=> Water Resource

Indian and Northern Affairs / Affaires indiennes et du Nord

Northern Affairs Program
P.O. Box 100
Iqaluit, N.W.T.
XOA OHO

Department of Indian & Northern Affairs
Northern Operations Branch
MAR 29 1989
WATER MANAGEMENT
YELLOWKNIFE, N.W.T.

March 17, 1989

Your file / Votre référence

Our file / Notre référence
B9545-5-G9

Mr. Levi Killiktee
Senior Administrative Officer
Hamlet of Grise Fiord
Grise Fiord, N.W.T.
XOA OJO

Dear Mr. Killiktee:

Insp
Grise Fiord
IW
WB
MACA

Re: Inspection Report - Grise Fiord
July 15, 1988

Enclosed please find the above noted report prepared by Mr. David Jessiman, Water Resources Officer following the July 15, 1988 inspection:

The Inspection Report identifies a number of concerns that require your attention:

1. The Government of the N.W.T. will be upgrading the Fuel Storage Facilities to current acceptable Standards.

2. The Sewage Lagoon and pit was observed to be too small to properly control the sewage effluent. The Government of the N.W.T. are proposing to construct a new sewage disposal site.

3. The Solid Waste Disposal sites were observed to be unorganized and very scattered. The inspector recommended that the scrap metal and domestic garbage areas be consolidated and covered with granular material. It is recommended that the areas around the sewage lagoon, drainage streams, shoreline, and the solid waste disposal sites be cleaned up of scattered garbage and old drums.

4. It is recommended that the Hamlet of Grise Fiord gives consideration to requesting owners of fuel caches located in their community to undertake removal and disposal of fuel drums no longer useable and / or required.

Recycled paper. Conserve energy. The future depends on it.
Papier recycle. Économisons l'énergie. L'avenir en dépend.

5. It is recommended that the Hamlet of Grise Fiord give consideration to applying some form of restriction of access to the upstream portions of the glacial streams from which sources potable freshwater is now being obtained thus eliminating any further sources of additional distribution of waste material.

No warning signs were observed near the Freshwater Intake Facilities, Water Storage Tanks, Sewage Lagoon and outfall area and the Solid Waste Disposal Sites.

Enclosed please find the results of the water quality samples collected while in Grise Fiord. The results are within the acceptable limits set by the Guidelines for Canadian Drinking Water Quality.

Please accept my apologies for the delay in providing you this inspection report. Our inspector plans to visit Grise Fiord again during the summer of 1989 and looks forward to meet you or your representatives.

If you have any questions or comments on the report, please feel free to call Mr. David Jessiman, Water Resources Officer at (819) 979-4405.

J.M.A. Theriault
District Manager
Baffin District

cc. Water Resources, YK
GNWT - DPW - S. Kennedy
GNWT - MACA - M. Ferris
BRHB - L. Wilson

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INSPECTION REPORT

ON THE

HAMLET OF GRISE FIORD

JULY 15, 1988

BY

DAVID JESSIMAN

INSPECTOR UNDER THE NORTHERN INLAND WATERS ACT

NORTHERN AFFAIRS PROGRAM

INDIAN AND NORTHERN AFFAIRS CANADA

IQALUIT, N.W.T.

DATE: March 17, 1989

WATER REGISTER: N/A

INTRODUCTION

On July 15, 1988, Mr. David Jessiman, Water Resources Officer of the Baffin District conducted an inspection of the water use and the waste disposal practices of the Hamlet of Grise Fiord, N.W.T.. The inspector was not able to meet with Hamlet representatives due to the late aircraft arrival.

INSPECTION

Water Supply

Potable water is gravity fed from a seasonal glacial stream located behind the community. The water flows into a catchment basin and is held back by a half section of corrugated steel culvert. The basin measures approximately six (6) by nine (9) metres. The water is diverted to an adjacent settling pond that measures approximately five (5) by six (6) metres. Water is gravity fed from the catchment basins to a five (5) centimetre plastic hose to the storage tanks. The five centimetre line had numerous leaks and holes throughout the line. A second newer eight (8) centimetre line was located adjacent to the smaller line. The second line was in good condition and appeared to have been recently insulated. Downstream of the catchment basin the surrounding area was covered with surface runoff. Some minor flooding from the pond had occured around the School and the Power Plant.

Some windblown garbage and debris was observed upstream of the catchment basin.

The two Storage Tanks in Grise Fiord were designed to provide a year round water supply. The volume of the tanks are approximately 1 393 000 litres and 3 690 000 litres. Water Treatment consists of a hypochlorinator system located between the old Water Storage Tank and the Hamlet's Truck Garage. An exposed area around the old water tank was not sealed and the wooden planks were showing through. The ring was approximately one (1) metre in height. In the remaining sections of the old water tank many holes and ripped areas were observed. The new tank was in excellent condition. Inspection of the hypochlorinator and the truck fill building was not possible.

The Hamlet utilizes a trucked system to distribute potable water in the community. A water truck with a capacity of 4 550 litres is used.

Alternate water sources include the West River during summer months and ice hauled from icebergs in winter months.

Sewage Disposal

Sewage is discharged at the waste disposal site located approximately one decimal two kilometres west of the community. A vacuum truck with a capacity of 4 550 litres is used. Liquid sewage is deposited into a sewage lagoon measuring approximately 20 by 20 metres. Bagged sewage is deposited into a pit measuring approximately 16 by 4 metres. The Sewage Disposal Sites are constructed of pit-run sand and gravel. The freeboard of the sewage lagoon was approximately one metre. The sewage lagoon had a partial decant structure consisting of a zero decimal five metre depression into the berm. The depression was re-inforced by rocks and boulders. The surrounding area of the lagoon appeared to have overflown and glaciated many times in the past. Liquid sewage would flow into a drainage stream for approximately 300 metres to Jones Sound. Downstream of the lagoon the area was littered in garbage and old rusted drums.

Solid Waste Disposal

The Solid Waste Disposal sites are located approximately one decimal two kilometres west of the community immediately adjacent to the airstrip.

The Domestic Waste Disposal site is regularly burnt and periodically covered with granular material. The surrounding area was observed to be littered in windblown garbage. The garbage extended from the disposal site to the ocean.

The Waste Metal Disposal site was observed to be very scattered and unorganized. The site consisted of hundreds of empty drums, scrap metal, metal sidings and culverts.

Fuel Storage

The two Main Fuel Storage sites belong to the Government of the N.W.T. and the Northwest Territories Power Corporation. Both facilities were observed as being below acceptable standards.

The Government of the N.W.T. Fuel Tank Facility adjacent to the West River was recently established and additional improvements are expected. The fuel facility did not have berms, liners, fencing, and warning signs.

The Northwest Territories Power Corporation Fuel Facility did not have berms, liners, fencing, and warning signs. NTPC was advised by the Government of the N.W.T.- Department of Justice and Public Services on October 26, 1988, that they are in contravention of the Fire Prevention Ordinance. Improvements were expected by September 1, 1989. Approximately ten fuel drums were observed adjacent to the pond near the power plant. Five drums were half submerged in the pond.

Approximately 50 drums of Heating Oil was observed adjacent to the west side of West River. Some fuel seepages were observed.

SURVEILLANCE NETWORK PROGRAM (Not Licensed)

The following water quality samples were collected:

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

Posting

No warning signs were observed at the Freshwater Intake sources, Sewage Disposal and Outfall areas, and Solid Waste Disposal Sites.

Records

The Hamlet keeps detailed records of water use and sewage disposal deliveries.

DISCUSSION

The inspector was not able to meet with Hamlet representatives due to the late aircraft arrival.

David S. Jessiman

Inspector Under the
Northern Inland Waters Act

WATER RESOURCES DIVISION — FIELD SAMPLING AND

LICENSEE/PROJECT	LICENCE NO.	LOCATION
Settlement of Grise Fiord	—	Grise Fiord, N.W.T.
DATE SAMPLED: July 15, 1988	SAMPLED BY: DESSIMAN	

ANALYSIS	SAMPLE VOLUME	PRESERVATIVE	STATION NUMBER					
			GF-01	GF-02	GF-03	GF-04		
			BOTTLE NUMBER					
MISC. & ARSENIC	1 LITRE	NONE	GF-01	~~GF-02~~ Rf	GF-03	GF-04		
HEAVY METALS	~~500 ML~~ 2-125ml	2 ML.1:1 HNO_3	"	GF-02 "	"	"		
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						
Time of Sampling			21:40	21:55	22:30	23:15		
Air Temperature			+6°C	+6°C	+4°C	+3°C		
Water Temperature			+4°C	+4°C	+4°C	+4°C		
Rate of Flow								
Ice Thickness								
Depth of Sampling			surface & bottom	—	—	↓		
pH								
Conductivity								
Dissolved Oxygen								

Note : Mercury Not Preserved - Please Do.

GF-01 Sewage

-02 Dump Effluent

-03 West River

Effluent -04 - Drainage (Upstream) Catchment Basin

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

WATER RESOURCES DIVISION, YELLOWKNIFE, NORTHWEST TERRITORIES

RESULTS OF LABORATORY ANALYSIS

LICENSEE/ PROJECT Settlement of Grise Fiord	LICENCE NUMBER —		LOCATION Grise Fiord, NWT
DATE SAMPLED July 15, 1988	DATE RECEIVED July 22/88		DATE COMPLETED Aug 22/88

STATION NUMBER		GF-01	GF-02	GF-03	GF-04		
LABORATORY NUMBER		880718	880719	880720	880721		
ANALYSIS REQUIRED		✓	✓	✓	✓	✓	✓
pH (units)		✓ 7.0	✓	✓ 7.2	✓ 6.5		
Conductivity (µmho/cm)		✓ 184	✓	✓ 90	✓ 28		
Dissolved Oxygen							
Turbidity (NTU)		✓ .5	✓	✓ 1.5	✓ .4		
Colour (colour U.)		✓ 5	✓	✓ <5	✓ <5		
Suspended Solids		✓ 2	✓ no Bottle received	✓ 7	✓ <2		
TDS, Residue		✓ 111	✓	✓ 52	✓ 17		
Calcium		✓ 23	✓	✓ 14	✓ 2.2		
Magnesium		✓ 4.2	✓	✓ 1.9	✓ 0.89		
Tot. Hardness ($CaCO_3$)		✓ 76	✓	✓ 43	✓ 9.1		
Tot. Alkalinity($CaCO_3$)		✓ 69	✓	✓ 42	✓ 7.8		
Sodium		✓ 6.0	✓	✓ 0.8	✓ 1.1		
Potassium		✓ 1.0	✓	✓ 0.1	✓ <0.1		
Chloride		✓ 6.7	✓	✓ 1.1	✓ 2.2		
Sulphate		✓ 4.5	✓	✓ <1.0	✓ <1.0		
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)		✓ 2.7	✗ no Bottle	✓ <0.04	✓ 0.04		
Total Kjeldahl N							
Phosphorus O-P (as P)							
Phosphorus Tot. (as P)		✓ 0.29	✗ no Bottle	✓ <0.005	✓ <0.005		
Silica Reac.(as SiO_2)							
Total Cyanide		✓ <0.005		✓ <0.005	✓ <0.005		
Available Cyanide							
Sulphide							
Oil & Grease							
Phenols							
Arsenic	T (µg/L)	✓ L1.		✓ L1.	✓ L1.		
	D (µg/L)						
Cadmium	T (µg/L)	✓ <0.2	✓ 0.3	✓ 0.6	✓ <0.2		
	D (µg/L)						
Copper	T (µg/L)	✓ 2	✓ 15	✓ <0.5	✓ 0.5		
	D (µg/L)						
Iron	T (µg/L)	✓ 48	✓ 1366	✓ 90	✓ 31		
	D (µg/L)						
Lead	T (µg/L)	✓ <1	✓ 3	✓ <1	✓ <1		
	D (µg/L)						
Mercury	T (µg/L)	✓ <0.02		✓ 0.02	✓ 0.20		
	D (µg/L)						
Nickel	T (µg/L)	✓ 3	✓ 11	✓ <1	✓ <1		
	D (µg/L)						
Zinc	T (µg/L)	✓ 2	✓ 33	✓ 2	✓ 0.6		
	D (µg/L)						
Chromium	T (µg/L)	✓ <1	✓ <1	✓ 1	✓ <1		
	D (µg/L)						

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