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Your file Votre référence

Our file Notre référence
unlicenced

November 5, 2001.

Jonathan Dobrosky
Director of Finance, a-SAO
Hamlet of Coral Harbour
P.O. Box 30
Coral Harbour, NU X0C 0C0

August 24, 2001 Municipal Water Use Inspection - Report

Firstly, I wish to thank Paul Pudlat 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 24, 2001 inspection; no major concerns relating to the water and waste facilities were outlined. Nevertheless, the following considerations were noted and will need to be addressed:

- **Water supply:** No concerns were noted regarding the water intake and supply facilities, especially since the commissioning of the second reservoir has solved issues of water shortage. In parallel, the attached analytical results relating to a sample collected from the first reservoir (figure 1) indicate that all tested parameters meet the *Guidelines for Canadian Drinking Water Quality*, save for two exceptions: a field pH of 9.3 versus the 6.5-8.5 aesthetic objective, and a turbidity value of 1.9 Nephelometric Turbidity Unit (NTU) hovering between the 1 NTU maximum acceptable concentration and the 5 NTU aesthetic objective.

- **Sewage disposal:** While it reportedly overflows wintertime, the level of the initial sewage lake was quite low at the time of the inspection (figure 2). In fact, flow was not noticeable from either the outflow of the initial sewage lake (figure 3), or along the densely vegetated path of effluent discharge into the second sewage lake (figure 4). This being said, the attached analytical results relating to a sample taken from the shoreline of the second sewage lake (figure 5) reveal that all tested parameters comply with the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*, save for pH (field value of 9.9 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 49.2%, 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:** Although combustible household wastes appear well compacted and covered (figure 6), a fair amount of windblown waste was nonetheless observed beyond the perimeter of the solid waste disposal facility. Consequently, it was mentioned that the Hamlet plans to carry out a fencing project once the required resources become available. Further, it was reported during the inspection that the Hamlet plans to acquire, in the near future, a waste oil furnace. Also, since no particular storage area or form of containment are at the moment dedicated to hazardous materials, the use of a sealift container for their temporary storage prior to proper disposal was suggested. Given the fact that the presence of pooled water along the toe of the solid waste disposal facility was noted, the Inspector underlines that the above improvements would significantly reduce the likelihood of waste being deposited in waters. Accordingly, the attached analytical results relating to a leachate sample collected from the main pond (figure 7) indicate that concentrations of copper (5 µg/L vs 4 µg/L), iron (2.36 mg/L vs 0.3 mg/L), and zinc (130 µg/L vs 30 µg/L) exceed the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*. Lastly, it was mentioned that the Hamlet also diligently intends to compact and relocate the bulky metal wastes disposal site (figure 8) further from a nearby watercourse.

In related matters, due to voiced concerns regarding the possibility that the path of flow from the waste disposal facilities heads towards the community, a sample was taken from a lake presumably along the path of discharge (figure 9). As such, the attached analytical results reveal that all tested parameters meet the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life*, and that the associated microtox sample did not denote toxicity.

- **Non-compliance of Act or Licence:** The Hamlet does not 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, the Inspector acknowledges that the Hamlet recognizes the importance of a valid Water licence, and wishes to point out that INAC and/or other agencies can provide assistance to facilitate the application process.

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: 2001/08/24 **Licensee Rep.** (Name/Title): Paul Pudlat / Foreman

Licensee: **Hamlet of Coral Harbour** **Licence No.:** **unlicenced**

WATER SUPPLY

Source(s): Post River / twin reservoirs **Quantity used:** meter @ 176 357 800 L

Owner:/Operator: GN/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: A **Convey. Lines:** A **Pumping Stations:** A

Comments: No concerns noted at the water intake and supply facilities. Second municipal water reservoir commissioned last year; no more water shortage concerns. Refilling operations ongoing at the time of the inspection; subsurface link between the two reservoirs allows simultaneous refill. Reservoirs overfilled in efforts to flush the 'older' water. Chlorination in use.

WASTE DISPOSAL

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

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

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

Solid Waste: **Owner/Operator:** GN/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: 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: Sewage disposal facility consists of a series of lakes connected by dense vegetation. No flow noted between the initial lake and the second lake immediately downstream. Unfenced solid waste disposal facility appears well burnt/compacted and covered; however the toe of the wastepile is fairly spread out and pooled water was noted in the area. No particular treatment is provided to hazardous materials; batteries remain in dumped vehicles, and waste oil is stored by the garage. Bulky metal waste disposal site covers an extensive area; plans to compact and relocate further away from the river. Concerns raised regarding the possibility that the path of flow from the waste disposal facilities leads towards the community.

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 @ reservoir, sewage discharge, dump leachate, lake @ Hamlet

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. Refilling operations at the first municipal water reservoir; 2001/08/24.

figure 2. Truck dumping point, sewage disposal facility; 2001/08/24.

figure 3. Outlet from the sewage disposal facility; 2001/08/24.

figure 4. Discharge path from the sewage disposal site to the 2nd sewage lake; 2001/08/24.

figure 5. Shoreline of the 2nd sewage lake, waste disposal site in background; 2001/08/24.

figure 6. Solid waste disposal facility; 2001/08/24.

figure 7. Pooled water along the toe of the solid waste disposal facility; 2001/08/24.

figure 8. Bulky metal wastes disposal site; 2001/08/24.

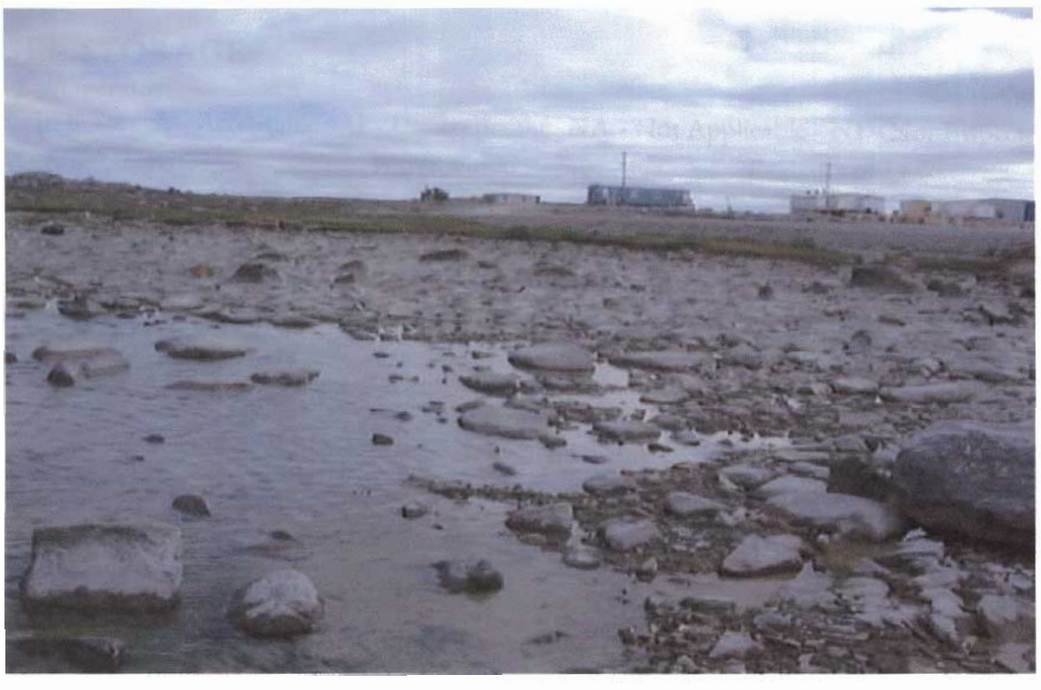

figure 9. Lake presumably in the discharge path from the waste disposal sites; 2001/08/24.

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

- CERTIFICATE OF ANALYSIS -

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

Sample ID: raw water **Taiga Sample ID:** 212296

Client Project: **Sample Type:** freshwater **Received Date:** 30-Aug-01

Location: Coral Harbour **Sampling Date:** 24-Aug-01

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Colour	<5		5	31-Aug-01
Solids, Total Dissolved	40	mg/L	10	13-Sep-01
Turbidity	1.3	NTU	0.1	30-Aug-01
Nutrients				
Ammonia as N	<0.005	mg/L	0.005	07-Sep-01
Nitrate+Nitrite as N	0.062	mg/L	0.008	14-Sep-01
Major Ions				
Sodium	3.99	mg/L	0.02	05-Sep-01
Metals, Total				
Arsenic	<1.0	µg/L	1.0	13-Sep-01
Cadmium	<0.3	µg/L	0.3	09-Sep-01
Chromium	<3	µg/L	3	09-Sep-01
Cobalt	<1	µg/L	1	09-Sep-01
Copper	<2	µg/L	2	09-Sep-01
Iron	36	µg/L	30	08-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: raw water **Taiga Sample ID:** 212296

Lead	<1	µg/L	1	09-Sep-01
Manganese	1	µg/L	1	09-Sep-01
Mercury	<0.01	µg/L	0.01	02-Oct-01
Nickel	<1	µg/L	1	09-Sep-01
Zinc	<10	µg/L	10	09-Sep-01
Subcontracted Tests				
Chloride	7.4	mg/L	0.1	17-Sep-01
Sulphate	5.7	mg/L	0.3	17-Sep-01

Field Data (01/08/24) **raw water**
Temperature: 11.0 °C
Conductivity: 121 µS/cm
pH: 9.3 **Time:** 10:16

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: 2nd sewage lake **Taiga Sample ID:** 212297

Client Project: **Sample Type:** sewage **Received Date:** 30-Aug-01

Location: Coral Harbour **Sampling Date:** 24-Aug-01

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Suspended	36	mg/L	3	11-Sep-01
Nutrients				
Ammonia as N	0.060	mg/L	0.005	07-Sep-01
Nitrate+Nitrite as N	0.012	mg/L	0.008	14-Sep-01
Phosphorous, Total	0.244	mg/L	0.004	26-Sep-01
Subcontracted Tests				
Phenols	0.5	µg/L	0.5	17-Sep-01

Field Data (01/08/24) **sewage**
Temperature: 9.5 °C
Conductivity: 627 µS/cm
pH: 9.9 **Time:** 10:43

Report Date: Wednesday, October 03, 2001

REPORT OF TOXICITY USING MICROTOX

COMP. .Y/LOCATION: **Coral Harbour, Sewage Discharge (212297)**

Sample Collected By: Philippe Lavallee

Date/Time Sampled: August 24, 2001 / 10:43

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: **TOXIC - IC_{50} Concentration: 49.2% (Toxic 0 to 50%)**

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

TEST SUBSTANCE/CONDITIONS

pH of Sample: 9.9 (No pH adjustment)

Sample Appearance: Clear, 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 / 7:25 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: 4.2 mg/L

IC_{50} Confidence Range: 3.5 to 5.0 mg/L

TEST ANALYST: Ron Bujold **INITIAL:** RB

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- CERTIFICATE OF ANALYSIS -

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

Sample ID: dump leachate **Taiga Sample ID:** 212298

Client Project: **Sample Type:** **Received Date:** 30-Aug-01

Location: Coral Harbour **Sampling Date:** 24-Aug-01

Report Status: **Preliminary** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Metals, Total				
Arsenic	<1.0	µg/L	1.0	13-Sep-01
Cadmium	<0.3	µg/L	0.3	12-Sep-01
Chromium	4	µg/L	3	12-Sep-01
Cobalt	1	µg/L	1	12-Sep-01
Copper	5	µg/L	2	12-Sep-01
Iron	2360	µg/L	30	14-Sep-01
Lead	1	µg/L	1	12-Sep-01
Manganese	145	µg/L	1	12-Sep-01
Mercury	<0.01	µg/L	0.01	02-Oct-01
Nickel	8	µg/L	1	12-Sep-01
Zinc	130	µg/L	10	12-Sep-01

Field Data (01/08/24) dump

Temperature: 10.5 °C
Conductivity: 1 468 µS/cm
pH: 8.5 Time: 11:13

Report Date: Tuesday, October 09, 2001

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- CERTIFICATE OF ANALYSIS -

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

Sample ID: lake @ hamlet **Taiga Sample ID:** 212299

Client Project: **Sample Type:** freshwater **Received Date:** 30-Aug-01

Location: Coral Harbour **Sampling Date:** 24-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	0.054	mg/L	0.005	07-Sep-01
Nitrate+Nitrite as N	0.016	mg/L	0.008	14-Sep-01
Phosphorous, Total	0.020	mg/L	0.004	26-Sep-01
Subcontracted Tests				
Phenols	<0.5	µg/L	0.5	17-Sep-01

Field Data (01/08/24) Lake@Hamlet
Temperature: 11.5 °C
Conductivity: 646 µS/cm
pH: 8.6 Time: 11:25

Report Date: Wednesday, October 03, 2001

REPORT OF TOXICITY USING MICROTOX

COMF. .Y/LOCATION: **Coral Harbour, Lake @ Hamlet**
Sample Collected By: Philippe Lavallee

Date/Time Sampled: August 24, 2001 / 10:43

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: 8.6 (No pH adjustment)

Sample Appearance: Clear, 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 / 8:06 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: 4.2 mg/L

IC_{50} Confidence Range: 3.5 to 5.0 mg/L

TEST ANALYST: Ron Bujold **INITIAL:** RB