Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

Northern Affairs Program
P.O. Box 100
Iqaluit, NWT
XOA OHO

Re
Grise Fiord
WB

September 22, 1993

Mr. Levi Killiktee
Senior Administrative Officer
Hamlet of Grise Fiord
Grise Fiord, NWT
XOA OJO

Your file / Votre référence

Our file / Notre référence
B9545-5-G9

Dear Mr. Killiktee;

Re: Water Management
Hamlet of Grise Fiord, NWT
Inspection Report - 6 July, 1993

1. Please find the above noted report by Paul Smith, Water Resources Officer, Baffin District.

2. The inspection report has identified a number of concerns which you will wish to note - please refer to paragraph 11 of the report.

3. The results of the water samples taken are included. The quality of the water meets those requirements as set out in the Canadian Drinking Water Guidelines.

4. Please also find enclosed a copy of the new Northwest Territories Waters Act and its accompanying regulations.

5. Please feel free to contact our District Office if you have any questions or comments on this report.

Sincerely,

J.M.A. Theriault
District Manager
Baffin District

cc: - Water Resources, YK
- Baffin Regional Health Board, Iqaluit
- MACA, Iqaluit
- NTPC, Iqaluit

INSPECTION REPORT

WATER MANAGEMENT

HAMLET OF GRISE FIORD

6 JULY 1993

BY

PAUL SMITH

INSPECTOR UNDER THE NORTHWEST TERRITORIES WATER ACT

NORTHERN AFFAIRS PROGRAM

IQALUIT, NT

DATE: 15 JULY 1993
WATER REGISTER: N/A - UNLICENSED COMMUNITY

INSPECTION REPORT

Water Supply

1. Runoff water from the mountains behind the community is collected in a catchment basin. A gravity fed 4" pipeline carries the water down to a large water storage tank in the centre of the community. David Akeeagok, Assistant Senior Administrative Officer, said that the tank was filling quite well. This past winter, only one meter of water was left in the tank. Already the level has been brought up to 3 meters. There was no warning sign at the catchment basin. This warning sign should ask people not to litter in this area.

Waste Disposal

Sewage

2. A large berm has been placed at the base of the lagoon. The purpose of this was to catch overflow from the lagoon. At present the lagoon is divided into two cells. Mr. Akeeagok said that this wall was going to be removed to enlarge the lagoon. The effluent of the lagoon has been diverted by the berm. The effluent now mixes with a small creek and passes through the toe of the domestic waste disposal site which sits adjacent to the lagoon. The effluent then flows approximately 200 meters before entering the sea.

Bagged Sewage

3. Bagged sewage is placed in a pit adjacent to the sewage lagoon. The pit was about half full.

Domestic Waste

4. The domestic dump is broken into three distinct areas. The working area of the dump sits to one side. It is occasionally burnt, but there is no coverage of this area at all. This area needs to be covered with granular material. Wind blown garbage is evident all throughout the area. Adjacent to this area is the waste metal area. In the space in front of this is the waste oil storage. There are over one hundred drums. There is very heavy oil staining on the ground throughout this area. Across the road from this location are an additional 40 drums of waste oil.

Waste Oil and Metal

5. As noted above.

Bulk Fuel Storage

6. The GNWT facility was observed to be in excellent condition. A siphon hose was present, as there was some water trapped within the bermed area. No other concerns were noted.

7. The NTPC bulk fuel storage facility was also inspected. The only concern noted was with a metal tray structure in which several drums were sitting. Some oily material had collected in the bottom of this pan. This material should be cleaned up so as to prevent the pan from overflowing if it rains.

Warning Signs

8. Warning signs need to be posted at both the fresh water catchment basin and at the waste disposal site.

Records

9. The Hamlet maintains detailed records of water consumption.

Water Sample Collection

10. Water samples were collected from the following locations:

GF-02 Solid Waste Disposal Site Effluent
GF-03 West River
GF-04 Freshwater Source - Catchment Basin

Discussion/Concerns

11. The concerns raised by the 1993 inspection are similar to those raised by the 1992 inspection, namely:

a. warning signs should be placed at both the waste disposal and freshwater sources.

b. repairs to the sewage lagoon be made as soon as practical.

c. that the unused portions of the dump be covered with granular material so that the amount of wind blown garbage can be reduced.

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
WATER RESOURCES DIVISION, YELLOWKNIFE, NORTHWEST TERRITORIES

FIELD SAMPLING AND DATA

LICENSEE/PROJECT	LICENCE NO.	LOCATION
Hamlet of Grise Fiord	Nil	Grise Fiord, NT
DATE SAMPLED: 6 July 93	SAMPLED BY: Paul Smith	

ANALYSIS	SAMPLE VOLUME	PRESERVATIVE	STATION NUMBER: GF-01 (~~GF-01~~)	GF-02	GF-03	GF-04		
			BOTTLE NUMBER					
MISC. & ARSENIC	1 LITRE	NONE		〃	〃	〃		
HEAVY METALS	~~250~~ ~~500~~ ML	~~2~~ 1 ML 1:1 HNO_3		〃	〃	〃		
CYANIDE	500 ML	About 6 pellets NaOH to pH 12	—	—	—	—		
MERCURY	250 ML	2 ML 1:1 HNO_3 + 2 ML 5% $K_2Cr_2O_7$		〃	/	/		
NUTRIENTS	250 ML	NONE		/	/	/		
BACTERIA	500 ML	NONE	/	/	/	/		
OIL AND GREASE	1 LITRE (GLASS)	4 ML 1:1 H_2SO_4	/	/	/	/		
					—			

	GF-01	GF-02	GF-03	GF-04		
Time of Sampling	12:17	12:35	12:57	13:30		
Air Temperature	4°	→	→	→		
Water Temperature	3°	8°	4°	7.5°		
Rate of Flow	15 ℓ/min	20 ℓ/min	lots	Catchment basin		
Ice Thickness	—	—	—	—		
Depth of Sampling	—	—	—	—		
pH	8.11	8.34	8.23	7.60		
Conductivity	—	—	—	—		
Dissolved Oxygen	—	—	—	—		
					—	—

GF-01 Sewage Effluent
GF-02 Solid Waste Disposal Site Effluent
GF-03 West River
GF-04 Freshwater Source - Catchment basin

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

WATER RESOURCES DIVISION, YELLOWKNIFE, NORTHWEST TERRITORIES

RESULTS OF LABORATORY ANALYSIS

LICENSEE/ PROJECT Hamlet of Grise Fiord	LICENCE NUMBER Nil	LOCATION Grise Fiord, NT
DATE SAMPLED 6 July 93	DATE RECEIVED July 19/93	DATE COMPLETED Aug 11/93

STATION NUMBER		GF-01	GF-02	GF-03	GF-04	
LABORATORY NUMBER			930901	930902	930903	
ANALYSIS REQUIRED		✓	✓	✓	✓	✓
pH (units)				✓ 8.10	✓ 7.11	July 21/93 LA
Conductivity (µmho/cm)				✓ 98.8	✓ 37.3	
Dissolved Oxygen						
Turbidity (NTU)				✓ 4.7	✓ 0.7	July 27/93
Colour (colour U.)				✓ 5	✓ 5	MT
Suspended Solids				✓ 10	✓ 3	AUG 16/93 MS
TDS, Residue				✓ 55	✓ 25	
Calcium				✓ 14.6	✓ 3.2	
Magnesium				✓ 2.0	✓ 1.0	AUG 10/93
Tot. Hardness ($CaCO_3$)				✓ 45	✓ 12	MT
Tot. Alkalinity ($CaCO_3$)				✓ 43.4	✓ 9.5	Jul 21/93 LA
Sodium				✓ 0.5	✓ 1.1	AUG 9/93
Potassium				✓ 0.3	✓ 0.1	MT
Chloride				✓ 1.71	✓ 2.85	July 26/93 DH
Sulphate				✓ <3	✓ <3	
Total Coliform (count/100 ml)						
Fecal Coli. (count/100 ml)						
Fecal Strep. (count/100 ml)						
Std. Plate Cnt. (cnt/ml)						
BOD_5						
COD						
Carbon, IC						
Carbon, TOC						
Ammonia Nitrogen (as N)						
Nitrate + Nitrite (as N)						
Total Kjeldahl N						
Phosphorus O-P (as P)						
Phosphorus Tot (as P)						
Silica Reac. (as SiO_2)						
Total Cyanide						
Available Cyanide (WAD)						
Sulphide						
Oil & Grease						
Phenols						
Arsenic	T (µg/L)			✓ <0.3	✓ <0.3	Aug 5/93 MC
	D (µg/L)					
Cadmium	T (µg/L)		✓ <0.2	✓ <0.09	✓ <0.09	Aug 4/93 MC
	D (µg/L)					
Copper	T (µg/L)		✓ 16	✓ 1.02	✓ 3.49	"
	D (µg/L)					
Iron	T (µg/L)		✓ 3020	✓ 273	✓ 99	Aug 11/93 MC
	D (µg/L)					
Lead	T (µg/L)		✓ 9.2	✓ 1.8	✓ 6.2	Aug 4/93 MC
	D (µg/L)					
Mercury	T (µg/L)		✓ 0.17	we	July 28	
	D (µg/L)					
Nickel	T (µg/L)		✓ 14	✓ 0.40	✓ 0.3	Aug 4/93 MC
	D (µg/L)					
Zinc	T (µg/L)		✓ 92	✓ 3.54	✓ 0.5	"
	D (µg/L)					
Chromium	T (µg/L)		✓ 11	✓ 0.93	✓ 6.14	"
	D (µg/L)					

Results are expressed in µg/L, except as indicated. T and D refer to Total & Dissolved Metals