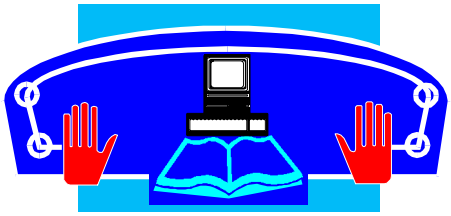

An Update On The Status Of Solid Waste Management In The Northwest Territories

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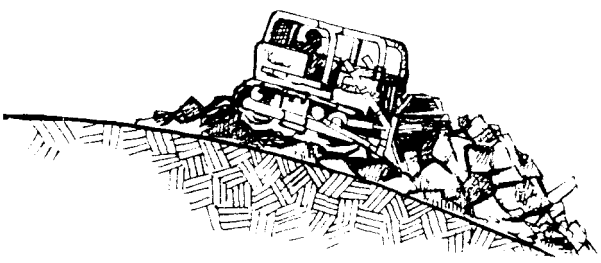
e Status of Solid Waste Management in Communities of the Northwest Territories

Gary W. Heinke, Ph.D., P.Eng. & Jeffrey Wong



AN UPDATE OF THE STATUS OF SOLID WASTE MANAGEMENT IN COMMUNITIES OF THE NORTHWEST TERRITORIES

For the

Department of Municipal and Community Affairs
Government of the Northwest Territories

By

Gary W. Heinke, Ph.D., P.Eng.

Jeffrey Wong

December 1990

FOREWORD AND ACKNOWLEDGEMENT

It became apparent during the concurrent study on "Guidelines for the Planning, Design, Operation and Maintenance of Solid Waste M edified Landfill Sites in the Northwest Territories" that insufficient information was available in the files of the Department of Municipal and Community Affairs (MACA) or other relevant departments on the current status of waste management in NWT communities. With the agreement of the Department of Municipal and Community Affairs a questionnaire survey was carried out of all NWT communities. To-date 53 of the 61 communities surveyed have responded. Overall the responses have been well prepared and are very useful. This report summarises the responses received. We urge MACA to try to obtain the remaining 8 responses in order to complete the survey.

Hazardous wastes collection and disposal were not directly covered in this survey, because a separate study was to be carried out later. The preliminary results of this survey are reported in an unpublished report by Heeney and Heinke [5]. The reader is referred to that report on the topic of hazardous wastes.

We wish to acknowledge the very helpful cooperation received from Ken Johnson, P.Eng. and Ron Kent, P.Eng. of MACA. We also are grateful to all the local people who have taken this survey seriously and provided helpful information and comments. We recommend that a copy of the final report be made available to every community.

This update on the status of solid waste management in NWT communities should be useful information for a future update on all community services.

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1. *INTRODUCTION AND RACKGROUND*

The solid waste disposal system of communities in the Northwest Territories has received considerable attention in the past few years. Inefficient and poorly maintained dumps have been slowly replaced by well designed and efficiently managed modified landfill sites, and many more are in the planning stages. As a result of this growing trend toward providing improved services, the current status of solid waste management has changed significantly from what it was ten or fifteen years ago.

This report outlines the current status of solid waste collection, disposal, operation and maintenance of fifty-three communities of the Northwest Territories. The basic information has been obtained through a questionnaire survey during the fall of 1989.

Several reports of the status of community water and sanitation services in the Northwest Territories are available. In 1973, Heinke [1] described municipal services for NWT communities as they existed in 1970 and 1971. Almost ten years later in 1982, a comprehensive inventory report of community water and sanitation services published by the Water and Sanitation Section of the NWT government [2] revealed that despite improvements in overall municipal services deficiencies in solid waste disposal existed. A summary paper was prepared by Christensen [3] in the same year. Christensen assessed the municipal services of all NWT communities with respect to public health and environmental objectives and categorized these services as acceptable, generally acceptable and unacceptable.

The need for this survey and report originated during the preparation of Guidelines for the Planning, Desire Operation and Maintenance of Solid Waste Modified Landfill Sites in the Northwest Territories [4]. It became evident that updated comprehensive information concerning all aspects of solid waste collection, disposal, operation and maintenance was not available centrally. The only routine update is provided by the Department of Indian and Northern Affairs through periodic inspection of community water and waste disposal systems. This information is up-to-date on only some communities.

It must be pointed out that a separate study [6] deals with the issue of minimum separation distance between the airstrip and the solid waste disposal site to minimize interference of bird flocks and aircraft. No judgments are made in this report on the adequacy of any of the existing sites from this viewpoint.

2. *METHODOLOGY*

Time and financial considerations precluded visits to each community for detailed assessment of solid waste management. Instead, information was obtained by means of a solid waste management survey. A completed survey is provided in Appendix C. The survey is divided into three sections; solid waste collection, solid waste disposal and, operation and maintenance of solid waste disposal sites.

Surveys were distributed to all 61 communities of the NWT through the Department of Municipal and Community Affairs, Yellowknife in the fall of 1989. It was important that the person completing the questionnaire be thoroughly familiar with the operation of the solid waste system in the community, as this was expected to yield the most accurate information. The questionnaire was designed to be easily answerable to obtain as close to a complete return as possible. Space was provided for personal comments, some of which are included in Appendix B.

Of the 61 surveys distributed, 53 were completed and received by September 1990. Figure 1 and the following list show the communities from which surveys have been received or not received by September 1990.

Received: 53

BAFFIN REGION 12

Arctic Bay
Broughton Island
Cape Dorset
Clyde River
Grise Fiord
Hall Beach
Igloolik
Lake Harbour
Pangnirtung
Pond Inlet
Resolute Bay
Sanikiluaq

KEEWATIN REGION 7

Arviat
Baker Lake
Chesterfield Inlet
Coral Harbour
Rankin Inlet
Repulse Bay
Whale Cove

KITIKMEOT 6

Cambridge Bay
Coopermine
Gjoa Haven
Holman Island
Pelly Bay
Spence Bay

INUVIK 12

Aklavik
Artic Red River
Colville Lake
Fort Franklin
Fort Good Hope
Fort McPherson
Fort Norman
Inuvik
Norman Wells
Paulatuk
Sachs Harbour
Tuktoyaktuk

FORT SMITH REGION 16

Detah
Rae-Edzo
Enterprise
Fort Liard
Fort Providence
Fort Resolution
Hay River
Kakisa
Lac La Martre
Nahanni Butte
Rae
Rae Lakes
Snowdrift
Trout Lake
Wrigley
Yellowknife

Not Received: 8

BAFFIN REGION 2

Iqaluit
Nanisivik

KITIKMEOT REGION 1

Bathurst Inlet

FORT SMITH REGION 5

Fort Simpson
Fort Smith
Jean Marie River
Port Radium
Snare Lake

It must be emphasized that conclusions drawn by the authors about the acceptability or nonacceptability of solid waste management depend heavily on the accuracy and completeness of the questionnaire provided by the community. It may be useful to provide a draft of this report to each region/community for comments before the final report is issued.

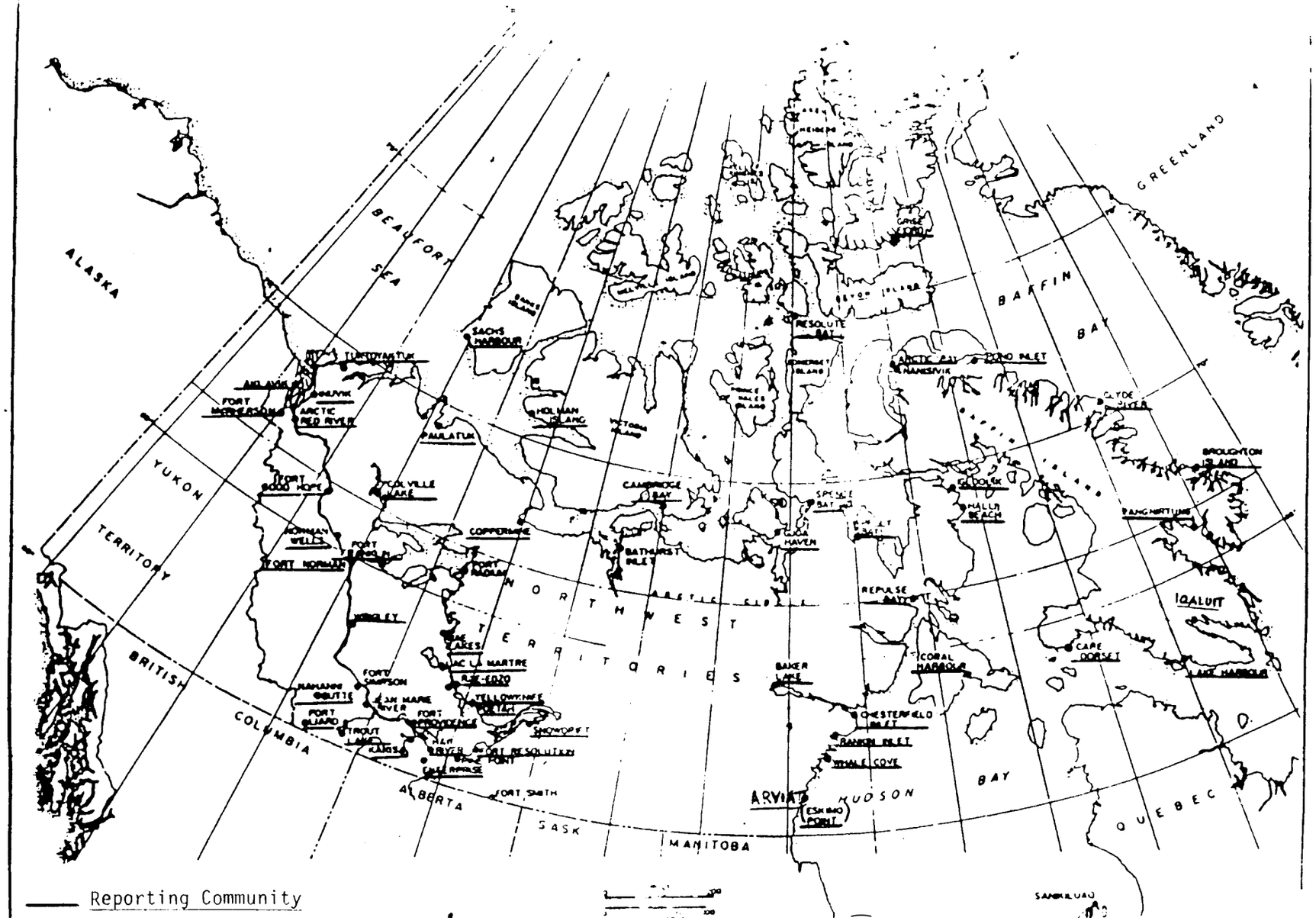

FIGURE 1. LOCATION OF SURVEYED COMMUNITIES

3. *SOLID WASTE COLLECTION*

The minimum acceptable level of service for domestic solid waste (garbage) collection is trucked collection once weekly for each resident. This requirement is sufficient to maintain acceptable sanitary and aesthetic conditions without allowing excessive accumulations of wastes at the home. All of the communities surveyed meet this minimum requirement as shown in Table 1. Most communities collect solid wastes at least 2 days per week with only 7 of 53 (13%) communities receiving collection once per week.

17 of 53 communities (32%) burn wastes in 205 L oil drums at home prior to collection. A by-law established in Kitikmeot Region communities does not permit residents to practice burning wastes at the home.

Bagged sewage, commonly known as honey bags are also considered solid wastes. Thus, they are collected by the solid waste collection crew. *75% (40 of 53)* of the communities still depend on bagged sewage to some degree. Thirteen communities do not use honey bags. The minimum acceptable level of service for honey bag collection is five times per week with no two consecutive no-service days. Bagged sewage allowed to collect for more than one day creates potential hazards to public health. Of the 53 communities only 3 (6%) do not meet the minimum schedule. Honey bags should be collected and disposed of separate from other community refuse. Failure to do so could result in broken bags and exposure to unnecessary health risks. Just 3 of 53 (6%) communities do not collect honey bags separately from other domestic wastes and thus are considered to be unacceptable. Only Colville Lake and Fort Norman have an unorganized honey bag collection system whereby residents are responsible for disposing sewage wastes and are also judged unacceptable. Table 2 lists the communities with unacceptable levels of collection service.

Table 1. Survey summary of Solid Waste Collection

Community	Collection Responsibility	Collection Vehicle	Collection Frequency days per week	Collection Crew Size	Burning at Home	Honey Bag Collection Vehicle	Separate Honey Bag Collection	Honey Bag Collection Frequency days per ueek	Spring Clean-up	Bulky Waste Collection Responsibility
BAFFIN REGION										
Arctic Bay	Hamlet	Stake truck	Daily	2	no	same	Yes	Daily	July	amlet, individual:
Brouhton Island	Haml et	Haul-All	>2	1, 2	Some	same	Yes	Alternate days	July	Hamlet, Dew Line
Cape Dorset	Hamlet	Haul-All	>2	3	No	Different	Yes	Daily	July, August	Hamlet
Clyde River	Hamlet	Haul-All	Daily	1	No	Same	Yes	Daily	August	Hamlet
Grise Fiord	Hamlet	Stake truck	>2	1	Some	same	Yes	>2	August	Hamlet
Hal lBeach	Hamlet	Stake truck	>2	1	No	Same	Yes	Daily	June	Hamlet
Igloolik	Hamlet	Stake truck	>2	2	No	Same	Yes	2	July	Hamlet
Iqualuit										
Lake Harbour	Hamlet	Haul-All	3	1	No	same	Yes	Daily[1]	July	Hamlet
Nanisivik										
Pangnirtung	Hamlet	Haul-All	Daily	2	Yes	Stake truck	Yes	Daily	June	Hamlet
Pond Inlet	Hamlet	laul-all, Packer	Daily	2	nce/yr	same	No	3	July	Hamlet
Resolute Bay	Haml et	Pick-up	Daily	1	No	--	--	--	August	Individuals
Sanikiluaq	Hamlet	Stake truck	>2	2	No	Same	Yes	1	June	Hamlet
KEEWATIN REGION										
Arviat	Hamlet	Packer, Pick-up	>2	4	Yes	same	Yes	>2	Snowmelt	
Baker Lake	Hamlet	Haul-All	>2	>3	Yes	sane	No	>2	Yes	Hamlet
Chesterfield Inlet	Haml et	Haul-All	>2	2	Some	same	YesJNo[2]	>2[3]	July	Hamlet
Coral Harbour	Hamlet	Haul-All	4	2	No	Different	Yes	6	July	Hamlet
Rankin Inlet	Hamlet	Packer	1	3	Yes	Loader	Yes	[4]	June	Hamlet
Repulse Bay	Hamlet	Stake truck	>2	1	No[5]	same	No	Daily	July, August	Hamlet
Whale Cove	Hamlet	Haul-All	Daily		No	same	Yes	Daily	July	Individuals

1. Collection at 2 houses
2. With domestic waste in winter, separately in summer
3. Collection at 2 or 3 houses
4. Collection at 2 houses
5. Bay and comp burn

Table 1. Survey Summary of Solid Waste collection (Continued)

Community	Collection Responsibility	Collection Vehicle	Collection Frequency (days per week	Collection Crew Size	Burning at Home	Honey Bag Collection Vehicle	Separate Honey Bag Collection	Honey Sag Collection Frequency days per week)	Spring Clean-up	Bulky Waste Collection Responsibility
KITIKMEOT REGION										
Bathurst Inlet										
Cambridge Bay	Hamlet	Haul-All	2	2	NO*	same	Yes	2		
Coppermine	Hamlet	Haul-All	2	2	No	Same	Yes	2		
Gjoa Haven	Hamlet	Haul-All	2	2	No	Same	Yes	2		
Holman Island	Hamlet	Haul-All	2	2	No	same	Yes	2		
Pelly Bay	Hamlet	Haul-All	2	2	No	Same	Yes	2		
Spence Bay	Haml et	Haul-All	2	2	No	Same	Yes	2		
INUVIK REG1ON										
Aklavik	Contractor	Pick-up	>2	2	Yes	Different	Yes	Alternate days	June	Hamlet
Arctic Red River	Sett lement	Loader	2	2	Yes	same	Yes	2	June	Settlement
Colville lake	Residents	ATV	Unorganized		Some	Resident Responsibility			June	Individual
Fort Franklin	Hamlet	Dump truck	2	2	No	Same	Yes	2	June	Hamlet
Fort Good Hope	Contractor	Packer	3	2	No	Different	Yes	3	June	Not collected
Fort McPherson	Contractor	Haul-All	3	2	No	Different[1]	Yes	3	June	Hamlet
Fort Norman	Contractor	F-700	>2	1	No	Resident Responsibility			June	Individuals
Inuvik	Contractor	Packer	2	2 - 3	No	- -	- -	- -	June	rown
Norman Wells	Contractor	Packer	2	1	No	- -	- -	- -	May	Contractor
Paulatuk	Hamlet	Dump truck	>2	1	No	Loader	Yes	3[3]	July	Hamlet
Sachs Harbour	Hamlet	Haul-All[4]	2	1	No[5]	--	--	--	July	Hamlet
Tuktoyaktuk	Contractor	Haul-All	6		No	Pick-up	Yes	6	June[6]	Hamlet

1. By-laws in Kitikmeot Region communities does not allow this practice
2. 1/2 ton trailer
3. Collection from 20 houses
4. Side dump/loader
5. Except for nursing station
6. By students

Table 1. Survey Summary of Solid Waste Collection (Continued)

Community	Collection Responsibility	Collection Vehicle	Collection Frequency (days per week	Collection Crew Size	Burning at Home	Honey Bag Collection Vehicle	Separate Honey Bag Collection	Honey Bag Collection Frequency days per week	Spring Clean-up	Bulky Waste Collection Responsibility
FORT SMITH REGION										
Detah	Contractor	Pick-up	>2	1	No	Same	Yes	3	June	Contractor
Rae-Edzo	Contractor	Haul-All	2	2	MO	Different[1]	Yes	6	Snowmelt	Hamlet
Enterprise	Contractor	Pick-up	1	1	No	..			May	Contractor
Fort Liard	Settlement	Stake truck	1	2	MO	..			April	Settlement
Fort Providence	Contractor	Haul-All	2	1	No	..			May	Contractor
Fort Resolution	Contractor	Packer	2	2	Yes	..			Snowmelt	Contractor
Fort Simpson										
Fort Smith										
Hay River	Contractor	Packer truck	2	2	no	..	-		June	Town
Jean Marie River										
Kakisa	Settlement	Pick-up	Irregular	1	Yes[2]	..	-	..	Yes	Contractor
Lac La Martre	Hamlet[3]	Packer	>2	2	no	Same	Yes	2	May, July	Hamlet
Nahanni Butte	Settlement	Wagon & Loader	1	1	No	..	..	..	May	Settlement
Port Radium										
Rae	Contractor	Haul-All	>2	2	Yes	Different	res	2	Yes	Hamlet
Rae Lakes	Settlement	Dump truck	2	2	Yes	Case loader	Yes	3	No	Individuals
Snare Lake										
Snowdrift	Settlement	Stake truck	2	2	Yes	same	res	2	June	Settlement
Trout Lake	Settlement	Dump truck	1	2	Yes[4]	..	..	..	May	Settlement
Wrigley	Settlement	Stake truck	1	2	No	..	..	..	May	Settlement
Yellowknife	Contractor	Packer truck	1	2	MO	Different	Yes	1	May	Individuals

1. One ton truck with sealed metal dump box
2. Burn at school only
3. Bins are provided to all residences by the Hamlet
4. In winter only

Table 2. Communities With Unacceptable Levels of Collection Service

UNACCEPTABLE COMMUNITY	CRITERIA
Fort Norman	Resident collection of honey bags
Sanikiluaq	Collection of honey bags 1 day/wk only
Rankin Inlet	Collection of honey bags 1 day/wk only
Pond Inlet	Collection of honey bags not separate
Repulse Bay	Collection of honey bags not separate
Baker Lake	Collection of honey bags not separate
Colville Lake	Resident collection of honey bags
Yellowknife	Collection of honey bags 1 day/wk only

Bulky waste collection is the responsibility of the individuals in the following communities:

- Resolute Bay
- Whale Cove
- Fort Good Hope
- Yellowknife
- Fort Norman
- Rae Lakes
- Colville Lake

Although there are currently no guidelines for bulky waste collection, it should be recognized that proper collection and disposal of bulky or large metallic wastes should be practised so that unsightly accumulations of such wastes do not occur in or around residences and to ensure that these wastes are disposed of in a safe and orderly manner.

4. SOLID WASTE DISPOSAL

Results of the solid waste disposal component of the survey are summarized in Table 3. 15 of 53 (28%) communities dispose of wastes in trenches while 8 of 53 (1590) communities dispose of wastes on flat land and 17 of 53 (32%) communities dispose of wastes on sloping land. Eight communities deposit wastes in a depression while only three communities deposit wastes over an embankment.

Modern landfill sites in the NWT are normally designed for at least a 20 year life. As shown in Table 4, 43% (23 of 53) communities have disposal sites which were constructed within the past five years, while 42% (22 of 53) of the disposal sites are expected to reach the end of their useful lives within the next five years. Note that some communities (Paulatuk, Detah, Kakisa, Rae Lakes, Trout Lake) appear in both columns, indicating that the design life was much less than 20 years in their cases.

Table 3. Survey of Solid Waste Disposal

Community	Disposal Site Location (km) from centre of com	Disposal Site Description	Disposal Site Size (m)	Age (yrs)	Estimated Life Remaining (yrs)	Fencing	Fencing Beneficial?	Separate Bulky Waste Area (m)	Separate Honey Bag Area (m)	Separate used Oil Area	Separate used Oil Area Beneficial	Current used Oil Dispiosal Method	Hazardous Waste Disposal Problem
BAFFIN REGION													
Artic Bay	3.7 SE	slope	50X60	10	5	No	NO	100X60	10X10	NO	NO	Burn	YES
Broughton Island	1.6 NE	Trench	50x50x3	17	2 [1]	No	YES	YES	YES	YES	YES	Drums	No
Cape Dorsal	6 Ne	Trend	25s20s30	6	0	No	YES	300x200	60X60X30	YES	YES	B u m	NO
Clyde River	2NWN	Flat	300 X300X0.7	1	20	NO	YEs	300X300	10X20	YES	YES	DRUMS	
Grise Fiord	2NWN	Slope	500x250	25	20	No	YES	1 50X50	20x8x3	YES	YES		NO
Hall Beach	North	Flat	20X10		16	No	NO	*50X30*	NO [2]	NO	NO	Dump	NO
Igloolik	1.5 N	Slope	100X100	20	20	No	YES	150X100	100X100	NO	YES	Drums	NO
Iqualuit													
Lake Harbour	0.5 Sw	Trench	60X30X3	17	10 IO15	Partial		Limited	YES [3]	YES [4]	YES	Drums	YES
Nanisivik													
Pangnirtung	4 E	Trench		12	2	No	YES	YES	YES	YES	YES	Drums	YES
Pond Inlet	1 SE	slope	200X100	10	1	No		YES	150X150	YES [5]	YES	Bum	NO
Resolute Bay	7 Ssw	Slope	65s60	15	20	No		15X20	YES [6]	YES	YES	Drums	
Sanikiluaq	*2 W*	Slope	300X300	17	10	No	YES	500x500	100 X1 OOX1!	YES	YES	Bum	NO
KEEWATIN REGION													
Arviat	*2.5 S*	Embankment	1000x1000	15	20	No	No	1000 X1000	300X300	YES	YES	Burn	NO
Baker Lake	3 NNE	Slope	30X20	30		No	No	lox 10	NO	YES	YES	Burn	YES
Chesterfield Inlet	1.5 W	Depression	80x40	12	2	No	YES	60x110	NO	YES	YES	Burn	NO
Coral Harbour	*2.6* N	Embankmen	500 500	20	10 IO15	No	YES	YES	NO	YES	YES	Drums	YES
Rankin Inlet	2.5 SE	slope		14	20	No	YES	YES	YES	YES	YES	Bum	NO
Repulse Bay	0.5 NE	Slope	300X200		5	No	YEs	300x200	NO	NO	NO	Burn	NO [8]
Whale Cove	1.5NW	slope	105x25x3	o'	20	NO	YES	BOX40	20X20X4	YES	YES	Drums	YES

TOO CLOSE TO COMMUNITY
2. SEWAGE LAGOON DURING SUMMER
3. 50 M NE OF BURNING SITE
4. 160 M NE OF BURNING SITE
5. MOT CONTROLLED
6. SEWAGE LAGOON
7. NEW SITE
8. PowER TRANSFORMERS

Table 3. Survey of Solid Waste Disposal (continued)

Community	Disposal Site Location (km) from centre of com	Disposal Site Description	Disposal Site Size (m)	Age (yrs)	Estimated Life Remaining (yrs)	Fencing	Fencing Beneficial?	Separate Bulky Waste Area (m)	Separate Honey Bag Area (m)	Separate Used Oil Area	Separate Used Oil Area Beneficial	Current Used Oil Disposal Method	Hazardous Waste Disposal Problem
KITIKMEOT REGION													
Bathurst Inlet													
Cambridge Bay	1.8 NE	slope	80x30	15	5IO1O	No	YES						NO
Coppermine	4.5 w	Shpe	60X60	0[1]	20	NO	YES						NO
Gjoa Haven	1.7 SE	Depression[2]	60x60	3	10 IO15	NO	YES						NO
Holman Island	1.3 N	Along Hill	100x50	10	15	NO	YES						NO
Pdty Bay	0,9 S	Depression	60X3	10	10	N 0[3]	NO						NO
Spence Bay	*2.2 w*	slope	70X60	1	19	YES	YES						NO
INUVIK REGION													
Aklavik	*2.5 NW*	Depression	30 x20x2	2	15	NO	NO	35X20	15X15	YES	YES	Bum	NO
Arctic Red River	*2* NE	Trench	20X3X3	1	20	NO	NO	30X30	3x3x3	YES	YES	Bum[4]	NO
Colville Lake	I N	Plateau	3X1OX1	0[1]	10	NO	NO	20X20	YES	NO	YES	Bum	NO
Fort Franklin	1.5 NE	Trench	23x1 OX2.5	1	5	NO	YES	35X30[5]	5x4x2	NO	NO	Bum	NO
Fort Good Hope	1.5 NE	Trench	50x3x2.5	8	8	NO	NO	YES[5]	3x3x3	YES	YES	B u m	NO
Fort McPherson	8 N	Depression	45x25	7	5	NO	YES	YES[6]	20x35x2.5	YES	YES	Bum	'NO
Fort Norman	3 SE	Flat	40x20x1.5	2	20	Partial		20X20	10 X10X2	YES	YES	Burn,Road	NO
Inuvik	1 Ssw	Slope	500X350	2	1	NO	YES	150X150	No	NO	YES	Burn	YES
Norman wells	6 N	slope	100XIOO	3	1	NO	YES	YES		NO	YES		YES
Paulatuk	0.5 NW	Trench	4X20X3	2	3	NO	YES	50X30	25x1 5x2	YES	YES	Burn	NO
Sachs Harbour	1.3 W	Embankment	100x80	10	1102	NO	NO	NO		YES	NO	Bum	NO
Tuktoyaktuk	5 s	slope	100x100	2	10	Partial		50X50	4x4x3	YES	YES	Bum[6]	NO

1. NEW SITE
2. MAN-MADE BERMED AREA
3. NATURALLY PROTECTED BY WIND
4. BY POWER CORPORATION
5. ALL AROUND COMMUNITY
6. SCRAP METAL 25M X20M
   VEHICLES 50M X 20M
   DEAD ANIMAL PIT 4 X 6M
7 AT BULKY WASTE SITE
6 INDUSTRY BURNS OWN WASTE OIL

Table 3. Survey of Solid Waste Disposal (continued)

Community	Disposal Site Location (km) from centre of com	Disposal Site Description	Disposal Site Size (m)	Age (yrs)	Estimated tile Remaining (yrs)	Fencing	Fencing Beneficial?	Separate Bulky Waste Area (m)	separate Honey Bag Area (m)	separate used Oil Area	Separate Used 011 Area Beneficial	Current Used 011 Dispiosal Method	Hazardous Waste , Disposal Problem
FORT SMITH REGION													
Delah	3 NW	Trench	7x2x2	3	1	NO	YES	500X500	YES	NO	YES	Dump	NO
Rae-Edzo	3 NE	Flat	100X2Q0	20	0.5	Partial	YES[1]	YES[2]	15x12x3	YES	YES	Road, Dump	NO
Enterprise	7N	Trench	47 X18X1.5	2	10	Partial	YES	20X20		NO	YES	D.O.T.	NO
Fort Liard	15SW	Flat	175x130x2	2	15	Partial	NO	NO		YES	YES	Burn	NO
Fort Providence	2 NE	Depression'	100 X300X2	2	15	No	NO	NO		NO	NO	Dump	NO
Fort Resolution	2N	Trench	30 X15X1.5	2	0.5	No	YES	30X15		NO	No	Road	NO
Fort Simpson													
Hay River	8 SE	Trench	1 50X40X4	12	3	Partial		200X100		NO	YES	Burn	YES
Jean Marie River													
Kakisa	0.5 E	Trench	50X50X2	5	5	Full		No			NO		NO
Lac La Martre	5 NE	Flat	50X50	5	5	Full		75x75	100x100	NO	NO	Burn	NO
Nahanni Butte	1	Flat		20	0[5]	No	YES	No		NO	No	Dump	NO
Port Raduim													
Rae	3E	Trench	65x65	20	1102	Partial		YES	20x30x6	NO	YES	Burn	NO
Rae Lakes	12SE	Depression	40X40X3	5	3 to 5	No	YES	50X30	20X20X3	NO	YES		
Snare Lake													
Snowdrift						Partial		YES	YES	NO	YES	Bum	Not Sure
Trout Lake	1SE	Trench		4	0	No	YES	No		NO	YES		NO
Wrigley	5 NE	Flat	100x100x1	10	5 to10	No	NO	No		NO	NO	Burn,Dump	NO
Yellowknife	2N	Depression	250X1 75	20	5	No	YES	100X35	10x8x2.5	NO	YES	Drums	?

1. AREA NOT LIMITED TO SIZE
2. NEAR SEWAGE LAGOON
3. DEPARTMENT OF TRANSPORT RESPONSIBLE
4. OLD GRAVEL PIT
5. NEW SITE CONSTRUCTED IN 1990

TABLE 4 RECENTLY CONSTRUCTED AND AGING DISPOSAL SITES (1989 survey)

Recently Constructed Sites		Aging Sites	
Community	Age (yrs)	Community	Estimated Life Remaining (yrs)
Clyde River	1	Arctic Bay	5
Whale Cove	0	Broughton Island	2
Coppermine	0	Cape Dorset	0
Gjoa Haven	3	Pond Inlet	1
Spence Bay	1	Chesterfield Inlet	2
Aklavik	2	Repulse Bay	5
Artic Red River	1	Fort Franklin	5
Fort Franklin	1	Fort McPherson	5
Fort Norman	2	Paulatuk	3
Paulatuk	2	Sachs Harbour	1-2
Tuktoyaktuk	2	Dettah	1
Dettah	3	Rae-Edzo	1-2
Enterprise	2	Fort Resolution	1-2
Fort Liard	2	Kakisa	5
Fort Providence	2	Lac La Martre	5
Fort Resolution	2	Nahanni Butte	0
Kakisa	5	Rae	1-2
Lac La Martre	5	Rae Lakes	3-5
Rae Lakes	5	Trout Lake	0
Trout Lakes	4	Pangnirtung	2
Colville Lake	0	Hay River	3
Fort Norman	2	Yellowknife	5
Inuvik	3		

Only 12 (23%) of the communities reported fencing around the disposal site, 2 of these have full fencing while the remaining sites are partially fenced. Of the 42 communities without any type of fencing, 30 (71%) thought that fencing would be beneficial. One criticism against fencing was that wind blown garbage would stick to the fence and allow snow to accumulate within the site.

A well planned disposal site segregates domestic solid wastes from bulky wastes and honey bags. In the communities surveyed, 7 of 53 (13%) communities did not have a separate site for bulky waste disposal. 9% (5 of 53) of the communities did not have separate disposal sites for honey bags. When honey bags are dumped amongst the domestic waste it creates a potential public hazard and therefore is unacceptable. Table 5 lists the communities with segregation problems.

***TABLE** 5 SEGREGATION PROBLEMS OF SOLID* WASTE DISPOSAL

No Separate Honey Bag **Area**	No Separate Bulky Waste Area
Hall Beach	Sachs **Harbour**
Chesterfield Inlet	Fort Liard
Repulse Bay	Fort Providence
Baker Lake	**Kakisa**
Coral **Harbour**	Nahanni Butte
	Trout Lake
	Wrigley

The disposal of used oil is not governed by any regional by-law at the present time. (onsequently, various communities deal with the problem in different ways. A separate disposal area is maintained for used oil disposal in 58% of the communities while 72% of the communities believe that such a separate area is beneficial. Many communities (64%) spread used oil on the domestic waste to aid burning at the dump site. A small proportion (1 1%) store the oil in 205 L drums. Only 8% of the communities spread used oil on roads to assist in dust control.

5 *OPERATION AND **MAINTENANCE** (Table 6)*

Effective operation and maintenance of solid waste disposal sites can reduce the potential risks to public health or to the environment and improve the aesthetics of the community. One aspect of operation and maintenance which deserves attention is whether access to the disposal site should be controlled. Controlled access is normally achieved by an enclosing fence with a locking gate and/or a gate man. Only 5 of 53 (9%) communities reported some form of controlled access. Although some comments received supported restricted access, there were some which did not support this because it was thought that a closed site would create more problems' as residents would merely dump their garbage at the gate outside normal hours. Others felt that open access allows some "recycling" to take place, although the health risk was acknowledged.

Burning of wastes at the disposal site to reduce volume and reduce scavenging by people and animals is practised by 42 of 53 (80%) communities. 23% (12 of 53) burn daily while 26% (14 of 53) burn wastes on a weekly basis. In most cases, burning is only permitted when favorable winds prevail so that blowing smoke and ash do not pose serious health or environmental hazards.

The minimum acceptable solid waste disposal system is the modified landfill method. Proper operation and maintenance of the modified landfill requires significant cover material and frequent covering and compaction. From Table 6 it can be shown that 14 of 53 (26%) communities indicated inadequate availability of cover material while 5 of 53 (9%) communities indicated that they never covered their wastes. In addition, 3 of these 5 sites did not practice compaction of wastes. It must be concluded that those sites are operated as open dumps and are therefore unacceptable, (Table 7). Acceptably operated and maintained sites in 15 communities are also shown in Table 7. These sites are covered at least 2 or 3 times per year, usually during the summer when cover materials are workable, and they are considered to operate as modified landfill sites. Twenty-four disposal sites are covered once per year or irregularly and may be considered open dump/landfills. Although they do not meet standards of a modified landfill, they may be temporarily acceptable. There was insufficient information on 9 communities to judge the disposal acceptability.

Table 6. Survey of Solid Waste Operation and Maintenance

Community	Controlled Access To Site	Disposal Site Burning Frequency	Cover Material Readily Available	Cover Frequency	Compaction Frequency	Earth Moving Equipment Available
BAFFIN REGION						
Artic Bay	No	Daily	YES	Yearly	Monthly	Dozer. Loader, Dump Truck
Broughton Island	No	Daily	NO	Yearly	Yearly	Dozer, Loader, 2 Dump Trucks
Capa Dorset	No	Daily				
Clyde River	No	Daily	NO	As Required	NO	Dozer, 2 Loaders Dump Truck
Grise Fiord	No	Twice Per Week	YES			
Hall Beach	No	Daily	Gravel	Never	No	Dozer, Loader. Dump Truck
Igloolik	YES	Daily	Gravel	Yearly	Yearly	Wheel Dozer, Loader, Dump Truck
Iqualuit						
Laka Habour		YES [1]	Gravel, Rock	Yearly	Monthly	2 Dozers, Loader, Dump Truck
Nanisivik						
Pangnirtung	No	Monthly	Sand	Yearly	No	CAT Dozer, Loader, Dump Truck
Pond Inlet	YES	Daily	Gravel	Yearly	Yearly	2 Tractors
Resolute Bay	YES	Daily	No	Monthly	Monthly	Loader
Sanikiluaq	No	YES [2]	No	Never	Yes	Dozer Loader
KEEWATIN REGION						
Arviat	No	Weekly	YES	Yearly	Weekly	Dozer, 2 Loaders
Baker Lake	No	Daily	NO	Never	Monthly	CAT
Chesterfield Inlet	No	Twice Per Week	No	As Required	No	Grader, Loader, Dump Truck, Tractor
Coral Harbour	No	Daily	Sand, Gravel	Yearly	Yearly	CAT
Rankin Inlet	No	Daily	No	Yearly	No	Dozer, Loader, Dump Truck
Repulse Bay	NO	weekly [3]	NO		Monthly	Dozer, Loader
Whale Cove						Dozer, Loader

1 ONLY WHEN SUITABLE WINDS PERMIT
2 WHEN REQUIRED
3 SUMMER ONLY

Table 6. Survey of Solid Waste Operation and Maintenance (continued)

Community	Controlled Access To Site	Disposal Site Burning Frequency	Cover Material Readily Available	Cover Frequency	Compaction Frequency	Earth Moving Equipment Available
KITIKMEOT REGION	KITIKMEOT REGION					
Bathurst Inlet						
Cambridge Bay	No	weekly	YES [1]			
Coppermine	No	Weekly	Sand Pll			
Gjoa Haven	No	weekly	YES			
Holman Island	No	Weekly	YES [1]			
Pelly Bay	No	weekly	YES			
Spence Bay	No	Weekly	YES			
INUVIK REGION						
Aklavik	No	Weekly	No	2-3 Times Per Year	Monthly	CAT
Arctic Red River	No	YES [2]	Shale Pit	Monthly	Monthly	CAT, Loader, Dump Truck
Colville Lake	No	Monthly	silty sand	Yearly	No	"
Fort Franklin	No	weekly	Gravel, Clay	Yearly	Yearly	CAT
Fort Good Hope	No	Occassionally	Fill, Gravel	Occassionally [3]	N o	Loader
Fort McPherson	No	Weekly	clay, shale	2-3 Times a Year	2-3 /times a Year	Loader, CAT
Fort Norman	No	Monthly	Trench Material	2-3 Times a Year	Monthly	Loader, CAT
Inuvik	No	No	Clay	weekly	Weekly	CAT
Norman Wells	No	No	Shale	1-2 Times a Year	weekly	CAT, Loader, End Dump
Paulatuk	No	Occassionally	Gravel	Yearly	Yearly	Dozer, Loader
Sachs Harbour	No	Weekly	Gravel	2 Times a Year	2 Times a Year	Loader, CAT
Tuktoyatuk	Partially [4]	Daily [5]	No	weekly [5]	Yearly	Dozer, Loader, Dump Truck

1. GRANULAR SOURCE FROZEN 9 + OF THE YEAR
2 0CCAS10NALL% INWINTER
3. AFTER BURNING
4 GATEISNOTLOCKED
5 DURING THE SUMMER

Table 6: Survey of Solid Waste Operation and Maintenance

Community	Controlled Access To Site	Disposal Site Burning Frequency	Cover Material Readily Available	Cover Frequency	Compaction Frequency	Moving Equipment Available
FORT SMITH REGION						
Detah	NO	3 Times a Week	YES	Occassionally	NO	None
Rae-Edzo	NO	Occassionally [1]	NO	Monthly [2]	NO	Loader, Skidder, Tractor
Enterprise	NO	NO	YES	Monthly, Bi-weekly [3]	Bi-weekly	
Fort Liard	NO	Occasionally	Escavated Material	Monthly	Monthly	Tractor
Fort Providence	NO	Weekly	Gravel	Never	NO	Tractor
Fort Resolution	NO	Weekly	NO	As Required	As Required	CAT, Loader, Grader
Fort Simpson						
Fort Smith						
Hay River	NO	NO	Clay	weekly	Daily	CAT
Jean Marie River						
Kakisa	NO	NO	Escavated Material	Yearly	NO	Tractor
Lac La Martre	NO [4]	As Required	Sandy Soil	As Required	NO	CAT
Nahanni Butte	NO	YES	NO	Never	NO	Tractor
Port Radium						
Rae	NO	NO	NO [5]	As Required	NO	Skidder, Loader, Grader
Rae Lakes				Weekly	Weekly	Skidder, Loader
Snare Lake						
Snowdrift	NO	4 Times a Year		3-4 Times a Year	NO	CAT, Loader
Trout Lake	NO	NO	NO	Irregular	NO	CAT, Loader
Wriggley	NO	NO	Escavated Material	Irregular	NO	Tractor
Yellowknife	YES	NO	YES	3 Times a Week	NO	2 Trucks, Loader

1 WHEN SOMEONE IGNITES WASTE
2. DIFFICULT WITHOUT ADEQUATE COVER MATERIAL
3 MONTHLY INWINTERWITHSNOW
BI-MONTHLYINTHE SUMMER
4 GATE IS LEFT OPEN
5. CLOSEST FILLIS8KMAWAY

TABLE 7 METHOD OF SOLID WASTE DISPOSAL BY COMMUNITY

Modified Landfill (Acceptable)	Open Dump/Landfill (Temporarily Acceptable)	Open Dump (Unacceptable)	Insufficient Information
Resolute Bay	Arctic Bay	Hall Beach	Cape Dorset
Aklavik	Broughton Island	Sanikiluaq	Cambridge Bay
Arctic Red River	Clyde River	Fort Providence	Coppermine
Fort Good Hope	Coral Harbour	Nahanni Butte	Gjoa Haven
Fort McPherson	Lake Harbour	Baker Lake	Holman Island
Fort Norman	Pond Inlet	5	Pelly Bay
Sachs Harbour	Arviat (Eskimo Point)		Spence Bay
Tuktoyaktuk	Chesterfield Inlet		Repulse Bay
Rae Edzose	Rankin Inlet		Whale Cove
Enterprise	Fort Franklin		9
Fort Liard	Paulatuk		
Rae Lakes	Detah		
Snowdrift	Fort Resolution		
Hay River	Igloolik		
Yellowknife	Inuvik		
15	Kakisa		
	Lac La Martre		
	Norman Wells		
	Pangnirtung		
	Rae		
	Trout Lake		
	Wrigley		
	Grise Fiord		
	Colville Lake		
	24		

In order to assess the change of solid waste management in the surveyed communities, these results can be compared with similar results determined by Christensen in his 1982 study [3]. As part of the Christensen study, the solid waste disposal system of each community was judged with respect to a set of criteria to determine public health or environmental deficiencies. For example, the lack of honey bag segregation or a generally uncontrolled solid waste disposal site would typically be related to public health deficiencies whereas, poor management capability or an unorganized self-haul community would be related to environmental deficiencies. It should be pointed out that the 1982 study did not carry out a questionnaire survey. Assessments were made on the basis of existing records in Yelowknife.

Table 8 contains the surveyed communities which have shown evidence of public health or environmental deficiencies based on the completed questionnaires.

***TABLE 8 COMMUNITIES WITH** PUBLIC HEALTH OR **ENVIRONMENTAL** DEFICIENCIES*

Public Health Deficiency	Environmental Deficiency
Sanikiluaq	Hall Beach
Rankin Inlet	Sanikiluaq
Repulse Bay	Fort Providence
Hall Beach	Nahanni Butte
Chesterfield Inlet	Colville Lake
Rae-Edzo	
Baker Lake	
Coral Harbour	

It should be pointed out that it was not possible to include nine communities (see Table 7) in this assessment because of insufficient information in the questionnaire. Furthermore no responses were received from eight communities. Therefore, no judgement can be made about public health or environmental deficiencies in 17 communities or 28% of the 61 NWT communities. Therefore a direct comparison with the 1982 Christensen study is difficult to make. The comparison shown in Table 9 is only for the 44 communities on which adequate information was available from the survey. It appears that a significant reduction in both public health deficiency and environmental deficiency has occured.

***TABLE 9 COMPARISON** OF STATUS OF SOLID WASTE DISPOSAL SYSTEMS*

	Christensen, 1982	Heinke & Wong, 1990
Public Health Deficiency	58% (36/62)	18% (8/44)
Environmental Deficiency	32% (20/62)	11% (5/44)

6 *CONCLUSIONS AND RECOMMENDATIONS*

Based on responses to a questionnaire on solid waste collection and disposal from 53 out of the 61 NWT communities surveyed in 1989 and 1990 the following conclusions and recommendations are made:

1. Substantial progress has been made in solid waste collection and disposal practice during the past decade. Over one-third (23) of the communities obtained a new disposal site after 1985.

2. About one-third of the communities (22) have less than five years before expansion or relocation of their disposal sites must occur. Of these, nine are essentially out of capacity in 1991.

3. Before expansion or relocation of a site is planned a decision must be made on each site to ensure that Transport Canada approves the existing site or the new site with respect to aircraft safety (see Reference 6).

4. The minimum design life for a new disposal site should be twenty years. There is evidence that some of the sites constructed since 1985 will have to be expanded or relocated soon, indicating a much shorter design life was used (see Table 4).

5. The modified landfill method is the minimum acceptable standard for NWT communities. Only 15 of the communities surveyed meet that standard now. Lack of sufficient gravel or other cover material in 24 other communities is the main reason why they do not meet the standard now. Five communities require substantial improvements (see Table 7).

6. AU communities surveyed meet the minimum requirement of once per week collection for all residents. In most communities collection occurs twice weekly.

7. 75% (40 of 53) of the communities surveyed still depend on bagged sewage ('honeybags') to some degree. The minimum acceptable NWT level of service for honeybag collection is five times per week with no two consecutive no-service days. Only three communities do not meet this standard. In five other communities honeybags are not collected separately from other solid wastes, or residents must bring the honeybags to the disposal site (see Table 2).

8. Eight communities did not respond to the questionnaire. Nine other communities, who responded, did not provide sufficient information in order to judge the acceptability of their waste disposal facility. Together they represent 28% of the NWT communities. Another attempt should be made to complete the survey.

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APPENDIX A

COMUNITY *PROFILES*

APPENDIX A

COMMUNITY PROFILES

EXPLANATORY NOTES

Appendix A contains community profiles of each of the sixty-one communities in the N.W.T. This information is provided for engineers, planners, public health officials, administrators, and others concerned with solid waste facilities in the N.W.T.

The format for each community profile resembles the format employed by a set of documents titled "Community Water & Sanitation Semites" published by the Government of the N. W.T., Community Planning and Development Division in 1982-1983. Emphasis, however has been placed on solid waste, hence, services which pertain to solid wastes have been stressed.

Information for the community profiles was supplemented by the most current available information obtained from inspection reports prepared for the Department of Indian and Northern Affairs. Periodic inspections of each community's water and waste disposal systems are undertaken by the Department. An inspection of the waste disposal site is included in the report. The 53 responses to the solid waste questionnaire of 1989 and 1990 were incorporated.

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COMMUNITY PROFILES

BAFFIN REGION

ARCTIC BAY

A. GENERAL

A.1 Location

Latitude: 73°02' N Longitude: 85°10' W

On the north shore of Adams Sound, off Admiralty Inlet, North Baffin Island.

A.2 Community Information

Arctic Bay was established as a trading post in the 1920's but it did not experience much development until 1942 when the Department of Transportation constructed a weather station on the site. With the development of oil exploration and the nearby lead-zinc mine at Nanisivik, wage employment is common amongst the residents.

A steady rate of population growth has occurred over the years.

POPULATION	YEAR	
375	*1981*	*1981-1986*
432	*1985*	*% growth:*
477	1987	27.2%
908	2010	

A.3 Geology and Terrain

On a low gravel beach enclosed on three sides by high hills. The beach consists of 6 m to 20 m of gravel.

In a zone of continuous permafrost.

A.4 Climate

July mean high: 9.5°C January mean high: -25.9°C
July mean low: 1.7°C January mean low: -33.5°C

Winds N-NW at 24 km/h.

Average annual precipitation:

5.2 cm rainfall
71.5 cm snowfall
11.8 cm total precipitation.

L MUNICIPAL SERVICES

B.1 Water Source

Marcil Lake, 6 km southeast of the community along the road to Nanisivik is the year round source of water. Water is batch chlorinated in 4540 L tank trucks and delivered three times a week to buildings equipped with holding tanks.

B.2 Sewage Disposal

All new and rehabilitated houses are equipped with 1596 L sewage holding tanks. Approximately 30% of the buildings are presently on the pumpout sewage system. Pumpout sewage is collected three times per week with a 4540 L sewage pumpout truck and discharged at a dumpsite 1.5 km southeast of the community. The remainder of the community use bagged sewage.

B.3 Solid Waste Collection

Solid waste and bagged sewage are collected daily by the Hamlet council. A two men collection crew and a 4 m^3 capacity Ford F-350 stake truck are used to collect solid waste. The same vehicle with an attachment bracket for two 45 gallon drums is used to collect honey bags. Burning of wastes in oil drums is not practised at the home. Once a year, usually in July, a spring clean-up program is undertaken by the Hamlet.

B 3.1 Solid Waste Disposal

The solid waste disposal site is located 3.7 km southeast of the Hamlet. This open dump/landfill was established in 1980 and occupies a 60 m x 60 m area on sloping land. It is estimated that the site can adequately service the needs of the community for five more years. The site is not fenced. Bulky metal wastes are disposed of nearby in a separate area 100 m x 80 m but, this area is poorly maintained and it is estimated that 120 to 200 man hours of work are required to properly clean and tidy it up with the help of heavy equipment. Honey bags are disposed of separately from solid wastes at a 10 m x 10 m site.

Solid wastes are burned at the end of each day and compacted on a monthly basis. Each summer the site is covered with granular material.

Equipment available: D-5 dozer
926 Loader
5 m^3 dump truck

B.4 Drainage

The increased volumes of sewage generated by the new and upgraded houses in the community have resulted in the problem of sewage pits overflowing.

BROUGHTON ISLAND

A. GENERAL

A.1 Location

Latitude: 67”33’ N Longitude: 64°02’ W

On Broughton Island, off the east coast of Baffin Island, in Davis Strait.

A.2 Community Information

Broughton Island was established as a settlement in 1957 when the construction of the DEW Line station attracted families from nearby communities.

The population of the area has experienced steady growth recently.

POPULATION	YEAR	
378	1981	1981-1986
410	1985	% growth:
439	1986	16.1%
837	2010	

A licensed 1059 m X 30 m gravel runway is located south of the community.

A.3 Geology and Terra in

On a rocky spur covered in glacial drift. Soils in this area are of fine rock silt mixed with beach sand and gravels.

A.4 Climate

July mean high: 7.4°C
July mean low: 1.4°C

January mean high: -19.9°C
January mean low: -26.4°C

Winds NW at 8.3 km/h.

Average annual precipitation:

3.7 cm rainfall
250.0 cm snowfall
28.8 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Broughton Island receives its water from Tulugak River. The river is a glacial stream which empties into the sea approximately 2.5 km east of the community. The water is gravity fed into a storage reservoir and from here it is fed to a truck filling station where it is chlorinated and then distributed to the community by a 4550 L capacity water truck. Newer buildings have 2275 L tanks while older buildings have 200 L tanks.

B.2 Sewage Disposal

Sewage from buildings equipped with sewage holding tanks are pumped out three times per week by a 4540 L capacity sewage pumpout truck. The pumpout sewage is hauled to the dumpsite where it is deposited into a pit. Sewage from the pit flows approximately 300 m into the sea.

B.3 Solid Waste Collection

Garbage is collected daily from 205 L oil drums in front of houses by a one or two-man crew using a Ford F-350 3/4 ton Haul-All. Some burning of wastes in oil drums is practised at the home. Frequent collection is encouraged to prevent ravens from making a mess around the garbage drums. Every other day bagged sewage is collected separately from the garbage using the same collection vehicle. An annual spring clean-up occurs in mid-July. Large, bulky wasted are collected by the two-man crew.

B.4 Solid Waste Disposal

The solid waste disposal site is situated 1.6 km northeast of the Hamlet. The garbage is deposited from 50 m x 50 m x 5 m. Although this site has been in use for the past 17 years, it is not expected to last more than 2 years as the growing community is rapidly approaching the site. The site is not fenced. Currently, metal wastes disposal is separate from the garbage disposal area and plans are underway to move the metal wastes disposal site to a new site. Honey bags are disposed of in a separate trench near the solid waste disposal area.

Wastes are burned everyday and once a year the site is compacted and covered with granular material.

Earthmoving equipment available: Mack dump truck
Ford dump truck
D6 dozer
950 loader

CAPE DORSET

A GENERAL

A 1 Location

Latitude: 64°14' N Longitude: 76°32' W

On Dorset Island, off the Foxe Peninsula, southwest Baffin Island.

A.2 Community Information

Cape Dorset has developed into an important centre of inuit carving and graphic art. Soapstone carving and print work has become an economic mainstay of the community along with hunting and fishing.

Population statistics for the settlement are as follows:

POPULATION	YEAR	
784	1981	1981-1986
837	1985	% change:
872	1986	11.2%
1518	2010	

A licensed 1219 m X 30 m gravel runway serves the community.

A.3 Geology and Terrain

In two valleys of the Kingnait Range hills with large areas of exposed bedrock and extensive mud flats at the valley mouths. The soils in the area range from fine sand to gravel and rock fragments.

A.4 Climate

July mean high: 7.2°C
July mean low: 3.3°C

January mean high: -23.3°C
January mean low: -28.9°C

Winds W at 18.5 km/h.

Average annual precipitation:

15.2 cm rainfall
117.8 cm snowfall
26.7 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Community water is supplied from Tee Lake, about 1 km south of the settlement. Water is pumped from the lake to a truck fill station with borage tank. Water is batch chlorinated in the two 4540 L water distribution trucks before distribution to the residents.

B.2 Sewage Disposal

Liquid sewage is collected two to three times per week from holding tanks by a 4540 L capacity vacuum truck and hauled to a disposal area near the dumpsite. The disposal area is a pit with a dike on the side closest to the ocean.

B.3 Solid Waste Collection

Garbage is collected twice per week with a 9.2 m^3 capacity Haul -All garbage truck.

Bagged sewage is collected daily from barrels outside buildings not equipped with pumpout systems.

B.3.1 Solid Waste Disposal

Solid wastes and sewage are hauled to a site 1 km west of the community. Metal waste is segregated from other garbage. Periodically, the wastes are burned, covered, and compacted.

CLYDE RIVER

A. GENERAL

A.1 Location

Latitude: 70°28' N Longitude: 68°36' W

On the west shore of Patricia Bay, on the east coast of Baffin Island, near Cape Christian.

A.2 Community Information

The Inuit community of Clyde River depends mainly on trapping and carving for its economic well being.

The population statistics for the area are provided below.

POPULATION	YEAR	
443	1981	1981-1986
510	1985	% change:
471	1986	6.3%
815	2010	

A licensed 1067 m X 30 m runway is located 3.2 km east of the community,

A.3 Geology and Terrain

On a shallow gravel ridge, on a south facing slope, surrounded by hills. The surficial material is a thin layer of glacial till with lacustrine deposits of unconsolidated sands and gravel.

A.4 Climate

July mean high: 7.8°C
July mean low: 0.4°C

January mean high: -22.5°C
January mean low: -30.3°C

Winds NW at 14.4 km/h.

Average annual precipitation:

4.6 cm rainfall
168.9 cm snowfall
20.6 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water Lake situated 1 km from the settlement provides a year round source of water. The water is pumped directly into the truck from the lake an batch chlorinated before distribution to the community. A water distribution truck mounted with a 4550 L capacity water tank delivers water two to three times per week.

B.2 Sewage Disposal

Pumpout sewage is collected daily by a 4540 L capacity sewage pumpout truck from buildings with pumpout systems. The disposal site for the sewage is 1 km west of the settlement, on one side of a small valley.

B.3 Solid Waste Collection

Solid waste is collected 5 days per week by the Hamlet using a one-man crew and a Ford F-350 Haul-All. Garbage is collected from 205L oil barrels outside individual homes. The wastes are not burned prior to collection sewage bags are collected daily using the same vehicle but not along with the domestic garbage. For two loaders, a dump truck, the regular garbage truck and additional crew to assist in the annual spring clean-up.

B.3.1 Solid Waste Disposal

The waste disposal site is located 2 km Northwest of the Hamlet. A trench area 300 m x 300 m x 0.75 m was constructed in 1988 and it is estimated to be able to service the needs of the community for the next 20 years. Bulky, metal wastes are disposed of separately at a 300 m x 300 m site. Honey bags are also disposed of separately at a site 10 m x 20 m.

Solid wastes are burned daily and covered with granular material whenever it is required. Wastes are not compacted on a regular basis.

Earth moving equipment available: Dump truck
2 loaders
Bulldozer

GRISE FIORD

A GENERAL

A.1 Location

Latitude: 76°25' N Longitude: 82°54' W

On the southern coast of Ellesmere Island, on Jones Sound, north of Devon and Baffin Islands.

A.2 Community Information

Grise Fiord is Canada's most northerly Inuit community. The area is rich with game and many of the residents depend on hunting for their livelihoods. Trapping, fishing and tourism are also important economic activities in the area.

The population has remained fairly stable in recent years and is not expected to increase significantly.

POPULATION	YEAR	
106	1981	1981-1986
131	1985	% change:
114	1986	7.5%
191	2010	

An unlicensed 610 m X 23 m gravel runway serves the community.

A.3 Geology and Terrain

On a narrow strip of beach near the mouth of the Grise Fiord, with bare rock mountains rising in the rear. Soils consist of free draining gravel deposits.

Permafrost exists to a depth of 0.6 m.

A.4 Climate

July mean high: 10.O"C
July mean low: 2.2°C
January mean high: -27.2°C
January mean low: -35.0°C

Winds SE at 18.5 km/h.

Average annual precipitation:

0.0 cm rainfall
15.2 cm snowfall
1.5 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from a glacial stream that flows from the hills behind the community during the summer. Other times, water is supplied from a 1.4 ML water supply tank. Chlorinated water is delivered by a 4540 L capacity water truck five days a week to residences with 227 L water tanks.

B.2 Sewage Disposal

The bagged sewage system is the only sewage system employed.

B.3 Solid Waste Collection

Garbage is placed in 205 L drums outside of homes by residents for collection. In some cases the wastes are burned in the barrels prior to pick-up. At least twice per week the refuse is collected with and F-350 pick-up truck and hauled to the disposal site. Bagged sewage is collected separate from other wastes. An annual spring clean-up is organized by the community.

B.3.1 Solid Waste Disposal

Solid waste is disposed of at a 500 m x 250 m site 2 km northwest of the community. The site has been at its present location for 25 years and has the capacity to accommodate 20 more years of wastes. A separate metal dump occupies an area of 150 m x 50 m. Bagged sewage is disposed of in a 20 m x 8 m x 3 m trench beside the lagoon. Used oil is disposed of at the metal disposal site.

Wastes are burned at the disposal site twice weekly.

HALL BEACH

A GENERAL

A.1 Location

Latitude: 68°46' N Longitude: 81°13' W

On the east shore of the Melville Peninsula, on the western side of Foxe Basin.

A.2 Community Information

Construction of the DEW Line station in 1955 attracted a large number of **Inuit** to the area. Government installations followed and wage employment increased. Presently, the economy is based on the DEW Line, government, marine mammal harvesting, and hunting and fishing.

Population statistics for Hall Beach are shown:

POPULATION	YEAR	
349	1981	1982-1986
415	1985	% change:
451	1986	29.2%
824	*2010*	

A licensed 1646 m X 46 m gravel runway is located 3.2 km south of the Hamlet.

A.3 Geology and Terrain

On sand and gravel raised beaches, with flat to gently rolling terrain studded by numerous lakes and ponds.

A.4 Climate

July mean high: 8.4°C
July mean low: 2.3°C

January mean high: -26.9°C
January mean low: -34.8°C

Winds NW at 21.3 km/h.

Average annual precipitation:

10.0 cm rainfall
121.0 cm snowfall
21.8 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from a 91000 m^3 capacity DEW Line reservoir, 1.6 km west of the station. Water is batch chlorinated in the 4540 L capacity water truck and delivered to the residents five days a week.

B.2 Sewage Disposal

Most of the buildings are equipped with sewage pumpout tanks and receive sewage pumpout service by a 4540 L capacity vacuum truck. The sewage disposal area is situated on a raised beach about 3 km north of Hall Beach. Other buildings use bagged sewage.

B.3 Solid Waste Collection

Solid waste is collected by the Hamlet at least twice per week employing a one-man crew and a F-350 stake truck. Bagged sewage is collected daily using the same collection vehicle. Solid wastes are collected separately from the bagged sewage. Burning of wastes at the home is not practised. Once per year the community participates in a spring clean-up.

B.3.1 Solid Waste Disposal

The 20 m x 10 m solid waste disposal site is situated on flat land north of the hamlet. The site is not fenced and access to the site is not controlled. It is estimated that the present site can adequately service the needs of the community for 16 years. Bulky wastes are disposed of separately from the solid wastes at a 50 m x 30 m site. During the summer bagged sewage is disposed of at the sewage lagoon but at other times it is dumped with the garbage at the solid waste disposal site.

Each day the collected solid waste is burned at the disposal site. Although gravel is readily available in the vicinity, the wastes are never covered. The solid waste is not compacted.

Earth-moving equipment available: D-5 dozer
Front end loader
Dump truck

B.4 Drainage

The disposal site is located on gravel substrate less than 100 m from the sea. Drainage is to the sea.

IGLOOLIK

A GENERAL

A.1 Location

Latitude: 69°23' N Longitude: 81°48' W

On Igloolik Island in Foxe Basin Lowlands. It is bounded in the north by Fury and Hecla Straits and separated on the south from the mainland by Hooper Inlet.

A.2 Community Information

Igloolik is an Inuit settlement that achieved Hamlet status in 1976. The Igloolik Co-operative, established in 1963, provides some wage employment for the residents. Other residents depend upon hunting/fishing, trapping, and handicrafts for their livelihood.

The population has steadily grown in past years.

POPULATION	YEAR	
746	1981	1981-1986
788	1985	% change:
857	1986	14.9%
1612	2010	

A licensed 1097 m X 30 m gravel runway is located southwest of the community.

A.3 Geology and Terrain

Limestone lowlands with numerous ponds and muskeg. The settlement area is underlain with sand and gravel.

The community lies in the zone of continuous permafrost with an active layer about 0.7 m. "

A.4 Climate

July mean high: 7.8°C January mean high: -23.3°C
July mean low: 3.3°C January mean low: -32.8°C

Winds N at 21 km/h.

Average annual precipitation:

19.1 cm snowfall.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is pumped from south lake. situated 3 km south of the airport to a 30 000 m^3 capacity reservoir. A pumphouse at the reservoir supplies water for delivery to the community by a " 4540 L water truck two or three times per week.

B.2 Sewage Disposal

Approximately 2/3 of the buildings have pumpout sewage tanks. The sewage is collected by a 4540 L capacity sewage pumpout truck every second day and deposited in separate areas of the waste disposal site. Drainage from sewage is down towards a small bay less than 1000 m away.

B.3 Solid Waste Collection

Garbage is stored in 205 L drums placed in front of each home for collation. At least twice per week a 2 two-men crew collect the wastes with a F-350 stake truck. The same vehicle is used to collect bagged sewage wastes twice per week. Each year the community participates in a spring clean-up. It has been suggested that wooden boxes with covers could be provided to each resident to protect the garbage from loose dogs and the wind.

B.3.1 Solid Waste Disposal

The dumpsite is located 1.5 km north of the community across Turton Bay. The 100 m x 100 m site has been used for over 20 years. Metal waste is segregated and consolidated in a separate 150 m x 100 m area. Bagged sewage is dumped at a site 100 m north in a 100 m x 100 m disposal area.

Wastes are burned at the site everyday and once a year the wastes are compacted and covered with local gravel.

Earth moving equipment available: Loader
Dump truck
Wheel Dozer

IQALUIT

A GENERAL

A.1 Location

Latitude: 63°45' N Longitude: 68°31' W

On Koojesse Inlet, near the northeast head of Frobisher Bay on southern Baffin Island.

A.2 Community Information

Iqaluit experienced significant growth following construction of the DEW Line in 1955. Today, the town is the GNWT's Baffin Region headquarters and an important transportation, communications and educational centre. Many of the residents receive wage employment from government institutions and services though employment by private facilities are increasing.

POPULATION	YEAR	
2333	1981	1981-1986
2954	1985	% growth:
2947	1986	26.3%
4499	2010	

A licensed 2743 m X 60 m asphalt runway serves the community.

A.3 Geology and Terrain

On rocky, irregular coastline in rocky lowland area, flanked by mountains on the northeast and southwest. Soils consist of glacial drift overlying Precambrian bedrock.

Area has a high water table resulting in pockets of ice lenses throughout the site.

A.4 Climate

July mean high: 11.4°C
July mean low: 3.7°C

January mean high: -21.5°C
January mean low: -29.7°C

Winds NW in fall, SW in summer at 16.7 km/h.

Average annual precipitation:

19.2 cm rainfall
255.0 cm snowfall
43.3 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Water for the community flows from Lake Geraldine to a treatment plant and treated by chlorination, fluorination, "and filtration. The majority of the community is supplied by a piped utilidor and buried distribution system while less than 1/3 receive trucked water service.

B.2 Sewage Disposal

Both on-line sewage disposal systems and vacuum truck/holding tank disposal systems are used. A 15436 L capacity and a 9988 L capacity vacuum truck provides pumpout service. Sewage is discharged into a sewage lagoon.

B.3 Solid Waste Collection

Solid waste is collected by compactor and open trucks. Bagged sewage is collected from about 50 units three times per week by pick-up truck and dumped at the landfill site along with the domestic garbage.

B 31 Solid Waste Disposal

Two solid waste disposal sites are being used by the town.
Combustibles and other garbage are disposed of in an area west of the community immediately adjacent to the sea. Garbage is burnt and covered periodically. The north side of the dump is fenced to control access and to partially control windblown debris. Some garbage may be blown into the sea by north winds.

The metal waste area was originally used by the military and covers a large area. A smaller site within this area is used by the town for current metal waste disposal. A large number of used oil drums are accumulated in the area. Access to the site is a problem in the spring because of large volumes of runoff inundating the access road.

LAKE HARBOUR

A GENERAL

A.1 Location

Latitude: 62°51' N Longitude: 69°53' W

At the head of a narrow inlet, on south shore of Meta Incognita Peninsula, southern Baffin Island.

A.2 Community Information

The sale of handicrafts, particularly fine ivory carving and scrimshaw etching, provide a source of income for some, while the remainder depend upon local wage employment and hunting.

Population information is shown below.

POPULATION	YEAR	
252	1981	1981-1986
285	1985	% change:
326	1986	29.4%
593	2010	

An unlicensed 518 m X 15 m gravel runway serves the community,

A.3 Geology and Terrain

On uneven deposit of granular glacial soil, surrounded by high hills with a stony beach. Extensive rock outcrops exist throughout the area.

Permafrost extends to a depth of 60 m.

A.4 Climate

July mean high: 12.2°C
July mean low: 3.9°C

January mean high: -20.0°C
January mean low: -27.2°C

Winds N and S at 18 knots.

Average annual precipitation:

20.2 cm rainfall
210.1 cm snowfall
41.2 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

The Hamlet of Lake Harbour obtains domestic water from Fundo Lake, 2 km west of the community. Untreated water is delivered by a 4540 L capacity water truck to the community three times per week.

B.2 Sewage Disposal

the majority of the buildings are on a pumpout sewage disposal system. Pumpout sewage is collected by vacuum truck and hauled to the dump site, 0.8 km south of the town. Sewage is discharged into a small pit from where it flows into two ponded areas and then into the sea. Less than ten buildings are on the bagged sewage system.

B.3 Solid Waste Collection

Solid waste is collected three times per week by the Hamlet employing a one-man crew and a Ford-350 Haul-All. Only two houses are currently producing bagged sewage and they are collected every day except Sunday using the same collection vehicle but at different times than the other wastes. The annual spring clean-up occurs in July. Large, bulky items are collected by the Hamlet loader.

B.3.1 Solid Waste Disposal

Solid waste is deposited at the town dumpsite situated 0.5 km southwest of the Hamlet. The wastes are deposited in a trench 60 m x 30 m x 3 m and although it has been in operation for seventeen years, it is expected to be in service for another ten to fifteen years. Partial fencing was recently installed on the north side of the dump. Metal wastes are not segregated from other wastes. The honey bag disposal site is located 50 m from the garbage site. It has been recommended that it be moved further away. Used oil is stored in 205 L oil drums 150 m north of the domestic solid waste site.

The site is too close to the gas and diesel tank farm.

Burning of wastes is practised at the disposal site but only if there is a suitable wind. South winds are unfavorable. Availability of gravel and rock enables annual covering during the summer months. Wastes are compacted on a monthly basis using a DGD Cat.

Earth moving equipment available: Case W-14 loader
Dump Truck
D5 Cat
D6D Cat

NANISIVIK

Latitude: 73°02' N Longitude: 84°33' w

On the south shore of Strathcona Sound, a deep water fiord off Admiralty Inlet on the Borden Peninsula of north Baffin Island.

A.2 Community Information

The unorganized settlement of Nanisivik is a mining town. Mineral Resources International began mining lead/zinc in 1974 and is largely responsible for the development of the townsite.

Population information is given below.

POPULATION	YEAR	
261	1981	1981-1986
288	1985	% change:
315	1986	20.7%
448	2010	

A licensed 1951 m X 46 m gravel runway is located southwest of the community.

A.3 Geology and Terrain

Bordered by steep sedimentary cliffs and bluffs with natural sand and material suitable for crushing at various locations.

Permafrost exists 15 cm to 20 cm below the surface in low lying areas and 90 cm to 120 cm in well drained areas.

A.4 Climate

July mean high: 10. 1°C
July mean low: 2.1°C

January mean high: -25.8°C
January mean low: -33.5°C

Winds N-NW at 24 km/h with gusts up to 125 km/h.

Average annual precipitation:

5.8 cm rainfall
83.7 cm snowfall
14.4 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Water is supplied by East Twin Lake, 3 km southeast of the community. Untreated water is piped by utilidor to all buildings.

B.2 Sewage Disposal

All sewage is collected by a piped utilidor system and taken to a sewage treatment plant which discharges the treated waste into Twin Lakes Creek and Strathcona Sound.

B.3 Solid Waste Collection

Mineral Resources International is responsible for garbage collection from employee's homes on a regular basis.

Government buildings receive garbage collection services provided by DPW.

B.3.1 Solid Waste Disposal

A landfill disposal site west of the town receives all solid wastes. The site operates as an open dump/landfill, with burning on a regular basis. Wastes are deposited on the edge of a ravine with partial covering with dirt during the summer.

PANGNIRTUNG

A GENERAL

A.1 Location

Latitude: 66°09' N Longitude: 65°43' W

On the southeastern shore of Pangnirtung Fiord, in the Baffin Region.

A.2 Community Information

As the access point to Auyuittuq National Park, many residents depend on tourism for their livelihoods. handicrafts and marine mammal harvesting are other major economic activities.

A.3 Geology and Terrain

On the remains of a tidal beach, old river delta and glacial drift. The Hamlet is bounded on the north and west by the fiord, on the south by steep hills and on the east by Duval River.

A.4 Climate

July mean high: 11.l°C
July mean low: 3.9°C

January mean high: -25.6°C
January mean low: -37.8°C

Winds E and W at 24 km/h.

Average annual precipitation:

16.2 cm rainfall
180.3 cm snowfall
34.8 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water for the community is supplied from the Duval River. In the winter when the river is frozen over, water is supplied from a 71000 m^3 reservoir 1 km east of the community. In the summer. water is obtained "directly from the river by water truck. Truck water delivery is provided three times per week using two 4540 L capacity water trucks.

B.2 Sewage Disposal

There are approximately 240 buildings generating sewage in the Hamlet. Recent new construction and rehabilitation has resulted in over half of the buildings receiving pumpout services. The remainder of the buildings use bagged sewage.

Pumpout sewage is discharged to the ground about 100 m above the high water mark at a location between the dump and the incinerator.

B.3 Solid Waste Collection

Garbage is placed in 205 L drums and occasionally burned prior to daily collection. The two-men crew collect wastes in a Haul-All and haul it to the incinerator. Bagged sewage is collected daily by stake truck. Once a year the community organizes a spring clean-up

B.3.1 Solid Waste Disposal

Combustible wastes are separated from metallic wastes and other non-combustibles at the incinerator building 4 km east of the community. The ashes from the incinerator and non-combustible wastes are disposed of in a trench adjacent to the incinerator building. The site has been in operation for twelve years and it is expected to reach capacity in two years. Bagged sewage is disposed of in a pit adjacent to the garbage disposal site. Used oil is stored in barrels at the disposal site.

Access to the disposal site is not controlled as the gate for the access road has been knocked down and not repaired. Once a year the disposal site is covered with sand from the beach.

Earth moving equipment available: CAT D-6 bulldozer
CAT 936 loader
Dump Truck

B.4 Drainage

Considerable runoff flows from the hills through the dump and ultimately to the sea.

POND INLET

A GENERAL

A.1 Location

Latitude: 72°42' N Longitude: 77° 59' W

On the southern shore of Eclipse Sound, facing Bylot Island, north Baffin Island.

A.2 Community Information

The community of Pond Inlet received Hamlet status in 1975. Major economic activities of the area include marine mammal harvesting, hunting, fishing, trapping, and oil exploration,

Population statistics for the Hamlet are as follows:

POPULATION	YEAR	
705	1981	1981-1986
808	1985	% growth:
796	1986	12.9%
1387	2010	

A licensed 1219 m X 30 m gravel runway is located southeast of the community.

A.3 Geology and Terrain

On a loamy sand terrace near high glaciated mountains.

A.4 Climate

July mean high: 7.9°C
July mean low: 1.2°C

January mean high: -26.4°C
January mean low: -35. 1°C

Winds S at 9.5 km/h.

Average annual precipitation:

5.7 cm rainfall
86.9 cm snowfall
14.6 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water Supply Lake 4.5 km southwest of the Hamlet serves as the source of domestic water. Water is delivered three times per week to households using two water trucks; one has a 4540 L capacity, the other a 9080 L capacity. The water is batch chlorinated in the truck.

B.2 Sewage Disposal

Most homes have sewage pumpout tanks which are serviced two to three times per week by two 4540 L capacity pumpout trucks.
Other residents use bagged sewage.

B.3 Solid Waste Collection

Garbage is placed in 205 L drums and collected daily by a two-men crew using a Ford F-350 packer truck and Haul-All. Wastes are not burned in the drums. Bagged sewage is stored in 205 L oil drums cut in half and collected three times per week. The full bags are placed in barrels mounted on the back of stake trucks. Once a year in July, the community participates in a spring clean-up.

B 31 Solid Waste Disposal

Solid wastes are disposed of at a site 1 km southeast of the community between two rock outcrops. The disposal area is on sloping land 200 m x 100 m x 50 m. The site has been in operation for almost ten years and it is estimated that it will service the community for only one more year. Both bulky metal wastes and honey bags are deposited at separate sites. The honey bag disposal site measures 150 m x 150 m and is located at the south side of the dump.

The wastes are burned at the site three times per week but blowing winds can create smoke and odour problems. The site is compacted and covered once a year. Gravel for cover is readily available 1/2 km from the dump.

Earth moving equipment available: DGC Tractor
Cat 814 Tractor

RESOLUTE

A. GENERAL

A.1 Location

Latitude: 74°42' N Longitude: 94°50' W

On the northeast shore of Resolute Bay on the south coast of **Cornwallis** island, in the Queen **Elizabeth** Islands.

A.2 Community Information

The development of **Cominco's** Polaris mine on Little **Cornwallis** Island, and oil and gas exploration has reinforced Resolute as an important centre of the **Baffin** Region. The community has developed into a key transportation, communications and administrative centre over the years.

Population information for the community is given below.

POPULATION	YEAR	
168	1981	1981-1986
169	1985	% change:
184	1986	9.5%
285	2010	

A licensed 1981 m X 60 m gravel runway is located northwest of the community.

A.3 Geology and Terrain

On gradually flat table-land with bluffs at the coast. The bedrock lies 1.5 m to 9.5 m below the surface and is composed of Paleozoic limestone and shales.

The active permafrost depth varies between 0.5 m and 1.0 m.

A.4 Climate

July mean high: 6.8°C
July mean low: 1.4°C

January mean high: -28.4°C
January mean low: -35.7°C

Winds N-NW at 21.5 km/h.

Average annual precipitation:

5.3 cm rainfall
84.0 cm snowfall
13.0 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

The water supply for the community is Char Lake, 1.5 km west of the community. Water is pumped to storage tanks 1.5 km to the east where it is chlorinated prior to distribution through the underground piped system. South camp and some airport buildings are on a trucked system.

B.2 Sewage Disposal

Sewage is collected by a piped system and passed through a comminutor before being discharged on the beach near the high water mark in front of the community.

Liquid pumpout from South Camp and the airport is collected by a 9080 L capacity pumpout truck and disposed of 5 km northwest of South Camp.

B.3 Solid Waste Collection

Collection occurs daily by a one-man crew and a Ford F-350 pick-up truck. Garbage is placed in 205 L drums for pick-up and the waste is not burned by the residents. no honey bag service is required in this Hamlet. In August, the annual spring clean-up occurs. Large, bulky wastes are hauled to the disposal site by individual residents.

B.3.1 Solid Waste Disposal

A dump near the MOT base 7 km south-southwest is used by the Hamlet. The fifteen year old site occupies an area 50 m x 80 m on sloping ground. Bulky, metal wastes are stored at a site 15 m x 20 m.

Burning at the site is practised everyday and the site is covered and compacted monthly despite the fact that adequate cover material is not readily available.

Earth moving equipment available: Front end loader

B.4 Drainage

Drainage from the area is towards a small marshy area and eventually to the sea.

SANIKILUAQ

A GENERAL

A.1 Location

Latitude: 56°32' N Longitude: 79°14' W

Near the north end of **Flaherty** Island **in** Hudson Bay.

A.2 Community Information

The economy of **Sanikiluaq** is based on wage employment from government institutions, domestic fishing, trapping and handicrafts.

Population information is given below.

POPULATION	YEAR	
383	1981	1981-1986
426	1985	% change:
422	1986	10.2?ZO
716	2010	

A licensed 1158 m X 30 m gravel runway is located east of the settlement.

A.3 Geology and Terrain

Not available.

A.4 Climate

July mean high: 25.6°C
July mean low: 3.3°C

January mean high: -22.8°C
January mean low: -42.8°C

B MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Lake **Sanikiluaq,** near the edge of the community. Water is pumped to a truck fill station where it is chlorinated and delivered to the residents two to three times per week using two 4540 L capacity water trucks.

B.2 Sewage Disposal

Buildings equipped with pumpout tanks are serviced daily by a 4540 L capacity pumpout sewage truck and disposed of in a holding pond at the garbage dump 2.9 km west of the community.

B.3 Solid Waste Collection

Garbage is placed in 205 L drums by roadside and collected three times per week using a stake truck. Bagged sewage is collected once per week using the same collection vehicle but at different times than the garbage. The spring clean-up is scheduled for June each year.

B.3.1 Solid Waste Disposal

An open dump located 2.9 km west of the hamlet receives the garbage, pumpout sewage and bagged sewage. The present site has been in operation for seventeen years. The size of the site available for solid waste disposal is 300 m x 300 m. Bulky wastes are disposed of at a separate site 500 m x 500 m while honey bags are deposited at a site 100 m x 100 m x 15 m.

Burning of wastes at the disposal site is practised as necessary but covering the site is difficult since the ground is a very hard clay soil, mixed with boulders. In the past, dynamite and bull dozers have attempted to construct trenches but this proved too costly. Compaction as required by caterpillar.

Earth moving equipment available: DGC Cat
926 Pay Loader

COMMUNITY PROFILES

KEEWATIN REGION

ARVIAT (ESKIMO POINT)

A GENERAL

A.1 Location

Latitude: 61°07' N Longitude: 94°04' N

On the west coast of Hudson Bay, 18 km south of the Maguse River.

A.2 Community Information

Originally a summer camp for seal hunting **Inuits**, Arviat (formerly Eskimo Point) did not become a permanent place of residence for the **Inuit** until 1959 following the establishment of a school. Today, the Hamlet boasts the largest number of independent local entrepreneurs in the Keewat in

Population has steadily increased in recent years.

POPULATION	YEAR	
1022	1981	1981-1986
1166	1985	% change:
1189	1986	16.3%
2198	2010	

A licensed 1219 m X 30 m gravel runway is located 1.8 km south of the Hamlet.

A.3 Geology and Terrain

On a narrow, sandy peninsular beach. Three prominent eskers run east-west with the south coast forming esker being the site for solid waste disposal.

Arviat lies within the zone of continuous permafrost. The active layer of permafrost ranges from 0.5 m to 3 m.

A.4 Climate

July mean high: 13. 1°C
July mean low: 4.5°C

January mean high: -27.9°C
January mean low: -35.2°C

Winds N at 21 km/h.

Average annual precipitation:

16.0 cm rainfall
118.1 cm snowfall
27.8 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Miquaq Lake 3.2 km west of the community and distributed to the community by two 4540 L tank trucks.

B.2 Sewage Disposal

About 200 homes have sewage pumpout tanks which are serviced three times per week by the Hamlet. The sewage is hauled to a liquid sewage lagoon 2.8 km southeast of the community near the solid waste disposal site.

B.3 Solid Waste Collection

Residents place domestic waste and bagged sewage in separate oil drums on wooden stands near the road. A four-men crew collects the wastes at least twice per week using a packer truck and a pick-up truck. Bagged sewage is collected separately from solid waste. Some residents burn combustibles in the drums to reduce volume and scattering. Once a year when the snow melts, the community participates in a spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 2.5 km south of the community, 200 m west of the lagoon site. Garbage is deposited on the south face of the southern esker at a 1000 m x 1000 m site. The present site has been in operation for fifteen years and it is expected to have the capacity for twenty more years of service. The site is not fenced and access to the site is not controlled. A used vehicle dump has been established separate from the solid waste disposal site. Bagged sewage is also disposed of separate from other wastes at a 300 m x 300 m disposal site. All used oils are disposed of by burning.

Once a week the wastes are compacted and burned at the waste disposal site. Granular material is readily available 100 m from the disposal site and it is used to cover the wastes each summer.

Earth-moving equipment available: DG Cat
W24 Loader
W26 Loader

It has been suggested that fencing the disposal site would not be helpful because wind blown paper and plastic would stick to the fence and cause the dump to fill with snow.

BAKER LAKE

A. GENERAL

A.1 Location

Latitude: 64°19' N Longitude: 96°02' W

At the northwest end of Baker Lake near the mouth of the Thelon River, 290 km west of Hudson's Bay.

A.2 Community Information

As the only inland Inuit community in the NWT, the residents of Baker Lake have developed a distinctive lifestyle dependent on caribou hunting, fishing, and trapping. The community is also renowned for its handicrafts.

Population statistics for the community are as follows:

POPULATION	YEAR	
954	1981	1981-1986
1003	1985	% change:
1009	1986	5.8%
1663	2010	

A licensed 1280 m X 46 m gravel runway is located southwest of the community.

A.3 Geology and Terrain

On relatively flat tundra, sloping up from the beach to rocky ridges 1 km inland. Soils are silty sand and clay over till.

Baker Lake lies in the permafrost region with an active layer thickness of 1.5 m.

A.4 Climate

July mean high: 16.0°C
July mean low: 6.0°C

January mean high: -29.5°C
January mean low: -36.4°C

Winds N at 21.6 km/h.

Average annual precipitation:

13.8 cm rainfall
100.0 cm snowfall
23.5 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water from Baker Lake is chlorinated and trucked by two 4540 L water trucks and a bombardier with a mounted 2270 L water tank to most of the Hamlet five days per week. The nursing station and MOT buildings have a piped water distribution system.

B.2 Sewage Disposal

Newer buildings with sewage pumpout tanks are pumped out three times a week. The sewage is dumped into Airplane Lake which serves as a lagoon. The remainder of the Hamlet uses the bagged sewage system of disposal.

B.3 Solid Waste Collection

Domestic solid wastes are collected from 205 L drums by a 4.6 m^3 capacity compactor truck. Collection occurs three times per week by a crew of at least three men. Residents bum wastes in the containers at the point of storage prior to collection. Approximately sixty residences use bagged sewage. These are collected at least twice per week from separate drums placed near the domestic waste drums. Every year the community participates in a spring clean-up.

B.3.1 Solid Waste Disposal

The existing solid waste disposal site is located 3 km north-northeast of the community on high ground approximately 0.8 km north of Baker Lake. Both bagged sewage and solid wastes are disposed of in this 30 m x 20 m site. The present site has served as the disposal site for the past thirty years. A separate area 10 m x 10 m to the south of the access road is set aside for bulky wastes. Used oil is deposited along the perimeter of the dump and it is used to bum the garbage

The wastes are burned daily and compacted monthly. The nearest source of cover material is a gravel pit 8 km away therefore the site is never covered.

Earth-moving equipment available: DG Caterpillar

B.4 Drainage

Leachate and surface runoff from the waste disposal site flows north to Airplane Lake, south to Baker lake and west to Garbage Creek. Possible contamination of the community water supply is a major concern of the residents.

The desires of the community to have the existing site closed will be realized in 1989 when a new modified landfill site will be established at Finger Lake.

CHESTERFIELD INLET

A. GENERAL

A.1 Location

Latitude: 63°20' N Longitude: 90°42' W

On a small bay on the south shore of Chesterfield Inlet, on the west side of Hudson Bay.

A.2 Community Information

Residents of Chestet-field Inlet maintain their traditional lifestyle of hunting, fishing, and trapping. This community, which was once a focus for Inuit hunting seal, has shown considerable population growth in the last decade.

POPULATION	YEAR	
249	1981	1981-1986
255	1985	% change:
294	1986	18.1%
554	2010	

A licensed 914 m X 30 m gravel runway is located 1 km northwest of the community.

A.3 Geology and Terrain

On a low, narrow coastal strip, sandy to gravelly land surrounded by low granite outcrops and inland lakes.

A.4 Climate

July mean high: 13.1°C
July mean low: 4.6°C

January mean high: -27.8°C
January mean low: -35.2°C

Winds Nw at 22.3 km/h.

Average annual precipitation:

14.6 em rainfall
112.5 cm snowfall
25.9 cm total precipitation.

B.1 Water Source

Water is supplied from Fish Lake located 4.5 km west of the community. The chlorinated water is delivered to residences by a 4540 L truck two to three times per week.

B.2 Sewage Disposal

A small number of newer buildings have pumpout sewage but most residents use honey bags. Sewage is pumped out two times per week.

B.3 Solid Waste Collection

Solid waste is collected at least twice per week by a two-men crew using a Ford 460 Haul-All. Only two or three homes have bagged sewage service and the bagged sewage is collected with the domestic solid waste in winter and separate from the domestic solid waste but using the same collection vehicle in summer. In July the community participates in an annual spring clean-up. Large bulky wastes such as used vehicles and appliances are collected by the solid waste collection crew at times or by Hamlet H.E.D. at other times

B.3.1 Solid Waste Disposal

The solid waste disposal site is located in a 80 m x 40 m natural depression 1.5 km west of the community. The unfenced and uncontrolled access disposal site has been in operation since 1978 and is expected to adequately service the needs of the community for another two years. Bulky wastes and oil wastes are disposed of separately from the domestic wastes but bagged sewage is disposed of with the domestic wastes. Bulky wastes are placed at a 60 m x 110 m site while oil wastes are stored in drums along side the dump site. Occasionally the oil is used to burn the garbage.

Twice a week the solid wastes are burned at the disposal site. There is a serious shortage of good granular material so the wastes are only covered when absolutely needed. The wastes are not compacted.

Earth-moving equipment available: 720 Champion Grader
DGD Tractor Crawler
W246 Loader
F9000 Dump Truck

It has been suggested that fencing of the disposal site may keep the foxes away from the raw sewage. This may have been one of the causes of the rabbies problem in town during the winter of 1990.

CORAL HARBOUR

A. GENERAL

A.1 Location

Latitude: 64°08' N Longitude: 83°10' W

At the head of South Bay on Southampton Island in Hudson Bay.

A.2 Community Information

Established in 1924 by the Hudson's Bay Co., the community achieved Hamlet status in 1972. Residents depend on traditional sea mammal and polar bear hunting although some receive employment from the community airfield and weather station.

There has been a moderate increase in population over the years.

POPULATION	YEAR	
429	1981	1981-1986
455	1985	% change:
477	1986	11.2%
844	2010	

A licensed 1829 m X 60 m gravel runway is located 15 km west of the community.

A.3 Geology and Terrain

On north-south bedrock ridges above the tidal flats of the harbour. The ground is usually covered with a thin layer of peat over fine gravel sediments.

The active layer of permafrost varies up to 2 m below the surface during the late summer months.

A.4 Climate

July mean high: 13.1°C
July mean low: 4.2°C

January mean high: -25.5°C
January mean low: -33.8°C

Winds NW at 20.2 km/h.

Average annual precipitation:

14.1 cm rainfall
131.9 cm snowfall
27.0 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from the 25200 m^3 Post River Reservoir during the winter months. It is refilled in the summer from the Post River. The Hamlet delivers treated water to the residents three times per week in 4450 L water trucks.

B.2 Sewage Disposal

Sewage tank pumpout service is provided by the Hamlet two or three times per week. A 3405 L capacity pumpout truck disposes sewage at a dumpsite 3.2 km north of the community. The sewage is emptied on land and allowed to pond in a local depression. During the summer months, the sewage follows natural drainage courses into the sea.

B.3 Solid Waste Collection

Garbage is collected four days a week by a crew of two men using a Haul-All. About 40% of the residents use the sewage bag system. Bagged sewage is collected every day except Sunday and disposed of at the same site as the solid waste. In early July of each year the community participates in a spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 2.8 km north of the community on the east side of a gravel ridge. The 1500 m x 1500 m site has been operating for 20 years and is estimated to be capable of servicing the disposal needs of the community for ten to fifteen years. The site is not fenced consequently garbage tends to be blown indiscriminately. Bulky wastes are not segregated. Used oil is disposed of at a separate site 1 km north of the airport in 205 L drums.

The wastes at the disposal site are burned everyday and covered and compacted each summer.

Earth-moving equipment available: CAT

B.4 Drainage

Rock ridges interrupt drainage from the disposal site to the Post River, thereby preventing potential contamination of the community water supply.

RANKIN INLET

A. GENERAL

A.1 Location

Latitude: 62°49' N Longitude: 92°05' W

On the west coast of Hudson Bay between Whale Cove to the southwest and Chesterfield Inlet to the northeast.

A.2 Community Information

Established as a mining town in 1955, Rankin Inlet experienced considerable growth until 1962 when the mine closed. Initially, recovery of the town was slow but a program of arts and crafts manufacture and the relocation of the Territorial Government offices for the Keewatin to Rankin Inlet has resulted in much economic growth. The community now operates a successful fishery and is an important transportation and communication centre.

POPULATION	YEAR	
1109	1981	1981-1986
1315	1985	% growth:
1374	1986	23.9%
2195	2010	

A licensed 1524 m X 46 m gravel runway serves the community.

A.3 Geology and Terrain

In a rolling hill country, on rocky terrain with many eskers close to provide a good source of granular materials.

The active layer of permafrost extends to 0.3 m below the ground surface.

A.4 Climate

July mean high: 13.1°C
July mean low: 4.5°C

January mean high: -27.8°C
January mean low: -35.2°C

Winds N at 24 km/h.

Average annual precipitation:

16.0 cm rainfall
118.1 cm snowfall
27.8 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Nipissar Lake 2 km northwest of the Hamlet. Water is pumped to Williamson Lake Reservoir year round.
A utilidor system delivers chlorinated water to most of the residences.

B.2 Sewage Disposal

Most of the community is on the piped utilidor sewage collection system. The sewage is piped to a macerator and then discharged about 450 m offshore through a submarine line.

B.3 Solid Waste Collection

Solid waste is collected once per week from 205 L drums placed in front of homes using a three-men crew and a 9.2 m^3 capacity packer truck. Wastes are occasionally burned in the oil drums by the residents even though this practice is forbidden. Bagged sewage is collected once per week from two homes using a loader. During the last week of June the community participates in a n annual spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 2.5 km southeast of the community on sloping land. Bulky wastes, oil wastes and bagged sewage wastes are disposed of at separate areas nearby. The present site has been in operation for fourteen years and it is estimated that it has the capacity for twenty more years of service. The site is not fenced and as a result some garbage blows back into town. Used oil is disposed of in a trench and burnt.

Gravel for covering the disposal site must be hauled 8.5 km at great expense and time. Therefore, wastes are only covered once a year in the summer. It is recommended that stockpiling gravel near the disposal site would be beneficial. The collected wastes are burned everyday and then pushed over the end of the site. There is no compaction of wastes. Access to the site is not controlled and signs that were placed at the dump site stating no dumping in specific locations are ignored or knocked down.

Earth-moving equipment available: 950 Loader
D-6 Cat
Dump Truck

B.4 Drainage

Drainage from the solid waste disposal site occurs through the bottom of a dyke at the south end of the site.

REPULSE BAY

A. GENERAL

A.1 Location

Latitude: 66°32' N Longitude: 86°15' W

On the south side of Rae Isthmus, between the Gulf of Boothia and Southampton Island at the northern shore of Repulse Bay.

A.2 Community Information

The sealing, fishing, and hunting community of Repulse Bay attained Hamlet status in 1978. Permanent settlement began in the early 1960's with the introduction of rental homes. This small attractive community has experienced moderate population growth.

POPULATION	YEAR	
352	1981	1981-1986
402	1985	% change:
420	1986	19.3%
764	2010	

An unlicensed 1036 m X 30 m gravel runway is located east of the community.

A.3 Geology and Terrain

On a steeply cliffed coastline with hills and valleys carved from bedrock. Scant soil is largely poorly drained silty sand and gravel.

A.4 Climate

July mean high: 15.7°C
July mean low: 5.8°C

January mean high: -29.4°C
January mean low: -36.4°C

Winds N at 23 km/h.

Average annual precipitation:

15.0 cm rainfall
58.2 cm snow-fall
20.6 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from New Water Lake 4 km north of the community. During the winter, melted ice is the source of water. A truckfilling station was completed in 1987 and chlorinated water is delivered to residents by a fully trucked system.

B.2 Sewage Disposal

A 4540 L capacity pumpout sewage truck collects sewage from residences with holding tanks and discharges the wastes untreated at the solid waste disposal site along with the solid wastes. A swamp adjacent to the dump is proposed as the future sewage disposal site.

B.3 Solid Waste Collection

Solid Waste is collected at least twice per week by a one man crew using a F250 pick-up truck. Burning of wastes in oil drums is not practised except by the Bay and Co-op. Bagged sewage is collected along with the domestic wastes. Once per year in July or August the community participates in a spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 0.5 km northeast of the community across from the airstrip. Solid waste is deposited on sloping land on a 300 m x 200 m unfenced site and is expected to be able to adequately service the community for another five years. Bulky wastes are disposed of at a separate 300 m x 200 m site. Used oil is used to burn the solid waste.

Once per week during the summer the wastes are burned at the disposal site to reduce volume and scattering. Once a month the wastes are compacted. Despite burning and bulldozing very little volume reduction occurs resulting in irregular waste deposition with large mounds and depressions. Since there is little covering, blowing litter is a problem at this open dump/landfill.

WHALE COVE

A. GENERAL

A.1 Location

Latitude: 62°10' N Longitude: 92°36' W

On a peninsula at the head of Whale Cove on the west coast of Hudson Bay.

A.2 Community Information

Permanent settlement began in 1959 when the Department of Northern Affairs relocated inland Caribou Inuit who had survived the famines of 1957 and 1958. Today, trapping, fishing, and caribou hunting form the basis of their economy.

There has been moderate population growth in Whale Cove over the past ten years.

POPULATION	YEAR	
188	1981	1981-1986
199	1985	% change:
210	1986	11.7%
352	2010	

A licensed 1038 m X 30 m gravel runway is located northwest of the community.

A.3 Geology and Terrain

A south facing sheltered cove on a large sandy-gravelly area with rocky outcrops. The area is surrounded by a ridge of Precambrian rock. A thin layer of organic soil overlies a layer of coarse gravel and sand.

A.4 Climate

July mean high: 12.5°C January mean high: -28.0°C
July mean low: 4.2°C January mean low: -34.7°C

Winds NW at 24 km/h.

Average annual precipitation:

16.0 cm precipitation
118.1 cm snowfall
27.8 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Fish Lake located 4 km west of the community. Water is obtained directly from the lake and chlorine added before distribution by truck to the community.

B.2 Sewage Disposal

Buildings with sewage holding tanks are serviced by 5440 L pumpout sewage trucks on a regular basis.

B.3 Solid Waste Collection

Solid waste is collected daily by a two-men crew using a CMC 350 Haul-All with 4980 kg capacity. Bagged sewage is also collected daily using the same vehicle but separately from the domestic solid wastes. Residents do not burn wastes in oil drums at the home. Bulky waste disposal is [he responsibility of the individual. An annual spring clean-up occurs sometime in July.

B.3.1 Solid Waste Disposal

Solid waste is deposited 1.5 km northwest of the community in a natural depression. The 105 m x 15 m x 3 m unfenced site began operation in 1990. A 80 m x 40 m bulky waste disposal area has been set aside for disposal of used vehicles, large appliances and other large metal items. Bagged sewage is disposed of at a 20 m x 20 m x 4 m site nearby. Used oil wastes are placed in 205 L oil drums and disposed of at a separate site.

Coarse gravel is readily available for covering the disposal site.

Earth-moving equipment available: W24C Loader
814 B Wheel Dozer Cat
DG Cat

COMMUNITY PROFILES

KITIKMEOT REGION

BATHURST INLET

A GENERAL

A.1 Location

Latitude: 65°45' N Longitude: 108° 02'W

On the west side of Bathurst Inlet, 280 km by air south of Cambridge Bay and 575 km by air northeast of Yellowknife.

A.2 Community Information

The population in 1980 was approximately 31 persons. There is no Community Council and Bathurst Inlet is classified as an unorganized community.

The Bathurst Inlet Lodge which is operated in summer only is the most significant employment in the community.

There is a privately operated airstrip but no scheduled air service.

A.3 Geology and Terrain

No information available.

A.4 Climate

July mean high:	13.3°C	January mean high:	- 12.6°C
July mean low:	5.2°C	January mean low:	-32.6°C

Prevailing winds are from the west at 19km/h.

Average Annual Precipitation:

12.2 cm rainfall
112.5 cm snowfall
23.4 cm total precipitation

B. MUNICIPAL SERVICES

B.1 Water Supply

There is no organized water system in the community. In the summer water is obtained individually from the Burnside River while in winter ice is hauled.

The lodge is suplied by a portable pump which pumps water daily through a 825 metre (2700 ft) long 50mm (2 inch) pipeline to a 6825 litre (1500 Igal) water tank.

B.2 Sewage Disposal

Sewage is managed individually.

Bagged sewage from the lodge is taken to an island approximately 1 km away and put into a pit dug into the sand.

B.3 Solid Waste Collection and Disposal

Garbage is managed individually.

CAMBRIDGE BAY

A. GENERAL

A.1 Location

Latitude: 69°07'N Longitude: 105°03' W

On the southeast coast of Victoria Island, north of the mainland Arctic Coast.

A.2 Community Information

The Hamlet of Cambridge Bay experienced growth following the establishment of the LORAN Navigational Beacon and the DEW line. Some of the residents receive wage employment as skilled equipment operators and mechanics while the remainder rely on commercial fishing, hunting, and trapping.

Population statistics for the community are given below.

POPULATION	YEAR	
815	1981	1981-1986
902	1985	% change:
1002	1986	22.9%
1693	2010	

A licensed 1524 m X 45 m gravel runway is located west of the community.

A.3 Geology and Terrain

In an area of shallow lakes with knobs and ridges of sedimentary bedrock above a kettled till plain A large drumlin shaped hill lies 16 km northeast of the community.

A.4 Climate

July mean high: 11.9°C
July mean low: 3.9°C

January mean high: -30.0°C
January mean low: -36.0°C

Winds NW at 21.8 km/h.

Average annual precipitation:

6.8 cm rainfall
76.8 cm snowfall
13.6 cm total precipitation,

B. MUNICIPAL SERVICES

B.1 Water Source

Water is obtained from Water Supply Lake, 2 km north of the settlement. A heated pipeline carries water from a pumphouse at the lake to a central treatment facility in the centre of town. Treated water delivered by three trucks six days a week to storage tanks in homes offices and other buildings.

B.2 Sewage Disposal

Sewage is collected from household sewage holding tanks six days per week by two pumpout trucks. The sewage is deposited into a small lake at the municipal dump. Sewage from MOT buildings are collected and disposed of by a private contractor.

B.3 Solid Waste Collection

Domestic solid waste and bagged sewage are collected twice per week from 205 L oil drums outside homes. A two-men crew with a F-350 Haul-All is used to collect wastes. Bagged sewage is collected separate from domestic wastes. Burning of wastes in oil drums is not practised at the home.

B 31 Solid Waste Disposal

All municipal solid wastes are deposited at the municipal dump 1.8 km northeast of the town. The 60 m x 30 m site is located on sloping land and has been in operation for fifteen years. It is estimated that the present site has the capacity to service the community for another five to ten years, depending on site management. Although the disposal site is not presently fenced, there are plans to fence the site in the future to catch wind blown debris.

Burning of wastes at the site is practised once per week. A small adjacent hill provides a granular source, but it is frozen for nine months of the year.

B.4 Drainage

Sewage Lake flows into a series of small ponds before flowing into the ocean.

COPPERMINE

A. GENERAL

A.1 Location

Latitude: 67"50' N Longitude: 115°06' W

On Coronation Gulf, immediately west of the mouth of the mouth of the Coppermine River, on the mainland Arctic Coast.

A.2 Community Information

The Inuit community of Coppermine began as a trading post in 1916. Handicrafts, trapping, sealing, fishing, and hunting are traditional economic activities. In the 1970's oil and gas exploration provided training and employment for many members of the community and the community developed rapidly.

POPULATION	YEAR
809	1981
887	1985
888	1986
1536	2010

A licensed 1524 m X 30 m gravel runway is located 2 km southwest of the community.

A.3 Geology and Terrain

On silt, bounded by the ocean to the north, by steep rock slopes to the west and south, and by both rock and Coppermine River east and southeast. The site is underlain by Precambrian sedimentary and volcanic rock.

In the continuous permafrost zone with an active layer 0.5 m to over 1 m thick, depending on the overlying material.

A.4 Climate

July mean high: 13.8°C
July mean low: 5.6°C

January mean high: -26.4°C
January mean low: -33.8°C

Winds SW at 16.6 km/h.

Average annual precipitation:

10.3 cm rainfall
100.7 cm snowfall
20.2 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is pumped from Coppermine River 915 m from the centre of the community and stored in two 409150 L storage tanks. The chlorinated water is delivered by truck two to three times per week to residences with 1135 L storage tanks.

B.2 Sewage Disposal

GNWT staff houses and institutional buildings have sewage pumpout tanks. The school and nursing station are equipped with settling tanks.

B.3 Solid Waste Collection

Domestic garbage is placed in 205 L barrels in front of homes for collection. Honey bags are placed in similar barrels cut in half and placed next to the garbage. In the winter, the honey bags are placed on the snow adjacent to the garbage barrels to avoid the problem of bags freezing to barrels. Garbage is not burned in the collection barrels. All solid wastes are collected by a crew of two men, twice per week using a F-350 Hauled-All. Bagged sewage is collected separately from solid wastes using the same collection vehicle.

B.3.1 Solid Waste Disposal

A new site began operation in 1989, 4.5 km west of the community. The disposal site occupies an area of 80 m x 60 m and has been designed for a twenty year life span. Presently the site is not fenced but there are plans to fence it in the future.

A local sand pit provides a source of cover material. Burning of wastes at the site is practised once a week. The site method of modified landfill.

GJOA HAVEN

A GENERAL

A.1 Location

Latitude: 68°38' N Longitude: 95°52' W

On a narrow inlet on the southeast coast of King William Island, off the mainland Arctic Coast.

A.2 Community Information

From 1971 to 1983, Gjoa Haven was one of the fastest growing communities in the NWT. A large proportion of this increase was primarily due to social factors and availability of housing. Trapping, hunting, fishing, and handicrafts are important economic activities. A wide rang of facilities and services are available in the community.

POPULATION	YEAR	
523	1981	1981-1986
663	1985	% change:
650	1986	24.3%
1142	2010	

A licensed 1341 m X 30 m gravel runway serves the community.

A.3 Geology and Terrain

In an area of limestone lowlands covered by sands and gravel. The sands are poorly graded and are susceptible to wind and water erosion.

In a continuous permafrost zone with the active layer ranging between 0.9 m to 1.2 m thick.

A.4 Climate

July mean high: 23.9°C January mean high: -23.3°C
July mean low: 7.2°C January mean low: -49.4°C

Winds N at 17.5 km/h.

Average annual precipitation:

5.1 cm rainfall
25.4 cm snowfall
8.4 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water Supply lake 1.7 km northwest of the community is the source of domestic water. The water is treated and distributed to the community three times per week using a 5450 L capacity tank truck.

B.2 Sewage Disposal

Most homes are equipped with sewage pumpout tanks which are serviced three times per week by a 4500 L capacity vacuum truck.
The remaining 14-15 homes still use honey bags but there are plans to convert them to pump out systems within the next few years.

B.3 Solid Waste Collection

Garbage is placed in one of two 205 L barrels by individual residents. The refuse is collected daily in a two-men crew using a F-350 Haul-All. Burning of wastes in the barrels is not practised at the home. Bagged sewage is collected separately, using the same collection vehicle twice per week. Twice per year special collections are carried out for snowmobiles, mattresses and other bulky wastes.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 1.7 km southeast of the community in a man-made bermed area measuring 60 m x 60 m. The present site has been in operation for three years and is expected to adequately service the needs of the community for ten to fifteen years. The site is not fenced but there are plans to fence the site in the future.

Wastes are burned at the site once a week and an adjacent esker serves as a granular source for cover material.

HOLMAN ISLAND

A GENERAL

A.1 Location

Latitude: 70°44' N Longitude: 117"45' W

In the Diamond Jennes Peninsula, on the western side of Victoria Island, on inlets of Amundsen Gulf.]

A.2 Community Information

'he community of Holman was established in 1940 on the east shore of King's Bay following the establishment of a Hudson's Bay Co. post and Catholic mission. A lack of room for expansion forced the community to move across King's Bay to its present location in 1964. Trapping and fishing are major sources of livelihood for the community, although the community has become better known as a craft centre with print making providing a major source of the community's income.

Population	YEAR	
300	1981	1981-1986
345	1985	% change:
303	1986	1.0%
576	2010	

A licensed 1311 m X 30 m gravel runway services the community.

A.3 Geology and Terrain

Holman occupies a series of gravel beach terraces, at the head of Queen's Bay. Massive basalt cliffs to the east and the coastal tundra plain to the west provides striking surroundings.

A.4 Climate

July mean high: 11.4°C
July mean low: 3.3°C

January mean high: -25.7°C
January mean low: -32.7°C

Winds E at 18.2 km/h.

Average annual precipitation:

7.4 cm rainfall
91.0 cm snowfall
17.8 cm tots! precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is obtained from RCAF Lake, 2 km northeast of the community during the winter and Upillik River in the summer. Water is delivered by a 5450 L tank truck to the community. A new pumphouse treatment system and truck fill station has been constructed at RCAF Lake.

B.2 Sewage Disposal

Liquid sewage is pumped out from 89 buildings equipped with sewage holding tanks using a 4500 L capacity vacuum sewage tank truck. Vacuum truck sewage is deposited into shallow, water filled depressions at the waste disposal site 1.2 km north of the settlement.

B.3 Solid Waste Collection

Domestic garbage is placed in old fuel drums and placed in front of the home for collection. A collection crew of two men and a F-350 Haul-All collects the waste twice per week. Local by-laws do not permit the burning of wastes in oil drums. Bagged sewage from eighteen units are placed on the ground near the garbage drums to be collected. The full bags are collected twice per week using the same collection vehicle but separate from the other solid wastes.

B.3.1 Solid Waste Disposal

The present waste disposal area is located on level ground just north of Airport Road, against the east slope of Limestone Hill. The site occupies an area 100 m x 50 m and is not fenced. It has been operating at its present location for ten years and it is estimated that it has the capacity to service the community for another fifteen years. The site is not fenced and access to the site is not controlled. The area is poorly drained with a high water table and many small ponds, making landfill operations difficulty. Attempts to establish areas for different types of waste have been futile as snow drifting or surface runoff problems often arise. The present site is being modified and upgraded.

Burning of wastes at the disposal site occurs once a week and an adjacent hillside provides a granular source for cover material although it is frozen for nine months of the year.

PELLYBAY

A GENERAL

A.1 Location

Latitude: 68°32' N Longitude: 89°49' W

On the west side of Simpson Peninsula, on the south shore of **Kugaardjuk** River.

A.2 Community Information

Residents of the community of **Pelly** Bay rely on commercial fishing, hunting, and handicrafts for their livelihoods. Year round heavy ice flows make the community inaccessible to barge traffic, so **Pelly** Bay has the distinction of having one of the highest cost of living of any northern community.

Population statistics for the community are given below.

POPULATION	YEAR	
257	1981	1981-1986
268	1985	% change:
297	1986	15.6%
482	2010	

An unlicensed 1448 m X 30 m gravel and clay runway is located east of the community.

A.3 Geology and Terrain

On low lying limestone terrain with numerous rock outcrops and ridges. Sand and clay materials are limited within 5 km of the community but some pockets of the material can be obtained at the east end of the airstrip.

Pelly Bay is in the continuous permafrost zone.

A.4 Climate

July mean high: 9.7°C
July mean low: 2.9°C

January mean high: -29.7°C
January mean low: -35.6°C

Average annual precipitation:

10.3 cm rainfall
127.0 cm snowfall
23.0 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from three sources. In the summer, a stream 2.4 km south of the Hamlet is used. In the early winter, a lake at the far end of the airstrip is used. For the rest of the year, water is supplied from Farther Lake.

Water is batch chlorinated in the delivery truck tank and delivered to the homes. The majority store water in 205 L containers while the newer homes have 1135 L storage tanks.

B.2 Sewage Disposal

Buildings equipped with pumpout sewage tanks receive pumpout service by a 4500 L capacity vacuum tank truck. Other buildings use bagged sewage.

B.3 Solid Waste Collection

Solid waste is placed in 205 L drums in front of each building for collection. Twice per week the garbage is collected by a two-men crew using a F-350 Haul-All. Bagged sewage is placed on the ground next to the garbage and collected separately from the garbage. By-laws prohibit the burning of wastes in oil drums.

B.3.1 Solid Waste Disposal

The disposal site is 0.9 km south of the community. The site lies in a valley with rock ridges on each side and granular materials between the ridges. The garbage is end dumped into the valley and covered in the fall. Once per week the wastes are burned. The 60 m x 30 m disposal site is unfenced and there are no plans to fence it in the future as the site is naturally protected from the wind. Bulky wastes are disposed of at several locations along the access road in an unorganized manner. Bagged sewage is disposed in the garbage dump along with the garbage.

Once a week the solid waste is burned and an abundant supply of granular material is available for cover material from the surrounding granular pits.

SPENCE BAY

A GENERAL

A.1 Location

Latitude: 69°32' N Longitude: 93°31' W

At the head of Spence Bay on the south coast of the Boothia Peninsula.

A.2 Community Information

'he Inuit community of Spence Bay is well known for its unusual carvings and woven handicrafts. Hunting, trapping and commercial fishing are important economic activities.

The population has grown steadily over the past ten years.

POPULATION	YEAR	
431	1981	1981-1986
452	1985	% change:
488	1986	13.2%
828	2010	

A licensed 1100 m X 30 m gravel runway is located west of the community.

A.3 Geology and Terrain

On boulder glacial till with scant vegetation. The land surface is composed of irregular, weathered bedrock hills and outcrops. Boulder fields and small, shallow lakes are common and makes any type of development difficult. An esker of sand and gravel deposits 2 km northwest of the townsite is available for road construction or cover material.

A.4 Climate

July mean high: 11.5°C
July mean low: 3.2°C

January mean high: -29.7°C
January mean low: -39.3°C

Average annual precipitation:

6.5 cm rainfall
103.0 cm snowfall
18.1 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Water Supply Lake, immediately northeast of the community. The nursing station receives piped water through a utilidor system while the remainder of the community receives trucked water delivery.

B.2 Sewage Disposal

Buildings equipped with sewage pumpout tanks are serviced three times per week by a 2270 L vacuum truck. the remainder of the residences use honey bags.

B.3 Solid Waste Collection

Domestic solid waste is collected twice per week from 205 L oil drums in front of individual homes. A two-men crew collects the waste using a F-350 Haul-AU. Burning of wastes in barrels at the home is not permitted by by-law. Bagged sewage is collected twice per week using the same collection vehicle but separate from the other wastes.

B.3.1 Solid Waste Disposal

A new disposal site 2.2 km northwest of the community was completed in 1989. The site occupies an area of 70 m x 60 m and was designed to service the community for twenty years. The disposal site is fenced but access to the site is not controlled.

Wastes are burned at the disposal site once a week and the adjacent hillside provides a granular source for cover material.

COMMUNITY PROFILES

INUVIK REGION

AKLAVIK

A. GENERAL

A.1 Location

Latitude: 68°13' N Longitude: 135°00' W

On the Peel channel of the Mackenzie River Delta, 113 km from the Arctic Coast and the Beaufort Sea.

A.2 Community Information

AU major facilities were transferred to **Inuvik**, 58 km to the west, when it was established in 1961, but many of the residents preferred to remain in **Aklavik**. The major economic activities are trapping, hunting/fishing, handicrafts, transportation, oil and gas exploration, and tourism.

The population statistics for the Hamlet are shown below.

POPULATION	YEAR	
721	1981	1981-1986
758	1985	% change:
763	1986	5.8%
1197	2010	

A licensed 914 m X 23 m gravel runway is located east of the community.

A.3 Geology and Terrain

On flat, muskeg covered silt which extends 11 m below the surface. The entire townsite and surrounding lands are inundated by the Peel's occasional high floods which are eroding the community's western side.

Continuous permafrost with an active layer 0.3 m to 0.9 m thick.

A.4 Climate

July mean high: 18.3°C
July mean low: 9.7°C

January mean high: -25.5°C
January mean low: -33.2°C

Winds W at 10.7 km/h.

Average annual precipitation:

10.5 cm rainfaLl
110.9 cm snowfall
20.7 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water source for the community is the Peel Channel. A water treatment plant/truck fill station was built in 1979. Residences receive piped water during the summer and trucked water via 9100 L tank trucks during the winter.

B.2 Sewage Disposal

Approximately 2/3 of the residences have sewage pumpout tanks which are pumped out 1-2 times weekly by a 5450 L pumpout truck. The rest of the homes use sewage bags.

B.3 Solid Waste Collection

Garbage is stored in 205 L drums that are placed on truck-height wooden stands, two or three drums to a stand, one or two stands per block. The waste is collected by contractor with a pick-up truck at least twice per week. Another contractor is responsible for collecting bagged sewage. The bagged sewage is collected every other day by pick-up truck. In June, the community participates in an annual spring clean-up.

B 31 Solid Waste Disposal

All solid wastes are disposed of at a site 2.5 km northwest of the community in a 30 m x 20 m x 2 m depression. The site was established in 1987 and is expected to meet the needs of the community for fifteen years. Separate areas have been established for dry an combustible wastes, bulky wastes and sewage bags. An old disposal site 30 m x 20 m and 1.2 km northwest of the Hamlet is currently being used for storage of reusable materials and old vehicles. A separate area 15 m x 15 m is used for bagged sewage disposal. Waste oil is often added to the combustible wastes to aid burning

Burning of wastes at the disposal site is practised once per week and compaction occurs monthly. Two to three times per year the wastes are covered with common fill material.

Earth-moving equipment available: Cat

B.4 Drainage

Drainage from the area is northerly, entering the Peel channel a considerable distance overland and downstream of Aklavik. Therefore the site does not pose a pollution hazard to the Peel River water intake.

ARCTIC RED RIVER

A. GENERAL

A.1 Location

Latitude: 67° 27' N Longitude: 133°44' W

At the confluence of the Arctic Red and Mackenzie Rivers.

A.2 Community Information

The Dempster highway crosses the Mackenzie River at Arctic Red River. The community is connected to the road system by ferry in the summer and ice road in the winter. Hunting, trapping, and fishing are the major economic activities along with ferry crossing/ highway maintenance.

The population statistics for the area are as follows:

POPULATION	YEAR	
120	1981	1981-1986
123	1985	% change:
108	1986	-10.0%
138	2010	

No useable airstrip exists for the settlement.

A.3 Geology and Terrain

The townsite is located on an escarpment 25 m above the normal river elevation. A mixture of gravel, sand, and fine sediments with outcrops of sandstone and shale overlies a layer of sandy or silty clay.

Arctic Red River is in the continuous permafrost zone with an active layer 0.3 m to 0.5 m thick.

A.4 Climate

July mean high: 19.9°C
July mean low: 9.4°C

January mean high: -24.9°C
January mean low: -32.7°C

Winds E at 9.6 km/h.

Average annual precipitation:

13.5 cm rainfall
160.8 cm snowfall
29.6 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Two seasonal sources of water are available. Between mid November and end of May, water is taken from a hole in the ice of Arctic Red River. The rest of the year, a small lake near the school is the source. Chlorinated water is delivered by a
4500 L water truck weekly. The Band office, R.C. mission, school, and the GNWT staff houses receive water twice weekly.

B.2 Sewage Disposal

Bagged sewage is the only form of sewage disposal.

B.3 Solid Waste Collection

Household garbage is placed in 205 L barrels and burnt to reduce volume. Twice per week, the barrels are emptied into the bucket of a front end loader (916 Cat Loader) by a two-men crew and hauled to the disposal site. Bagged sewage is placed in cut-off barrels outside their homes. The full bags are collected twice per week during the summer and weekly during the winter by DPW crews. Bags are placed in the bucket of a front end loader. An annual spring clean-up occurs sometime in June.

B.3.1 Solid Waste Disposal

Solid waste is disposed of in a 20 m x 3 m x 3 m trench 2 km northeast of the community. The site has been in operation since 1988 and is expected to be capable f servicing the needs of the community for twenty years. The site is not fenced. Bulky wastes are disposed of separately from the other wastes in a 30 m x 30 m area. Bagged sewage is also dispersed of in a separate area adjacent to the garbage site and measures 3 m x 3 m x 3 m. Used oil is burned.

Burning of wastes at the disposal site is practised occasionally during the winter. A local shale pit provides adequate cover material for monthly covering wastes are compacted each month.

Earth-moving equipment available: Loader
CAT
Dump Truck

COLVILLE LAKE

A. GENERAL

A.1 Location

Latitude: 67"02' N Longitude: 126°07' W

On the southeast shore of Colville Lake.

A.2 Community Information

Colville Lake is an unorganized community with no settlement council. This largely Dene population is dependent upon hunting, fishing, trapping, and tourism for their economy. The only community facilities are a health station and Roman Catholic Church.

The population of the community has remained relatively unchanged.

POPULATION	YEAR	
57	1981	1981-1986
57	1985	% change:
52	1986	-8.8%
57	2010	

An unlicensed 732 m X 49 m gravel runway is located adjacent to the community.

A.3 Geology and Terrain

The surficial materials in the area are of Pleistocene sediments such as sand, gravels, clays, and till.

The area is in the zone of discontinuous permafrost.

A.4 Climate

July mean high: 22.9°C
July mean low: 7.6°C

January mean high: -25.6°C
January mean low: -34.4°C

Average annual precipitation:

14.7 cm rainfall
115.1 cm snowfall
26.2 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is hauled in buckets by residents from Colville Lake untreated. During the winter, melted ice is the water source. There is no organized delivery system.

B.2 Sewage Disposal

Outdoor privies are used for sewage collection and disposal. No facilities are available for sewage treatment.

B.3 Solid Waste Collection

Garbage collection and disposal are the responsibilities of the individuals residents. Residents haul wastes to the dump with a community ATV with an attached trailer. No organized collection and disposal system exists. An annual spring clean-up occurs in June.

B.3.1 Solid Waste Disposal

The community has two disposal sites, one site located 500 m from the community was closed in June 1990, the other site is located 1000 m north of the community, on a plateau. This 3 m x 10 m x 1 m unfenced site was created in 1990 and has the capacity to service the community for ten more years. Bulky and metallic wastes are disposed of separately at a 20 m x 20 m site. A separate bagged sewage pit is in the planning stage. Very few vehicles exist in the community therefore not much used oil is generated. However, used oil from ATU's and snowmobiles is likely disposed of in the garbage dump or burned in home barrels.

Maintenance is carried out once per year by a work crew. All trenches are dug by excavated material.

FORT FRANKLIN

A GENERAL

A.1 Location

Latitude: 65°10' N Longitude: 123°25' W

On the north shore of Keith Arm, about 10 km from the head of Great bear River.

A.2 Community Information

The Dene community of Fort Franklin relies heavily on lake fishing and fur trapping for their economy. Hunting, tourism, and oil and gas exploration are also important.

Population statistics for the community are as follows:

POPULATION	YEAR	
521	1981	1981-1986
589	1985	% change:
532	1986	2.1%
784	2010	

An unlicensed 762 m X 24 m runway is located immediately north of the community.

A.3 Geology and Terrain

On a level area of unconsolidated material consisting of lake deposits of silt, sand, clay, as well as offshore bar deposits. Extensive sand and gravel ridges surround the settlement.

Permafrost ranges from 0.4 m to 0.7 m beneath the ground surface depending on the surface materials.

A.4 Climate

July mean high: 21.8°C
July mean low: 10.1"C

January mean high: -24.0°C
January mean low: -32.2°C

Winds CIA at 22.6 km/h.

Average annual precipitation:

19.2 cm rainfall
136.4 cm snowfall
32.9 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

The school, nursing station, and five houses and one duplex receive water by a piped distribution system. The rest of the community receives water by a trucked system two or three times per week using a 4500 L truck operated by the Hamlet.

B.2 Sewage Disposal

Buildings with sewage holding tanks are pumped out regularly by the Hamlet. The sewage is disposed of at a lagoon 1.7 km northwest of the Hamlet.

B.3 Solid Waste Collection

Garbage is collected twice per week from 205 L drums in front of the homes. Problems with ravens scattering the garbage have been experienced and consequently some drums have heavy lids. Wastes are collected by a two-men crew using a Ford F-700 Dump Truck. About 15 to 20 units rely on bagged sewage disposal. Bagged sewage is collected twice per week using the same collection vehicle but separate from the solid waste. Once a year in June the community organizes a spring clean-up.

B 31 Solid Waste Disposal

Solid waste is disposed of in a 23 m x 10 m x 2.5 m trench located 1.5 km northeast of the community. The trench has been in operation for one year and is expected to be operational for another five to seven years. The site is not fenced. A separate site 35 m x 30 m is maintained for bulky wastes such as old vehicles and large metal scrap. Bagged sewage is deposited at a separate site measuring 5 m x 4 m x 2 m northwest of the garbage site. Used oil is burnt with the other combustible wastes.

Once a week the wastes at the disposal site are burned and once a year the wastes are compacted and are covered with gravel and clay. Gravel and clay are readily available.

Earth-moving equipment available: CAT

FORT GOOD HOPE

A. GENERAL

A.1 Location

Latitude: 66°15' N Longitude: 128°38' W

On the east bank of the Mackenzie River, 27 km south of the Arctic Circle.

A.2 Community Information

Fort Good Hope was the oldest fur trading post in the lower Mackenzie Valley. Presently, trapping, hunting, and domestic fishing remain as important economic activities along with oil exploration in this Dene settlement.

The community has experienced a general population increase over the past ten years,

POPULATION	YEAR	
463	1981	1981-1986
693	1985	% change:
562	1986	21.4%
828	2010	

An unlicensed 914 m X 30 m snow/gravel runway is located just north of the settlement.

A.3 Geology and Terrain

On a peninsular gravel bar at the junction of the Mackenzie River and Jackfish Creek, approximately 3 km from the "Ramparts" limestone cliffs. An adequate supply of concrete quality gravel is found 2.6 km north of the settlement.

Permafrost exists 0.2 m to 1.2 m below the ground surface.

A.4 Climate

July mean high: 22.6°C
July mean low: 9.9°C

January mean high: -27.5°C
January mean low: -35.0°C

Winds E at 9.5 km/h.

Average annual precipitation:

15.0 cm rainfall
131.6 cm snowfall
28.2 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Mackenzie River during the summer and from a 10.9 million litre reservoir during the winter when the river is frozen. Treated water is delivered by a 4500 L capacity delivery truck to the residences. All residences are equipped with 1136 L fibreglass water tanks.

B.2 Sewage Disposal

Houses with sewage storage tanks receive pumpout service twice per week. A 4500 L truck is used by a private contractor for this purpose. Liquid sewage is deposited at a waste disposal area 1.6 km from the community.

B.3 Solid Waste Collection

Domestic garbage is collected three times per week by private contractor using a two-men crew and a packer truck. Burning of wastes in oil drums is not practised at the home. Bagged sewage collection occurs three times per week from about half of the residents, using a dump truck. Once a year the community organizes a spring clean-up. Large, bulky wastes are not collected.

B 31 Solid Waste Disposal

Solid wastes, bagged sewage, and pumpout sewage are trucked to a disposal site located 1.5 km northeast of the community. The 240 m X 300 m disposal site is located on a flat gravel esker and follows a modified landfill operation. Gravel layers up to 12 m thick allow solid waste disposal in a 50 m x 3 m x 2.5 m trench. The site has been in operation for eight years and it is expected to be capable of servicing the needs of the community for another eight years. The site is not fenced. Bulky wastes are disposed of at various locations around the community as there is no designated location. A 3 m x 3 m x 3 m area located adjacent to the garbage site is used for bagged sewage disposal used oil is burned at the garbage site.

Periodically the garbage is burnt to reduce volume and covered with readily available commonfill material. The wastes are not compacted.

Earth-moving equipment available: CAT

FORT MCPHERSON

A. GENERAL

A.1 Location

Latitude: 67"26' N Longitude: 134°53' W

On the east bank of the Peel River, about 38 km upstream from its junction with the Mackenzie River.

A.2 Community Information

The settlement of Fort McPherson is largely inhabited by Loucheux Indian. The population has fluctuated over the years but due to the settlement proximity to the Dempster Highway connecting Fort McPherson with Whitehorse the population and economy are expected to increase.

POPULATION	YEAR	
632	1981	1981-1986
693	1985	% change:
760	1986	20.3%
1126	*2010*	

A licensed 1067 m X 30 m gravel runway is located 3 km south of the settlement.

A.3 Geology and Terrain

On an isolated hill above the river, surrounded by lakes and swamps.

The area is in the continuous permafrost zone with some massive ice lensing. Permafrost can be found at depths of 0.3 m to 1.2 m.

A.4 Climate

July mean high: 20.2°C January high: -26.2*C
July mean low: 9.5*C January mean low: -34.7°C

Winds N-NW at 7.2 km/h.

Average annual precipitation:

11.0 cm rainfall
224.5 cm snowfall
34.4 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Water Lake 1.8 km south of the community. The water is piped to a treatment plant and subsequently distributed to approximately 150 people by utilidor. 110 residences rely on truck distribution for their water supply.

B.2 Sewage Disposal

Forty two residents have sewage holding tanks. Sewage is collected daily by a crew of one operating a sewage tanker truck. The remaining residents use sewage bags.

Sewage pumpout is disposed of at a disposal area 8 km from the settlement along the Dempster Hwy. in an old shale borrow pit.

B.3 Solid Waste Collection

Garbage is deposited in 205 L collection barrels by residents at road side in front of homes. Three times a week the waste is collected by a two-men crew using a Ford F-350 Haul-AU with 8 yd^3 capacity. Bagged sewage is placed on the ground by residents and are collected three times per week by a half ton trailer. An annual spring clean-up of the community is organized each June.

B.3.1 Solid Waste Disposal

The solid waste disposal area is an abandoned shale borrow area located 8 km northeast of the settlement along the Dempster Highway. The steep trenches and side slopes left from excavation of shale provide excellent locations for dumping solid garbage. The solid waste site is 45 m x 25 m and has been in operation for seven years. It is expected to provide adequate service for five more years. Bulky wastes are deposited at a separate site. Scrap metal at 25 m x 20 m area and vehicles at a 50 m x 20 m area. Bagged sewage is disposed of 100 m south of the solid waste site in a 20 m x 35 m x 2.5 m trench. Used oil is stored 700 m from the bulky waste site and may occasionally be burnt at the garbage site. A 4 m x 6 m dead animal pit is also maintained. The solid waste disposal site is not fenced and access is not controlled. Extraordinary use of the access road by individuals is reported by the Hamlet.

Wastes are burned at the disposal site once a week and covered with readily available clay and shale two or three times per year. Wastes are compacted at the same time as covering.

Earth-moving equipment available: CAT Loader 916
CAT D-6, rented

B.4 Drainage

Some waste water pending has been reported at the site with occasional seepage to Sewage Lake and to Peel Channel downstream from the community.

FORT NOR MAN

A. GENER4L

A.1 Location

Latitude: 64°54' N Longitude: 125°34' W

On the northern bank of the Mackenzie River at its junction with the east bank of Great Bear River.

A.2 Community Information

Fort Norman achieved Hamlet status in 1984. The largely Dene and Metis residents support themselves by hunting, fishing, and trapping while some men are employed in oil exploration.

The population has grown steadily over the years.

POPULATION	YEAR	
286	1981	1981-1986
299	1985	% growth:
332	1986	16.1%
456	2010	

A licensed 914 m X 30 m gravel runway is located just north of the community.

A.3 Geology and Terrain

On two terraces on the north bank of the Mackenzie. Soils consist of layers of clay, silt, sand and some gravel in isolated pockets.

In discontinuous permafrost zone with an active layer 0.6 m to 1.5 m thick.

A.4 Climate

July mean high: 22.2°C
July mean low: 9.8°C

January mean high: -24.5°C
January mean low: -32.6°C

Winds SE at 12.2 km/h.

Average annual precipitation:

18.6 cm rainfall
144.3 cm snowfall
32.5 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water source is Great Bear River. There exists a screened intake but no other water treatment is provided with the exception of chlorination. No storage facilities are available. A 5450 L water truck delivers six full loads daily to houses with 1140 L water tanks.

B.2 Sewage Disposal

Ten residences use honey bags but most have pumpout tanks which are pumped out twice weekly and dumped into Taylor Lake located 3 km northeast of the settlement. It is believed that Taylor Lake has recently been upgraded to a lagoon.

B.3 Solid Waste Collection

Solid waste is collected at least twice per week by a one-man crew operating a Ford F-700. Bagged sewage collection and disposal is the responsibility of the resident. Bulky waste disposal is also a responsibility of the individual. Once per year the community participates in a spring clean-up.

B 31 Solid Waste Disposal

A new solid waste disposal site was established in 1987. The site is located 3 km southeast of the community. The site is in a treed area and slopes south toward the Mackenzie River. The site is 1 km from the river and about 1.8 km from the east end of the airstrip. The new site is sufficiently remote from the river so it will have a low potential for contamination. It is also further away from the airstrip than the old disposal site, thereby minimizing potential bird hazard to aircrafts. The disposal site is on flat land and occupies an area 40 m x 20 m x 1.5 m. Partial fencing exists but access to the site is not controlled. Bulky wastes are located at a separate site 20 m x 20 m. Bagged sewage is also disposed of in a separate area dug out of the garbage disposal site measuring 10 m x 10 m x 2 m. Used oil is stored with the bulky wastes. In the summer the oil is used on the roads for dust control and in the sinter it is burned at the garbage site.

The combustible wastes are burnt and compacted once a month and covered two or three times a year during the summer with the excavated material.

Earth-moving equipment available: CAT
Loader

INUVIK

A. GENERAL

A.1 Location

Latitude: 68°21' N Longitude: 133°43' W

On the east channel of the Mackenzie River Delta, 97 km south of the Beaufort Sea.

A.2 Community Information

Inuvik is the largest Canadian community north of the Arctic Circle. The major economic activities are government, transportation/communication, oil/gas exploration, and tourism.

Population has fluctuated with changing oil and gas exploration activities . It is predicted that the population will continue to grow with heightened exploration activity in the Beaufort Sea.

POPULATION	YEAR	
3147	1981	1981-1986
3166	1985	% change:
3389	1986	7.7%
3664	2010	

A controlled airport with a licensed 1829 m X 46 m asphalt runway is located about 7 km east of the Town.

A.3 Geology and Terrain

On a river terrace in the Delta region. The land rises gently to the northeast and is characterized by fine textured, sandy silty clay underlain by a silt-clay with gravelly material.

Inuvik is in the continuous permafrost zone with an active layer 0.5 m to 0.8 m thick.

A.4 Climate

July mean high: 19.4°C
July mean low: 17.8°C

January mean high: -24.7°C
January mean low: -34.4°C

Winds E at 10.2 km/h.

Average annual precipitation:

11.5 cm rainfall
177.0 cm snowfall
26.6 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

The Mackenzie River is the summer source of water for the community. In the winter, water is supplied from Lake B, 4.8 km northeast of Inuvik. Most of the Town is serviced by a utilidor water distribution system although a small number of residents receive trucked delivery twice weekly.

B.2 Sewage Disposal

Sewage is discharged to a lagoon located west of the Town site. The 20 ha lagoon discharges into the East channel.

B.3 Solid Waste Collection

Collection and disposal of both residential and commercial waste is the responsibility of the local contractor. Garbage is placed in 205 L oil drums or 10 L garbage cans outside the homes and is collected twice per week with a crew of one or two men and a packer truck. Bagged sewage is not used in Inuvik. An annual spring clean-up takes place in June. Bulky waste collection is the responsibility of the Public Works crew.

B.3.1 Solid Waste Disposal

The disposal site is located 1 km south-southwest of the community on sloping land. The 500 m x 350 m site has been in operation for two years and is expected to adequately service the needs of the community for one year. A separate 150 m x 150" m area is maintained for bulky waste disposal. Dumping of used oil at the waste disposal site is prohibited but a separate area for its disposal has not been established.

Burning of wastes at the disposal site is potentially dangerous as peat moss underground has in the past burned uncontrollably for months. The site is covered periodically as required with clay based silty soil and course sand from an adjoining quarry. The wastes are compacted as required.

Inuvik is presently in the process of relocating the dump site.

NORMAN WELLS

A GENERAL

A.1 Location

Latitude: 65°17' N Longitude: 126°50' W

On the east bank of the Mackenzie River, 145 km south of the Arctic Circle.

A.2 Community Information

Norman Wells is an important transportation centre and base for users of the Mackenzie River system. Imperial Oil Ltd. has operated an oil refinery in Norman Wells since 1920. Recently, a major oil field expansion was completed and a crude oil pipeline constructed to Zama Lake, Alberta. Norman Wells supplies fuel throughout the north and is becoming a regional centre for government services.

The population is transient.

POPULATION	YEAR	
420	1981	1981-1986
749	1985	% change:
627	1986	49.3%
719	2010	

A licensed 1829 m X 46 m asphalt runway is located on an esker northeast of the community.

A.3 Geology and Terrain

Glacial silt, sand and gravel make up the upper 3 m to 6 m of soil, overlying layers of shale, siltstone and limestone. A quarry was developed near the existing garbage dump on a limestone ridge.

A.4 Climate

July mean high: 22.0°C
July mean low: 10.6°C

January mean high: -24.9°C
January mean low: -32.9°C

Winds W-NW at 12.2 km/h,

Average annual precipitation:

18.8 cm rainfaLl
147.0 cm snowfall
32.8 cm total precipitation,

B. MUNICIPAL SERVICES

B.1 Water Source

Water sources for the community are Bosworth Creek and the Mackenzie River. The water is filtered and chlorinated before being pumped by utilidor to the community. Approximately fifty residences receive truck delivery.

B.2 Sewage Disposal

Those in the east end of Town have sewage pumpout tanks. Sewage is collected by the utilidor or sewage pumpout trucks and discharged into Seepage Lake sewage lagoon.

B.3 Solid Waste Collection

Garbage is collected twice per week by a private contractor with a 12 m^3 capacity packer truck. Some residents prefer to haul and deposit their own wastes to the site and scavenge and recycle previously discarded wastes. There is no bagged sewage disposal. An annual spring clean-up occurs in May.

B 31 Solid Waste Disposal

Solid wastes are trucked to the disposal site about 6 km north of the settlement. Access to the landfill site is uncontrolled.

The landfill site encompasses an open face spread approximately 100 m across a slope by 100 m wide. An incinerator, owned and operated by Imperial Oil Ltd. is located immediately west of the disposal area.

The site lies 3300 m north of the river bank. Wastes are dumped, pushed over the active face, which is about 7 m to 10 m high, and compacted. One or two times a year the site is covered with shale and soil. Burning of wastes is not permitted, yet fires occur three to four times per summer.

Earth-moving equipment available: End dump
960 Loader
D7 CAT

B.4 Drainage

Drainage from the landfill site travels down slope to Seepage Creek and eventually flows into Dot Lake, 4 km to the east, and then into the Mackenzie River. The Hamlet's water supply is not drawn from this drainage system.

PAULATUK

A. GENERAL

A.1 Location

Latitude: 69°21' N Longitude: 124°04' W

At the south end of Darnley Bay on the Arctic Coast.

A.2 Community Information

Paulatuk is a settlement with a predominantly Inuit population. The economy is based on hunting, fishing, trapping, and oil exploration. The population is expected to grow with future oil developments in the Beaufort Sea.

POPULATION	YEAR	
174	1981	1981-1986
200	1985	% change:
193	1986	10.9%"
321	2010	

An unlicensed 975 m X 30 m sand runway is located south of the community. New airport facilities are to be constructed on the Paulatuk peninsula separating the community from Darnley Bay.

A.3 Geology and Terrain

The community is situated between the seashore and an inland lake, on sill and sand in a muskeg region. Gravel is scarce in the region and the site is underlain by continuous permafrost.

A.4 Climate

July mean high: 18.8°C
July mean low: 8.3°C

January mean high: -24.9°C
January mean low: -32.7°C

Winds E at 14 km/h.

Average annual precipitation:

10.2 cm rainfall
126.7 cm snow-frill
22.4 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is distributed by truck, untreated from Water Lake just south of the present airport. However, the proximity of this source to the community and to the waste disposal area has resulted in the acquisition of New Water Lake, about 4 km to the southeast of the community.

B.2 Sewage Disposal

Sewage is collected by vacuum truck from pumpout tanks of 23 of the 41 units. The remaining units operate on the honey bag system. All bagged and truck sewage is deposited at the waste disposal area.

B.3 Solid Waste Collection

Solid wastes are collected several times per week from barrels outside each home and transported to the waste disposal site in a 6 yd^3 capacity dump truck. Bagged sewage from 20 homes is collected three times per week in the bucket of a front end loader. An annual community spring clean-up is planned each July.

B.3.1 Solid Waste Disposal

The existing solid waste disposal site is located about 0.5 km northwest of the community. Wastes are deposited in a 4 m x 20 m x 3 m trench. The present site has been in operation for two years and is expected to be able to adequately service the needs of the community for another three years. Scrap metal and empty oil drums are segregated a short distance from the main dump in a 50 m x 30 m area while bagged sewage is placed in a 25 m x,15 m x 2 m small lake adjacent to the dump. Used oil is stored beside the garbage site and is occasionally burnt with the combustible wastes.

Gravel cover material is readily available and it is used to cover the wastes once per year. Also at the time of covering the waste is compacted with a dozer.

The present site is unsightly and a source of smoke and odours for the community. It is located very close to the proposed boundary for the future airport. The potential for airplane/bird conflict at the new airport is high and is unlikely to be acceptable by the MOT. Presently, a new disposal site is in the planning and design stage to relocate it about 2 km from Town.

Earth-moving equipment available: Loader
Dozer

B.4 Drainage

The disposal area and small lake drain by a short channel into Darnley Bay away from the community. Presently, there is no danger of contaminating the community water supply.

SACHS HARBOUR

A. GENER4L

A.1 Location

Latitude: 71°59' N Longitude: 125°14' W

On the north side of the Sachs River in the southwestern part of Banks Island.

A.2 Community Information

The Inuit community of Sachs Harbour attained Hamlet status in 1986. As one of the best white fox trapping areas in the North American Arctic for the past 50 years, residents of the Hamlet have established self-sufficiency through hunting and trapping.

Population statistics for the Hamlet are given below.

POPULATION	YEAR	
101	1981	1981-1986
161	1985	% change:
158	1986	-1.9%
230	2010	

A licensed 1219 m X 30 m gravel runway is located about 8 km south of the community.

A.3 Geology and Terrain

At the foot of a bluff with silty soil and hummocky ground. There are few ice lenses and the soil is impervious.

Permafrost is continuous and the active layer is less than 0.5 m to 1.0 m.

A.4 Climate

July mean high: 9.3°C January mean high: -26.7°C
July mean low: 2.5°C January mean low: -34.1°C

Winds SE at 20 km/h.

Average annual precipitation:

4.4 cm rainfall
76.0 cm snowfall
11.4 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is obtained from a small lake 1.8 km northwest of the community. The water is piped to a nearby pumphouse and truckfill where it is chlorinated. Water is supplied to the Atmospheric Environment Service Station via a pipeline, and is trucked elsewhere.

B.2 Sewage Disposal

Sewage is pumped out from sewage holding tanks using a vacuum truck and discharged in a sloped area just above the solid waste disposal area.

B.3 Solid Waste Collection

Garbage is collected twice per week by a one-man crew in a Ford 1 Ton with a side dump/loader Bagged sewage is used occasionally when there are freezing or maintenance problems at the houses. Only one house remains permanently on the sewage bag system and these are collected with the domestic garbage. Bulky wastes are collected by the solid waste collection crew. Each July the community organizes a spring clean-up. The community needs barrels or boxes for garbage.

B.3.1 Solid Waste Disposal

The garbage and sewage disposal site is located in a small gully about 800 m west of the cent re , t the community. It is a natural drainage ditch, diked by gravel at the downstream end. Solid wastes are disposed of 90 m from the dike and covered annually with gravel fii. The site covers an area of 100 m x 75 m and has been in operation approximately ten years. It is expected to meetthe needs of the community for one or two more years. Used oil is stored in barrels at the solid waste site and occasionally burnt with the combustible waste. A fence has not been erected around the dump, consequently scattered garbage is a problem.

Earth-moving equipment available: CAT
Loader

TUKTOYAKTUK

A GENERAL

A.1 Location

Latitude: 69°27' N Longitude: 133°02' W

On a spit in Kugmallit Bay in the Beaufort Sea east of the Mackenzie Delta.

A.2 Community Information

The Hamlet of Tuktoyaktuk was originally established as a fishing and whaling outpost. Presently, whaling, hunting, and trapping are still important economic activities, but oil and gas exploration has become a mainstay of the local economy. Dome Petroleum Ltd., Gulf Canada Ltd., and Esso Resources Canada Ltd. all maintain supply and service camps within the Hamlet.

The population of the Hamlet experiences seasonal fluctuations. During the summer months of June through September, there is an influx of over 1000 oil and gas exploration personnel. Although the majority do not live in Tuktoyaktuk, they rely on the municipal dump for solid waste disposal.

POPULATION	YEAR	
772	1981	1981-1986
882	1985	% change:
929	1986	20.3%
1558	2010	

A licensed 1524 m X 46 m gravel runway is located about 1.5 km south of the community.

A.3 Geology and Terrain

On a flat plain with thousands of shallow tundra lakes, ponds and associated wetland systems. The peninsula is formed of coarse sands, silt, clay and gravel with ice lenses.

In the continuous permafrost zone with an active layer less than 0.5 m.

A.4 Climate

July mean high: 15.2°C
July mean low: 6.0°C

January mean high: -25.0°C
January mean low: -31.6°C

Winds at 17.4 km/h.

Average annual precipitation:

7.2 cm rainfall
65.0 cm snowfall
13.8 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied by three sources. Esso uses a lake 2 km south of their operations base. In late winter they use Tuktoyaktuk harbour. The DEW Line uses a New Water Lake 5 km south of the community.

The main water supply is a large reservoir located 2 km southeast of the community. The water is chlorinated and trucked to the residences.

B.2 Sewage Disposal

Sewage is collected by vacuum truck from tanks in homes and buildings, and trucked to a sewage lagoon 6 km south of the community.

B.3 Solid Waste Collection

Solid waste is collected by a two-men crew, six times per week in a Haul-All pick-up. Dome, DEW Line, and NTCL are responsible for hauling their own wastes. Bagged sewage is collected from about 30 homes six days per week using the same collection vehicle but separate from the solid wastes. In June the community organizes students to participate in the annual spring clean-up.

B.3.1 Solid Waste Disposal

The disposal site is located 5 km south of the Hamlet on sloping land. The 100 m x 100 m site has been operational for two years and is capable of meeting the needs of the community for another ten years. The site is partially fenced and access is partially controlled by an unlocked bate. Bulky wastes and metal wastes are segregated in a 50 m x 50 m area adjacent to the site while Bagged sewage is disposed of in a separate pit 4 m x 4 m x 3 m. Used oil is the responsibility of industry or the individual.

During the summer combustible wastes are burned daily and covered with granular material weekly. Officials have had problems covering the site as cover material is not readily available and must be hauled to the site at great expense; sand @ $\$10/m^3$, granular capping @ $\$30/m^3$.

Earth-moving equipment available: Dozer
Dump Truck
Loader

COMMUNITY PROFILES

FORT SMITH REGION

DETAH

A. GENERAL

A.1 Location

Latitude: 62°25' N Longitude: 114°18' W

On the east shore of Yellowknife Bay, on Great Slave Lake.

A.2 Community Information

The unorganized community of Detah has experienced little growth in the past ten years. The major economic activities of this Dene community is hunting, trapping, and domestic fishing. All major services including bank, postal, and health services are available at Yellowknife. Population statistics are as follows:

POPULATION	YEAR	
143	1981	1981-1986
161	1982	% change:
143	1985	-8.4
131	1986	

All air facilities are based in Yellowknife.

A.3 Geology and Terrain

On a rocky outcrop by the shore of Great Slave Lake. The soils consist of fine grained silt and clay overlaying a granitic intrusive bedrock.

Discontinuous permafrost is found throughout the region.

A.4 Climate

July mean high: 22.8°C
July mean low: 9.8°C

January mean high: -25.1°C
January mean low: -33.4°C

Winds E at 15.5 km/h.

Average annual precipitation:

20.0 cm rainfall

B. MUNICIPAL SERVICES

B.1 Water Supply

Community water truck delivers water regularly to the residents. However, despite the service, many residents prefer to haul their own water from Yellowknife Bay.

B.3 Solid Waste Collection

Bagged Sewage and solid wastes are collected three times per week by a private contractor. The one-man crew collects the wastes separately with a 3/4 ton pick-up truck. In mid June the community organizes an annual spring clean-up.

B.3.1 Solid Waste Disposal

Solid wastes and sewage generated in the settlement of Detah are disposed of at a site 3 km northwest of the settlement. In 1986, the existing site was expanded and an operation scheme for a modified landfill site implemented. Under the new plan, bagged sewage is placed in a 7 m x 2 m x 2 m trench with a new site trenched every three years. Bulky wastes are also segregated into a series of sites each 7 m x 3 m x 3 m covering an overall area of 500 m x 500 m. Used oil is not segregated from the other wastes and is occasionally disposed of in the garbage pit. ESSO disposes its own used oil.

B.4 Drainage

Soil at the existing waste disposal site is excellent for drainage as it consists mainly of sand underlain by clay.

ENTERPRISE

A GENERAL

A.1 Location

Latitude: 60°33' N Longitude: 116°08' W

At the junction of the Mackenzie and Yellowknife highways, west of the Hay River Gorge.

A.2 Community Information

Strategically located at the junction of the Mackenzie and Yellowknife highways, the community has developed as a highway service centre. A hotel, two gas stations, restaurants, and about 50 residents generate most of the solid wastes.

Bank, air, postal, and health services are provided by Hay River.

POPULATION	YEAR	
46	1981	1981-1986
46	1985	% change:
56	1986	21.7%

A.3 Geology and Terrain

The terrain is flat at the settlement but generally slopes down towards Hay River from the north to the east.

The Top 1.5 m of soil consists of coarse sandy material and underlain by fractured Devonian limestone. Enterprise is in the discontinuous permafrost zone.

A.4 Climate

Mean July high: 20.7°C Mean January high: -21.0°C
Mean July low: 10.8"C Mean January low: -30.5°C

Winds E-NE at 12 km/h

Average Annual Precipitation:

18.4 cm rainfall
165.0 cm snowfall
34.0 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Most buildings have private wells. Only a few receive water from Hay River via contractor.

B.2 Sewage Disposal

Most homes are equipped with sewage pumpout systems. Individual household holding tanks are pumped out every two weeks under private contract from Hay River. Sewage is disposed of at a lagoon just north of the new solid waste disposal site.

B.3 Solid Waste Collection

Once a week a private contractor collects. the garbage in a pick-up truck and hauls it to the disposal site. Wastes generated in Enterprise are domestic in nature and include oil containers, furniture, tires, automotive parts, scrap metal, and wood. Sewage bags are not used. Burning wastes in oil drums is not practised at the home. Each year the community organizes a spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 7.7 km north of Enterprise along the road to Hay River. Construction of the new modified landfill site was completed in 1987. It has an area of about 20,000 m^2 and includes ten solid waste cells for a planned ten year capacity. The garbage is compacted and covered bi-weekly in the summer and backfilled when full. A separate 20 m x 20 m area nearby is reserved for disposal of bulky wastes.

B.4 Drainage

Runoff from the solid waste disposal site drains down a graded slope toward the low lying areas northeast of the site. A drainage ditch at the north end of the site has been constructed to intercept surface runoff. The water flows into a ditch and eventually into the Hay River.

FORT LIARD

A GENERAL

A.1 Location

Latitude: 60°14' N Longitude: 123°28' W

On the south bank of the Liard River near its junction with the Petiot River.

A.2 Community Information

The settlement of Fort Liard lists among its major economic activities , trapping, hunting, fishing, forest fire fighting, and highway construction.

The population has grown slowly over the past ten years.

POPULATION	YEAR	
405	1981	1981-1986
397	1985	% change:
3 9 5	1986	-2.5%

A licensed 899 m X 30 m gravel runway is located south of the community.

A.3 Geology and Terrain

On a river terrace north of an abrupt rise, in luxuriant forest and subject to occasional flooding.

The soil is sand and gravel. Fort Liard is in the discontinuous permafrost zone.

A.4 Climate

July mean high: 22.7°C
July mean low: 10.8"C

January mean high: -20.2°C
January mean low: -29.3°C

Winds SW at 16.1 km/h

Average Annual Precipitation:

13.3 cm rainfall
193.8 cm snowfall
44.9 cm precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied by dug and drilled wells to some of the residences. The remainder of the settlement receives trucked water from the Petiot River three or four times per week or from the community well.

B.2 Sewage Disposal

Buildings with pressure water systems are equipped with septic tanks and leaching beds. Some buildings are equipped with open soak pits. The remainder are serviced by outhouses.

B.3 Solid Waste Collection

Solid wastes are collected by a one-man crew once per week using a 1 ton pick-up truck. There is no bagged sewage service in Fort Liard. Once a year the community participates in an annual spring clean-up.

B.3.1 Solid Waste Disposal

The existing solid waste -disposal site is located 15 km southwest of the community on flat land occupying 175 m x 130 m x 2. m. The present site has been in operation for two years and is expected to service the community for another fifteen years. Although partial fencing has been erected around the site access to the site is not controlled. Collected wastes are dumped into an excavated trench and compacted and covered monthly when weather permits. Segregated from domestic wastes.

Earth-moving equipment available: D6 CAT

FORT PROVIDENCE

A GENERAL

A.1 Location

Latitude: 61°21' N Longitude: 117039' W

On the steep 12 m northeast bank of the Mackenzie River.

A.2 Community Information

The settlement of Fort Providence was a traditional trapping community until a highway to Yellowknife and a ferry service across the Mackenzie River were established. Trapping is supplemented by tourism and highway rest stop services as major economic activities. Population statistics for the settlement are as follows:

POPULATION	YEAR	
605	1981	1981-1986
663	1985	% change:
588	1986	-2.8%

A licensed 914 m X 30 m gravel runway is located 4 km south of the community.

A.3 Geology and Terrain

On a raised clay and sand terrace, surrounded by flat swamp and muskeg terrain, sparsely treed, with few rocky outcrops along the lake shore and river.

Fort Providence is located in a zone of discontinuous permafrost, with an active layer approximately 3 m thick.

A.4 Climate

July mean high: 23.1°C January mean high: -22.7°C
July mean low: 9.4°C January mean low: -32.0°C

Winds CIA at 7.5 km/h.

Average Annual Precipitation:

15.2 cm rainfall
122.0 cm snowfall
28.0 cm total precipitation.

8 MUNICIPAL SERVICES

8.1 Water Source

Water is supplied from the Mackenzie River 15 km upstream from the community. The water is chlorinated and softened and distributed to the settlement by delivery truck.

Snowshoe Inn operates a privately owned piped water distribution system that receives water from a well.

8.2 Sewage Disposal

All sewage wastes from the community are transported by vacuum truck from pumpout tanks to a four cell sewage lagoon 3 km east of town, adjacent to the solid waste disposal site.

8.3 Solid Waste Collection

Solid wastes are collected once per week during the winter months and twice per week during the summer months by a private contractor. Garbage is placed in 205 L oil drums for collection and burning is not encouraged. Domestic wastes are hauled to the disposal site by a truck equipped with a "Haul-All. Commercial wastes from the HBC, RCMP, and nursing station are collected privately by the Snowshoe Inn. Sewage bags are not used in Fort Providence. An annual spring clean-up takes place in May.

8.3.1 Solid Waste Disposal

The solid waste disposal site is located 2 km northeast of the town in an old gravel pit. The 100 m x 200 m x 2 m site has been in operation for two years and is estimated to be capable of servicing the community for fifteen more years. Metal wastes and used oil wastes are not separated from other wastes. Although gravel material is available, the open dump is not covered nor compacted.

Earth-moving equipment available: D6 Caterpillar Tractor

FORT RESOLUTION

A. GENERAL

A.1 Location

Latitude: 61°10' N Longitude: 113" 40' W

On the south side of Great Slave Lake southeast of the Slave River Delta on a peninsula on the northeastern shore of Resolution Bay.

A.2 Community Information

Trapping remains a major activity in the settlement along with hunting and domestic fishing. A co-op sawmill established in 1964 currently provides jobs for 20-25 locals.

Population has declined in recent years.

POPULATION	YEAR	
605	1981	1981-1986
527	1982	% change
471	1985	-2.8%
447	1986	

A licensed 1265 m X 30 m gravel runway is located nearby.

A.3 Geology and Terrain

On dune and lake sands and silts in low lying swampy coast. Fine sand and silts up to 1.5 m thick lie above alluvium and glacial drift up to 37 m thick. Devonian limestone makes up the underlying bedrock.

Discontinuous permafrost at depths of 0.5 m or greater exist under tree covered areas.

A.4 Climate

July mean high: 20.7°C
July mean low: 10.5"C

January mean high: -22.4°C
January mean low: -32.9°C

Winds SE at 15.3 km/h.

Average annual Precipitation:

16.2 cm rainfall
174.0 cm snowfall
30.7 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water from Great Slave Lake is treated and trucked to residences six days per week under private contract. Intake, treatment facilities, and a storage tank are available.

B.2 Sewage Disposal

Approximately fifty homes are equipped with septic tanks while others have privies, 2274 L holding tanks, or chemical toilets. Sewage is pumped out from about thirty homes by a private contractor and disposed of in a small porous pit area across from the waste disposal site 2.7 km from the community.

B.3 Solid Waste Collection

Garbage is collected from 205 L barrels twice per week by a two-men crew using a packer truck. Occasionally the wastes are burned in the barrels to reduce volume and scattering. Sewage bags are not used in the community. Once per year when the ground dries up, the community organizes a spring clean-up.

B.3.1 Solid Waste Disposal

A site 2 km north of the community has been in operation for the past two years and is expected to service the community for one more year. Solid wastes are dumped in a trench 60 m x 20 m x 1.5 m and covered when required. A separate area 30 m x 20 m has been maintained for large metal wastes and old vehicles. Oil waste is dumped on the access road for dust control. Once a week the wastes are burned and periodically compacted as required.

Earth-moving equipment available: CAT
Loader
Grader

B.4 Drainage

Presently, two roads run between the disposal site and the lake. The roads cut the drainage pattern of the area so that there is no direct drainage flow in the direction of the river.

FORT SIMPSON

A. GENERAL

A.1 Location

Latitude: 61°52' N Longitude: 121°21' W

On a 1 km X 4 km island at the confluence of the Mackenzie and Liard Rivers.

A.2 Community Information

Fort Simpson has the distinction of being the oldest continuously occupied trading post on the Mackenzie River. This centre of administration for the Upper Mackenzie Valley area lists government, transportation, tourism, trapping, handicrafts, and logging/sawmilling as its major economic activities.

Population statistics for the community are given:

Population	YEAR	
980	1981	1981-1986
1102	1985	% change:
987	1986	*-0.7%*

An island airport with a licensed 914 m X 30 m gravel/snow runway is located just west of the settlement, and a licensed 1829 m X 46 m asphalt runway is located southeast of the settlement across the Mackenzie River.

A.3 Geology and Terrain

On lowland silt terraces, treed with dense bush and subject to occasional flooding. The island is continuously being eroded on its northeast side and silt is deposited on the remaining shores.

Fort Simpson is located in a discontinuous permafrost region.

A.4 Climate

July mean high: 23. 1°C
July mean low: 10.9"C

January mean high: -23.3°C
January mean low: -31.7°C

Winds NW at 11.1 km/h.

Average Annual Precipitation:

21.7 cm rainfall
142.2 cm snowfall
35.1 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water intake from the Mackenzie River 1 km from shore. The water is chlorinated and fluoridated before distribution to the sixteen homes. Trucked water delivery is provided twice per week. The remainder receive water by an underground piped system.

B.2 Sewage Disposal

Most residences have piped sewage collection via gravity mains while others use a septic tank and leach pit system. Gravity outfall discharges raw sewage into the Mackenzie River downstream of the serviced area.

B.3 Solid Waste Collection

The village is responsible for solid waste collection twice per week for domestic garbage and three times per week for commercial wastes. Garbage is placed in 205 L drums and occasionally burned. A mini compactor truck collects the garbage and transports it to the disposal site.

B.3 1 Solid Waste Disposal

The open dump/landfill site is located 10.4 km from the village on the Mackenzie Highway on the way to Wrigley. The wastes are regularly burned and buried.

FORT SMITH

A GENERAL

A.1 Location

Latitude: 60° 00'N Longitude: 111°53' W

On the west bank of the Slave River at the NWT - Alberta border.

A.2 Community Information

Fort Smith is the GNWT's administrative centre for the Fort Smith Region. A large proportion of the residents are government employees, while the remainder depend on trapping and tourism for their livelihoods.

Community population has increased over the past ten years.

POPULATION	YEAR	
2312	1981	1981-1986
2468	1985	% change:
2460	1986	6.4%

A licensed 1829 m X 60 m asphalt runway and a 1524 m X 46 m sand/turf runway are located north of the community.

A.3 Geology and Terrain

On lowland silt terraces, treed with dense bush on the lowest and subject to occasional flooding. Continuous erosion of the northeast flank creating instability. Landslides as a result of erosion of the riverbanks, river level fluctuations, ground water fluctuations, and soil strength are a problem. All development in the landslide zone parallel to the river has been forbidden.

Fort Smith is situated in the discontinuous permafrost zone.

A.4 Climate

July mean high: 23. 1°C
July mean low: 10.9°C
January mean high: -23.3°C
January mean low: -3 1.7°C

Winds NW at 11.1 km/h.

Average Annual Precipitation:

21.7 cm rainfall
142.2 cm snowfall
35.1 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from a wet well intake just upstream from the “Rapids of the Drowned” in the Slave River. The water is treated with alum, soda ash, and disinfected, faltered, fluoridated and heated before it is pumped through an underground piped system to most homes. Sixteen homes receive trucked delivery twice per week.

B.2 Sewage Disposal

Sewage is pumped under pressure from the lift stations to a three cell lagoon system. Some buildings use a septic tank and leach pit system. Gravity outfall discharges raw sewage into the Slave River downstream of the serviced area.

B.3 Solid Waste Collection

Solid wastes are collected by a mini compactor. The service is provided by the Town.

B.3.1 Solid Waste Disposal

The open dump/landfill site is located 5 km west of Town, 1 km north of Highway 5. Garbage is dumped on a prepared flat area and periodically dozed over the edge of an embankment. The wastes are regularly burned.

HAY RIVER

A GENERAL

A.1 Location

Latitude: 60°49' N Longitude: 115°47' W

On the south shore of Great Slave Lake at the mouth of the Hay River.

A.2 Community Information

Hay River is a major transportation and communication centre of the Fort Smith Region. Commercial fishing, government, and services are other major economic activities. Hay river has a wide variety of services and facilities and is one of the few NWT communities which is largely dependent on private enterprise.

Population data for the Town are shown.

POPULATION	YEAR	
2863	1981	1981-1986
3190	1985	% change:
2964	1986	3.5 cm
4011	2010	

A licensed 1829 m X 46 m asphalt runway and 1219 m X 46 m gravel runway is located north of the airport.

A.3 Geology and Terrain

In low lying, thickly forested country subjected to flooding during spring break up. Layers of silts, clays and hard till cover underlying bedrock of shale, limestone and dolomite.

Located within the discontinuous permafrost, with permafrost ranging from O to 9 m thick. -

A.4 Climate

July mean high: 20.7°C January mean high: -21.0°C
July mean low: 10.8"C January mean low: -30.5°C

Winds E-NE at 12.1 km/h.

Average annual precipitation:

18.4 cm rainfall
165.0 cm snowfall
34.0 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Great Slave Lake to a new pumpout and treatment plant. The water is distributed by a piped system to most of the residents. Some residents receive trucked water service.

B.2 Sewage Disposal

Piped sewage is collected using five lift stations, three of which discharge under pressure to a twin celled sewage lagoon.

Residents of Vale Island use leach pits, privies and sewage pumpout.

B.3 Solid Waste Collection

Garbage is collected twice per week by a two-men crew operating a packer truck. Sewage bags are not used in Hay River. Bulky wastes and metal wastes are the responsibility of the individuals and some are collected during the annual spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located. about 8 km southeast of the town on the north side of Highway 5. Garbage is dumped in a 150 m x 40 m x 4 m trench and compacted daily. Once a week the wastes are covered with clay cover material. The site has been in operation for twelve years and will last three more years if another trench is excavated. There is partial fencing around the site but access is not controlled. A separate 200 m x 100 m bulky waste disposal area is provided for the disposal of large items and metallic wastes. Used oil is used in two community places as fuel for heat.

Signs have been posted prohibiting burning at the disposal site but the residents ignore them.

Earth-moving equipment available: CAT D8

JEAN MARIE RIVER

A GENERAL

A.1 Location

Latitude: 61°32' N Longitude: 120°38' W

At the junction of the Jean Marie and Mackenzie Rivers.

A.2 Community Information

The unorganized settlement of Jean Marie River is a Slavey community whose major activities include trapping, commercial fishing, and tourism. A sawmill owned by the Jean marie co-operative provides wage employment for some of the residents.
Population statistics are as follows:

POPULATION	YEAR	
69	1981	1981-1986
74	1985	% change:
64	1986	-7.2%
102	2010	

No air facilities exist.

A.3 Geology and Terrain

The community lies on a well-treed area, on the riverbank 6 m above the river. Soil in the community is sandy clay.

A.4 Climate

July mean high: 25.6°C
July mean low: 12.2°C

January mean high: -23.0°C
January mean low: -32.7°C

Winds NW at 15 km/h.

Average annual precipitation:

38.1 cm rainfall
155.0 cm snowfall
53.3 cm total precipitation.

8 MUNICIPAL SERVICES

8.1 Water Source

Hand dug wells or Jean Marie River provides water for the community.

8.2 Sewage Disposal

Sewage disposal consists solely of pit privies.

8.3 Solid Waste Collection

Garbage is placed in 205 L drums by the residents and burned to reduce volume. Garbage collection is once per week.

8.3.1 Solid Waste Disposal

Solid Wastes are dumped at an open dump site west of the community, next to the Jean Marie River

There is some concern that the disposal site is located too close to the river. A new site located away from the river and accessible year round has been recommended for the community. Trenching has also been recommended.

KAKISA

A GENERAL

A.1 Location

Latitude: 60°56' N Longitude: 117025' W

On the west bank of **Kakisa** Lake by the **Kakisa** River.

A.2 Community Information

This unorganized settlement of Dene Indians relies heavily upon trapping and commercial fishing.

Population in this community has remained relatively stable.

POPULATION	YEAR	
36	1981	1981-1986
36	1985	% change:
30	1986	-7.2%
28	2010	

No air facilities are available.

A.3 Geology and Terrain

Flat woodland area with few bedrock exposures.

A.4 Climate

July mean high: 24.1°C
July mean low: 9.2°C

January mean high: -22.0°C
January mean low: -31.4°C

Winds E at 16.5 km/h.

Average annual precipitation:

14.6 cm rainfall
113.5 cm snowfall
26,0 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is carried by hand from **Kakisa** Lake untreated.

B.2 Sewage Disposal

All residents use outhouses.

B.3 Solid Waste Collection

Solid waste collection is irregular in this community. A one-man crew with a 3/4 ton pick-up collects the waste and hauls it to the disposal site. Sewage bags are not used and there is no organized annual spring clean-up.

B.3.1 Solid Waste Disposal

A solid waste disposal site is located 0.5 km east of the community. Wastes are dumped in a 50 m x 50 m x 2 m trench and covered annually with excavated material. The present site has ben servicing the community for five years and is expected to service the disposal needs of the community for another five years. The site has full fencing around the perimeter but access to the site remains uncontrolled. Bulky, metallic wastes and used oil wastes are not segregated from other wastes. Wastes are not burned at the disposal site.

Earth-moving equipment available: D6 Caterpillar Tractor
from Fort Providence

LAC LA MARTRE

A. GENERAL

A.1 Location

Latitude: 63°08' N Longitude: 117° 16' w

On the southeast shore of Lac La Martre.

A.2 Community Information

This largely Dene community achieved Hamlet status in 1986. Lac La Martre is located in the rich fish and fur harvesting area consequently, most families support themselves by hunting, fishing, and trapping.

Population statistics for the community are as follows:

POPULATION	YEAR	
268	1981	1981-1986
317	1985	% change:
345	1986	28.7%
493	2010	

An unlicensed 671 m X 21 m clay/sand runway is located just east of the community.

A.3 Geology and Terrain

On flat lowland with marshy terrain to the northeast and south, surrounded by taiga forest. Glacial or alluvial sand and silt overlies sedimentary bedrock.

The settlement is situated within the discontinuous permafrost zone with an active layer 0.5 m to 1.8 m deep.

A.4 Climate

July mean high: 25.6°C January mean high: -23.0°C
July mean low: 12.2°C January mean low: -32.7°C

Winds E at 16.1 km/h.

Average annual precipitation:

12.7 cm rainfall
111.8 cm snowfall
22.9 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is supplied from Lac La Martre and a small lake approximately 2.5 km east of the settlement. Distribution to residents occurs three to five times per week by a 4500 L delivery tank truck.

B.2 Sewage Disposal

Most homes are equipped with outdoor privies. The school has a pumpout sewage tank. The government buildings are equipped with septic tanks. The vacuum truck disposes sewage at a shallow pit located approximately 4.7 km east of the settlement.

B.3 Solid Waste Collection

Solid waste is collected at least twice per week by a two-men crew and a F-250 packer truck. The school burns wastes regularly prior to collection. Bagged sewage is collected twice per week using the same collection vehicle but separate from other wastes. Each year the community organizes an annual spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 5 km northeast of the settlement on flat land and occupying a 50 m x 50 m area. This fully fenced site has been in operation for five years and is expected to operate for another 5 years. A separate area 75 m x 75 m has been cleared for bulky waste disposal and a separate site 100 m x 100 m adjacent to the solid waste site is being used for sewage disposal. Used oil is burned with combustible wastes.

Sandy soil is readily available at the site and is used to cover the wastes monthly. The wastes are not compacted but burning is practised when it is required.

Earth-moving equipment available: D6 CAT

NAHANNI BUTTE

A GENERAL

A.1 Location

Latitude: 61°02' N Longitude: 122°23' W

On the south side of the South **Nahanni** River, near the junction with the Liard.

A.2 Community Information

The unorganized community of Nahanni Butte is the access point for Nahanni National Park. Tourism along with trapping are the major economic activities of this area.

POPULATION	YEAR
85	1981
94	1985
84	1986
122	*2010*

A 762 m X 18 m gravel/dirt runway is located southwest of the community,

A.3 Geology and Terrain

On flat-lying sand and silt, with butte to the north, in wooded and mountainous area.

A.4 Climate

July mean high: 25.6°C
July mean low: 12.2°C

January mean high: -23.0°C
January mean low: -32.7°C

Winds NW at 16 km/h.

Annual average precipitation:

38.1 cm rainfall
154.9 cm snowfall
53.3 cm total precipitation.

B MUNICIPAL SERVICES

B.1 Water Source

In the summer, water is hauled by residents from a dug well 10.5 m deep. In the winter, water is obtained from the South **Nahanni** River.

B.2 Sewage Disposal

The school and government buildings have toilets and septic beds. The majority of the population uses pit privies.

B.3 Solid Waste Collection

Solid waste is collected once per week with a wagon and loader by a one-man crew. Wastes are not burned in **oil** drums prior to collection. An annual spring clean-up is organized each spring.

B 31 Solid Waste Disposal

The solid waste disposal site is located adjacent to the airport less ‘than 1 km from the community. This site has been operating for 20 years and has in the opinion of local officials reached its operating capacity. Wastes are not segregated at the site and maintenance is poor.

A new site is to be constructed in 1990.

RAE-EDZO

A GENERAL

A.1 Location

Latitude: 62°50' N Longitude: 116°03' W

Rae: On a rocky peninsula on the southeast shore of Marion Lake.

Edzo: On the east shore of the west channel which flows between Marion Lake and the North Arm of Great Slave Lake.

A.2 Community Information

The twin community of Rae-Edzo is the largest Dene community in the NWT. The Edzo site was established in 1965 to alleviate sanitation problems in Rae resulting from poor drainage. Many residents continue to reside in Rae because of better water access for fishing and hunting.

Population statistics for the twin community are given below.

POPULATION	YEAR	
1378	1981	1981-1986
1481	1985	% change:
1378	1986	o %
2080	2010	

A licensed ice strip operates from Frank Channel between Great Slave Lake and Marion Lake.

A.3 Geology and Terrain

Rae: On low-lying area with outcrops of granite rock and wet lowlands of silty clay lake sediments.

Edzo: On shale and sandstone bedrock, in rough timbered country bounded on the south by the Mackenzie Highway and to the northwest by numerous lakes and muskeg.

A.4 Climate

July mean high: 20.4°C
July mean low: 11.3°C

January mean high: -23.4°C
January mean low: -32.0°C

Winds E at 16 km/h.

Average annual precipitation:

14.4 cm rainfall
110.0 cm snowfall
25.4 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Rae: Water pumped from polluted Marion Lake to a water treatment plant. The water is flocculated, settled, filtered, and chlorinated before being trucked to residences. Taphouses supplied by a piped distribution system are scattered throughout the community.

Edzo: Water supplied from Great Slave Lake, treated and piped to residents.

B.2 Sewage Disposal

Rae: Some residences have sewage pumpout three times per week. The remainder continue to use the honey bag system. Sewage is disposed of in a sewage lagoon 3 km east of Rae.

Edzo: Piped sewage system.

B.3 Solid Waste Collection

Solid wastes are collected two to three times per week by private contractor using a 9.1 $2m^3$ capacity side loading Haul-All unit. Garbage is placed in 205 L drums for collection and burnt. Bagged sewage is collected twice per week. Once per year the Hamlet organizes a spring clean-up.

B 3.1 Solid Waste Disposal

Rae: Garbage is hauled to an open dump/landfill site 3 km east of the community. Partial fencing around the dump area keep windblown material contained. The site has been in operation for twenty years and is expected to be operational for another one or two years. Bagged sewage is separated from liquid wastes and deposited in a separate cell 20 m x 30 m x 5 m at the lagoon site. Used oil is used for burning at the dump.

The closest service of cover material is 8 km away so the disposal site is covered only when necessary.

Earth-moving equipment available: Loader
Grader
Skidder

Edzo: Solid waste is hauled to a site 3 km northeast of the community on flat land. The site is approximately 100 m x 200 m and has been used for 20 years. It only has 1 -2 years of capacity left. It is partially fenced. Bulky wastes are disposed at a separate site. Honey bags are disposed in a pit 15 m x 12 m x 3 m deep, located near the lagoon, which treats piped sewage. Used oil is used for surface treatment of roads, or deposited at the landfill site. A need for a new and better located site is mentioned. There is insufficient cover material, therefore covering occurs only monthly.

RAE LAKES

A GENERAL

A.1 Location

Latitude: 64°09' N Longitude: 117020' W

Located about 177 km by air northwest of Yellowknife.

A.2 Community Information

Rae Lakes is a small native community. The Dogrib Dene used the site on the shore of Rae Lakes as a hunting camp in past years. In the early 1970's it became a more permanent settlement with the construction of a community hall, teacherage, store, homes and an airstrip. The natives support themselves by fishing and trapping.

POPULATION	YEAR
178	1980
200	1982
?	1986
?	*2010*

There is a weekly scheduled flight from Yellowknife. A winter road connects Rae Lakes to the Mackenzie Highway near Rae Edzo.

A.3 Geology and Terrain

The soil is sandy fill with some boulders overlaying Precambrian rock. There are rock outcrops in the community. Tree cover in the area generally consists of black spruce, poplar and willow.

A.4 Climate

Temperatures: Not available.

Winds: Easterly at an average of 16 km/hr.

Average annual precipitation:

12.7 cm rainfall
111.8 cm snowfall
23.9 cm total precipitation

B MUNICIPAL SERVICES

B.1 Water Source

A summer water supply system was constructed in 1977. Water is obtained from Rae Lake through an intake pipe and submersible pump. Residents can fill their containers at 11 water points located throughout the community. During winter residents must obtain water from a hole cut through the ice at the end of the dock, as in the past.

B.2 Sewage Disposal

Sanitation facilities are very basic in Rae Lakes. All houses have outdoor privies. The school and the community hall have bagged sewage facilities and leaching pits for grey water.

B.3 Solid Waste Collection

Solid wastes are collected twice per week and bagged sewage separately from solid waste three times per week. A two-men collection crew uses a 10 ton Ford dumptruck. Burning of wastes in oil drums at the house is practised. Large bulky wastes are brought to the disposal site by individuals. There is no organized annual spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 1.2 km southeast of the community. It was established in 1985. A depression about 40 m x 40 m by 3 m deep is used. The site is not fenced. Bulky wastes are disposed in an adjacent site about 50 m x 30 m. Bagged sewage are also disposed east of the solid waste site in a pit 20 m x 20 m x 3 m deep. Used oil is disposed of at the solid waste disposal site. The wastes are compacted weekly and covered with gravel (Case W-14 loader and Clark 663 skidder). It is estimated that the present site will be sufficient for the next 3 - 5 years.

B.4 Drainage

Roads generally consist of trails which have been upgraded through maintenance and surfacing. Drainage is over land and does not pose serious problems.

SNARE LAKE

A. GENERAL

A.1 Location

Latitude: 64°11' N Longitude: 114°11' W

On the shore of Snare Lake 195 air km north of Yellowknife.

A.2 Community Information

An outpost hunting camp until 1962, Snare Lake presently has settlement status. Hunting, fishing, and trapping are the major economic activities of the area.

The community population has increased over the past ten years.

POPULATION	YEAR	
69	1981	1981-1986
80	1985	% change:
119	1986	72.5%
144	2010	

Airport facilities constructed in 19885 km east of Snare Lake.

A.4 Climate

Not available.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is pumped from Great Slave Lake by a newly constructed pumphouse and chlorinated before distribution to the community by 4550 L capacity water truck.

B.2 Sewage Disposal

Government houses, RCMP, and school have holding tank and pumpout systems. The remainder of the community uses honey bags. Sewage disposal is provided three times per week and discharged into a single cell sewage lagoon located near the airport.

B. MUNICIPAL SERVICES

B.1 Water Supply

The water source is the Great Slave Lake in the winter and the Snowdrift River 3 km from the community in the summer. Water is trucked to the community. The water is chlorinated by adding bleach to the delivery truck's tank. Water delivery by a 3400 L truck occurs twice a week. Consumption is estimated at 12 l/c/d.

B.2 Sewage Disposal

The native residents use bagged sewage or privies. The homes of government employees have leaching pits generally consisting of buried wood cribs. Several buildings have pumpout tanks.

B.3 Solid Waste Collection

Solid wastes are placed in 205 L oil drums on elevated wooden stands in front of each residence. Burning of wastes in the oil drums is practised. Twice per week collection is carried out by a two-men crew using a pick-up truck. Bagged sewage is collected separately twice per week but using the same vehicle. An annual spring clean-up occurs in June. Bulky wastes are being picked up by the collection crew on request.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 2 km west of the settlement near the airstrip. The site is partially fenced. Both honey bags and bulky waste are disposed at an adjacent separate site from the solid waste site. Used oil is disposed with the solid waste and used to assist in burning the solid waste occasionally. Covering of the wastes occurs about four times per year. Frontend loader and bulldozer are available at the site.

B.4 Drainage

Roads are gravel surfaced. Drainage within the settlement is good. The ground dries quickly after the infrequent precipitation.

TROUT LAKE

A GENERAL

A.1 Location

Latitude: 60°26' N Longitude: 121°15' W

On the south shore of Trout Lake in the southeast NWT.

A.2 Community Information

This small traditional **Slavey** community was not established as a permanent community until the late 1960's. Hunting, trapping, and fishing are the major economic activities of the area. In the summer, a fishing lodge is operated by the locals. Trout Lake offers only the basic services to its residents.

Population statistics for the community are as follows:

POPULATION	YEAR	
59	1981	1981-1986
61	1985	% change
54	1986	-8.5%
67	2010	

An unlicensed 600 m X 23 m sand/turf runway is available.

A.3 Geology and Terrain

On flat sandy, thickly wooded area.

A.4 Climate

July mean high: 25.6°C
July mean low: 12.2°C

January mean high: -23.0°C
January mean low: -32.7°C

Winds SW at 16 km/h.

Average annual precipitation:

38.1 cm rainfall
132.0 cm snowfall
48.3 cm total precipitation.

B. MUNICIPAL SERVICES

B.1 Water Source

Water is hauled from Trout Lake untreated by the residents.

B.2 Sewage Disposal

All residents use outdoor pit privies.

B.3 Solid Waste Collection

Solid wastes are collected once per week by a two-men crew. Residents bum all combustibles in 205 L drums during the winter prior to collection by dump truck. Bagged sewage is not used in this community. Once a year in May the community participates in an annual spring clean-up.

B.3.1 Solid Waste Disposal

The solid waste disposal site is located 0.5 km south of the community. Wastes are dumped into a trench that has been in operation for four years. The present site is poorly maintained and there is a possibility of contamination of the community's alternate water supply. Access to the site is difficult in spring.

Earth-moving equipment available: Case W 14 Loader
D6 CAT

WRIGLEY

A. GENERAL

A.1 Location

Latitude: 63°14' N Longitude: 123°28' W

On the West bank of the Mackenzie River below its junction with the Wrigley River.

A.2 Community Information

The settlement was relocated to its present site in 1965. The residents continue to hunt, trap, and fish for a living. A co-op, sawmill, Hudson,s Bay store, nursing station, primary school, and community hall provide some employment.

POPULATION	YEAR	
137	1981	1981-1986
156	1985	% growth:
161	1986	24%
215	2010	

A licensed 1067 m X 30 m gravel runway seines the community.

A.3 Geology and Terrain

On the terrace of sandy silt, in mountainous, forested area with muskeg and hotsprings. The bedrock is shale, silt stone, and sandstone under well graded gravel and sand.

In the discontinuous permafrost zone with an active layer 0.6 m to 2.1 m thick.

A.4 Climate

July mean high: 22.8°C
July mean low: 9.8°C

January mean high: -25.1°C
January mean low: -33.4°C

Winds CIA at 10.3 km/h.

Average annual precipitation:

20.0 cm rainfall
137.0 cm snowfall
33.5 cm total precipitation

B MUNICIPAL SERVICES

B.1 Water Supply

Water is pumped from Yellowknife River, chlorinated and fluoridated before distribution by an underground piped system. Old Town residents receive truck delivery of water during the winter and small diameter surface line delivery of water during the summer.

B.2 Sewage Disposal

Piped sewage collection system that discharges into Fiddler's Drainage area west of the city. Many residences in Old Town have pump out sewage tanks. Regular pump out service is contracted locally.

B.3 Solid Waste Collection

Domestic garbage is collected by a private contractor once per week, using a number of back loading type 25 yd^3 capacity packer trucks. Construction wastes are hauled to the dump by private firms and 'individuals.' Bagged sewage from about fifty city residences are collected once per week by a private contractor. Once a year the city organizes a spring clean-up.

B.3.1 Solid Waste Disposal

The Yellowknife municipal landfill site is located 2 km north of the city and approximately 3.5 km from the Yellowknife airport. It occupies 10000 m^2 of a natural depression surrounded by low rock ridges. Bulky wastes are segregated from the rest of the solid wastes and placed in a separate 100 m x 35 m area of the site. Bagged sewage is deposited at the Fiddlers Lagoon area in a 16 m x 3 m x 2.5 m trench. Waste oil storage tanks are being planned for the landfill site in 1990. An attendant is on duty at the site between the hours of 10:00 a.m. to 10:00 p.m. and the access gate is locked after working hours.

Every Monday and Friday the garbage is pushed over the active face of the codified landfill and covered with granular material.

Periodic fires and smoke from underground 'hot spots' as well as fires caused by scavengers is a nuisance to residents of Yellowknife and users of Yellowknife airport.

Earth-moving equipment available: Loader
2 Trucks
Backhoe

B.4 Drainage

Leachate resulting from runoff passing through the site flows approximately 100 m to the east and enters Fault Lake. The impact of these contaminants upon the Lake's water quality is unknown.

APPENDIX B

SUMMARY OF COMMENTS

COMMENTS - SOLID WASTE COLLECTION

Ray Faubert
Hamlet Foreman, Cape **Dorset**

- Solid waste should be picked up daily. This helps to maintain the aesthetics of the community.

  In my community, we do not have expensive vehicles such as "Packers", etc. A simple dump body truck is more efficient for the following reasons:

  i) There is only one mechanic hydraulic control to maintain.

  ii) The garbage is loose and can easily be disposed of by burning.

  iii) Our community is small with only 17 kilometres of road, therefore the small motor vehicle (6 cylinder) diesel is the better vehicle to buy and it is more economical to operate and maintain.

- I suggest spending a little money for operator comfort in the way of providing an AM/FM radio and comfortable seats in the vehicle. Creating a harmonious work situation for the operator (who sits in this vehicle for 8 hours a day) results in better work performance.

David Arreak
Hamlet Foreman, Clyde River

- During annual spring clean-up, involves 3 vehicles such as regular garbage truck, dump truck and 2 front end loaders, additional crew are hired by Hamlet to haul the waste from town to garbage dump.

Maria **Limoosin**
Hamlet Manager, **Rankin Inlet**

- **The** community requires 2 garbage trucks. The service we are providing at the present time is inadequate. The formula in the standards and criteria confirms the need for 2 trucks.

Cecil Lafferty
Community Manager, Fort Resolution

- Funding should be made available for large bulky waste.

Les Kunihillsi
Foreman, Broughton Island

- Incoming new site, need 12 feet high fenced northside and southside.

Ray Faubert
Hamlet Foreman, Cape Dorset

. The area should be fenced in to prevent the wind from blowing refuse back into the community and also to prevent people from dragging garbage home and creating backyard eyesores.

. A burner stack could be built with an open garbage shoot. The truck will back up to the shoot entrance and dump it's load on the platform. As the refuse slides down the platform, it will end up on 6" grates. Under these grates you would install 2 blast furnaces. The garbage will then be burnt on the grate and above the grate.

Then the unburnable substances will fall through the 6" bars to the platform below. This refuse will be the unburnable leftovers such as cans, tin, etc. This leftover refuse will be considerably smaller in size than when it was first dumped in.

At this point you have several options:

1) You can compact it and send it out on a scrap ship.
2) Use a loader to take it away and bury it.
3) Use it for road fill, side bank fill, etc.

I can provide a blueprint drawing of my idea of this operation.

Moosa **Akavate**
Hamlet Foreman, Lake Harbour

. Rumour was heard from MLA meeting last year that old freezers at dump areas may have PCB.

. Burning bin/cage would help for every day burning no matter where wind coming from.

Ray **Mullins**
Hamlet Manager, Chesterfield Inlet

. Would like it (disposal site) fenced to keep foxes from getting at the raw sewage which may be one of the causes for the rabies problem in town this winter.

Bernie **Uluadluate,** Paul **Sabourin**
Hamlet Foreman, Hamlet Manager, Whale Cove

. I would like hazardous or toxic wastes, transformers containing PCB'S, disposed separately from our disposal site, where there is no leached runoff to the ocean.

Terry Broekes
Municipal Engineer, **Kitikmeot** Region

. I would like to have the used oil burnt separately for more complete combustion. The bottom of an old tank would be used as the burning vessel.

Dan Konelsky
Senior Administrative Officer, Rae-Edzo

- Solid waste sites should be located in area not visible to the public -preference would be an area that is surrounded by trees and away from the community by more than 5 kilometres. Site should be on ground where trenches could be dug and covered on a weekly basis. The site we have certainly needs improvement - relocation is in order as it is not a proper site. A site operated like ours should be closed down for all reasons, health, aesthetics and environment.

Leon Lafferty
Maintenance Foreman, Rae

- Dump site should be located away from highway about 4-5 km away from community. It should be fenced in with wire mesh and away from visibility, if off highway, the site should be solid fenced. Dumpsite should be close to a gravel supply.

Ray Faubert
Hamlet Foreman, Cape Dorset

- ... I strongly recommend that each municipality create a by-law which would make it mandatory to have the garbage area fenced off with entry restricted to Hamlet personnel only. The reasons listed below will help to substantiate my recommendations.

A controlled disposal site would prevent:

a) people from sorting through garbage and bringing it home to their backyards where it would become neighbourhood eyesore.

b) It would confine garbage inside the compound and prevent it from being blown back into the community, where it could contaminate the environment.

c) It would eliminate the possibility of stray dogs, etc. dragging contaminated carcasses etc. into town.

d) Restricted entry would ensure that garbage is dumped in the designated area only and not dropped somewhere along the road of off to the side of the dump as some times happens when people are allowed to cart their own garbage to the site.

e) It means more control over a vitally important area and control means more efficient, safe management of our environment.

K. King
Hamlet Manager, Arviat

- Fence garbage dump will not work in Arviat. Paper, plastic will stick to fence, the garbage dump will fill with snow and paper items will blow all over the community.

Maria Limoosin
Hamlet Manager, Rankin Inlet

- Signs that are placed at dump site. stating no dumping in specific locations are ignored or knocked down. No control of 'dumping outside of hamlet operation.

Dan Konelsky
Senior Administrative **Officer, Rae-Edzo**

- It is best if site is. not closed - if closed garbage is dumped at the gate, causes more work. Proper operation- of site should require agate man and this person to be responsible for making sure material is dumped into the trench.

- Site should be covered on a regular basis - weekly. at least - under normal circumstances, daily.

- The sanitary landfill site should be relocated to an area which has adequate-material for cover, a good location would be an old gravel pit. The site should have adequate depth so that trenches could be dug. and covered on a weekly basis, if not daily.

APPENDIX C

SAMPLE COMPLETED SURVEY

NORTHWEST TERRITORIES

SOLID WASTE DISPOSAL

SURVEY

Community: RAE - EDZO

Questionnaire Completed by:

NAME	ADDRESS
D E. (DAN) KONECSKY	RAE - EDZO
POSITION	**TEL. NO.**
SENIOR ADMIN OFFICER	392 - 6500

INSTRUCTIONS

1. The Questionnaire should be completed by someone in the Department most knowledgeable with solid waste disposal.
2. Complete and return the Questionnaire in the enclosed envelope within one month to Mr. Ken Johnson, P.Eng., MaCa, Yellowknife.
3. Complete one Questionnaire for each solid waste disposal site in the community.
4. The results of the Questionnaire will be incorporated into a report, prepared by a Consultant (Dr. G.W. Heinke, P.Eng., University of Toronto) for MaCa. A copy of the report will be sent to each community when completed.

Thank you for your cooperation.

PART A: SOLID WASTE COLLECTION

A1 SOLID WASTE IS COLLECTED BY:

- [ ] Settlement, Hamlet or Town
- [x] Contractor
- [ ] Other. Specify: _____

A.2 WHAT TYPE OF COLLECTION VEHICLE IS USED TO COLLECT SOLID WASTE?

- [ ] Packer Truck
- [ ] Stake or Pick-up Truck — Model: _____
- [x] Haul-All
- [ ] Other. specify _____ — Capacity: _____

A.3 HOW OFTEN IS SOLID WASTE COLLECTED FROM EACH HOME?

- [ ] Once per week
- [x] Twice per week
- [ ] More than twice per week
- [ ] other. Explain: _____

A.4 HOW MANY MEN MAKE UP THE COLLECTION CREW?

- [ ] 1 man
- [x] 2 men
- [ ] 3 men
- [ ] More than 3 mea

A.5 IS BURNING OF WASTES IN OIL DRUMS PRACTICED AT THE HOME?

Yes [x] No

A.6 HONEY BAG WASTES ARE CONSIDERED TO BE SOLID WASTES. IF HONEY BAGS ARE USED IN YOUR COMMUNITY, HOW ARE THEY COLLECTED?

- [ ] With the domestic solid waste
- [ ] Separately, using the same collection vehicle
- [x] Separately, using a different collection vehicle — Vehicle type: CAE TON TRUCK WITH METAL (SEALED) DUMP BOX.
- [ ] other. specify: _____

A.7 THE FREQUENCY OF HONEY BAG COLLECTION IS:

- [ ] Once per week
- [ ] Twice per week
- [x] More than twice per week. Explain: SIX

A.8 DOES YOUR COMMUNITY PARTICIPATE IN AN ANNUAL SPRING CLEAN-UP?

X Yes. Specify date of last spring clean up: ONCE SNOW IS GONE
— No

A.9 LARGE, BULKY WASTES SUCH AS USED VEHICLES, AND APPLIANCES ARE COLLECTED BY:

— Solid waste collection crew
— Contractor
— Individuals
X Other. Specify: HAMLET CREW AS REQUIRED

A.10 PLEASE MAKE ANY COMMENTS YOU WISH REGARDING SOLID WASTE COLLECTION IN YOUR COMMUNITY.

PART B: SOLID WASTE DISPOSAL

B.1 DESCRIBE THE **LOCATION** OF THE SOLID **WASTE** DISPOSAL SITE IN **RELATION TO THE COMMUNITY** (attach map if available).

Distance from **Centre** of Community: 3 (km)

Direction: SOUTH EAST **(e.g. northeast)**

B.2 SOLID WASTE IS DEPOSITED AT THE SOLID **WASTE** DISPOSAL **SITE,**

- X On flat land
- — On sloping land
- — over an **embankment**
- — **In a depression**
- — **In a trench**
- — other. specify _____

B3 PLEASE PROVIDE YOUR **BEST** ESTIMATE OF THE SIZE OF THE SITE **AVAILABLE** FOR **SOLID WASTE DISPOSAL.**

Length: 100 (m)

Width: 200 (m)

Depth (for trenches only): ? (m)

Rock outcrops, depths varies

B.4 HOW LONG HAS **THE** PRESENT SITE BEEN IN **OPERATION?**

20 **years**

B.5 IN YOUR OPINION, HOW MUCH LONGER WILL THE PRESENT SITE **ADEQUATELY** SERVICE THE NEEDS OF THE **COMMUNITY?**

½ **years**

B.6 IS THE DISPOSAL **SITE** FENCED?

- — **No**
- X ***Yea. If yes,***
  - — **full fencing** around the perimeter
  - X **partial** fencing

B.7 ***IF*** YOU ANSWERED 'NO **TO** THE **QUESTION B.6, DO** YOU THINK FENCING WOULD BENEFIT **THE** DISPOSAL SITE AND OPERATION?

- — **No**
- X **Yes**

(Continued)

B.8 ARE BULKY WASTES/METAL WASTES DISPOSED OF SEPARATELY FROM SOLID WASTES?

_ No
X Yes

B.9 PLEASE PROVIDE YOUR BEST ESTIMATE OF THE SIZE OF THE SITE AVAILABLE FOR BULKY WASTES/METAL WASTES DISPOSAL.

Length: _____ (m)

Width: _____ (m)

No specific size - area not fenced nor limited to size.

B. 10 IF HONEY BAGS ARE USED, ARE THEY DISPOSED OF SEPARATELY FROM *SOLID* WASTES?

_ No
X Yes. Specify Location: NEAR SEWAGE LAGOON

B. 11 PLEASE PROVIDE YOUR BEST ESTIMATE OF THE SIZE OF THE SITE AVAILABLE FOR HONEY BAG DISPOSAL

Length: 15 (m)

Width: 12 (m)

Depth (where applicable): 3 (m)

B. 12 ARE USED OIL WASTES DISPOSED OF SEPARATELY *FROM DOMESTIC* WASTES?

_ No
X Yes. Specify Location: _____

B.13 IN YOUR OPINION, SHOULD USED OIL BE DISPOSED OF SEPARATELY?

_ No
X Yes

B.14 HOW DO YOU CURRENTLY DISPOSE OF USED OIL?

If not used for surface dust control, dumped at the sanitary land fill site.

B 15 IS THE DISPOSAL OF HAZARDOUS OR TOXIC WASTES (for example, PCB's) A PROBLEM IN YOUR COMMUNITY?

X No
— Yes. If yes, what do you currently do for hazardous waste disposal?

B.16 PLEASE MAKE ANY COMMENTS YOU WISH TO MAKE REGARDING SOLID WASTE DISPOSAL IN YOUR COMMUNITY?

Solid waste sites should be located in area not visible to the public - preference would be an area that is surrounded by trees and away from the community by more than five kilometers. Site should be on ground where trenches could be dug and covered on a weekly basis. The site we have currently needs improvement - relocation is in order as it is not a proper site. A site operated like ours should be closed down for all reasons Health, Aesthetics and environment.

PART C: OPERATION AND MAINTENANCE

C.1 IS ACCESS **TO THE DISPOSAL** SITE **CONTROLLED?**

X No
— Yes

Please comment:

It is dark if site is not closed - if closed garbage is dumped at the gate, causes more work. Proper operation of a site should require a gate man and the person to be responsible for making sure material is dumped into trench. This

C.2 **IS BURNING OF WASTES** AT THE DISPOSAL **SITE PRACTICED?**

— No
X Yes. If yes,
— Everyday
— Once a week
— Once a month
X Other. Specify: when ever some one lights it

C3 IS ADEQUATE COVER MATERIAL **READILY AVAILABLE?**

X No
— Yes

Please comment (source, type):

Site should be covered on a regular basis - weekly at least - under normal circumstances, daily.

PART C: SOLID WASTE DISPOSAL

(Continued)

C4 HOW OFTEN ARE THE WASTES COVERED WITH GRANULAR MATERIAL

- _ Daily
- _ Weekly
- _ Monthly
- _ Never
- X Other. Specify: ~~Say for atleast monthly~~ - but this is definately not adequate

C.5 ARE THE WASTES COMPACTED ON A REGULAR BASIS?

- X No
- Yes. If yes,
  - _ Daily
  - _ Weekly
  - _ Monthly
  - _ Yearly
  - _ Other. specify _____

C.6 PLEASE LIST THE TYPES OF EARTHMOVING EQUIPMENT AVAILABLE FOR USE AT THE DISPOSAL SITE.

Loader and skid doo / 4 . 4 ? .

C.7 PLEASE MAKE ANY COMMENTS YOU WISH ON MAINTENANCE AND OPERATIONS OF WASTE DISPOSAL IN YOUR COMMUNITY.

The sanitary land fill site should be relocated to an area which has adequate material for cover, a good location would be an old gravel pit. The site should have adequate depth so that trenches can be dug and covered on a weekly basis, if not daily!