

MEASURES TO BE TAKEN BY THE HAMLET OF CAPE DORSET AND THE
NUNAVUT TERRITORIAL GOVERNMENT

Under the authority given to me pursuant to subsection 38(6) of the Fisheries Act, R.S.C. 1985, c. F-14, as amended I do hereby direct the Hamlet of Cape Dorset and the Nunavut Territorial Government to take or cause to be taken, as soon as possible in the circumstances, all reasonable measures consistent with the safety and the conservation of fish and fish habitat to prevent the deposit of aforementioned deleterious substance in water frequented by fish, and to counteract, mitigate or remedy any adverse effects that result or may be expected to result therefrom, including:

- 1) Taking action, upon receipt of this Direction, to prevent any deposit of a deleterious substance and to prevent any run off and further seepage from entering water frequented by fish.
- 2) Advising Environment Canada in writing of the measures that have been taken to prevent the deposit of the deleterious substance in water frequented by fish on or before September 31, 2002.
- 3) Monitoring the sewage lagoon until such time that the risk of depositing the deleterious substance in water frequented by fish from this incident is eliminated.

THE LAW

Subsection 36(3) of the Fisheries Act, R. S. C. 1985, c. F-14, as amended, provides that no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water, except in accordance with prescribed Regulations.

Failure to take reasonable measures as required by subsection 38(5) of the Fisheries Act, R. S. C. 1985, c. F-14, as amended and failure to comply with an inspector's direction issued under subsection 38(6) of the Fisheries Act, R. S. C. 1985, c. F-14, as amended are offences under paragraphs 40(3)(e) and 40(3)(f) of the Fisheries Act, R. S. C. 1985, c. F-14, as amended.

Paragraph 40(3) provides that everyone who...

- (e) fails to take any reasonable measures that he is required to take under subsection 38(5) or fails to take such measures in the required manner;

and,

- (f) fails to comply with the whole or any part of a direction of an inspector under subsection 36(6),

is guilty of an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding two hundred thousand dollars, and for any subsequent offence, to a fine not exceeding two hundred thousand dollars or to a term of imprisonment for a term not exceeding six months, or to both.

Paragraph 78.1 provides that where any contravention of this Act or the regulations is committed or continued on more than one day, it constitutes a separate offence for each day on which the contravention is committed or continued.

CONCLUSION:

Please be advised that this Inspector's Direction is **WITHOUT PREJUDICE** to any further course of action that Environment Canada or any other enforcement agencies may take with respect to these alleged violations of subsection 36(3) of the Fisheries Act, R. S. C. 1985, c. F-14, as amended or any other Act, including prosecution.

I wish to further advise the Hamlet of Cape Dorset and the Nunavut Territorial Government, that Environment Canada will be conducting further inspections of the site to verify compliance with this Inspector's Direction.

If you have any questions or require clarification, please contact the undersigned at (867) 975-4644.



Wade Comin
Fisheries Act Inspector

cc: Arthur A. Stewart
Senior Administrative Officer
Hamlet of Cape Dorset
P.O. Box 30
Cape Dorset, Nunavut
XOA 0C0

MAY-09-02 THU 12:01 PM CG&T

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PAGE 6

~~NO CONTACT~~

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August 28, 2002

Environment Canada
Environment Protection
Prairie and Northern Region
Iqaluit District Office
PO BOX 1870
Iqaluit, NU X0A0H0

Attention: Wade Comin
Fisheries Act Inspector

Fisheries Act Inspectors Directive

Dear Mr. Comin,

This letter is in response to Mr. Wade Comin's letter, dated March 25, 2002, addressed to the Government of Nunavut (GN) and the Hamlet of Cape Dorset. Dillon Consulting Limited has been retained by the GN to identify a long-term solution to the community's sewage treatment requirements, and to assist the community and the GN in the implementation of the long-term plan.

In the *Fisheries Act Inspector's Direction*, Mr. Comin identifies that the deposit of raw sewage into Tellik Inlet has the potential to cause "serious and imminent danger" to waters frequented by fish and will contravene Section 36(3) of the Fisheries Act. Furthermore, Mr. Comin identifies the sewage as a deleterious substance.

Several actions have been taken by the GN and the community both prior and since the issuance of the *Fisheries Act Inspector's Direction*. These are in summary;

- The community has made an application for the issuance of a *Water License* through the Nunavut Water Board. In discussion with Mr. Jim Wall of the Nunavut Water Board, it is understood that the draft license was distributed for comments and the final license will be issued shortly after all the comments received and reviewed.
- An assessment of the existing lagoon facility has been completed to determine the expected treatment results from the existing lagoon in 2002 once the lagoon is on operation.
- The Department of Community Government and Transportation (CG&T) has identified a long-term solution to the sewage treatment issues in Cape Dorset.

The following sections discuss each of these topics.

Nunavut Water Board License

The community of Cape Dorset completed a *Water License* application in the fall of 2001. This license application included the operation of the water supply system, the solid waste disposal area, and the operation of the sewage treatment facility. The community's submission was received by the Water Board and distributed for comments in 2002. It is understood that the comment period is completed, and the Water Board is in the process of finalizing the license to be granted to the community.

DILLON
CONSULTING

RECEIVED

SEP 05 2002

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Mr. Comin
August 28, 2002
Page 2

Without prejudicing the authority of the Water Board to set the limits they deem appropriate; the following table shows typical discharge criteria for small communities discharging to the marine environment in past licenses and are provided in *Guidelines for the Disposal of treated Municipal Wastewater in the Northwest Territories (1992)*.

Table A
Discharge Criteria

Parameter	Criteria
BOD mg/L	120
PH	6 to 9
Ammonia mg/L	Not regulated
SS mg/L	180
Fecal Coliform CFU per dL	Not regulated in marine environment

On the granting of the Water License, the actual compliance parameters will be reviewed, however for the purposes of discussion, the above parameters will be assumed for discharge criteria.

Assessment of the Existing Sewage Lagoon

The existing lagoon's effective working configuration consists of an operating Cell 1, and 2 non~~x~~ operating cells 2 & 3. Cell 1 consists of 8,208 m³ of storage that is available in the spring after the lagoon is drawn down. Cell 1 will receive trucked sewage on a continuous, daily basis (6 days per week). The lagoon effluent percolates through the 'down gradient' west berm of the Cell 1 and flows along the surface of approximately 150 metres of sandy material to ultimately discharge to the marine environment west of the tidal land bridge and away from the community. The discharge from Cell 1 is through the non functioning Cells 2 & 3. Cell 1 dimensions are 30m by 120m and has an approximate surface area of 0.36 ha (1 acre).

Design parameters are as follows;

- The 2002 population (Mar '01 Dillon Report) is 1,268.
- The sewage generation rate is 53,800 m³/yr (Mar '01 Dillon Report), or 147 m³/d.
- No raw sewage characterization data is available.
- To estimate loading, typical domestic organic load rates are assumed to be 0.17 lbs BOD/c/d.
- Average BOD concentration, based on 90 L/cd (gross 116 L/cd) generation rate is estimated to be 665 mg/L.
- Average SS concentration, based on 90 L/cd (gross 116 L/cd) generation rate is estimated to be 1,000 mg/L.
- Average Fecal concentrations in the raw sewage to be in the 1x10E7 to 1x10 E8 level. /100ml

Lagoon Cell 1 loadings are;

- The average hydraulic retention time is 42 days.
- The average organic loading is 215 lbs BOD/ac/d (0 97.7 kg/d).

Based on the above the treatment processes provided with this system are primary treatment by sedimentation in the lagoon and filtration through the granular berm and in the down gradient surface flow. Some secondary treatment through surface oxygen absorption will also occur.

Mr. Comin
August 28, 2002
Page 3

Literature values for treatment expectations are as follows:

Through primary treatment: BOD removal 25 to 40% (as particulate BOD)
SS removal 40 to 70%

Filtration allowance through berm BOD removal 90 to 95% (as particulate BOD)
BOD in rapid sand filtration process 60 to 85%
SS removal 85 to 95%

In addition there will be some oxidation of the soluble portion of BOD with surface oxygen absorption. Allow 25% BOD reduction after the primary treatment and prior to the filtration through the berm. Estimated probable fecal concentration by typical decontamination factors for various processes a 50% removal rate in a sedimentation process is a typical result. An effluent result of 5×10^3 to 1×10^4 at the discharge point of the lagoon would be expected. Further reduction of the fecal count would occur in the surface flow area prior to discharging to the marine environment.

A further daily die away of 50 to 75% after it exits through the granular berm is expected. We understand that the sample point for the lagoon will be near water's edge. It will be important to be to define a sampling point down stream from the point where it migrates through the berm, and as close to the marine environment as practical.

Treatment expectations from Cell 1 (using the bold percentages from above treatment ranges) are:

- BOD reduction from 665 to 120 mg/L (ref. marine discharge criteria 120 mg/L BOD)
- SS reduction from 1000 to 45mg/L (ref. marine discharge criteria 180 mg/L SS)
- F.Coli reduced to from 10^8 to 10^4 (no ref. discharge criteria)

This is considered to be a conservative estimate of the net treatment. This can be predicted to be achieved based on typical treatment processes described above. Monitoring by the community is expected to be part of the license requirements. If as a result of the monitoring program additional BOD reduction is deemed necessary because the degree of treatment does not achieve these expectations during the summer of 2002, then additional BOD treatment could be achieved by the addition of surface aerators. It is not considered to be necessary to contemplate installing aerators at this time.

The regulators have raised concern with the lagoon's downstream wall stability. It is understood that CG&T indent to undertake capital works to protect this berm from erosion in the summer of 2002. Further that these capital works will enable the lagoon to operate through the winter months. This work includes the following;

- Redirection of the overland flow of spring run-off water away from the toe of the berm walls to prevent erosion of the walls of Cell 2 and 3
- Reconstruction of Cells 2 and 3 down stream walls and the installation of an over flow channel
- Installation of an overflow channel in Cell 1

It is understood that this work is currently underway, and expected to be completed in the coming weeks.

Mr. Comin
August 28, 2002
Page 4

Long Term Sewage Treatment Facility

In March 2001, CG&T retained Dillon Consulting Limited, to conduct a planning study with the goal of that study being to identify a long term solution to the Community of Cape Dorset's sewage treatment requirements. Several options for technologies and alternative locations were reviewed. The results of the study, and subsequent meeting with the community representatives indicate that there are 4 potential options. These are:

Q Lake Lagoon Option—a small lake located to the north east of the community. Initially identified as a potential location for a lagoon. However, in the winter of 2001/2002, the community's water supply pipeline froze, and Q Lake was used as the emergency back-up water supply source. Subsequent to the pipeline freeze up the community stated that Q Lake should not be used as a sewage lagoon facility. The development of road to Q Lake, and the site development for a lagoon at this site has a capital cost estimate of \$1,300,000.

P-Lake Lagoon Option—a small lake located south of the community. The community identified this site as a potential location for a lagoon. The road to P-Lake would have a capital cost over \$1.5 M, if in fact the road construction were possible. This road would have a constant grade of 8 to 10% over a length of approximately 1km. This type of grade over the length of the road will create unsafe conditions in the winter months. The site development costs will be nearing another \$1.0M. This capital costs for this option is over \$2.5 M. The option would have high operational cost for trucking the sewage along the steep road, and maintaining the steep road through out the winter months. The total capital cost estimate for this option is estimated to be \$2,500,000.

Site R Lagoon Option— Site R is a flat area north east of the community. This site is currently used as the granular stockpile for CG&T. The site is also located at the end of the runway. The Airports Division has expressed concerns over this location and the potential for the increased bird strike hazard. The site may not meet regulatory approval because of the increased risk of bird strikes. The site development cost for this site is \$1,600,000.

Existing Site Mechanical Plant Option - installation of a Mechanical Sewage Treatment Plant would be best at the existing lagoon site. The treated sewage effluent discharge is to the south of the tidal bridge. The proposed discharge location results in the effluent being directed away from the community. The effluent discharge location was an important issue to the community during the consultation period. This option carries with it the issue of higher operational costs and concern with hiring and training qualified operators in the community. The cost of the mechanical plant (secondary treatment such as is currently being implemented in Pangnirtung) is \$2,500,000.

Recently, the community and the GN has come to the consensus that a mechanical plant constructed at the existing site will be the long term sewage treatment system for the community of Cape Dorset. The GN is proceeding with the initial stages of the project implementation through the development of the terms of reference and project description. This project will be completed through the public tendering process in accordance with GN tendering policy. The development of the project will have several stages. The following is an outline of the current schedule for the project implementation.

Mr. Comin
August 28, 2002
Page 5

Project Schedule

Task Item	Start Date	Completion Date
Project Description		
Regulatory Consultation	May 2002	August 2003
Definition of Treatment process	May 2002	August 2002
Definition of Implementation Process	May 2002	August 2002
Development of terms of reference	September 2002	October 2002
Preliminary Design	October 2002	November 2002
Detailed Design	November 2002	January 2003
Tender Period	January 2003	February 2003
Material Order	March 2003	June 2003
Material Mobilization to Site	July 2003	September 2003
Earth Works & Site Development	July 2003	September 2003
Building Construction	September 2003	November 2003
Treatment Plant Installation	November 2003	February 2004
Testing and Start up	March 2004	April 2004
Commissioning	April 2004	May 2004

Review of the Fisheries Act Inspectors Direction

We feel that the community can, by properly using the existing lagoon, meet the requirements of the pending *Water License* prior to the date issued in this document. Specifically, the order states that the Hamlet of Cape Dorset and the Nunavut Territorial Government are to advise:

"Environment Canada in writing of the measures that have been taken to prevent the deposit of the deleterious substance in water frequented by fish on or before September 30, 2002".

After careful review of all possible long-term sewage treatment options, the GN has chosen to develop a mechanical sewage treatment facility for Cape Dorset. Unfortunately, due to logistical constraints, this system will not be operational until 2004.

The GN and the community understand and recognize the problems associated with the operations witnessed by the Inspector with respect to the current sewage treatment facility. Should monitoring results dictate, the GN is willing to develop short-term remedial actions for the existing operation of the lagoon to bring the effluent into the criteria set out in the pending *Water License*. Mitigation measures, if required, will be scheduled for the summer of 2002.

The Government of Nunavut and the Hamlet of Cape Dorset wish to comply with the various stipulations addressed in Mr. Comin's order. Logistically however, it may not be possible to meet all of these requirements in the time frame indicated. At this time we request that an amendment to the *Fisheries Act Inspectors Direction* be added that will allow our client to meet the requirements as outlined in the *Water License*. Further meeting the *Water License* requirements by September 2002, will be considered compliance with the *Fisheries Act Inspectors Directions* by Mr. Comin.

water
License

EC
PPA

Mr. Comin
August 28, 2002
Page 6

The GN will commit to providing Environment Canada in September 2002 an updated schedule for proposed mechanical plant construction activities, a summary of the summer monitoring program, and a report outlining any remediation carried out on the existing lagoon system.

On behalf of the GN, the Department of Community Government and Transportation and the Hamlet of Cape Dorset, we look forward to working with Environment Canada in developing a successful sewage treatment facility that will meet all water quality criteria specified in the *Federal Fisheries Act*. Should you have any questions or concerns, please contact the undersigned.

Sincerely,

DILLON CONSULTING LIMITED



Gary Strong, P. Eng

Project Manager

Cc Sameh Elsayed - GN, CG&T Cape Dorset
Dave Parker - GN, CG&T
Doug Sitland - GN, CG&T

**FAX TRANSMISSION****Sameh Elsayed M.A.Sc., P. Eng.**

Municipal Planning Engineer

Community Government & Transportation

GOVERNMENT OF NUNAVUT

P.O.Box 330

CAPE DORSET, NU., XOA OCO

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To: Mr. Derek Chubb

From: Sameh Elsayed

Fax: 1-403-215-8889

Pages: 1 + 18

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Date: 15/02/2003

Re: Cape Dorset Water Licence

CC:

☐ Urgent☒ For Review☐ Please Comment☐ Please Reply☐ Please RecycleComments

Hi Derek,

Following to our telephone conversation. Please find attached a copy of Cape Dorset Water Licence.

Should you have any queries, please do not hesitate to contact me.

Regards,

Sameh Elsayed

Enc.



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NK5 wmoEp3 vtmpR
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

DECISION

LICENCE NUMBER: NWB3CAP0207

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a Licence dated 19 April 2001, made by

Hamlet of Cape Dorset

to allow for the use of water and disposal of waste for the Hamlet at Cape Dorset, Nunavut.

With respect to this application, the NWB gave notice to the public that the Hamlet had filed an application for a water licence.

DECISION

After having been satisfied that the application was exempt from the requirement for screening by the Nunavut Impact Review Board in accordance with S. 12.3.2 of the *Nunavut Land Claim Agreement* (NLCA), the NWB decided that the application could go through the regulatory process. After reviewing the submission of the Applicant and written comments expressed by interested parties, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the *Nunavut Land Claims Agreement* and of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRA), decided to waive the requirement to hold a public hearing and furthermore to delegate its authority to approve the application to the Chief Administrative Officer pursuant to S. 49(a) of the NWNSTRA and determined that:

Licence Number NWB3CAP0207 be issued subject to the terms and conditions contained therein. (Motion #: 2002-11)

SIGNED this _____ day of September, 2002 at Gjoa Haven, NU.

Philippe di Pizzo
Chief Administrative Officer

TABLE OF CONTENTS

DECISION	1
TABLE OF CONTENTS	ii
I. INTRODUCTION	1
II. GENERAL CONSIDERATIONS	1
A. Term of the Licence	1
B. Annual Report	1
C. Operation and Maintenance Plan	2
D. Abandonment and Restoration Plan	2
E. Surveillance Network Program	2
F. Quality Assurance/Quality Control Program	2
III. LICENCE NWB3CAP0207	3
PART A: SCOPE AND DEFINITIONS	4
PART B: GENERAL CONDITIONS	6
PART C: CONDITIONS APPLYING TO WATER USE	8
PART D: CONDITIONS APPLYING TO WASTE DISPOSAL	8
PART E: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION	10
PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE	10
PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION	11
PART H: CONDITIONS APPLYING TO THE SURVEILLANCE NETWORK PROGRAM	12

I. INTRODUCTION

Following an application filed by the Hamlet of Cape Dorset on April 19, 2001 to the Nunavut Water Board, the Board conducted an initial assessment of the Hamlet's request for a municipal water licence for water use and waste disposal activities within the Hamlet. The assessment was conducted so that the Nunavut Water Board could make a fully informed decision on the application. The application was referred for review and comments to Federal, Territorial and local organizations. Based upon the results of this initial assessment and the technical review, including consideration of any potential accidents, malfunctions, or cumulative environmental effects that the overall project might have in the area, the Board concluded that this application was complete and could go through the regulatory process.

In accordance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* S. 55.1 and Article 13 of the *Nunavut Land Claims Agreement*, public notice of the application was posted. No public concerns were expressed, and the NWB waived the requirement to hold a public hearing for the application. Authority to approve the application was delegated to the Chief Administrative Officer pursuant to S. 13 7.5 of the *Agreement*. After considering and reviewing the comments submitted by interested parties, the NWB has issued licence NWB3CAP0207.

II. GENERAL CONSIDERATIONS

Term of the Licence

In accordance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* S. 45, the NWB may issue a licence for a term not exceeding twenty-five years. The NWB believes that a term of five years is appropriate. Because this is the first licence issued to the Hamlet by the Nunavut Water Board, a 5-year licence will allow enough time for the Hamlet to establish a consistent compliance record. The 5-year licence will allow the Licensee to properly carry out the terms and conditions of the licence and to ensure that sufficient time is given to permit the Licensee to develop, submit, and implement the plans required under the licence to the satisfaction of the NWB.

Annual Report

The requirements imposed on the Licensee in this licence are for the purpose of ensuring that the NWB has an accurate annual update of municipal activities during a calendar year. This information is maintained on the public registry and is available to any interested parties upon request. Refer to attached standard form for completing Annual Report (see Attachment 1).

Regulated Parameters

Effluent quality criteria imposed in this Licence are consistent with the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (Northwest Territories Water Board, 1992), and follow advice received from both the Department of Indian and Northern Affairs and Environment Canada.

* Operation and Maintenance Manual (O&M) *SEPT. 1, 2003 Pg 11 PART F (1)*

The purpose of an Operation and Maintenance Manual is to assist Hamlet staff in the proper operation and maintenance of their waste disposal facilities. The manual should demonstrate to the Nunavut Water Board that the Hamlet is capable of operating and maintaining all waste disposal sites adequately. The Plan should be completed using the *Guidelines for the Preparation of an Operations and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories* (Duong and Kent, 1996, see Attachment II). *MICHAEL WILL SEND THIS.*

Abandonment and Restoration (A&R)

To ensure that all future abandoned facilities are reclaimed in an appropriate manner, the NWB has imposed the requirement for the submission of Abandonment and Restoration Plans. These plans should be submitted when the Licensee files preliminary design drawings for the construction of new facilities to replace existing ones.

* Surveillance Network Program *PART A ITEM 2 Pg. 9*

The Surveillance Network Program (SNP) is a monitoring program established to collect data on water quality to assess the effectiveness of treatment for protection of public health and to assess potential impacts to the environment associated with the municipal facilities. As this is the first Municipal Water Licence issued to the Hamlet by the Board, minimum requirements have been imposed, but additional sampling may be required by an Inspector.

Quality Assurance/Quality Control (QA/QC) Plan

The requirements to develop a QA/QC Plan imposed on the Licensee in this licence are for the purpose of ensuring the NWB that samples taken in the field as part of the SNP will maintain a high quality, so as to accurately represent the physical and chemical nature of the samples being taken

LICENCE NWB3CAP0207

Pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

HAMLET OF CAPE DORSET

(Licensee)

of

CAPE DORSET, NUNAVUT, X0A 0G0

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water for a period subject to restrictions and conditions contained within this licence:

Licence Number NWB3CAP0207

Water Management Area NUNAVUT 05

Location CAPE DORSET, NUNAVUT

Purpose WATER USE AND WASTE DISPOSAL

Description MUNICIPAL UNDERTAKINGS

Quantity of Water Not to be Exceeded 70,000 CUBIC METRES ANNUALLY

Date of Licence SEPTEMBER 1, 2002

Expiry Date of Licence AUGUST 31, 2007

Dated this ____ of September 2002 at Qion Haven, NU.

Philippe di Pizzo
Chief Administrative Officer


PART A: SCOPE AND DEFINITIONS

1. Scope

- a. This Licence allows for the use of water and the disposal of waste for municipal undertakings at the Hamlet of Cape Dorset, Nunavut (64°14'N, 76°32'W).
- 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 *Nunavut Waters and Nunavut Surface Rights Tribunal 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 subject to such requirements; 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, NWB3CAP0207

- * "Act" means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*; 
- "Amendment" means a change to original terms and conditions of this licence requiring correction, addition or deletion of specific terms and conditions of the licence; modifications inconsistent with the terms of the set terms and conditions of the Licence.
- "Analyst" means an Analyst designated by the Minister under Section 85 (1) of the *Act*;
- "Appurtenant undertaking" means an undertaking in relation to which a use of waters or a deposit of waste is permitted by a licence issued by the Board;
- * "Average Concentration" means the arithmetic mean of the last four consecutive analytical results for contained in composite or grab samples collected from the Waste Facility's final discharge point;

"Average Concentration For Faecal Coliforms" means the geometric mean of the last four consecutive analytical results for faecal coliforms contained in composite or grab samples collected from the Waste Facility's final discharge point.

"Board" means the Nunavut Water Board established under the *Nunavut Land Claims Agreement*;

"Chief Administrative Officer" means the Executive Director of the Nunavut Water Board;

"Commercial Waste Water" means water and associated waste generated by the operation of a commercial enterprise, but does not include toilet wastes or greywater;

"Effluent" means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond or a treatment plant;

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

"Grab Sample" means a single water or wastewater sample taken at a time and place representative of the total discharge;

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

"Inspector" means an Inspector designated by the Minister under Section 85 (1) of the *Act*;

"Licensee" means the holder of this Licence;

"Modification" means an alteration to a physical work that introduces new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion, and changes to the operating system that are consistent with the terms of this Licence and do not require amendment;

"Nunavut Land Claims Agreement" (NLCA) means the "Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada," including its preamble and schedules, and any amendments to that agreement made pursuant to it;

"Sewage" means all toilet wastes and greywater.

"Sewage Disposal Facilities" comprises the area and engineered lagoon and decant structures designed to contain sewage as described in the Application for Water Licence filed by the Applicant on April 19, 2001;

"Solid Waste Disposal Facilities" comprises the area and associated structures designed to contain solid waste (landfill site) as described in the Application for Water Licence filed by the Applicant on April 19, 2001.

"Surveillance Network Program" means a monitoring program established to collect data on surface water and groundwater quality to assess impacts to the environment of an appurtenant undertaking.

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

"Waste" means, as defined in S.4 of the Act, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means;

"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 Waste Disposal Facilities, as described in the Application for Water Licence filed by the Applicant on April 19, 2001, and;

"Water Supply Facilities" comprises the area and associated intake infrastructure at Tee Lake, as described in the Application for Water Licence filed by the Applicant on April 19, 2001

PART B: GENERAL CONDITIONS

- i. 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:
 - i. tabular summaries of all data generated under the "Surveillance Network Program";
 - ii. the monthly and annual quantities in cubic metres of fresh water obtained from all sources;
 - iii. the monthly and annual quantities in cubic metres of each and all waste discharged;
 - iv. a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;

- v. a list of unauthorized discharges and summary of follow-up action taken
 - vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - vii. a summary of any studies, reports and plans (e.g., Operation and Maintenance, Abandonment and Restoration, QA/QC) requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
 - viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and
2. The Licensee shall comply with the "Surveillance Network Program" described in this Licence, and any amendments to the "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 and waste discharged shall be installed, operated and maintained by the Licensee to the satisfaction of an Inspector.
 5. The Licensee shall, within ninety (90) days after the first visit of the Inspector, post the necessary signs, where possible, to identify the stations of the "Surveillance Network Program." All signage postings shall be in the Official Languages of Nunavut, and shall be located and maintained to the satisfaction of an Inspector.
 - * 6. The Licensee shall immediately report to the 24-Hour Spill Report Line (867-920-8130) 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
 - * 7. The Licensee shall ensure a copy of this Licence is maintained at the municipal office and at the site of operation at all times. Any communication with respect to this Licence shall be made in writing to the attention of:

(i) Chief Administrative Officer:

Executive Director
Nunavut Water Board
P. O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338
Fax: (867) 360-6369

ii) Inspector Contact:

Water Resources Officer
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4298
Fax: (867) 979-6445

(iii) Analyst Contact

Taiga Laboratories
Department of Indian and Northern Affairs
4601 - 52 Avenue, P.O. Box 1500
Yellowknife, NT X1A 2R3
Telephone: (867) 669-2781
Fax: (867) 669-2718

- * 8 The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all fresh water from Tee Lake 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 70,000 cubic metres.

- 3. The Licensee shall maintain the Water Supply Facilities to the satisfaction of the Inspector.
- 4. 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 Sewage to the Sewage Disposal Facilities or as otherwise approved by the Board
- 2. All Effluent discharged from the Sewage Disposal Facilities at "Surveillance Network Program" Station Number CAP-3 shall meet the following effluent quality standards:

Parameter	Maximum Average Concentration
Faecal Coliforms	1×10^6 CFU/dl
BOD ₅	120 mg/L
Total Suspended Solids	180 mg/L
Oil and grease	No visible sheen
pH	between 6 and 9

- 3. A Freeboard limit of 1.0 metre, or as recommended by a qualified geotechnical engineer and as approved by the Board, shall be maintained at all dykes and earthfill structures associated with the Sewage Disposal Facilities.
- 4. The Licensee shall advise an Inspector at least ten (10) days prior to initiating any decant of the sewage lagoon.
- 5. The sewage lagoon shall be maintained and operated in such a manner as to prevent structural failure.
- 6. The Licensee shall maintain the Sewage Disposal Facilities to the satisfaction of an Inspector
- 7. The Licensee shall dispose of and contain all solid wastes at the Solid Waste Disposal Facilities or as otherwise approved by the Board

8. The Licensee shall implement measures to ensure hazardous materials and/or leachate from the Solid Waste Disposal Facility does not enter water.

PART E: CONDITIONS APPLYING TO MODIFICATION AND CONSTRUCTION

- * 1. The Licensee shall submit to the Board for approval design drawings stamped by a qualified engineer registered in the Nunavut prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or wastes.
2. 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:
- i) the Licensee has notified the Board in writing of such proposed modifications at least sixty (60) days prior to beginning the modifications;
 - ii. said modifications do not place the Licensee in contravention of the Licence or the Act,
 - iii. 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
 - iv. the Board has not rejected the proposed modifications.
3. Modifications for which all of the conditions referred to in Part E, Item 1, have not been met may be carried out only with written approval from the Board.
4. The Licensee shall provide as built plans/drawings of the modifications referred to in this Licence within ninety (90) days of completion of the modifications.

PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Licensee shall, before September 1, 2003 submit to the Board for approval, a plan for the Operation and Maintenance of the Sewage and Solid Waste Disposal Facilities in accordance with "Guidelines for preparing an Operation and Maintenance Manual for Sewage and solid Waste Disposal Facilities" (October 1996).

2. The Licensee shall implement the Plan specified in Part F, Item 1 as and when approved by the Board.
3. The Licensee shall revise the Plan referred to in Part F, Item 1, if not acceptable to the Board. The revised Plan shall be submitted to the Board for approval within thirty (30) days of notification of the Board decision.
4. If, during the period of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall
 - i. employ the appropriate contingency plan as provided for in the Operation and Maintenance Plan;
 - ii. report the incident immediately via the 24-Hour Spill Reporting Line at (867) 920-8130 and to an Inspector; and
 - iii. submit to an Inspector a detailed report on each occurrence not later than thirty (30) days after initially reporting the event.

PART G: 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 facilities and the construction of new facilities to replace existing ones. The Plan shall include, but not be limited to where applicable:
 - i. water intake facilities;
 - ii. the water treatment and waste disposal sites and facilities;
 - iii. petroleum and chemical storage areas;
 - iv. any site affected by waste spills;
 - v. leachate prevention;
 - vi. an implementation schedule;
 - vii. maps delineating all disturbed areas, and site facilities;
 - viii. consideration of altered drainage patterns;