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**NWB2HOP0002**

October 15, 2001.

Hugh Wilson  
Manager, Environmental Affairs  
Hope Bay Joint Venture  
331 West First Street  
North Vancouver, BC    V7M 1B5

**August 11-12, 2001 Industrial Water Use Inspection - Report**

Firstly, I wish to thank Ted Mahoney and yourself for the much appreciated time and assistance provided during the tour of the camp's water use and waste disposal facilities. Attached for your records is the Industrial Water Use Inspection Report pertaining to the August 11-12, 2001 inspection; several improvements to the waste disposal facilities were noted. However, the following considerations deserve some additional attention:

- **Water supply:** No concerns were noted with the water intake facilities themselves. However, the attached analytical results relating to a sample collected in proximity of the water intake, while revealing the presence of faecal coliform (5 CFU/100ml), reveal levels of turbidity (7.0 NTU vs 5 NTU) and iron (340 µg/L vs 300µg/L) slightly exceeding the aesthetic objectives set under the *Guidelines for Canadian Drinking Water Quality*.
- **Sewage disposal:** The Licensee has completed the installation of a sewage treatment system (RBC), which has been operational since springtime. Sewage effluent from the facility is discharged overland; however, no flow was observed at the time of the inspection (figure 1). Although no sewage sludge has yet been removed from the treatment unit, the Licensee eluded to plans of on land disposal over impacted areas. In this regards, the Inspector reminds the Licensee of the need to provide the Nunavut water Board (NWB) with relevant information prior to initiating such measures.
- **Solid waste disposal:** During the summer, the Licensee has commissioned a new incinerator (figure 2). In addition, the incineration site has been further withdrawn from the shoreline. However, non-combustible wastes are being stockpiled (figure 3) since the Licensee indicated that shipping out the solid waste was no longer considered a viable option. In this regards, the Inspector outlines that terms (part E, item 4) of Water licence NWB2HOP0002 stipulate that alternative disposal means ought to receive prior approval from the NWB.

- **Spills:** As mentioned at the time of the inspection, the Licensee could significantly ease the file closure process by keeping accurate descriptions/coordinates of the spill events. In fact, precise knowledge of spill locations is inherent to both follow-up measures and file closure assessment. Thus, the Inspector acknowledges that the Licensee plans to utilize GPS data and camp maps to pinpoint further spills associated with the Hope Bay Belt operations, should any occur. Concerning the spills on or about the ice airstrip on Windy Lake, the Inspector wishes to stress the importance of preventive and immediate remediation measures. Indeed, given that the temporary nature of the ice airstrip prevents ulterior follow-up and site assessment, the potential for the deposit of waste into waters is considerable. The following represents a summary of the eighteen (18) open Spill Report files on record, and outlines either recommended closure or planned/expected additional follow-up measures to be undertaken:

- 99-102: 200-250 L of diesel @ Wolverine camp fuel cache. The site of spill at the partly dismantled and reclaimed camp could not precisely be pinpointed by the Licensee. Cannot recommend closure before on-site inspection is carried out.

- 00-044: 30 L of motor oil @ Windy Lake ice airstrip. Due to the melting of the impacted area, no further follow-up can be undertaken. Recommend file closure.

- 00-071: 20 L of diesel @ Windy camp fuel cache. No obvious signs of contamination noted in the vicinity of the dismantled fuel cache. Recommend file closure.

- 00-082: 4 L of unspecified substance @ unspecified location of Windy camp. Cannot recommend file closure until a sufficiently detailed account of the spill event, permitting a follow-up assessment, is provided by the Licensee.

- 00-093: 1.5 L of P-50 @ holding ramp of Windy Lake ice airstrip. Due to the melting of the impacted area, no further follow-up can be attempted. Recommend file closure.

- 00-110: 30 L of P-50 @ offloading ramp of Windy Lake ice airstrip. Due to the melting of the impacted area, no further follow-up can be attempted. Recommend file closure.

- 00-121: unspecified quantity of P-50 @ Windy camp fuel cache. No obvious signs of hydrocarbon contamination noted in the vicinity of the dismantled fuel cache. Recommend file closure.

- 00-122: 18 L of Turbo-A @ apron of Windy Lake ice airstrip. Due to the melting of the impacted area, no further follow-up can be attempted. Recommend file closure.

- 00-125: 20 L of P-50 @ Windy camp logging tent. No noticeable ground staining in the general area where the spill likely occurred. Recommend file closure.

- 00-145: 25 L of diesel, 2 L of hydraulic oil, 1 L of crankcase and motor oil @ JJ Thomas shop. Surroundings of drill shop are impacted, but no signs of hydrocarbon contamination could be observed. Recommend file closure.

- 00-146: 2 L of diesel @ drill site JSD 051. No sign of contamination noted during flyby of general area. Recommend file closure.

- 00-217: 1 L of diesel @ Windy camp fuel cache. No obvious signs of contamination noted in the vicinity of the dismantled fuel cache. Recommend file closure.

- 00-260: ⅓ L of hydraulic fluid @ North Doris Lake. No sign of contamination noted during flyby of general area. Recommend file closure.

- 01-036: 5 L of diesel @ Roberts Bay fuel cache. Patches of hydrocarbon-saturated soil noted nearby sealift containers. Cannot recommend file closure before contaminated soil is adequately removed from the site, and disposed of.
  - 01-045: ½ L of diesel @ drill site 94. No sign of contamination noted during flyby of general area. Recommend file closure.
  - 01-100: 10 L of diesel @ North Doris tank farm. No obvious signs of hydrocarbon contamination noted in the vicinity of the facility. Recommend file closure.
  - 01-143: 25 L of diesel @ North Patch fuel cache. Yellowed vegetation observed where the tanker spillage occurred, but no noticeable traces of hydrocarbon contamination remained. Recommend file closure.
  - 01-166: 3 L of diesel @ Windy camp fuel cache. No obvious signs of contamination noted in the vicinity of the dismantled fuel cache. Recommend file closure.
- **Fuel Storage:** Various improvements to the fuel management practices at the Windy camp were noted during the inspection. Accordingly, by restricting drum usage to helicopter support and local activities, the Licensee has diminished the likelihood of spill incidents in the vicinity of the fuel storage area (figure 4). Further, at the time of the inspection, the replacement of questionably effective drip-trays (figure 5) with more spill proof structures was underway (figure 6). Nevertheless, the Inspector trusts that appropriate measures will be undertaken prior to the disposal of the water and/or fuel accumulated in the drum trays.
  - **Violations of Act or Licence:** Since the previous inspection, several revisions of camp management and operations have seemingly reduced the potential for non-compliance. Furthermore, the Licensee ensured at the time of the inspection that fuel storage linked to camp facilities would be relocated beyond the thirty (30) metres buffer zone from the shoreline.

Please feel free to contact me at (867) 975-4298 or [lavalleep@inac.gc.ca](mailto: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
- KIA lands, Kugluktuk (Jack Kaniak)
  - DFO Habitat Management, Iqaluit (Jordan DeGroot)
  - EC Environmental Protection, Yellowknife (Anne Wilson)



Indian and Northern Affairs Canada  
Affaires Indiennes et du Nord Canada

## INDUSTRIAL WATER USE INSPECTION REPORT

Date: 2001/08/11-12 Company Rep. (Name/Title): Hugh Wilson / Manager, Environmental Affairs  
Ted Mahoney / Project Manager

Licensee: Miramar Hope Bay/Hope Bay Gold, Windy Lake Licence No.: NWB2HOP0002

### WATER SUPPLY

Source(s): Windy Lake Quantity used: Not recorded Meter Reading: none

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected  
Intake Facilities: A Storage Structure: A Treatment Systems: A Recycling: NA  
Flow Meas. Device: NA Conveyance Lines: A Pumping Stations: NA Modifications: NA

Comments: No concerns noted with the water intake facilities.

### WASTE DISPOSAL

Tailings: Tailings Pond: Natural Lake: Underground:  
Sewage: Sewage Treatment System: RBC Tailings Pond: Natural Water Body:  
Continuous Discharge: Intermittent Discharge: x  
Solid Waste: Open Dump: Landfill: Burn & Bury: Underground:

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected  
Discharge Quality: NI Decant Structure: NA Dyke Inspections: NA  
Conveyance Lines: A Pond Treatment: NA Runoff Diversion: NA  
Discharge Meas. Device: NA Dams, Dykes: NA Erosion: A  
Freeboard: NA Seepages: NA Spills: 01-036/045/100/143/166, 00-44/71  
00-8293/110/121/122/125/145/146/217/260  
99-102

Effluent Discharge Rate: NI Samples Collected: raw water @ Windy Lake

Comments: New sewage treatment system (RBC) operational since springtime; sewage effluent discharged overland. Latrines no longer in use, but maintained as backup to the RBC unit. New incinerator commissioned during the summer; positioned slightly further away from the shoreline than the previous. Incineration ashes are drummed. Non-combustible solid waste is being stockpiled in expectation of an approved alternative to off-site disposal. New waste oil furnace installed, but not yet functional.

### GENERAL CONDITIONS

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected  
Ore & Waste Rock Stockpiles: NA Records & Reporting: A SNP: NA  
Geotechnical Inspection: NA Posting/Signage: NA Contingency Plan: A  
Restoration Activities: A New Construction: A Fuel Storage: A  
Mine Water Discharge: NA Chemical Storage: A Annual Report: A

Comments: The old drum fuel cache has been dismantled; bulk tanks (two additional ones expected above both already on-site) now relied upon. Tankers on skis used to supply winter drilling programs. Drums now only required for helicopter support and local drilling and camp operations. Improvements made in regards to spill prevention measures at camp housing facilities.

Violations of Act or Licence: Potential non-compliance (part F, item 3) noted; however the Licensee ensured that camp facilities and associated fuel storage would be relocated beyond the thirty (30) meters buffer zone from the shoreline of Windy Lake.

General Comments: Since the previous inspection, several initiatives have been undertaken in efforts to minimize the potential impacts of waste disposal practices associated with camp operations.

Philippe Lavallée

Inspector's Name

Inspector's Signature





figure 1. Sewage effluent discharge point; 2001/08/12.



figure 2. New incinerator at relocated site further from shoreline; 2001/08/12.



figure 3. Solid wastes staged prior to eventual disposal; 2001/08/12.





figure 4. Bulk fuel storage site; 2001/08/12.



figure 5. Old housing units fuel supply system; 2001/08/12.



figure 6. New housing units fuel supply system; 2001/08/12.



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## - CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut District Office

DIAND, Operations

Attn: Philippe Lavallee

Sample ID: Raw Water

Taiga Sample ID: 212047

Client Project:

Sample Type: water grab

Received Date: 13-Aug-01

Location: Windy Cove

Sampling Date: 12-Aug-01

Report Status: Final

Approved by:

Lab Section	Test Parameter	Result	Units	Detection Limit	Analysis Date
Major Ions	Sodium	53.8	mg/L	0.02	21-Aug-01
Microbiology	Coliforms, Fecal	5	CFU/100mL	1	13-Aug-01
Nutrients	Ammonia as N	<0.005	mg/L	0.005	06-Sep-01
	Biological Oxygen Demand	<2	mg/L	2	13-Aug-01
	Nitrate+Nitrite as N	0.017	mg/L	0.008	21-Aug-01
Physicals	Colour	<5		5	13-Aug-01
	Turbidity	7.0	NTU	0.1	13-Aug-01
Subcontract	Chloride	93.0	mg/L	0.1	30-Aug-01
	Sulphate	8.1	mg/L	0.3	30-Aug-01
Total Metals	Arsenic	1.2	µg/L	1.0	14-Aug-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	4	µg/L	2	21-Aug-01
	Iron	340	µg/L	30	20-Aug-01
	Lead	<1	µg/L	1	21-Aug-01



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**- CERTIFICATE OF ANALYSIS -**

**Prepared For:** Nunavut District Office

DIAND, Operations

**Attn:** Philippe Lavalllee

**Sample ID:** Raw Water

**Taiga Sample ID:** 212047

Total Metals	Manganese	43	µg/L	1	21-Aug-01
	Mercury	<0.01	µg/L	0.01	13-Sep-01
	Nickel	3	µg/L	1	21-Aug-01
	Zinc	<10	µg/L	10	21-Aug-01

**Field Data (01/08/12) raw water**

**Temperature:** 12.0 °C

**Conductivity:** 463 µS/cm

**pH:** 7.2

**Time:** 12:04