs & Northern Development, Fisheries and Ocean Canada, and Environment Canada.

10. Intervention Statement dated November 6, 2000. “Municipality of Iqaluit Water Licence Renewal – 2000.” Douglas Sitland, P. Eng., Manager, Capital Programs, Community Development Division, Department of Community Government and Transportation, Government of Nunavut. Iqaluit, Nunavut. (English and Inuktitut)

11. Intervention Statement dated November 2, 2000. “Iqaluit Water Licence.” Robert Eno, Hazardous Substances Specialist, Environmental Protection Service, Department of Sustainable Development, Government of Nunavut. Iqaluit, Nunavut. (English and Inuktitut).

12. Intervention Statement dated November 7, 2000. “Renewal of Iqaluit Water Licence

No. NWB3IQA9900." Bonnie Segal, Environmental Health Officer, Department of Health & Social Services: Baffin. Iqaluit, Nunavut. (English and Inuktitut).

13. Intervention Statement dated October 5, 2000. "Application for Renewal, Municipality of Iqaluit." Marcel Mason, Iqaluit, Nunavut.

14. Slide Show presented November 23, 2000. www.nunanet.com/~mmason.

15. By-Law No.200. Town of Iqaluit.

16. Public Registry, Town of Iqaluit. Nunavut Water Board, Gjoa Haven, Nunavut.