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Our file - Notre référence

NWB3WHA0207

November 17, 2003

Imelda Angootealuk
Senior Administrative Officer
Hamlet of Whale Cove
Nunavut X0A 0S0

Re: Water Licence Inspection

The following report deals with the Water Licence Inspection conducted on August 14, 2003 in the Hamlet of Whale Cove. I would like to thank Guy Enupiak for his time and assistance which allowed me to complete the Water Licence inspection.

In the course of the Water Licence Inspection a number of problems were identified with respect to the Hamlet of Whale Cove's water treatment plant, solid waste disposal sites, sewage effluent and Surveillance Network Program (SNP). It was also noted that the community has not provided Certified Design Plans for the new landfill, Operation and Maintenance Manuals for the current landfill and sewage lagoon, or an Abandonment and Restoration (A&R) Plan for the existing landfill. All other parameters tested were within the Canadian and Licenced guidelines.

I would like to take this opportunity to remind the Hamlet of Whale Cove that an Annual Report outlining all activities pertaining to the Water Licence is required no later than March 31, 2004

Freshwater Source: Water Lake/Fish Lake

The intake for the towns drinking water supply is located approximately 30ft from shore in Fish Lake (figure 1). The pumphouse (figure 2) appears to be well maintained but chlorination records are sporadic. At the time of the inspection, chlorine concentrations had not been recorded in more than 2 weeks. The pumphouse is currently maintained by the Department of Public Works in Whale Cove. The pumphouse supervisor, Paul Voisey, was unavailable at the time of the inspection. Water samples were taken from Water Lake/Fish Lake at: N 62°11'46.2" W092°33'43.2". All parameters measured were within *Guidelines for Canadian Drinking Water Quality 2003*.

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Solid Waste Disposal (Burn and Bury Landfill)

Waste is not segregated although one portion of the facility consists of predominantly metal waste and vehicles. The Hamlet needs to segregate materials such as tires and metal waste and place a sea-lift container at the site to hold hazardous waste i.e lead acid batteries. Certified Design plans have not been submitted to the NWB for the new landfill site and Abandonment and Restoration (A&R) plans have not been submitted for the current facility. Operation and Maintenance Manuals (O&M) will be required for the new facility. The landfill is not fenced in and there are no signs identifying the waste disposal site (figure 3). A large amount of debris was observed very close to the ocean edge. Perhaps a fence could prevent the deposit of waste in this area.

Measures should be taken to divert runoff around the landfill and contain any precipitation so that it does not pick up contaminants and carry them into the marine environment. Currently, runoff passes freely through the landfill before entering Hudson's Bay. Samples of this run-off at: N62° 10'09.9" W092°35'43.4" had a total suspended solids of 170 mg/L (> 120mg/L *Guidelines for the Discharge of Municipal Wastewater in the Northwest Territories 1992*) and an Iron value of 7420 ug/L(>> 300ug/L *Canadian Water Quality Guidelines for the Protection of Aquatic Life 2002*).

Waste Oil

In past years, waste oil has been stockpiled near the metal dump but a contractor has blocked off the waste oil drums with metal waste (figure 4). The metal waste needs to be removed to allow the Hamlet to properly access and store waste oil until it can be shipped out or incinerated. The waste oil drums at the site appeared to be in reasonable condition but some spillage has occurred at the site and in their current location the drums can not be properly monitored (figure 5). Ideally, the storage site would be bermed and lined to prevent soil contamination by containing any spills.

Sewage Lagoon

The sewage lagoon (figure 6) in the Hamlet of Whale Cove appears to be working well. However, there is less than 1m of freeboard in the lagoon and capacity is an issue. There is no visible run-off from the lagoon berm but since no pumping takes place, seepage must occur. Samples were taken approximately 30m downstream from the lagoon berm in an area where water had collected. All parameters measured were within Canadian and Licenced Guidelines (*Canadian Guidelines for the Protection of Aquatic Life 2002, Guidelines for the Discharge of Municipal Wastewater in the Northwest Territories 1992*).

Non-compliance of the Act:

As per the Water Licence issued by the Nunavut Water Board; the Hamlet is required to produce O&M Manuals for the sewage lagoon and landfill facilities, certified design plans for the new landfill, A&R Plans for the current landfill and a Surveillance Network Program (including Quality Assurance/ Quality Control). The O&M plan should be developed following the *Guidelines for the preparation of Operation and Maintenance Manuals for Sewage and Solid Waste Disposal Facilities in the Northwest Territories* (Duong and Kent, 1996). The Hamlet should also develop means to control precipitation and runoff that enters the waste disposal site as runoff from the site exceeded the limits imposed by the Water Licence.

It is my impression that the Hamlet is working hard to meet the requirements of the Water Licence. I look forward to assisting the Hamlet of Whale Cove in meeting these requirements. If you have any questions or concerns, please contact me.

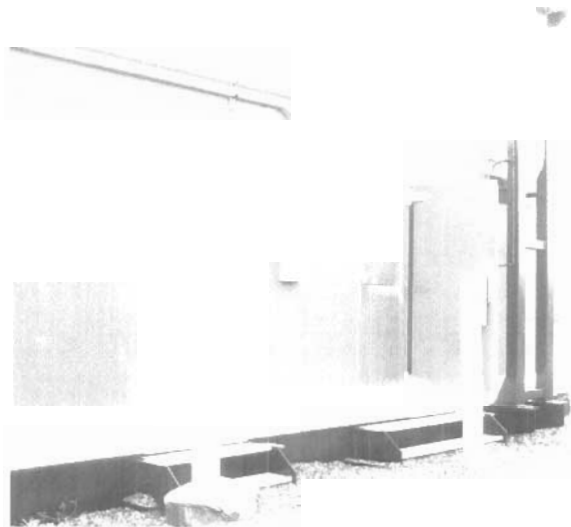
Sincerely,



Scott Stewart
Water Resource Officer
INAC - Nunavut District Office
P.O. Box 100, Iqaluit, NU, X0A 0H0
Ph:(867) 975-4289
Fax:(867) 975-6445
stewarts@inac.gc.ca

14 10:05

Figure 1. Fish Lake, the freshwater source for the Hamlet of Whale Cove.



14 10:19

Figure 2. Hamlet of Whale Cove pumphouse at Fish Lake.



Figure 3. Hamlet of Whale Cove burn and bury landfill.



Figure 4. Waste oil and grease containers at the Whale Cove landfill facility. Hydrocarbon contamination is visible at the site.



Figure 5. Metal dump site for the Hamlet of Whale Cove.



Figure 6. Hamlet of Whale Cove sewage lagoon.



MUNICIPAL WATER USE INSPECTION REPORT

Date: August 14, 2003

Licensee Rep. (Name/Title): Imelda Angootealuk/SAO

Licensee: Hamlet of Whale Cove

Licence No.: NWB3WHA0207

WATER SUPPLY

Source(s): Fish Lake/ Water Lake

Quantity used: Not Calculated

Owner:/Operator: Hamlet of Whale Cove

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

Intake Facilities: NI

Storage Structure: NA

Treatment Systems: A

Chemical Storage: A

Flow Meas. Device: A

Conveyance Lines: NA

Pumping Stations: A

Comments:The pumphouse at Fish Lake is well maintained however, records of chlorination are sporadic and have not been monitored for 2 weeks. In order to ensure the safety of the Hamlet's drinking water complete records of total and residual chlorine concentrations must be kept on a daily basis. In addition, water use should be calculated on a monthly and annual basis to determine the Hamlet's water use.

WASTE DISPOSAL

Sewage: Sewage Treatment System (Prim./Sec/Ter.): Primary (sewage lagoon))

Natural Water Body: Continuous Discharge (land or water):Overland flow to Hudson Bay.

Seasonal Discharge: Continuous

Wetlands Treatment: ~50m

Trench:

Solid Waste: Owner/Operator: Hamlet of Whale Cove

Landfill:

Burn & Landfill: X

Other:

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

Discharge Quality: NA

Decant Structure: NA

Erosion: A

Discharge Meas. Device: NA

Dyke Inspection: A

Seepages: A

Dams, Dykes: A

Freeboard: U

Spills: None

Construction: A

O&M Plan: NA

A&R Plan: NI

Periods of Discharge: A

Effluent Discharge Rate: Not Measured

Comments:

FUEL STORAGE

Owner/Operator:

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

Berms & Liners: NI

Water within Berms: NI

Evidence of Leaks: NI

Drainage Pipes:NI

Pump Station & Catchment Berm: NI

Pipeline Condition: NI

Not Applicable:

Condition of Tanks: NI

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected

Hamlet: unknown

INAC: potable water, sewage effluent, landfill runoff

Signs Posted

SNP: NIL

Warning: Sewage lagoon identified

Records & Reporting: U

Geotechnical Inspection: None Required

Non-Compliance of Act or Licence: According to the water licence issued by the Nunavut Water Board the Hamlet is out of compliance with respect to development of an Operation and Maintenance Manual, an Abandonment and Restoration Plan and a Spill Contingency Plan. Results of sampling will reveal whether or not the effluent continuously discharged from the lagoon is within Canadian Guidelines.

Scott Stewart

Inspector's Name

Inspector's Signature



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232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Vanadium		12.0	µg/L	0.1			9/20/03	Microwave	EP
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Zinc		28	µg/L	10			9/20/03	Microwave	EP
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Ammonia	Nutrients	Ammonia as N		0.859	mg/L	0.005			8/29/03	none	SM NH
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Nitrates+Nitrites as N	Nutrients	Nitrate+Nitrite as N		0.951	mg/L	0.008			9/2/03	none	SM NC
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Organic Carbon, Total	Nutrients	Organic Carbon, Total		7.3	mg/L	0.2			9/11/03	none	EP
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Colour	Physicals	Colour		80		5			8/27/03	none	SM
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Conductivity, Specific	Physicals	Conductivity, Specific		527	µS/cm	0.3			8/27/03	none	SM
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	pH	Physicals	pH		7.77	pH units	0.05			8/27/03	none	SM H:E
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Solids, Total Suspended	Physicals	Solids, Total Suspended		170	mg/L	3			8/21/03	GF/C Filtr.	SM
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Turbidity	Physicals	Turbidity		114	NTU	0.1			9/8/03	none	SM

	RAN-3	Inlet			Suspended		Suspended						
232678	Effluent RAN-3	sewage	Rankin Inlet	8/12/03	8/15/03	Phenols	Subcontracted Organics	Phenols	8.4	µg/L	0.5	8/21/03	none
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Calcium	Major Ions	Calcium	37.9	mg/L	0.05	8/25/03	none
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Magnesium	Major Ions	Magnesium	8.89	mg/L	0.02	8/25/03	none
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Potassium	Major Ions	Potassium	5.24	mg/L	0.03	8/26/03	none
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Sodium	Major Ions	Sodium	44.1	mg/L	0.02	8/25/03	none
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Sulphate	Major Ions	Sulphate	49	mg/L	3	8/21/03	none
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Aluminum		µg/L			Microwave
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Arsenic, Total in water	Metals, Total	Arsenic	6	µg/L	1	8/26/03	Microwave

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232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Chromium	13.7	µg/L	0.3	9/20/03	Microwave	EPA200.8
232796	Landfill seep Wha-2	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Cobalt	3.9	µg/L	0.1	9/20/03	Microwave	EPA200.8
232796	Landfill seep	sewage	Hamlet of Whale	8/14/03	8/20/03	Total Metals (24) by ICP-MS	Metals, Total	Copper	22.0	µg/L	0.2	9/20/03	Microwave	EPA200.8

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232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Calcium	Major Ions	Calcium	40.3	mg/L	0.05	8/25/03	none	SM
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Magnesium	Major Ions	Magnesium	5.93	mg/L	0.02	8/25/03	none	SM
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Potassium	Major Ions	Potassium	9.10	mg/L	0.03	8/26/03	none	SM K-L
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Sodium	Major Ions	Sodium	59.9	mg/L	0.02	8/25/03	none	SM Na
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Sulphate	Major Ions	Sulphate	7	mg/L	3	8/21/03	none	SM SO
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Aluminum	32	µg/L	30	9/20/03	Microwave	EP
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Arsenic, Total in water	Metals, Total	Arsenic	6	µg/L	1	8/23/03	Microwave	SM
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Barium	15.4	µg/L	0.1	9/20/03	Microwave	EP
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Beryllium	< 0.1	µg/L	0.1	9/20/03	Microwave	EP
232797	lagoon seep WHA-3	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Cadmium	0.1	µg/L	0.1	9/20/03	Microwave	EP

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Service Price List	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Cesium	<	0.1	µg/L	0.1		Sample Result Qualifier	Analysis Result Date	Prep Method	Test Method
Rush Services	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Chromium		1.2	µg/L	0.3			9/20/03	Microwave	EPA200.8
Sampling & Supplies	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Cobalt		2.0	µg/L	0.1			9/20/03	Microwave	EPA200.8
Consulting Services	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Copper		5.7	µg/L	0.2			9/20/03	Microwave	EPA200.8
Laboratory Assessments	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Iron, Total	Metals, Total	Iron		1481	µg/L	30			9/4/03	Microwave	SM3111:B
Training	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Lead		0.3	µg/L	0.1			9/20/03	Microwave	EPA200.8
On-line Results	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Lithium		2.9	µg/L	0.3			9/20/03	Microwave	EPA200.8
Resources & Links	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total										
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232797	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Uranium	0.1	µg/L	0.1	9/20/03	Microwave	EPA200.8
232797	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Vanadium	0.5	µg/L	0.1	9/20/03	Microwave	EPA200.8
232797	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Zinc	14	µg/L	10	9/20/03	Microwave	EPA200.8
232797	lagoon seep WHA-3	sewage	Hamlet of Whale cove	8/14/03	8/20/03	Ammonia	Nutrients	Ammonia as N	3.17	mg/L	0.005	8/29/03	none	SM4500-NH3.G

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232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Manganese	7.3		µg/L	0.1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Mercury, Total	Metals, Total	Mercury	0.29		µg/L	0.01			8/27/03	none
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Molybdenum	1.4		µg/L	0.1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Nickel	1.0		µg/L	0.1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Selenium	< 1		µg/L	1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Silver	< 0.1		µg/L	0.1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Strontium			µg/L					Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Thallium	< 0.1		µg/L	0.1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Titanium	2.4		µg/L	0.1			9/20/03	Microwav
232802	Freshwater Lk. Wha-1	freshwater	Hamlet of Whale cove	8/14/03	8/20/03	Total Metals (24) by ICP-MS water	Metals, Total	Uranium	< 0.1		µg/L	0.1			9/20/03	Microwav

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