INAC, Nunavut District Office
P.O. Box 100
Iqaluit, NU
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tel.: (867) 975-4275
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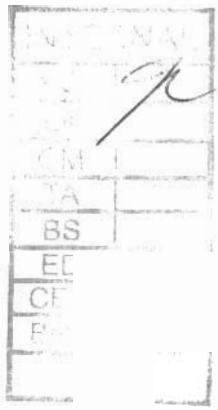
Your file Votre référence

Our file Notre référence
unlicenced



November 6, 2001.

Imelda Angootealuk
Senior Administrative Officer
Hamlet of Whale Cove
P.O. Box 120
Whale Cove, NU X0C 0J0

August 30, 2001 Municipal Water Use Inspection - Report

Firstly, I wish to thank Guy Enuapik for the 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 30, 2001 inspection; while improvements were made on the aspect of waste disposal, some outstanding concerns nonetheless remain. Thus, the following considerations were noted and will need to be addressed:

- **Water supply:** No concerns were noted regarding the well-kept municipal water intake and supply facility located on the shoreline of Fish Lake. In this regards, the attached analytical results relating to a sample taken in vicinity of the intake station, while revealing the undesirable presence of faecal coliform, otherwise indicate that all tested parameters meet the *Guidelines for Canadian Drinking Water Quality*, save for turbidity: the recorded value of 2.7 Nephelometric Turbidity Unit (NTU) hovers between the 1 NTU maximum acceptable concentration and the 5 NTU aesthetic objective.

- **Sewage disposal:** Although areas of minor slumping were observed along its permeable retention berm, no significant concerns were noted at the sewage disposal facility (figure 1). In fact, the combination of the initial retention time provided by the lagoon and the additional treatment granted by the vegetation lining the path of discharge appears to produce a very efficient sewage effluent treatment system. Accordingly, the attached analytical results relating to a sample taken five metres below the retention berm along the main vein of seepage (figure 2) reveal that except ammonia (13 mg/L vs 2.2 mg/L), all tested parameters meet the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*. Further, the Microtox sample, which constitutes a reliable toxicity indicator (IC_{50}), did not attribute toxicity to the sewage effluent discharge.

- **Solid waste disposal:** A considerable amount of work has been undertaken at the solid waste disposal facility since the last inspection. As such, efforts have been made to move the combustible household wastepile away from the shoreline and the water pooled in the area (figure 3). In addition, bulky metal waste are being compacted prior to infilling and capping work (figure 4). However, these operations appear to have brought about the migration and/or exposure of the hydrocarbon contamination previously noted in the vicinity of the waste oil storage area (figure 5). It was consequently mentioned during the inspection that the contaminated soil ought to be removed before the planned covering of the area is initiated, and that only non-hazardous solid wastes are to be buried on-site. In parallel, it was once more suggested that in order to minimize the likelihood of the deposit of waste into waters, a sealift container should be dedicated to the storage of batteries and other hazardous materials prior to their proper disposal, and that fencing work should enclose the solid waste disposal facility once the ongoing work is completed. This being said, the attached analytical results relating to a sample collected of the final discharge from the site (figure 6) indicate that concentrations of copper (5 µg/L vs 4 µg/L) and iron (349 µg/L vs 300 µg/L) slightly exceed the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*. Nevertheless, the associated Microtox sample did not denote toxicity.

- **Non-compliance of Act or Licence:** The Hamlet still does not hold the Water licence it requires under both the *Northwest Territories Waters Act* and the *Nunavut Land Claims Agreement* for its municipal water use and waste disposal. Whereas the Inspector acknowledges the Hamlet's 2001/09/04 correspondence stating that it had been advised that the Government of Nunavut should be the licensee since it maintains the water intake and supply facility, the Inspector however underlines that the Hamlet operates the municipal waste disposal facilities. Therefore, the Inspector trusts that both parties can iron out a common understanding, thus ensuring that a municipal water licence application is submitted to the Nunavut Water Board in a timely manner.

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, Rankin Inlet (Don Forsyth)
- Keewatin Health & Social Services, Rankin Inlet (Wanda Poirier)
- EC Environmental Protection, Yellowknife (Anne Wilson)

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

MUNICIPAL WATER USE INSPECTION FORM

Date: 2001/08/30 **Licensee Rep.** (Name/Title)**:** Guy Enuapik/ Foreman

Licensee: **Hamlet of Whale Cove** **Licence No.:** **unlicenced**

WATER SUPPLY

Source(s): Fish Lake **Quantity used:** meter @ 10 796 500 L

Owner:/Operator: GN

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

Intake Facilities: A **Storage Structure:** NA **Treatment Systems:** A **Chemical Storage:** A

Flow Meas. Device: A **Convey. Lines:** NA **Pumping Stations:** NA

Comments: No concerns noted regarding the well-kept water intake and supply facility. Chlorination in use.

WASTE DISPOSAL

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

Natural Water Body: **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:** A

Dams, Dykes: A **Freeboard:** A **Spills:** none reported

Construction: NA **O&M Plan:** NA **A&R Plan:** NA

Periods of Discharge: A **Effluent Discharge Rate:** not measured

Comments: Minor slumping of the permeable berm of the sewage disposal facility noted; maintenance work scheduled prior to fall freeze up. Abundant vegetation growth along the outer face of the decanting berm and the path of sewage effluent discharge. Notable amount of work done/planned at the solid waste disposal facility. Accumulated waste compacted away from the shoreline, but highest tide reportedly still laps the toe of the wastepile. In the process of crushing the bulky metal wastes in order to fill ground depressions prior to the planned covering with fill material. Sheen and signs of hydrocarbon contamination noted in the vicinity of the waste oil storage site; soil to be removed before backfilling work is undertaken. Batteries and other hazardous materials are now set aside, but no form of containment is provided.

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:** none

INAC: raw water @ Fish Lake, sewage discharge, dump leachate

Signs Posted **SNP:** not applicable **Warning:** none @ water supply

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. Sewage disposal facility from the truck dumping point; 2001/08/30.

figure 2. Seepage along the sewage disposal facility's permeable berm; 2001/08/30.

figure 3. Pooled water along the toe of the solid waste disposal facility; 2001/08/30.

figure 4. Bulky metal wastes disposal site; 2001/08/30.

figure 5. Hydrocarbon contamination downslope of the waste oil storage site;2001/08/30.

figure 6. Final discharge from the solid waste disposal facility; 2001/08/30.

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:** 212340

Client Project: **Sample Type:** freshwater **Received Date:** 31-Aug-01

Location: Whale Cove **Sampling Date:** 30-Aug-01

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Colour	10		5	31-Aug-01
Solids, Total Dissolved	138	mg/L	10	13-Sep-01
Turbidity	2.7	NTU	0.1	31-Aug-01
Nutrients				
Ammonia as N	0.009	mg/L	0.005	12-Sep-01
Biological Oxygen Demand	<2	mg/L	2	30-Aug-01
Nitrate+Nitrite as N	<0.008	mg/L	0.008	24-Sep-01
Major Ions				
Sodium	27.4	mg/L	0.02	05-Sep-01
Microbiology				
Coliforms, Fecal	8	CFU/100mL	1	31-Aug-01
Metals, Total				
Arsenic	<1.0	µg/L	1.0	14-Sep-01
Cadmium	<0.3	µg/L	0.3	12-Sep-01
Chromium	<3	µg/L	3	12-Sep-01

Report Date: Wednesday, October 10, 2001

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Sample ID: raw water **Taiga Sample ID:** 212340

Cobalt	<1	µg/L	1	12-Sep-01
Copper	3	µg/L	2	12-Sep-01
Iron	32	µg/L	30	14-Sep-01
Lead	<1	µg/L	1	12-Sep-01
Manganese	4	µg/L	1	12-Sep-01
Mercury	<0.01	µg/L	0.01	02-Oct-01
Nickel	<1	µg/L	1	12-Sep-01
Zinc	<10	µg/L	10	12-Sep-01
Subcontracted Tests				
Chloride	46.0	mg/L	0.1	05-Oct-01
Sulphate	11.0	mg/L	0.3	05-Oct-01

Field Data (01/08/30) **raw water**
Temperature: 14.0 °C
Conductivity: 279 µS/cm
pH: 8.5 **Time:** 14:45

Report Date: Wednesday, October 10, 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:** 212341

Client Project: **Sample Type:** sewage **Received Date:** 31-Aug-01

Location: Whale Cove **Sampling Date:** 30-Aug-01

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Suspended	9	mg/L	3	11-Sep-01
Nutrients				
Ammonia as N	13.0	mg/L	0.005	12-Sep-01
Biological Oxygen Demand	6	mg/L	2	30-Aug-01
Nitrate+Nitrite as N	0.114	mg/L	0.008	24-Sep-01
Phosphorous, Total	3.12	mg/L	0.004	26-Sep-01
Microbiology				
Coliforms, Fecal	<100	CFU/100mL	100	31-Aug-01
Subcontracted Tests				
Phenols	<0.5	µg/L	0.5	05-Oct-01

Field Data (01/08/30) sewage
Temperature: 13.5 °C
Conductivity: 657 µS/cm
pH: 7.3 Time: 15:44

Report Date: Wednesday, October 10, 2001

REPORT OF TOXICITY USING MICROTOX

COMPAN .OCATION: **Whale Cove - Sewage Discharge**

Sample Collected By: Philippe Lavallee

Date/Time Sampled: August 30, 2001 / 15:44

Date/Time Received: September 04, 2001

Date/Time Test Start: September 04, 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: **NON TOXIC at 45% concentration**

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

TEST SUBSTANCE/CONDITIONS

pH of Sample: N/A (No pH adjustment)

Sample Appearance: Greenish, 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: September 04, 2001 / 12:42 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: 3.4 mg/L

IC_{50} Confidence Range: 1.8 to 6.8 mg/L

TEST ANALYST: Wade Romanko

INITIAL: WR

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- CERTIFICATE OF ANALYSIS -

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

Sample ID: dump leachate **Taiga Sample ID:** 212342

Client Project: **Sample Type:** wastewater **Received Date:** 31-Aug-01

Location: ~~Borealis~~ Whale Cove **Sampling Date:** 30-Aug-01

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Suspended	3	mg/L	3	11-Sep-01
Nutrients				
Ammonia as N	0.595	mg/L	0.005	12-Sep-01
Nitrate+Nitrite as N	0.725	mg/L	0.008	24-Sep-01
Organic				
Oil and Grease	<0.2	mg/L	0.2	27-Sep-01
Metals, Total				
Arsenic	1.4	µg/L	1.0	14-Sep-01
Cadmium	<0.3	µg/L	0.3	12-Sep-01
Chromium	5	µg/L	3	12-Sep-01
Cobalt	<1	µg/L	1	12-Sep-01
Copper	5	µg/L	2	12-Sep-01
Iron	349	µg/L	30	14-Sep-01
Lead	<1	µg/L	1	12-Sep-01
Manganese	29	µg/L	1	12-Sep-01

Report Date: Wednesday, October 10, 2001

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- CERTIFICATE OF ANALYSIS -

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

Sample ID: dump leachate **Taiga Sample ID:** 212342

Mercury	< 0.01	µg/L	0.01	02-Oct-01
Nickel	3	µg/L	1	12-Sep-01
Zinc	20	µg/L	10	12-Sep-01

Field Data (01/08/30) dump
Temperature: 14.5 °C
Conductivity: 849 µS/cm
pH: 7.7 **Time:** 16:05

Report Date: Wednesday, October 10, 2001

REPORT OF TOXICITY USING MICROTOX

COMPAI .OCATION: **Whale Cove - Dump Leachate**

Sample Collected By: Philippe Lavallee

Date/Time Sampled: August 30, 2001 / 16:05

Date/Time Received: September 04, 2001

Date/Time Test Start: September 04, 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.***

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RESULTS: **NON TOXIC at 45% concentration**

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

TEST SUBSTANCE/CONDITIONS

pH of Sample: N/A (No pH adjustment)

Sample Appearance: Greenish, 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: September 04, 2001 / 01:19 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: 3.4 mg/L

IC_{50} Confidence Range: 1.8 to 6.8 mg/L

TEST ANALYST: Wade Romanko

INITIAL: