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PROPOSED

WATER AND SANITATION POLICY

For

COMMUNITIES IN THE NORTHWEST TERRITORIES

Prepared by



Department of Local Government
Government of the Northwest Territories

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INTRODUCTION

WATER AND SANITATION POLICY FOR COMMUNITIES IN THE NORTHWEST TERRITORIES

This report presents the proposed policy for Water and Sanitation Services in the Northwest Territories. This policy is intended to be a guide in establishing acceptable water supply and delivery, sewage collection and sewage and garbage disposal facilities for Communities in the Northwest Territories.

It is also intended that this policy will be instrumental in providing the communities of the Northwest Territories with a Standard of Servicing compatible with the established Environmental and Pollution Control standards.

This policy has been accepted by the Territorial Council and has been approved in principle by the Federal Government. Funding levels to carry out this policy have not, as yet, been provided by the Federal Government.

PROPOSED WATER AND SANITATION POLICY FOR THE NORTHWEST TERRITORIES [1973]

DEFINITIONS

- 1.1 **DOMESTIC RESIDENCE** - a self-contained dwelling unit. This includes private residences and staff houses where the residence is operated by the owner for the housing of his employees and is not intended to be revenue-producing.
- 1.2 **COMMERCIAL ESTABLISHMENT** - a structure or a self-contained portion of a structure which is used for business or revenue producing purposes or by non-profit organizations that are not institutions as defined herein.
- 1.3 **INSTITUTION** - a hospital, school, hostel, church or religious institution other than a Government establishment.
- 1.4 **GOVERNMENT ESTABLISHMENT** - a structure or a self-contained portion of a structure owned, leased, or occupied by the Federal Government, the Territorial Government, a Municipal Government, or a Crown Corporation.
- 1.5 **ECONOMIC RATE** - the rate charged to commercial establishments, institutions and government establishments for water and sanitation services. This rate is also charged to domestic residences when the quota as established herein is exceeded. This rate is based on the actual operation and maintenance costs incurred in the distribution of water and the collection of sewage and garbage.
- 1.6 **DESIGNATED SERVICE AREA** - the area designated for provision of water and sanitation services. The extent of this area shall be determined by either the Territorial Government municipality owning the system with the agreement of the Territorial Government.
- 1.7 **SANITATION SERVICE** - the removal and disposal of garbage and sewage.
- 1.8 **WATER SERVICE** - the obtaining and delivery of potable water.
- 1.9 **VEHICLE WATER DELIVERY** - the delivery of water by means other than a piped system.
- 1.10 **CONTRACTOR** - for the purpose of this policy, a contractor is an individual, co-op or company that has an agreement with the Government of the Northwest Territories, or a municipality to provide water and sanitation service within a designated service area.
- 1.11 **WET-BAG SEWAGE** - sewage collected by means other than pump out tanks or a piped system.
- 1.12 **PUMP-OUT SEWAGE** - sewage collected by means of a pump and vehicle from a sewage holding tank.
- 1.13 **PARTIAL SYSTEM** - a piped water system from a source of water to a centrally located water treatment plant, and a sewage disposal facility compatible with current legislation. In instances where a major user such as a school or nursing station is connected to the basic partial system, it may be deemed desirable to construct a sewage outfall line or force main to the treatment facility.

1.14 **COMPLETE SYSTEM** - a system incorporating all features of a partial system, with the addition of a piped water supply and sewage collection system to individual residences, establishments and institutions.

1.15 **MAIN WATER TRUNK LINE** - a water line from the water source to the water treatment plant. Also, any main water supply line from the treatment plant to a main distribution point or points for laterals within the community. That is, a line whose main function is to transport water for further distribution and not to serve individual consumers directly.

1.16 **MAIN SEWER TRUNK LINE** - an outfall line or pressure sewer line linking a collection point or points for lateral sewers with a sewage treatment facility and on which no direct building connections are made.

1.17 **LATERAL WATER LINE** - a water line originating at a main water trunk line designed to service individual units or subdivision areas.

1.18 **LATERAL SEWER LINE** - a sewage line designed to collect sewage from a sub-division or sub-division area into which individuals may discharge sewage.

1.19 **FORCED GROWTH** - the provision to meet non-discretionary increases in the quantity of service the program properly ought to provide because of such things as the growth in size of the client "population" for the service. These increases would do no more than maintain the quality of service at present levels.

2. WATER AND SANITATION PROBLEMS

2.1 Few settlements have adequate systems for the supply of water and disposal of wastes. Appendix A is a list of some recent studies done by the Department of National Health and Welfare which describe in detail the hazards of present operations and the need for corrective action. Two examples of these reports are attached to Appendix A.

2.2 During the winters with extreme cold and high winds it is very difficult to obtain and deliver water. The choice is between wheeled vehicles which require roads and frequent snow removal, and tracked equipment which is expensive to buy, slow to operate, and difficult to maintain.

2.3 Depending on the size and location of the settlement, a pipe water system in comparison with vehicle water delivery is relatively inexpensive to operate and reliable. On the other hand the initial capital outlay is high.

2.4 Without piped disposal or a system including individual sewage holding tanks and vehicle collection, waste water runs onto the ground and sewage disposal consists of plastic bag pickup. The waste water freezes under houses in the winter, pollutes the settlement in the spring and melts the permafrost during the summer.

2.5 Sewage and garbage decays very slowly in the Arctic. Pollution is long lasting and conventional Southern Canadian approaches to water supply and sanitation are usually not successful.

2.6 Brief outlines of communities representing the diversity of problems associated with the provision of water and sanitation services are presented in Appendix B. The sample communities were selected on the basis of the following criteria: population, geographic location, existing and proposed water and sanitation system.

3 WATER AND SANITATION SYSTEMS

- 3.1 Appendix C lists the proposed minimum system for each community.
- 3.2 Population is taken as a base factor in deciding the level of service and type of equipment to be provided to each community. However other factors such as cost of present servicing, physical characteristics of the site and possible growth of the community are also considered.
- 3.3 In settlements with less than 50 residents, no services will be provided. These settlements are large camps and each of the 10 or so households will be expected to provide its own services.
- 3.4 With due consideration to the other factors as outlined in Clause 3.2, in settlements with populations of 50 to 150 people, some form of household water and sanitation service will be provided. Where provided by the Government of the Northwest Territories, it will consist of a tractor and two wagons; one with a tank for water and the other for garbage and sewage bag pickup.
- 3.5 With due consideration to the other factors as outlined in Clause 3.2, in settlements with populations of 150 to 700 people, vehicles for water and sanitation services will be provided. A partial system with sewage pump-out tanks will be considered the minimum facilities in a settlement of this size. This system will be designed to be compatible with a complete system should expansion be necessary in the future. In some cases in settlements of this size, total systems may be installed depending on factors as presented in 3.2. Appendix D is a proposed construction schedule.
- 3.6 In settlements of 700 or more people, piped systems will be constructed in accordance with feasibility studies. Such feasibility studies will take into consideration both social and economic factors such as the initial capital cost of piped systems compared with the cost of non-piped services; sanitation and environmental advantages or disadvantages of a piped system as opposed to delivery services (emphasizing public health considerations) and the projected development of the community as such development relates to the need for municipal services. Such a study will be carried out two years in advance of the beginning of construction to allow for a re-alignment of priorities if necessary due to social, environmental, or forced growth situations.
- 3.7 Water and sewage holding tanks are an effective method of improving health standards. The Territorial Government will make available water tanks free of charge on application to all domestic residences located in designated service areas. In communities where sewage pump-out tanks are considered to be the minimum level of service, sewage pump-out tanks for domestic residences will also be made available free of charge on application.
- 3.8 All establishments except as provided in Clause 3.7 must be provided with water tanks and sewer pump-out tanks at the owner's or occupants expense before delivery and pickup service is provided. These tanks must be of a design approved by the Government of the Northwest Territories.
- 3.9 Appendix E indicates the cost of complete and partial systems.
- 3.10 In non-tax based communities where it is deemed desirable to install piped services, the Government of the Northwest Territories shall bear the cost of the facilities required. User rates shall be charged in accordance with Clause 6.5
- 3.11 The Territorial Government will pay for the construction of main water and sewer trunk lines in tax-base municipalities. This includes the initial cost of a reservoir if required, a water intake line, pumphouse and treatment facilities, sewage lift station and outfall line, and sewage treatment

facilities, as well as the expansion of same necessitated by forced growth.

3.12 In tax-based municipalities any lateral extensions are the responsibility of the City, Town or Village concerned. The Territorial Government will continue to assist in the financing of lateral extensions by providing repayable debenture loans.

3.13 Water and sewer systems shall be operated by the Municipalities as soon as they have developed adequate staff and abilities to handle the systems. The municipality will be expected to offset the operating costs of the system through the user rates charged.

4. WATER-MINIMUM SERVICE

4.1 Notwithstanding the minimum service levels established in clauses 3.1, 3.2, 3.3, 3.4 and 3.5 for various categories of settlements, a minimum level of water delivery service will be 800 gallons per dwelling per month.

4.2 Due to the location of some settlements and their lack of a year-round water supply source, it may be economically and physically impractical to have water delivery service during certain periods of the year. In these settlements ice delivery shall be provided free of charge to domestic residences by the Government of the Northwest Territories.

5. SANITATION - MINIMUM SERVICE

5.1 Notwithstanding the minimum service levels established in clauses 3.1, 3.2, 3.3, 3.4 and 3.5 it is the policy of the Territorial Government to have wet bag service pickup 4 times per week, weekly pump-out of sewage tanks from all domestic residences in a community and weekly dry garbage pickup, in non-tax based communities.

5.2 In tax-based communities, the frequency of sanitation service shall be at the discretion of the local municipal authorities.

6. RATES AND QUOTAS

6.1 It is the policy of the Territorial Government to provide minimum water, sewer and garbage services within designated service areas at an equalized rate throughout the Territories to the residents for their household use, and to assist institutions in this regard. To this end for water delivery service and sewer and garbage services in non tax-base communities the Territorial Government will pay the difference between the economic rate and the rate set in Clauses 6.3, 6.4 and 6.5 directly to the contractor. All other establishments will pay the economic rate for water delivery and sewer and garbage services.

6.2 In tax-based communities, the Territorial Government will pay in the form of a grant the difference between the economic rate and the rates set in Clauses 6.3, 6.4 and 6.5 for vehicle water delivery service and sewage pumpout service only.

6.3 Vehicle water delivery service to domestic residences and institutions will be provided on the basis of:

- i) \$5.00 per month for 800 gallons or any portion thereof; plus
- ii) \$5.00 per month for any portion of 400 gallons in excess of 800 gallons; plus

iii) the economic rate for any amount in excess of 1200 gallons per month. Water provided in excess of 1200 gallons per month will be subject to community needs, the available supply of water, and the capacity of the delivery service.

6.4 Sewage pump-out service will be provided to domestic residences and institutions on the basis of:

- i) \$5.00 per month for 800 gallons or any portion thereof; plus
- ii) \$5.00 per month for any portion of 400 gallons in excess of 800 gallons; plus
- iii) the economic rate for any amount in excess of 1200 gallons per month. Sewage pump-out service in excess of 1200 gallons per month will be subject to community needs and existing capacity of facilities.

6.5 Where piped water and sewage services have not been turned over to a municipality by the Government of the Northwest Territories, the piped water and sewer service shall be provided to domestic residences and institutions on the basis of:

- i) a maximum charge of \$15.00 per unit per month based on a quota of 40 gallons per person per day.
- ii) if this quota is exceeded, the economic rate will be charged.

6.6 All water delivery systems shall be metered in order that a complete record of water consumption above the quotas established in clauses 6.3 and 6.5 or for buildings other than those specified in clause 6.1

6.7 Garbage and wet-bag sewage from domestic residences and institutions in non-tax based communities shall be paid for by the Government of the Northwest Territories and services shall be provided in accordance with the schedule in Clause 5.1. All other establishments will pay the economic rate. In tax-based communities these services will be a financial responsibility of the municipality.

6.8 In settlements where water and sewer service is the direct responsibility of the Territorial Government, the contractor shall invoice domestic residences and institutions which have exceeded the quota as established in Clauses 6.3, 6.4, 6.5 and commercial and government establishments directly for their share, and will invoice the Government of the Northwest Territories for the balance in accordance with Clause 7.2.

7. CONTRACTING - WATER SANITATION AND SEWAGE PUMP-OUT SERVICES IN SETTLEMENTS OTHER THAN TAX-BASED COMMUNITIES

7.1 It is the policy of the Territorial Government to contract for the provision of water delivery, sewage pump-out services, wet-bag sewage pickup, and garbage collection. This is done to encourage the growth of local business.

7.2 For invoicing purposes the Contractor will keep a list of water quantities delivered, sewage quantities pumped out, and wet bag sewage and garbage pickup for each building. This list and the invoice for the balance due as outlined in Clause 6.8 duly certified by the Contractor and approved by the Settlement or Hamlet Council must be submitted to the Government of the Northwest Territories for payment.

APPENDICES

Appendix A, B, C, & D forecast the capital and operation and maintenance expenditures required in each community to bring the level of Water and Sanitation Service in the Northwest Territories up to levels acceptable to Residents, Public Health Officials, and Government Agencies.

Because these appendices were compiled in 1973 some of the data is no longer accurate and it is for this reason that they are not included in this report. They are available, however, on request from:

The Director,
Department of Local Government,
Government of the N.W.T.,
Yellowknife, N.W.T.