Indian and Northern Affairs | Affaires indiennes et du Nord

Northern Affairs Program
P.O. Box 100
Frobisher Bay, N.W.T.
X0A 0H0

1985 07 18

Double Registered

Mr. D. Turpin
Regional Engineer
Department of Public Works
Government of the N.W.T.

Your file / Votre référence

Our file / Notre référence N4A4-0640

Dear Mr. Turpin

Re: 1) Inspection Report on Broughton Island
Water Authorization N4A4-0640
2) Letter Theriault - Turpin August 28, 1984
3) Letter Theriault - Turpin February 19, 1985.

Attached is a copy of the above noted Inspection Report of Broughton Island's water and sanitation facilities as they relate to the Water Authorization N4A4-0640 which is held by your Department.

As you will note the previous correspondence forwarded your office in regard to this matter (our letters dated 28 August 84 and 19 February 1985) remain unanswered. Our request for your comments and views on compliance improvements, plans and drawing have been ignored.

I would appreciate if you would give this matter your personal consideration ensuring that the points previously raised are reviewed and addressed.

The request made do not represent any significant burden and I would hope that they be treated in a co-operative and responsive manner.

Yours truly

JMA Theriault
District Manager
Baffin District

c.c. [redacted]
T. Smyth

INSPECTION REPORT

DEPARTMENT OF PUBLIC WORKS

GOVERNMENT OF THE NORTHWEST TERRITORIES

BROUGHTON ISLAND

JUNE 4, 1985

by

PETER BANNON

INSPECTOR UNDER THE NORTHERN INLAND WATERS ACT

INDIAN AND NORTHERN AFFAIRS CANADA

NORTHERN AFFAIRS PROGRAM

BAFFIN DISTRICT

Water Register: N4A4-0640
Dated: July 18, 1985

INSPECTION REPORT
BROUGHTON ISLAND N4A4-0640

Introduction

The water and sanitation services in the Hamlet of Broughton Island as they relate to the Water Authorization N4A4-0640 were inspected on June 4, 1985 by Peter Bannon, an Inspector under the Northern Inland Waters Act. The holder of the Water Authorization is the Department of Public Works (DPW) of the Government of the Northwest Territories (GNWT) and the Hamlet of Broughton Island carry out the service. An application for a Water Licence was made by the Hamlet and Public Hearings were held in March of this year. The first draft of the Water Licence was produced just prior to this inspection and the main purpose of the Inspection was to discuss the draft Licence with the Hamlet in preparation for the Technical Advisory Committee Meeting which would be held shortly in Frobisher Bay. The Inspector met with Colleen Peterson, the Secretary Manager for the Hamlet.

A. Water Supply

There were no problems expressed by the Hamlet or observed by the Inspector. The water supply, the Tulugak River was still frozen and water was being drawn from the reservoir. A new truck-fill pumping station had been constructed since the last inspection; however the automatic chlorination unit will not be installed until this summer. The truck driver informed the Inspector that approximately 25,000 to 35,000 litres of water per day is delivered to about 108 buildings in the community.

B. Sewage Disposal

The pumpout sewage and the bagged sewage are disposed of at two separate locations at the dump. Some landfilling occurs at the dump. The spring melt had started and runoff from the dump to the sea

(less than 100 meters) was observed. The flow in one small stream was crudely estimated to be about 200 -300 litres per minute.

There are approximately 40 buildings on bagged sewage (1984 production - 7,962) and 63 buildings on pumpout systems which produced4355 cubic meters in 1984. There are 38 buildings with grey-water discharge directly to ground.

There were no signs observed, designating the sewage disposal areas.

C. Solid Waste Disposal

Solid wastes are segregated into large metal wastes and general refuse and are deposited in separate locations at the dump where the sewage is also deposited. During the recent Public Hearings some concerns were raised by the residents about the location and the possible fencing of the dump. The dump is located approximately 2 kilometers from the community and is less than 100 meters from the sea. As mentioned previously in the report, there is substantial drainage through the site. No signs were posted designating this as a solid waste disposal area.

D. Surveillance Network Program

The truck-fill pump had blown a fuse or circuit breaker when the Inspector tried to collect a sample so the sample was taken from the delivery truck prior to chlorination. This will be station 640-2 in the new Water Licence.

Water samples of the runoff from the dump site were collected. No biological analysis could be considered because of time limits with respect to holding time prior to analysis.

E. Records and Reporting

The Hamlet are recording all of the necessary data and submitting it to the G.N.W.T. and they in turn have ignored all requests for the information.

F. On-site Discussion

Discussions with the Secretary Manager for the Hamlet centred around the terms and conditions of the draft Water Licence and the upcoming Technical Advisory Meeting.

G. Summary

The reservoir now has a truck-fill pumping station and the automatic chlorination unit should be installed this summer.

The sewage and solid waste disposal area is being maintained in the usual manner. There was substantial runoff from the site observed and water samples were collected.
The draft Water Licence was discussed at some length with the Secretary Manager for the Hamlet.

Peter Bannon
Inspector Under the
Northern Inland Waters Act.

Water Registry: N4A4-0640
Dated: July 18/85

WATER RESOURCES DI SION, YELLOWKNIFE, NORTHW T TERRITORIES

RESU S OF LABORATORY ANALYSIS Broughton

ICENSEE/ ROJECT GN T DPW	LICENCE NUMBER N4A4- 0640	LOCATION reservoir	
LED Mar 12/84	DATE RECEIVED March 20/84	DATE COMPLETED APRI	

TATION NUMBER		640-2					
ABORATORY NUMBER		40138					
ALYSIS REQUIRED		✓	✓	✓	✓	✓	✓
H (units)		✓ 6.4					
onductivity (µmho/cm)		✓ 120.					
Dissolved Oxygen							
Turbidity (NTU)		✓ 1.0					
Colour (colour U.)		✓ <5					
Suspended Solids		✓ <5					
TDS, Residue							
Calcium		✓ 0.3					
Magnesium		✓ 1.1					
Tot. Hardness ($CaCO_3$)		✓ 5.3					
Tot. Alkalinity($CaCO_3$)		✓ 2.5					
Sodium		✓ 22.5					
Potassium		✓ 2.4					
Chloride		✓ 21.					
S hate		✓ 7.1					
Total Coliform	count / 100 ml						
Fecal Coli.	count / 100 ml						
Fecal Strep.	count / 100 ml						
Std. Plate Cnt (cnt/ml)							
BOD_5							
OD							
Carbon. IC							
Carbon. TOC							
Ammonia Nitrogen	(as N)						
Nitrate + Nitrite	(as N)						
Total Kjeldahl N	(as N)						
Phosphorus O-P	(as P)						
Phosphorus Tot	(as P)						
Silica Reac.(as SiO_2)							
Total Cyanide							
Available Cyanide							
Sulphide							
Oil & Grease							
Phenols							
Ar enic	T (µg/L)	✓ <1.0					
	D (µg/L)						
Cadmium	T (µg/L)	✓ 0.2					
	D (µg/L)						
Copper	T (µg/L)	✓ <1.0					
	D (µg/L)						
Iron	T (µg/L)	✓ 30.					
	D (µg/L)						
Lead	T (µg/L)	✓ 2.0					
	D (µg/L)						
ercury	T (µg/L)	✓ 0.01					
	D (µg/L)						
Nickel	T (µg/L)	✓ <1.0					
	D (µg/L)						
inc	T (µg/L)	✓ 17					
	D (µg/L)						
hromium	T (µg/L)	✓ 1.4					
	D (µg/L)						

WATER RESOURCES DIVISION, YELLOWKNIFE, NORTHWEST TERRITORIES

FIELD SAMPLING AND DATA — Blowhole Inlet

LICENSEE/PROJECT	LICENCE NO.	LOCATION
GNWT / IW	INAA-640	Reservoir
DATE SAMPLED Mar 12/84	SAMPLED BY Bannon	

ANALYSIS	SAMPLE VOLUME	PRESERVATIVE	STATION NUMBER					
			640-1					
			BOTTLE NUMBER					
MISC. & ARSENIC	1 LITRE	NONE	✓					
HEAVY METALS	500 ML	2 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						

Time of Sampling	1600						
Air Temperature	-22						
Water Temperature	-1						
Rate of Flow	—						
Ice Thickness	—						
Depth of Sampling	—						
pH	—						
Conductivity	20						
Dissolved Oxygen	—						

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

WATER RESOURCES DIVISION, YELLOWKNIFE, NORTHWEST TERRITORIES

RESULTS OF LABORATORY ANALYSIS

LICENSEE/ PROJECT: Hamlet of Broughton Is.	LICENCE NUMBER: N4L4-640		LOCATION: Water Res. + Dump
DATE SAMPLED: June 5/85	DATE RECEIVED: June 10 '85		DATE COMPLETED: OCT. 25, 1985

STATION NUMBER		640-1		640-5											
LABORATORY NUMBER		42111		42112											
ANALYSIS REQUIRED		✓		✓		✓		✓		✓		✓			
pH (units)		✓	6.34	✓	8.39										
Conductivity (µmho/cm)		✓	6.7												
Dissolved Oxygen															
Turbidity (NTU)		✓	1.6	✓	22										
Colour (colour U.)		✓	<5												
Suspended Solids		✓	<5	✓	64										
TDS, Residue		✓	64	✓	400										
Calcium		✓	1.6												
Magnesium		✓	1.04												
Tot. Hardness ($CaCO_3$)		✓	8.3												
Tot. Alkalinity($CaCO_3$)		✓	5.1												
Sodium		✓	20.4												
Potassium		✓	1.4												
Chloride		✓	28												
Sulphate		✓	6.8												
Total Coliform (count/100 ml)															0640 PB
Fecal Coli. (count/100 ml)															
Fecal Strep. (count/100 ml)															
Std. Plate Cnt (cnt/ml)															
BOD_5															
COD															
Carbon, IC															
Carbon, TOC				✓	74.*										
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															
Sulphide															
Oil & Grease				✓	<5.0										
Phenols															
Arsenic	T (µg/L)	✓	<1.0	✓	<1.0										
	D (µg/L)														
Cadmium	T (µg/L)	✓	0.51	✓	0.46										
	D (µg/L)														
Copper	T (µg/L)	✓	1.12	✓	14.7										
	D (µg/L)														
Iron	T (µg/L)	✓	125.	✓	154.										
	D (µg/L)														
Lead	T (µg/L)	✓	0.6	✓	15.8										
	D (µg/L)														
Mercury	T (µg/L)	✓	<0.05	✓	0.18										
	D (µg/L)														
Nickel	T (µg/L)	✓	14.3	✓	<10.										
	D (µg/L)														
Zinc	T (µg/L)	✓	74.	✓	95.										
	D (µg/L)														
Chromium	T (µg/L)	✓	0.85	✓	3.35										
	D (µg/L)														
Manganese		✓	3.5	✓											

Entered WDS

Not on Status NSP

INLAND WATERS
NOV - 8 1985
WATER RESOURCES DIVISION

* ANALYZED OCT 24, 1985

Results are expressed in mg/L, except as indicated. T and D refer to total and dissolved metals respectively.

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

LICENSEE/PROJECT	LICENCE NO.	LOCATION
Hamlet of [illegible]ghton Is.	N4L4-640	Water Reservoir
DATE SAMPLED June 5/85	SAMPLED BY Bannor	Dump

ANALYSIS	SAMPLE VOLUME	PRESERVATIVE	STATION NUMBER					
			640-1	640-5				
			BOTTLE NUMBER					
MISC. & ARSENIC	1 LITRE	NONE	✓	✓				
HEAVY METALS	500 ML	2 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		✓				
Time of Sampling			1045	1115				
Air Temperature								
Water Temperature								
Rate of Flow approx.				400 l.p.m.				
Ice Thickness								
Depth of Sampling			surface	surface				
pH								
Conductivity								
Dissolved Oxygen								

640-1 truck fill pumphouse
should have been taken from hose; however, pump was u/s so taken from tanks truck apparently prior to chlorination.

640-5 runoff from dump area. 15-20 meters downstr. if possible please do a BOD.??? -not overly imp.

BIAND WATER QUALITY INFORMATION SYSTEM 1988/08/25

[redacted]: NAL4-0640 HAMLET OF BROUGHTON ISLAND
STATION: 0640-1 - RAW WATER SUPPLY INTAKE AT THE TULUSAK RIVER
FOR OR CLIENT ANALYSED (L/C): L

LAB NUMBER	8[redacted]111	
Record Number	[redacted]68	
SAMPLE DATE	1[redacted]05	
Sample Date In	19[redacted]/10	
ample date Out	1985/10/25	
ample Time	10:45	
Sample Depth (m)		
Flow Rate (cms)		
Air Temp (C)		
Water Temp (C)		
Ice Thickness (m)		
pH (units)	6.43	
Cond (umhos/cm)	6.7	
Dissolved Oxygen		
Turbidity (NTU)	1.6	
Color (units)	<5	
Susp Solids	5	L
TDS Residue	64	
Calcium	1.6	
Magnesium	1.94	
Tot Hardness	9.3	
Tot Alkalinity	5.1	
Sodium	20.4	
Potassium	1.4	
Chloride	28	
Sulphate	6.8	
Fluoride		
Tot Coli (ct/100 ml)		
Fecal Coli (ct/100ml		
Fecal Strep (ct/100m		
Plate Cnt (cnt/ml)		
BOD5		
COD		
Carbon IC		
Carbon TOC		
Ammonia Nitrogen		
Nitrite Nitrate		
Tot Kjeldahl N		
Phosphorus O P		
Phosphorus TOT		
Silica		
Tot Cyanide		
WAD Cyanide		
Tot Resid Chlorine		
Sulphide		
Oil Grease		
Phenols (ug/L)		
METALS (ug/L)		
Arsenic (T)	1.0	L
Arsenic (D)		
Mercury (T)	.05	L
Mercury (D)		
Barium (DIG)		
Barium (AE)		
Barium (D)		
Beryllium (DIG)		
Beryllium (AE)		
Beryllium (D)		
Cadmium (DIG)	.51	L
Cadmium (AE)		
Cadmium (D)		
Chromium (DIG)	.35	
Chromium (AE)		
Chromium (D)		
Cobalt (DIG)		
Cobalt (AE)		
Cobalt (D)		
Copper (DIG)	1.12	
Copper (AE)		
Copper (D)		
Iron (DIG)	125	
Iron (AE)		
Iron (D)		
Lead (DIG)	.5	
Lead (AE)		
Lead (D)		
Manganese (DIG)		
Manganese (AE)		
Manganese (D)		
[redacted]	24.2	
Nickel (AE)		
Nickel (D)		
Zinc (DIG)	[redacted]	
Zinc (AE)		

[redacted] represent in ug/L except as indicated
digested and total acid extractable respectively.
(D) refers to dissolved. L refers to less than. F indicates field value