INAC, Nunavut District Office
P.O. Box 100
Iqaluit, NU
X0A 0H0

tel.: (867) 975-4275
fax.: (867) 979-6445

Your file / Votre référence

Our file / Notre référence
unlicenced

October 19, 2001.

Louis M. Primeau
Senior Administrative Officer
Hamlet of Taloyoak
P.O. Box 8
Taloyoak, NU X0E 1B0

August 14, 2001 Municipal Water Use Inspection - Report

Firstly, I wish to thank Bob Hammond and Sampson Ittungna for their much appreciated time and assistance provided during the tour of the Hamlet's water use and waste disposal facilities. Attached for your records is the Municipal Water Use Inspection Report pertaining to the August 14, 2001 inspection; overall, the facilities appear efficiently managed. Nonetheless, the following considerations were noted and ought to be addressed:

- **Water supply:** Several improvements to the water intake and supply facilities have been undertaken in the recent past, and as such no concerns were noted with the water supply system. However, uneasiness over the proximity of commercial and residential buildings was voiced during the inspection, and it was suggested that signs outlining Water Lake as the municipal potable water supply be posted in efforts to limit the level of activity in the immediate area. This being said, the attached analytical results relating to a sample taken in the vicinity of the intake facility (figure 1) indicate that all tested parameters meet the *Guidelines for Canadian Drinking Water Quality*.

- **Sewage disposal:** The considerable volume of the sewage treatment facility (figure 2), coupled to the extensive vegetation growth along the path of discharge from the site (figure 3), seemingly provides adequate sewage effluent treatment. Accordingly, the attached analytical results relating to a sample collected at the outlet of the sewage disposal facility reveal that tested parameters comply with the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*, save for pH (field value of 10.1 versus the 9.0 threshold). Nevertheless, the Microtox sample, which constitutes a reliable toxicity indicator (IC_{50}), shows that half of light-producing bacteria were inhibited by a sample concentration of 21.6%, whereas 50% and over is considered non-toxic. Thus, in an attempt to pinpoint the cause of the toxicity attributed to the sewage effluent discharge, a wider range of parameters will be sampled during the next municipal water use and waste disposal inspection.

- **Solid waste disposal:** Household combustible wastes are regularly burnt and periodically covered (figure 4); however, since the solid waste disposal facility is unfenced, windblown wastes are nonetheless noticeable beyond the perimeter of the site. Consequently, it was mentioned that a fencing project had been approved during the previous year, and that the required materials were awaited on the summer's sealift. At the time of the inspection, no flowing leachate was noted, although an apparent path of runoff from the toe of the facility could be observed (figure 5). Further, bulky metal wastes (figure 6) and hazardous materials such as batteries are segregated from the combustible wastepile and set aside for eventual disposal.

In related matters, the quantity of waste oil stored on-site poses some concerns in terms of possible deposits of waste into waters. Indeed, ground staining was visible at the waste oil storage area (figure 7). In particular, the storage site of the P-50 heating oil recovered from Spill 98-094 (figure 8) implies the potential for significant hydrocarbon contamination; in fact, signs of recent spillage were noted during the inspection (figure 9). In this regards, it was underlined at the time of the inspection that the hamlet cannot absolve itself from all responsibilities since the material recuperated from Spill 98-094 is stored within the footprint of the municipal solid waste disposal facility. Therefore, the hamlet may wish to consider means of waste oil disposal beneficial to both parties involved.

- **Non-compliance of Act or Licence:** The Hamlet does not currently hold the Water licence it requires under the *Northwest Territories Waters Act* and the *Nunavut Land Claims Agreement* for its municipal water use and waste disposal. Consequently, a licence application form was provided during the inspection, and the Inspector points out that INAC and/or other agencies can provide assistance in order to facilitate its prompt submission to the Nunavut Water Board.

Please feel free to contact me at (867) 975-4298 or lavalleep@inac.gc.ca should any questions/comments arise.

Sincerely,

Philippe Lavallée
Water Resources Officer
INAC, Nunavut District

c.c. - Nunavut Water Board, Gjoa Haven
- CG&T, Cambridge Bay (Sherif El-Attar)
- Kitikmeot Health & Social Services, Cambridge Bay (Robert Phillips)
- EC Environmental Protection, Yellowknife (Anne Wilson)

Indian and Northern Affairs Canada | Affaires Indiennes et du Nord Canada

MUNICIPAL WATER USE INSPECTION FORM

Date: 2001/08/14 **Licensee Rep.** (Name/Title): Bob Hammond / Maintenance Director
Sampson Ittungna / Head Mechanic, acting-Foreman

Licensee: Hamlet of Taloyoak **Licence No.:** unlicenced

WATER SUPPLY

Source(s): Water Lake **Quantity used:** recorded @ truck delivery

Owner:/Operator: Hamlet

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities: A	**Storage Structure:** A	**Treatment Systems:** A	**Chemical Storage:** A
Flow Meas. Device: NA	**Convey. Lines:** A	**Pumping Stations:** A	

Comments: No concerns noted with the well-maintained water intake and supply facilities. New fiberglass storage tank recently commissioned. Replacement of copper conveyance line has solved recurring freeze-up problems. Continuous water circulation; flow is diverted back to the source when storage capacity is topped. Chlorination in use.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.): primary; discharge overland to ocean

Natural Water Body: x **Continuous Discharge** (land or water):

Seasonal Discharge: x **Wetlands Treatment:** x **Trench:**

Solid Waste: **Owner/Operator:** Hamlet

Landfill: **Burn & Landfill:** x **Other:**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: sampled	**Decant Structure:** NA	**Erosion:** A
Discharge Meas. Device: none	**Dyke Inspection:** NA	**Seepages:** NA
Dams, Dykes: NA	**Freeboard:** NA	**Spills:** none reported
Construction: NA	**O&M Plan:** NA	**A&R Plan:** NA
Periods of Discharge: A	**Effluent Discharge Rate:** not measured	

Comments: Considerable vegetation growth noticeable along the path of discharge from the sewage disposal facility. Bulky metal and hazardous wastes are segregated from household wastes at the unfenced solid waste disposal facility. Combustible wastes are burnt regularly, then pushed towards the toe of the dump; wastepile covered on a roughly annual basis. No flow of leachate observed along the likely path of runoff from the solid waste disposal facility. Signs of spillage at the waste oil storage site. Substantial quantity of P-50 heating oil recovered from Spill 98-049 stored along the fringe of the solid waste disposal facility; some signs of recent spillage noted. Bermed landfarming facility for hydrocarbon-contaminated soil also present.

FUEL STORAGE

Owner/Operator:

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners:	**Water within Berms:**	**Evidence of Leaks:**
Drainage Pipes:	**Pump Station & Catchment Berm:**	
Pipeline Condition:	**Not Applicable:** x	**Condition of Tanks:**

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** raw water to be sampled later in the summer

INAC: raw water @ Water Lake, sewage discharge @ outlet of second lake

Signs Posted **SNP:** not applicable **Warning:** none

Records & Reporting: not applicable

Geotechnical Inspection: not applicable

Non-Compliance of Act or Licence: Community is unlicenced.

Philippe Lavallée

Inspector's Name **Inspector's Signature**

figure 1. Conveyance line from the water intake facility at Water Lake; 2001/08/14.

figure 2. Truck dumping point at the sewage disposal facility; 2001/08/14.

figure 3. Path of discharge from the sewage disposal facility; 2001/08/14.

figure 4. Household wastepile at the solid waste disposal facility; 2001/08/14.

figure 5. Apparent runoff from the toe of the solid waste disposal facility; 2001/08/14.

figure 6. Bulky metal waste disposal site; 2001/08/14.

figure 7. Waste oil storage area at the solid waste disposal facility; 2001/08/14.

figure 8. Storage site of P-50 heating oil recovered from Spill 98-094; 2001/08/14.

figure 9. Signs of recent spillage from the Spill 98-094 storage site; 2001/08/14.

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788
Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut District Office DIAND, Operations *Attn:* Philippe Lavalllee

Sample ID: raw water **Taiga Sample ID:** 212069

Client Project: **Sample Type:** raw water **Received Date:** 15-Aug-01

Location: Teloyoc **Sampling Date:** 14-Aug-01

Report Status: **Final** ***Approved by:***

Lab Section	Test Parameter	Result	Units	Detection Limit	Analysis Date
Major Ions	Sodium	8.31	mg/L	0.02	15-Aug-01
Microbiology	Coliforms, Fecal	<1	CFU/100mL	1	15-Aug-01
Nutrients	Ammonia as N	0.013	mg/L	0.005	30-Aug-01
	Biological Oxygen Demand	<2	mg/L	2	15-Aug-01
	Nitrate+Nitrite as N	<0.008	mg/L	0.008	21-Aug-01
Physicals	Colour	<5		5	15-Aug-01
	Solids, Total Dissolved	98	mg/L	10	04-Sep-01
	Turbidity	0.5	NTU	0.1	15-Aug-01
Subcontract	Chloride	15.0	mg/L	0.1	13-Sep-01
	Sulphate	4	mg/L	0	13-Sep-01
Total Metals	Arsenic	<1.0	µg/L	1	07-Sep-01
	Cadmium	<0.3	µg/L	0.3	21-Aug-01
	Chromium	<3	µg/L	3	21-Aug-01
	Cobalt	<1	µg/L	1	21-Aug-01
	Copper	<2	µg/L	2	21-Aug-01
	Iron	<30	µg/L	30	20-Aug-01

Report Date: Monday, September 24, 2001

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- CERTIFICATE OF ANALYSIS -

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Sample ID: raw water **Taiga Sample ID:** 212069

Total Metals	Lead	<1	µg/L	1	21-Aug-01
	Manganese	1	µg/L	1	21-Aug-01
	Mercury	<0.01	µg/L	0.01	13-Sep-01
	Nickel	2	µg/L	1	21-Aug-01
	Zinc	<10	µg/L	10	21-Aug-01

Field Data (01/08/14) **raw water**
Temperature: 14.5 °C
Conductivity: 205 µS/cm
pH: 8.3 **Time:** 12:19

Report Date: Monday, September 24, 2001

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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut District Office DIAND, Operations *Attn:* Philippe Lavalllee

Sample ID: Sewage Discharge **Taiga Sample ID:** 212070

Client Project: **Sample Type:** sewage **Received Date:** 15-Aug-01

Location: Teloyoc **Sampling Date:** 14-Aug-01

Report Status: **Final** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Suspended	170	mg/L	3	04-Sep-01
Nutrients				
Ammonia as N	0.103	mg/L	0.005	30-Aug-01
Biological Oxygen Demand	52	mg/L	2	15-Aug-01
Nitrate+Nitrite as N	0.031	mg/L	0.008	21-Aug-01
Phosphorous, Total	3.29	mg/L	0.004	26-Sep-01
Microbiology				
Coliforms, Fecal	< 10	CFU/100mL	10	16-Aug-01
Subcontracted Tests				
Phenols	< 2	µg/L	2	13-Sep-01

Field Data (01/08/14) **sewage**
Temperature: 12.5 °C
Conductivity: 782 µS/cm
pH: 10.1 **Time:** 13:26

Report Date: Wednesday, October 03, 2001

REPORT OF TOXICITY USING MICROTOX

COMPANY/LOCATION: **Taloyoak Lagoon Discharge**

Sample Collected By: Philippe Lavallee

Date/Time Sampled: August 14, 2001 13:26

Date/Time Received: August 15, 2001

Date/Time Test Start: August 15, 2001

Sample Type: Elutriate
Sampling Method: Grab

Method: ***Environment Canada Laboratories SOP#830.0 Revision 1, for Microtox Testing in Compliance with November 1992: Biological Test Method: Toxicity Test Using Luminescent Bacteria Photobacterium phosphoreum), November 1992, EPS 1/RM/24.***

Environment Canada has conducted testing on the material sampled according to its own Microtox standards and procedures. The data proceeding from that testing is intended as a preliminary screening tool only, and cannot be used for any other purpose. This data is provided on the condition that it not be used in any report that is intended for public or official use.

RESULTS: **TOXIC - IC_{50} Concentration: 21.6%** **(Toxic 0 to 50%)**

TEST ORGANISMS:
Species: Vibrio fisheri (Photobacterium phosphoreum)
Test Apparatus: Model 500 Analyzer

TEST SUBSTANCE/CONDITIONS

pH of Sample: (No pH adjustment)

Sample Appearance: no colour adjustment

Lot # of Osmotic Adjusting Solution: OAS007

Lot # of Reconstitution Solution: RSN099Y

Lot # of Diluent: DIL034L

TEST METHODS AND CONDITIONS

Test Start Date/Time: August 15, 2001 / 01:47 PM

Test Method: Basic 45% Test, 15 minute incubation.

QUALITY CONTROL

Reference Toxicant: Zinc Sulfate Standard

Reagent Lot #: ACV026-6

IC_{50} - 15 minutes mg/L: 2.4 mg/L

IC_{50} Confidence Range: 1.6 to 3.6 mg/L

TEST ANALYST: Ron Bujold

INITIAL: RB