



## Hope Bay Mining Limited 2007 Annual Report



In compliance with the Nunavut Water Board Water Use License No  
**2BE-HOP0712 – Part B General Conditions, Item # 2**  
Hope Bay Regional Project and Camp Support Activities

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Document # ENV-02-2008  
March 2008



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## 1.0 INTRODUCTION

This report summarizes activities during 2007, as they relate to Nunavut Water Board Water Use License No. 2BE-HOP0712 (Mining and Milling – “Type B”) for advance exploration and camp support activities at Windy Lake Camp.

## 2.0 PART B ITEM 2: (I)

This section of the report provides a summary of water use and waste disposal activities.

### 2.1 Camp Water Use

Table 2.1 and 2.2 provides a summary of water usage at Hope Bay Belt. Note that the NWB License Number 2BE-HOP0712 authorizes for a daily water usage at 50 m<sup>3</sup> per day. Part C, Item 1 of the same license sets the limits for camp usage at 20 m<sup>3</sup> per days and drill usage at 30 m<sup>3</sup> per day.

**Table 2.1: Summary of Windy Lake Camp Water Use at HOP-1, 2007**

| Months                              | Camp Water Source | Windy Lake Camp Usage – (HOP-1) |                          |                                  | Allowable per day (m <sup>3</sup> ) |
|-------------------------------------|-------------------|---------------------------------|--------------------------|----------------------------------|-------------------------------------|
|                                     |                   | Average Daily <sup>1</sup>      | Total Month <sup>2</sup> | Cumulative (Annual) <sup>3</sup> |                                     |
| February                            | Windy Lake        | 26                              | 51                       | 51                               | 50                                  |
| March                               | Windy Lake        | 12                              | 360                      | 411                              | 50                                  |
| April                               | Windy Lake        | 14                              | 411                      | 822                              | 50                                  |
| May                                 | Windy Lake        | 18                              | 571                      | 1,393                            | 50                                  |
| June                                | Windy Lake        | 18                              | 526                      | 1,919                            | 50                                  |
| July                                | Windy Lake        | 20                              | 642                      | 2,561                            | 50                                  |
| August                              | Windy Lake        | 15                              | 477                      | 3,038                            | 50                                  |
| September                           | Windy Lake        | 14                              | 425                      | 3,463                            | 50                                  |
| October                             | Windy Lake        | 13                              | 399                      | 3,862                            | 50                                  |
| November                            | Windy Lake        | 5                               | 147                      | 4,009                            | 50                                  |
| December                            | Windy Lake        | 4                               | 128                      | 4,137                            | 50                                  |
| <b>Total Volume (m<sup>3</sup>)</b> |                   |                                 | <b>4,137</b>             | <b>4,137</b>                     |                                     |

<sup>1</sup> Daily average

<sup>2</sup> Monthly

<sup>3</sup> Cumulative



**Table 2.2: Summary of Drilling Water Use<sup>4</sup>, 2007**

| Months                              | Drill Water Source | Drill Activities Usage     |              |                     | Allowable per day (m <sup>3</sup> ) |
|-------------------------------------|--------------------|----------------------------|--------------|---------------------|-------------------------------------|
|                                     |                    | Average Daily <sup>5</sup> | Total Month  | Cumulative (Annual) |                                     |
| March                               | Patch Lake         | NR                         | NR           | NR                  | 50                                  |
| April                               | Patch Lake         | NR                         | NR           | NR                  | 50                                  |
| May                                 | Patch Lake         | NR                         | NR           | NR                  | 50                                  |
| June                                | Patch Lake         | 5.0                        | 2,623        | 2,623               | 50                                  |
| July                                | Patch Lake         | 7.5                        | 305          | 2,928               | 50                                  |
| August                              | Patch Lake         | 8.0                        | 231          | 3,159               | 50                                  |
| September                           | Patch Lake         | 7.6                        | 228          | 3,387               | 50                                  |
| October                             | Patch Lake         | 5.7                        | 85           | 3,472               | 50                                  |
| November                            | Patch Lake         | 5.7                        | 87           | 3,559               | 50                                  |
| <b>Total Volume (m<sup>3</sup>)</b> |                    |                            | <b>3,559</b> | <b>3,559</b>        |                                     |

## 2.2 Waste Management

HBML waste generation can be classified under these four categories:

- Hazardous Wastes
- Non-combustibles
- Combustibles
- Drill and Core cuttings

### 2.2.1 Hazardous Wastes

These include but are not limited to: waste oils, contaminated fuel, Jet B, gases, sewer sludge and grey water, petroleum contaminated soils, used corncobs and absorbent pads, engine grease and other lubricants, drilling salts, antifreeze, battery acids, small amounts of other household cleaning and laundry detergents.

### 2.2.2 Rotating Biological Contractor (RBC) Sewer System

An additional RBC unit was installed at Windy Camp to help with maintaining of the grey water quality due to the increase in exploration personnel and the number of contractors personnel for the Doris North Mine construction phase. Treated RBC effluent continued to be released onto the tundra over the ridge east of Windy Lake Camp.

#### *Challenge*

In July of 2007, the INAC Water Inspector instructed HBML to relocate the current RBC Units installation to a suitable area. The inspector's concern was that, the current installations are within 30 meters of a water body (Windy Lake) and therefore is in violation of the water use permit (*Note that this Unit was moved from Boston Camp and installed at the current location at Windy Lake Camp by Miramar immediately after the*

<sup>4</sup> Calculated (estimate of water consumed by drilling per day based on Boston License application (~ 2.5 m<sup>3</sup>/day)

<sup>5</sup> Calculated values



*property was purchased from BHP Billiton in 1999 /2000 and has been inspected at its current location by INAC yearly since that time).*

Windy Lake Camp has very limited suitable land space left to accommodate infrastructures to support the increasing exploration activities in the Hope Bay Belt and the initial Doris North Mine construction phase.

### ***Mitigation***

For to comply with this directive issued by INAC Water Inspector, the RBC Units have to be relocated from their current locations to another one over the ridge east of Wind Lake Camp. Grey water release will continue to be discharge over the ridge at the current authorized location. Monitoring of the effluent will continue as per stipulation in the KIA Land Use Permit and NWB Water Use Permit.

### ***Crushed Materials***

The relocation will require crushed materials to use for the foundation of the RBC Units. This will ensure minimal impact on the permafrost at the new RBC Unit site. The crushed materials will be obtained from the currently approved Quarry #2 located at Doris North. The KIA has been notified of this plan and are in agreement with the approach.

### ***Seeking KIA's Approval***

The relocation the RBC unit at Windy Lake Camp will be implemented in 2008.

#### **2.2.3 Drill Salts (Calcium Chloride and Sodium Chloride)**

HBML uses salt (brine solution) to help prevent drill rig rods from freezing while drilling in perma-frost. The salts bags are transported on pallets covered with cardboards and wrapped with plastic foils. Salt bags come in by barge to Roberts Bay during the fall and are transported to approve storage areas along the Belt by cat-train on approved winter tracks during the winter months.

In 2007, upon delivery of salt to Windy Camp lay-down area, Major Drill personnel removed the salt from the small bags in which it was shipped to site and placed it into mega bags for easy transportation by helicopter to drill-rig sites. The contents of damaged salt bags were re-packed into new plastic bags.

A limited volume of salts (50 bags) are not acceptable for use in drilling and are currently being stored at site. A plan for disposing these salts will be developed in 2008.

#### **2.2.4 Contaminated Soil within Land Treatment Farm**

During 2007, no additional contaminated soil was placed into the farm. The farm was not turned in to 2007, so as to promote bioremediation process due to the following factors:

1. In 2006, all contaminated petroleum products stored in 44-gallon drums that were previously stored on tundra were relocated into the lined farm in anticipation for removal during the winter of 2007 but did not happen as planned; and
2. A backhoe planned to be available to help with turning of the soil during the summer months of 2007 was relocated to Patch Lake fuel farm then to Roberts Bay Quarry #1 in the winter of 2007 for construction purposes. Proper equipment was thus not available.



### ***Challenge***

In July, INAC Water Inspector instructed HBML to relocate the current land treatment farm to a suitable area. The inspector's concern was that, the current installations are within 30 meters of a water body and therefore is in violation of the NWB issued Water Use permit. Space at Windy Lake Camp is very limited. Other suitable land for the land farm is not readily available. .

### ***Mitigation***

For HBML to comply with the request of the INAC Water Inspector, the land treatment farm had to be relocated. Given the lack of suitable land space at Windy Lake Camp, the following scenarios are considered practical:

1. HBML is to wait for Doris North Mine land treatment facility to be constructed and re-bag the contaminated soil from Windy Lake Camp facility and move it to Doris North for further treatment;
2. Develop a time frame and a management plan to continue treatment of the remaining material at the Windy Lake Camp before closing that facility ; and
3. Monitoring of the effluent will continue as per stipulation in the KIA Land Use and NWB Water Use permits until such time that the facility is closed for operation.

HBML favours option 2 and will work with INAC, KIA and the NWB to move forward on this in 2008 / 2009.

#### **2.2.5 Non-Combustible Wastes**

These include old cement bags, used drilling rods and casing, electrical wire, piping, nails, office equipment, recreational equipment, empty 44-gallon drums, broken down machines including snowmobiles, and old drilling equipment and spare parts.

At the Patch Lake, Major Drilling Shop, a lot of efforts were done during winter months of 2007 / 2008 to remove old machines, drill sheds, drill rods and other non-combustible materials to the old Roberts Bay lay-down area for shipment off site during the barge season. Old drill rods were cut and placed into 44-gallon drums and/or packed onto pallets ready for removal offsite in the winter of 2008.

At Windy Lake Camp, non-combustible materials that had been packed into drums during the summer of 2006 were flown out of Windy camp in 2007. Approximately 131, 945 lbs of non-combustibles were flown out in the winter of 2007.

#### **2.2.6 Combustible Wastes**

These include kitchen wastes, timbers, lumbers, plywood, papers, cardboards, old maxi bags, old canvas tents and tarpaulins.

All kitchen wastes were burnt in the incinerator at camp. Ashes from the incinerator were packed into 44-gallon drums and removed offsite for proper disposal in Yellowknife.

Used timbers and other combustible wastes were burnt (open fire) in properly built trays off the ground. Ashes from were moved from the trays and placed in 44-gallons drums for removal offsite.



### ***Challenge***

In July, INAC Water Inspector instructed HBML to cease from open fire burning as the practice was not authorized by this NWB water license. The practice stopped immediately at all HBML exploration facilities. This has led to a large pile of waste timbers, plywood and old tents at Windy Lake Camp and Patch Lake Major Shop.

### ***Mitigation***

For HBML to comply with this directive issued by INAC Water Inspector, the following scenarios are considered:

1. Wait for Doris North Mine land fill facility to be constructed and move the combustible wastes not incinerated from Windy Lake Camp to Doris North for disposal in the landfill. KIA has currently declined to approve a land fill at Doris North;
2. Bag and remove combustible wastes from site during the winter months of 2008 to an acceptable disposal site in the NWT or Alberta; and
3. Seek amendment to the NWB Water Use license to allow for controlled open fire burning at site. This amendment will be applied for as after consultation with KIA, the land owner does not object to Newmont practicing opening burning in a properly controlled pre approved facility.

#### **2.2.7 Drill Cuttings and Core Cuttings**

In 2007, there was an increase in the number of holes drilled both on ice and on land. During winter months, all drill rigs operated on the ice at either Patch Lake or Windy Lake were fitted with a “poly-drill system” to capture drill cuttings. After the cuttings were collected in mega bags, they were removed and placed in the Wolverine drill cuttings lay-down area.

On land, the following scenarios were implemented:

1. Drill rigs that operated during the spring break up, were fitted with the “poly-drill system”;
2. Drill rigs operated during the summer and fall, deposited collected drill cuttings into approval sink holes and cracks in the outcrop; and
3. In areas where natural depressions, sinkholes or cracks in the outcrop were not available, the drill rigs used a “poly-drill system”. The bagged cuttings were then flown to Naartok Trench #1 as a fill material.

Other bagged drill cuttings from completed drill sites in the Hope Bay Belt were airlifted to Naartok West as fill materials for trench #1. Similar practice will continue in 2008.

#### **2.2.8 Drill Casing and Anchor Removal**

During the winter of 2007, a contractor was hired to remove casings and anchors left at completed drill sites around Madrid, Boston and regionally within the Hope Bay Belt. A total of 350 casings and anchors were cut along the Belt in the winter of 2007. The rods were packed in drums and flown offsite for disposal. Similar approach to remove casings and anchors will be conducted in the winter of 2008.



### **2.2.9 Sedimentation and Erosion Control**

Erosion and sediment control during the spring runoffs was necessary as a result of the following activities: (i) continuation of exploration activities into break-up season; and continued usage of the established access to Windy Lake during spring runoff. Coconut fibre mats were laid down along the impacted areas to minimize the impact.

#### ***Challenge***

In July, INAC Water Inspector asked HBML to improve the management of sediment. The inspector's concern was that, even though the coconuts mats were mitigating the issue by minimizing the flow of potentially sediment bearing runoffs into nearby water bodies, , a longer-term solution is needed that enhances the current use of coconut fibre mats.

#### ***Mitigation***

For HBML to comply with the request of the INAC Water Inspector, the use of the access from Windy Camp onto the ice of Windy Lake late in the season had to be reviewed. The camp path to the lake is continuously used during both the winter and summer programs. A longer-term solution is to put crushed pad down over the path to the float plane dock and make it the only access route to the camp from the lake. The crush material will provide a better handle in the management of the spring runoffs. Management and monitoring of the runoffs effluent will continue as per stipulation in the KIA Land Use and NWB Water Use permits. KIA has granted permission for this programme to proceed. It is currently being completed.

#### ***Crushed Materials***

HBML will require crushed materials for use over the existing paths within Windy Lake Camp. The use of crushed rock in managing the all paths tracks within the camp will further help to mitigate the potential for sediment runoffs into Windy Lake during spring snow thaw. The crushed materials will be obtained from the current approved Quarry #2 located at Doris North.

#### ***Seeking KIA's Approval***

HBML has received approval from KIA to be spread crushed rock over the path from Windy Camp to Windy Lake in the winter of 2008.

### **3.0 PART B ITEM 2: (II)**

This section of the report provides tubular summaries of all data generated under the monitoring program.

#### **3.1 Water Quality Data**

The water quality data were collected from HOP-1, HOP-2, HOP-3, HOP-4 and HOP-5. Sampling site (HOP-6) was not sampled in 2007. The data are tabulated in Tables 3.1, 3.2 and 3.3. Toxicity testing data on rainbow trout fingerlings and *Daphnia* for water samples collected at HOP-3 are provided in Table 3.4 and Table 3.5.

While the monitoring general shows compliance with the water licence, there were some exceedences registered at HOP-2, which is to assess quality of treated water from the



RBC. HBML is actively working on addressing this issue, and would not, that while there were exceedences at this point, there were not impacts to the receiving water for the effluent, which is Windy Lake, as evidenced by the monitoring at HOP-3. While the camp has made previous efforts to improve RBC operation, these efforts have not been sufficient. For 2008, the system will be re-worked and enhanced to improve treatment effectiveness, which is expected to result in compliance with the water licence.



**Table 3.1: Sampling Data for Water Quality**

| Months    | Parameters       | Sampling Sites  |                  |       | 2BB-BOS0712 Guidelines          |
|-----------|------------------|-----------------|------------------|-------|---------------------------------|
|           |                  | HOP-1           | HOP-2            | HOP-3 |                                 |
| March     | Same parameters  | NS <sup>6</sup> | ND               | ND    | Same guidelines                 |
| April     | Same parameters  | ND              | ND               | DN    | Same guidelines                 |
| May       | Same parameters  | ND              | DN               | DN    | Same guidelines                 |
| June      | BOD <sub>5</sub> | <2              | <b>285</b>       | <2    | 80 mg/L                         |
|           | TSS (mg/L)       | 4               | <b>124</b>       | <3    | 100 mg/L                        |
|           | Faecal Coliform  | <1              | <b>2,800,000</b> | <1    | 10 x 10 <sup>4</sup> CFU/100 mL |
|           | pH               | 7.4             | 7.8              | 6.6   | 6.0 – 9.0                       |
|           | Oil & Grease     | NVS             | NVS              | NVS   | No visible sheen (NVS)          |
| July      | BOD <sub>5</sub> | 8               | 76               | 8     | 80 mg/L                         |
|           | TSS (mg/L)       | <3              | 38               | <3    | 100 mg/L                        |
|           | Faecal Coliform  | <1              | <b>250,000</b>   | 2     | 10 x 10 <sup>4</sup> CFU/100 mL |
|           | pH               | 7.1             | 7.8              | 7.0   | 6.0 – 9.0                       |
|           | Oil & Grease     | ND              | DN               | DN    | No visible sheen (NVS)          |
| August    | BOD <sub>5</sub> | <2              | 64               | <2    | 80 mg/L                         |
|           | TSS (mg/L)       | DS <sup>7</sup> | DS               | DS    | 100 mg/L                        |
|           | Faecal Coliform  | <1              | 91,000           | 4     | 10 x 10 <sup>4</sup> CFU/100 mL |
|           | pH               | 8.0             | 7.7              | 8.8   | 6.0 – 9.0                       |
|           | Oil & Grease     | <1              | 48               | <1    | No visible sheen (NVS)          |
| September | BOD <sub>5</sub> | -               | <b>100</b>       | <2    | 80 mg/L                         |
|           | TSS (mg/L)       | -               | <b>102</b>       | <3    | 100 mg/L                        |
|           | Faecal Coliform  | -               | EHT <sup>8</sup> | EHT   | 10 x 10 <sup>4</sup> CFU/100 mL |
|           | pH               | -               | 7.8              | 7.9   | 6.0 – 9.0                       |
|           | Oil & Grease     | -               | NVS              | NVS   | No visible sheen (NVS)          |
| October   | BOD <sub>5</sub> | <2              | 3                | <2    | 80 mg/L                         |
|           | TSS (mg/L)       | 3               | <b>140</b>       | 3     | 100 mg/L                        |
|           | Faecal Coliform  | <1              | 70,000           | <1    | 10 x 10 <sup>4</sup> CFU/100 mL |
|           | pH               | 7.6             | 7.9              | 7.5   | 6.0 – 9.0                       |
|           | Oil & Grease     | NVS             | NVS              | NVS   | No visible sheen (NVS)          |

• <sup>6</sup> NS – Not sampled due to the interpretation of the “wording – open water season” in the old water license. This was interpreted as sampling to start when ice is gone from lake shores.

• <sup>7</sup> Damaged sample due to handling during transit to the external laboratory

• <sup>8</sup> EHT – Exceeded holding time



**Table 3.2: Water quality analytical results at HOP-4 and HOP-5 for Hope Bay under License # 2BE-HOP0712. All units are reported in mg/L.**

| Parameters                               | HOP-4      | HOP-5        | HOP-4              | HOP-4              | HOP-4              | Remarks                              |
|--|------------|--------------|--------------------|--------------------|--------------------|--------------------------------------|
| ALS Lab Reference #                      | L516797-8  | L516797-9    | L527067-3          | L527067-4          | L524586-1          | License # 2BE-HOP0712                |
| Field Sample Details                     | 10-LTA     | 11-FUEL FARM | WCLTA-2-3          | WCLTA-2-4          | WCLTA-1-2          | Part D: Item 17 &                    |
| Sample Date/Time                         | June 09 07 | June 09 07   | June 27 07 @ 13:22 | June 28 07 @ 09:50 | June 26 07 @ 13:22 | Part J: Item 4                       |
| Oil & Grease (Visibility)                | -          | -            | -                  | -                  | -                  | 15,000 µg/Land with no visible sheen |
| Benzene                                  | 0.00630    | 0.0582       | <0.00050           | <0.00050           | <0.00050           | 0.37 mg/L (370 µg/L)                 |
| Toluene                                  | 0.0330     | 0.0259       | <0.00050           | <0.00050           | <0.00050           | 0.002 mg/L (2 µg/L)                  |
| Ethylbenzene                             | 0.00675    | 0.0344       | <0.00050           | <0.00050           | <0.00050           | 0.09 mg/L (90 µg/L)                  |
| Total Petroleum Hydrocarbons             | -          | -            | -                  | -                  | -                  | Not done                             |
| Poly Aromatic Hydrocarbons               | -          | -            | -                  | -                  | -                  | Not done                             |
| Total Phenols                            | -          | -            | -                  | -                  | -                  | Not done                             |
| Total Hardness (as CaCO <sub>3</sub> )   | 239        | 47           | 937                | 1030               | 950                | No guidelines provided in permit     |
| Nitrate-Nitrite                          | 0.4        | 0.2          | <0.1               | <0.1               | <0.1               | No guidelines provided in permit     |
| Calcium                                  | 75.1       | 11.4         | 166                | 180                | 176                | No guidelines provided in permit     |
| Potassium                                | 6.5        | 2.6          | 25                 | 26                 | 24.2               | No guidelines provided in permit     |
| Magnesium                                | 12.5       | 4.5          | 127                | 141                | 124                | No guidelines provided in permit     |
| Sodium                                   | 93         | 27           | 506                | 549                | 454                | No guidelines provided in permit     |
| Sulphate                                 | 33.9       | 25.8         | 290                | 324                | 305                | No guidelines provided in permit     |
| Total Alkalinity (as CaCO <sub>3</sub> ) | 38         | 17           | 175                | 184                | 168                | No guidelines provided in permit     |
| Total Arsenic                            | 0.0113     | 0.0016       | -                  | -                  | -                  | No guidelines provided in permit     |
| Total Cadmium                            | <0.0002    | <0.0002      | -                  | -                  | -                  | No guidelines provided in permit     |
| Total Chromium                           | 0.0226     | 0.0084       | -                  | -                  | -                  | No guidelines provided in permit     |
| Total Copper                             | 0.040      | 0.006        | -                  | -                  | -                  | No guidelines provided in permit     |
| Total Nickel                             | 0.0209     | 0.0049       | -                  | -                  | -                  | No guidelines provided in permit     |
| Total Lead                               | 0.0019     | 0.0023       | -                  | -                  | -                  | 0.001 mg/L (1 µg/L)                  |
| Total Iron                               | 5.34       | 3.10         | -                  | -                  | -                  | No guidelines provided in permit     |
| Total Mercury                            | -          | -            | -                  | -                  | -                  | Not done                             |



**Table 3.3: Water Quality Water quality analytical results at HOP-4 for Hope Bay under License # 2BE-HOP0712. All units are reported in mg/L.**

| Parameters                               | HOP-4              | HOP-4             | Remarks                              |
|--|--------------------|-------------------|--------------------------------------|
| ALS Lab Reference #                      | L527067-1          | L527067-2         | License # 2BE-HOP0712                |
| Field Sample Details                     | WCLTA-1            | WCLTA-2           | Part D: Item 17 &                    |
| Sample Date/Time                         | July 03 07 @ 09:40 | July 03 07@ 09:44 | Part J: Item 4                       |
| Oil & Grease (Visibility)                | -                  | -                 | 15,000 µg/Land with no visible sheen |
| Benzene                                  | 0.0132             | <0.00050          | 0.37 mg/L (370 µg/L)                 |
| Toluene                                  | 0.0276             | <0.00050          | 0.002 mg/L (2 µg/L)                  |
| Ethylbenzene                             | 0.00058            | <0.00050          | 0.09 mg/L (90 µg/L)                  |
| Total Petroleum Hydrocarbons             | -                  | -                 | Not done                             |
| Poly Aromatic Hydrocarbons               | -                  | -                 | Not done                             |
| Total Phenols                            | -                  | -                 | Not done                             |
| Total Hardness (as CaCO <sub>3</sub> )   | 960                | 316               | No guidelines provided in permit     |
| Nitrate-Nitrite                          | 0.2                | <0.1              | No guidelines provided in permit     |
| Calcium                                  | 132                | 82.8              | No guidelines provided in permit     |
| Potassium                                | 38.2               | 5.1               | No guidelines provided in permit     |
| Magnesium                                | 153                | 26.6              | No guidelines provided in permit     |
| Sodium                                   | 668                | 101               | No guidelines provided in permit     |
| Sulphate                                 | 364                | 30.2              | No guidelines provided in permit     |
| Total Alkalinity (as CaCO <sub>3</sub> ) | 196                | 109               | No guidelines provided in permit     |



### 3.2 Toxicity Testing Data

Tables 3.2 and 3.3 provide detail of analyses on rainbow trout fingerlings, *Oncorhynchus mykiss* and crustaceans, *Daphnia magna* subjected to water samples collected from HOP-3. In laboratory controlled standard tests, both organisms passed the bioassay test. The treated RBC final effluent at HOP-3 has no significant impact on the test organisms.

**Table 3.4: Results of Acute Toxicity Test for water sampling site HOP-3 under Hope Bay Water License # 2BE-HOP0712, Part J: Item 3**

### Daphnia Magna Bioassay Test Report – Pass/Fail

Sample Number: L551047-2

#### Summary Results

|                         |
|-------------------------|
| 48-hour Pass/Fail: PASS |
|-------------------------|

#### Sample Information

|                           |                            |
|---------------------------|----------------------------|
| Sample Origin:            | Miramar Hope Bay Ltd.      |
| Sample Description:       | HOP-3                      |
| Sampling Date and Time:   | 06-Sept-07 09:00           |
| Sampling Method:          | Grab                       |
| Sampled By:               | Matt Kawei                 |
| Container(s) Description: | 1 x 1 L Glass amber bottle |
| Sample Volume (L):        | 1 L                        |
| Date and Time Received:   | 10-Sept-07 12:30pm         |
| Transit Irregularities:   | None                       |
| Storage Temperature (°C): | N/A                        |

#### Test Information

|                                   |   |
|-----------------------------------|---|
| Test Organism:                    | Daphnia magna   |
| Test Description:                 | Acute, 48-hour, Static, Pass/Fail                             |
| Reference Method:                 | EPS1/RM/14, 2 <sup>nd</sup> Ed. Dec. 2000, Environment Canada |
| Performed By:                     | JA  |
| Starting Date & Time:             | 10-Sept-07 16:30  |
| Deviations from Reference Method: | None  |



**Table 3.5: Results of Acute Toxicity Test for water sampling site HOP-3 under Hope Bay Water License # 2BE-HOP0712, Part J: Item 3**

### **Rainbow Trout Bioassay Test Report – Pass/Fail**

Sample Number: L551047-2

#### **Summary Results**

|                    |      |
|--------------------|------|
| 96-hour Pass/Fail: | PASS |
|--------------------|------|

#### **Sample Information**

|                           |                       |
|---------------------------|-----------------------|
| Sample Origin:            | Miramar Hope Bay Ltd. |
| Sample Description:       | HOP-3                 |
| Sampling Date and Time:   | 06-Sept-07 09:00      |
| Sampling Method:          | Grab                  |
| Sampled By:               | Matt Kawei            |
| Container(s) Description: | 1 x 20 L Blue barrel  |
| Sample Volume (L):        | 20 L                  |
| Date and Time Received:   | 10-Sept-07 12:30pm    |
| Transit Irregularities:   | None                  |
| Storage Temperature (°C): | 14                    |

#### **Test Information**

|                                   |   |
|-----------------------------------|---|
| Test Organism:                    | Oncorhynchus mykiss   |
| Test Description:                 | Acute, 96-hour, Static, LC50                                  |
| Reference Method:                 | EPS1/RM/13, 2 <sup>nd</sup> Ed. Dec. 2000, Environment Canada |
| Performed By:                     | JA  |
| Starting Date & Time:             | 11-Sept-07 12:00pm  |
| Deviations from Reference Method: | None  |

## **4.0 PART B ITEM 2: (III)**

This section of the report provides a list of authorised discharges and a summary of follow-up actions taken by HBML.

Forty-three non-reportable spills occurred in 2007; all spills are summarized in Table 4.1. Details of each incident are discussed below.

During 2007 exploration season, the number if environmental incidents reported increased sharply. This increase results from environmental awareness presentations given to both HBML and contract personnel working at the Hope Bay Belt. All personnel were requested to report near misses (potential for an environmental spill that did not occur ) in addition to actual incidences. The object to prevent the potential for future incidents by correcting practices before an incident occurs.



**Table 4.1: 2007 Hope Bay Regional Project Environmental Incident Statistics**

| HBML  | Spill          | Years |      |      |
|---|----------------|-------|------|------|
| Work Areas/Camps  | Spill Category | 2005  | 2006 | 2007 |
| Madrid Region<br>(2BE-HOP0712)<br>Windy Camp<br>Patch Lake Shop<br>Winter Drilling on Ice | Near Miss      | -     | 1    | 0    |
|   | Level 1        | 6     | 4    | 28   |
|   | Level 2        | 2     | 0    | 0    |
|   | Level 3        | 0     | 0    | 0    |
| Regional Drilling<br>(2BE-HOP0712)<br>Chicago<br>Regional Targets                         | Near Miss      | -     | -    | 0    |
|   | Level 1        | -     | -    | 9    |
|   | Level 2        | -     | -    | 0    |
|   | Level 3        | -     | -    | 0    |
| Roberts Bay<br>(2BE-HOP0712)<br>Old lay-down<br>New lay-down                              | Near Miss      | -     | 0    | 0    |
|   | Level 1        | 1     | 2    | 6    |
|   | Level 2        | 0     | 0    | 0    |
|   | Level 3        | 0     | 0    | 0    |
| Sub-Totals  |                |       |      |      |
| Totals  | Near Miss      | -     | 1    | 0    |
|   | Minor (L1)     | 7     | 6    | 43   |
|   | Moderate (L2)  | 2     | 0    | 0    |
|   | Major (L3)     | 0     | 0    | 0    |
| External Reportable   |                | 2     | 0    | 0    |
| Grand Totals  | All Levels     | 9     | 7    | 43   |

1. March 24 2007: Approximately 4 litres of oil (14W40) was lost onto the snow at old Roberts Bay Beach lay down area. Kitnuna personnel were moving pallets of engine oil and accidentally drop a pallet breaking one of the oil containers. The moving of the pallets was done during night shift.
  - Location: Old Roberts Bay beach lay down area
  - Root Cause: Lack of sufficient light and insufficient supervision of on the part of the contractor.
  - Amount Spilt and Spill Category: 4 litres. Minor Spill.
  - Remediation: The impacted snow was shovelled and placed into two garbage bags and taken back to Windy Lake Camp for proper treatment.
  - No follow-up is required in 2008.
2. March 26 2007: A three quarter empty 44-gallon Jet B drum was noticed and reported when moving pallets of Jet B drums from the airstrip Windy Lake to the bulk fuel storage facility at Windy Lake Camp. The immediate cause was a significant dent in the last rib of the drum. Over time and due to pressure from within the drum, the weak portion of the drum became a potential area for pressure build-up. A pinhole was found on the dented area on the rib. The pallet was immediately removed from the lake and placed in the bulk fuel storage facility.
  - Location: Windy Lake



- Root Cause: Dent in last rib of the drum. Pressure built up overtime on the weak spot allowed sprays of Jet B to leak out.
  - Amount Spilt and Spill Category: Unknown volume at the time of discovery.
  - Remediation: The remaining contents were transferred into a new drum. No evidence of spill seen on ice at Windy Lake.
3. April 05 2007: After refuelling at the gas station within the lined tank berm, a new skidoo operator tried to take the machine downhill and lost control of the skidoo. It tipped over popping off the fuel cap lid and released approximately a litre of gas onto the snow.
- Location: Lined fuel farm, Windy Lake Camp
  - Root Cause: Inexperience skidoo operator; and the fuel cap lid did not appear to have been properly secured therefore it easily popped open when the machine rolled over.
  - Amount Spilt and Spill Category: <1 litre. Minor Spill.
  - Remediation: The contaminated snow was shovelled into a bag and placed in the land treatment area at Windy Lake Camp.
  - No follow-up required in 2008
4. April 09 2007: Approximately 10 litres of coolant was released onto the snow by the RC Drill operating at Naartok West. Coolant container knocked over during routine engine fluid checks.
- Location: Trench # 1 area, Naartok west
  - Root Cause: Lid of the container was not properly secured at the worksite
  - Amount Spilt and Spill Category: 10 litres. Minor Spill.
  - Remediation: Contaminated snow shovelled into a bag and placed in the land treatment area at Windy Lake Camp.
  - No follow-up required in 2008
5. April 11 2007: An unknown volume of transmission fluid was lost from an all track truck parked out the condo at Windy Lake Camp. It left a reddish/orange colouration on the snow.
- Location: Condo south of Windy Lake Camp
  - Root Cause: Leaks from seals or tubes
  - Amount Spilt and Spill Category: Unknown volume. Minor Spill
  - Remediation: Coloured snow removed and placed in the land treatment area at Windy Camp.
  - No follow-up required in 2008



6. April 11 2007: Unknown volume of P50 fuel spilt into the old lined fuel farm during completion of refuelling of two 70,000 L AST tanks by Kitnuna personnel. After completion of refuelling the tanks, the lead discharge line was removed from the intake vent at the top of each tank to prevent a siphoning of fuel back out of the tank. It was found that the cap was missing off the female end of the line allowing the remaining fuel in the line to be released onto the snow.
  - Location: Old lined fuel farm, Patch Lake
  - Root Cause: Female hose not capped.
  - Amount Spilt and Spill Category: Unknown volume. Minor Spill
  - Remediation: Coloured snow removed and placed in the land treatment area at Windy Camp.
  - No follow-up required in 2008.
7. April 12 2007: Six litres of fuel and contaminated snow spilt into the belly pan of a Cat at the Patch Lake, Major Drilling Shop. A blown piston caused a hole in the engine block allowing the engine oil to drip into the belly pan. Upon removing the pan, the mixture spilled on the shop floor.
  - Location: Patch Lake Major Drilling Shop
  - Root Cause: Hole in the Cat D5G engine block which allowed six litres of engine oil (15W40) to leak into the belly pan and mix with the snow that had already accumulated in the pan. Upon removing of the belly pan, approximately 6 litres oil plus melted snow poured onto the shop floor.
  - Amount Split and Spill Category: 6 litres. Minor incident
  - Remediation: Ten bags of corn-cobs were spread over the spill and the surrounding area and left overnight to absorb the oil. More corn cobs were spread in areas where there was still evidence of hydrocarbon residues.. After a day, the corn cobs were seen to have absorbed the spilled oil. The used corn cobs were removed from the shop floor and burned in the incinerator at the Patch Lake Shop.
  - No follow-up is required in 2008.
8. April 17 2007: During P50 fuel transfer from the barge to a tank on a sledge, approximately 3 litres of fuel was released onto the snow. This resulted from a leak in the hose fitting that connected the discharge line from the fuel pump to the inlet valve of the tank on the sled.
  - Location: Anchored barge (frozen-in), Roberts Bay
  - Root Cause: Female end of the line not properly secured to the fuel pump.
  - Amount Split and Spill Category: 3 litres. Minor incident
  - Remediation: The contaminated snow was removed and transported to Windy Lake Camp for proper disposal.



- No follow-up is required in 2008.
9. April 18 2007: On April 18, approximately 3 litres of P50 fuel was spilled during dispensing of fuel from a tanker into the barge frozen in at Roberts Bay. The incident happened when Kitnuna personnel were transferring fuel removed from the AST tanks stored at the old fuel farm at Patch Lake into the barge. Fuel was discovered leaking from two separate joins in the line. No spill trays were found to have been installed under the joins.
- Location: Anchored barge (frozen-in), Roberts Bay
  - Root Cause: Female end of the line not properly secured to the fuel pump.
  - Amount Spilt and Spill Category: 3 litres. Minor incident
  - Remediation: The contaminated snow was collected and removed to Windy Lake Camp for proper disposal.
  - No follow-up is required in 2008.
10. April 26 2007: Spill at Chicago water pump shed. The fuel line kept discharging fuel after the heating coil in the stove had gone off. The stove day tank became full and overflowed into the containment tray under the unit. Overtime, the tray fill and started to overflow onto the ice. The incident was noticed at the morning crew change, Major Drilling personnel quickly rectified the problem.
- Location: Chicago
  - Root Cause: Coil stove went out unexpectedly. Fuel continued to be released into the coil stove fuel tank.
  - Amount Spilt and Spill Category: <5 litres on ice. Minor Spill.
  - Remediation: Major Drilling personnel quickly stopped the flow of fuel from the line. The coil stove and the containment tray were quickly placed in a skimmer. The contaminated snow was removed and placed in the skimmer. Residual fuel was burnt off using a propane torch.
  - No follow-up required in 2008.
11. May 03 2007: On May 3rd, approximately one litre of 15W40 oil was spilt when a gator backed onto a pail and the lip popped open releasing oil onto the snow. The incident was observed by camp personnel overseeing the dispensing of fuel from the fuel farm.
- Location: Path along fuel farm at the south end of Windy Lake Camp
  - Root Cause: Lack of proper storage for the pail of 15W40.
  - Amount Spilt and Spill Category: 1 litre. Minor Spill.
  - Remediation: The impacted snow was shovelled and placed in the land treatment area.
  - No follow-up required in 2008



12. May 09 2007: On May 9th, approximately 4 litres of gas was spilt when attempting to remove some gas barrels from the lay down area. A barrel was punctured within the lined berm. The incident was noticed by camp personnel overseeing dispensal at the fuel farm.

- Location: Within Windy Camp lined fuel farm facility
- Root Cause: Insufficient supervision of gas drums from bermed area.
- Amount Spilt and Spill Category: 4 litres. Minor Spill.
- Remediation: The impacted snow was shovelled and placed in the land treatment area.
- No follow-up required in 2008

13. May 13 2007: On May 13 during an inspection of the Patch Lake fuel farm it was noticed that a small amount of fuel oil (approximately 1 cup or less) had dripped out of the transfer pump onto one of the tanks. All valves were locked and closed on inspection. The fuel that was in the body of the pump (less than 4 liters) had expanded causing the dripping of fuel along the discharge pipe.

- Location: Patch Lake new fuel farm
- Root Cause: Pump hose not fully discharge after the last fuel transfer was completed.
- Amount Spilt and Spill Category: 4 litres. Minor Spill.
- Remediation: The impacted snow was removed and placed in the land treatment area.
- No follow-up required in 2008

14. May 18 2007: Approximately one litre of oil was found at drill hole 07PMD544 at Patch Lake.

- Location: Patch Lake drill home # 07PMD544
- Root Cause: Improper house keeping
- Amount Spilt and Spill Category: 1 litre. Minor Spill.
- Remediation: The oil was removed from the ice using cone cobs. The residual oil was burnt off using a propane torch.
- No follow-up required in 2008

15. May 18 2007: Approximately 2 litres of P50 dripped into a containment pan that had been allowed to fill with snow and overflowing onto the snow at Patch Lake Major Drilling Shop temporary above ground storage tanks lay down area.

- Location: North of Patch Lake Major Shop
- Root Cause: Discharge line not properly secured allowing jets of P50 to escape into a containment pan filled with snow.



- Amount Spilt and Spill Category: Approximately 2 litres. Minor Spill
- Remediation: Proper seal was installed. Contaminated snow in the pan and on the ground was removed and placed in the LTA at Windy Lake Camp.
- No follow-up required in 2008

16. May 24 2007: Approximately 2 litres of hydrex 32 spilt at Drill 1242 at Patch Lake

- Location: Drill 1242 at Patch Lake
- Root Cause: Improper house keeping at Drill 1242. Hydrex 32 container was knocked over while exiting the drill shack.
- Amount Spilt and Spill Category: 2 litres. Minor Spill
- Remediation: The spill product was removed using absorbents pads. Corn cobs were applied to the contaminated areas to absorb the remaining residual stains on the ice.
- No follow-up required in 2008

17. May 24 2007: Kitnuna night crew while transfer fuel from a tanker back to the freeze-in barge spilt approximately 5 litres of P50 onto the snow around the pump.

- Location: Barge frozen in Roberts Bay freeze-in
- Root Cause: The discharge line from the pump to the barge was not secured properly allowing P50 fuel to escape into the containment pan. The pan was full with snow.
- Amount Spilt and Spill Category: 5 litres. Minor Spill
- Remediation: The discharge line was secured properly. Contaminated snow in the pan and around the pump were removed and taken to LTA at Windy Lake Camp.
- No follow-up required in 2008

18. May 25 2007: A Kitnuna night crew transferring fuel from the barge into a tanker spilt approximately 3 litres of P50 onto the snow around the pump.

- Location: Barge frozen into Roberts Bay
- Root Cause: The discharge line from the pump to the barge was not secured properly thus allowing P50 fuel to escape into the containment pan. The pan was full with snow.
- Amount Spilt and Spill Category: 3 litres. Minor Spill.
- Remediation: The discharge line was secured properly. Contaminated snow in the pan and around the pump were removed and taken to LTA at Windy Lake Camp.
- No follow-up required in 2008



19. June 01 2007: Spill of drill cuttings at Drill 1096; hole #07PMD562 on ice, Patch Lake.

- Location: Drill 1096; hole #07PMD562, Patch Lake
- Root Cause: Inadequate house keeping. Overflow of drill cuttings from maxi-bag onto snow.
- Amount Spilt and Spill Category: 3 litres of sludge. Minor Spill.
- Remediation: The cuttings were removed with shovels and placed into a bag for disposal at approved storage area at Wolverine.
- No follow-up required in 2008

20. June 01 2007: Spill of drill cuttings at drill 1228; hole #07PMD564 on ice, Patch Lake.

- Location: Drill 1228; hole #07PMD564, Patch Lake.
- Root Cause: Inadequate house keeping. Overflow of drill cuttings from maxi-bag onto snow.
- Amount Spilt and Spill Category: 5 litres of sludge. Minor Spill.
- Remediation: The cuttings were removed with shovels and placed into a bag for disposal at approved storage area at Wolverine.
- No follow-up required in 2008

21. June 01 2007: Spill of drill cuttings at drill 1125; hole #07PMD566 on ice, Patch Lake.

- Location: Drill 1125; hole #07PMD566, Patch Lake.
- Root Cause: Inadequate house keeping. Overflow of drill cuttings from maxi-bag onto snow.
- Amount Spilt and Spill Category: 5 litres of sludge. Minor Spill.
- Remediation: The cuttings were removed with shovels and placed into a bag for disposal at approved storage area at Wolverine.
- No follow-up required in 2008

22. June 03 2007: On June 3rd Major Drilling personnel noticed that approximately 100 ml of P50 fuel had leaked from a discharge line inside the new fuel farm at Patch Lake. Site supervisors were informed immediately to rectify the problem.

- Location: AST tank, Patch Lake fuel farm.
- Root Cause: Discharge line not properly secured to stands allowing remaining P50 in the line to leak out of the line.
- Amount Spilt and Spill Category: 100 ml. Minor Spill.
- Remediation: Discharge line secured. Corn cobs were used to carry out in-situ treatment of the impacted area.



- No follow-up required in 2008
23. June 11 2007: Approximately 5 litres of oil leaked from generator and onto the floor of the new generator shed. Some leaked through the floor and onto the ground and finally into water ways around the new generator shed at Windy Camp.
- Location: New Generator shed, Windy Lake Camp
  - Root Cause: Improper replacement of fuel filter. No containment pan under the filter.
  - Amount Spilt and Spill Category: 5 litres. Minor Spill.
  - Remediation: The spilt oil was cleaned up using absorbent pads and corn cobs to removed the oil from the water surface. The contaminated water was pumped into a 45-gallon drum and emptied into the LTA area for oil removal through filtration system. The contaminated soil was removed and placed inside the LTA.
  - No follow-up required in 2008
24. June 11 2007: 5 litres leak of generator engine oil onto the shed floor and into a pool of water east of Erection Tent.
- Location: Old Generator shed, Windy Lake Camp
  - Root Cause: Blown engine
  - Amount Spilt and Spill Category: 5 litres. Minor Spill.
  - Remediation: The spilt oil was cleaned up using absorbent pads and corn cobs to remove the oil from the water surface. The contaminated water was pumped into a 45-gallon drum and emptied into the LTA area for oil removal through filtration system.
  - No follow-up required in 2008
25. June 11 2007: A drum containing garbage was seen leaking oil onto the ground south of Windy Camp.
- Location: Non-combustible lay down area, south of Windy Lake Camp
  - Root Cause: An old engine filter was disposed into the barrel together with other non-combustible materials.
  - Amount Spilt and Spill Category: 2 litres. Minor Spill.
  - Remediation: The spilt oil was cleaned up using absorbent pads and corn cobs were spread over the impacted areas to absorb any remaining residual fuel.
  - No follow-up required in 2008
26. June 11 2007: Visible fuel film was observed in run offs flowing from the helipads areas towards a pool of water draining onto the road leading to Windy Lake.
- Location: Drainage system north of LTA, Windy Lake Camp



- Root Cause: Residual petroleum products resulting from the refuelling of helicopters and/or skidoos during winter months at the fuel farm.
  - Amount Spilt and Spill Category: Unknown volume of fuel. Minor Spill.
  - Remediation: A barrier of corn cobs and absorbent pads were used to divert the spring thaw flows to allow residual petroleum products to be absorbed by the corn cobs/absorbent pads.
  - No follow-up required in 2008
27. June 12 2007: Drill rod grease was observed at two drill sites near Chicago. The grease were removed and flown back to Boston Camp for proper disposal. At the same site, drill cuttings were removed and flown back to Boston Camp.
- Location: Chicago
  - Root Cause: Poor housekeeping at drill site
  - Amount Spilt and Spill Category: Less than 1 litre. Minor Spill.
  - Remediation: Grease removed and placed in a can for incineration at Boston Camp and house keeping procedures reviewed.
  - No follow-up required in 2008
28. June 13 2007: Heating coil stove at the water pump shed on Spyder Lake caught on fire on ice. The stove was heating water supplied to drill rigs 07SBD353, 07SBD354 & 07SBD355.
- Location: Drill rig water supply shed north of Boston Camp on Spyder Lake.
  - Root Cause: A hole in the fuel discharge line released a spray of P50 fuel onto the hot surface of the coil stove, which ignited.
  - Amount Spilt and Spill Category: Less than 1 litre. Minor Spill
  - Remediation: The fire was put out quickly using a fire extinguisher. Hydrocarbon contaminated snow and ice were removed from site in drums. The damaged hose was replaced immediately.
  - No further reclamation in 2008.
29. June 14 2007: Drill rig 07SBD359 at Stickleback - residual fuel on ice .
- Location: Stickleback Lake, south of Boston Camp
  - Root Cause: Overflow from the containment tray under the coil stove. Snow which had been allowed to accumulate in the drip tray melted due to the heat generated from the stove, which allowed hydrocarbon contaminated water to overflow onto the ice.
  - Amount Spilt and Spill Category: < 1 litre. Minor Spill
  - Remediation: The contaminated ice was chipped off the surface and removed. The residual fuel was burnt using a propane torch.



- No follow-up is required in 2008.
30. June 14 2007: Drill rig 07SBD361 at Stickleback - residual grease/fuel on ice and drill hole on ice.
- Location: Stickleback Lake, south of Boston Camp
  - Root Cause: Lack of proper house keeping. Grease left on ice after greasing drill rods. The contaminated area was covered by snow and therefore was not spotted at the time of the incident.
  - Amount Spilt and Spill Category: <1 litre. Minor Spill.
  - Remediation: The grease was collected when it became visible in the spring. The residual grease/fuel that was not collected was burnt using a propane torch.
  - No follow-up required in 2008.
31. June 14 2007: Drill rig 07SBD362 at Stickleback - residual fuel on ice and drill hole on ice.
- Location: Stickleback Lake, south of Boston Camp.
  - Root Cause: Leaks from coil stove fuel line.
  - Amount Spilt and Spill Category: <1 litre. Minor Spill.
  - Remediation: The fuel was replaced. The contaminated area was cleaned and the residual fuel was burnt off using a propane torch.
  - No follow-up required in 2008.
32. June 14 2007: Drill rig 07SBD363 at Stickleback - residual fuel on ice and drill hole on ice.
- Location: Stickleback Lake, south of Boston Camp
  - Root Cause: Leak from engine.
  - Amount Spilt and Spill Category: <1 litre. Minor Spill.
  - Remediation: The fuel was removed using absorbent pads. Residual fuel on ice was burnt off using a propane torch.
  - No follow-up required in 2008.
33. June 15 2007: Drill rig 07PJD001 at Flying Squirrel - residual fuel on ice and lake.
- Location: Flying Squirrel Lake, north east of Boston Camp
  - Root Cause: Lack of proper house keeping. Grease/fuel left on ice after completion of the drill hole
  - Amount Spilt and Spill Category: <1 litre. Minor Spill.
  - Remediation: The grease was removed. The residual fuel on ice was burnt off using a propane torch.



- No follow-up required in 2008.
34. June 15 2007: A heating coil stove slipped and submerged into a pool of water at Flying Squirrel Lake. Residual fuel (P50) within the containment tray spilled into a pool of water on ice. The heating stove was apart of a water supply system provide heated water to drill rigs 07PJD003, 07PJD004 & 07PJD005 at Flying Squirrel.
- Location: Flying Squirrel Lake, Northeast of Boston Camp
  - Root Cause: The support timber placed under the containment tray was insufficient to support the weight of the stove and the accumulating waste water/fuel within the containment tray. Heat generated from the coil stove melted the ice around the stove to create a depression to one side allowing the stove together with the containment try to tip and slip into the hole.
  - Amount Spilt and Spill Category: <1 litre of P50 fuel. Minor Spill.
  - Remediation: The spilt materials were quickly recovered using absorbed pads. Residual products visible on ice were burnt off using a propane torch. Other debris was removed from ice. For the 2008, coil stoves and the containment trays be more adequately secured.
  - No further reclamation is required in 2008.
35. June 19 2007: Spill drill cuttings at drill 1242; hole # 07PMD582 on ice, Patch Lake.
- Location: Drill 1242; hole # 07PMD582, Patch Lake
  - Root Cause: Inadequate house keeping. Cuttings over flowed from a maxi-bag.
  - Amount Spilt and Spill Category: 5 litres of sludge. Minor Spill.
  - Remediation: The cuttings were removed with by shovel and placed into a bag for disposal in the approved storage area at Wolverine.
  - No further follow-up is required in 2008.
36. June 19 2007: NWT Rock Services truck travelling on blast rock sliced a hydraulic hose releasing approximately 19 litres of fluid onto the rocks. The discharge covered area of approximately 80 square meters. The incident happened at around about 5 pm on June 19 2007. HBML environment personnel were notified about 6:30 pm and remediation took place between 7:30 – 8:30 pm.
- Location: Roberts Bay Quarry #1
  - Root Cause: (1). Lack of proper compaction of the newly placed blast rocks on the quarry access road; and (2). No guards protecting hydraulic hose from protruding sharp objects.
  - Amount Spilt and Spill Category: 19 litres of hydraulic fluid. Minor Spill
  - Remediation: Ten bags of corn cobs were spread over the impacted area and into the cracks in the laid out blasted rock track and left overnight to absorb the spilt hydraulic fluid.



- No further follow-up is required in 2008.
37. June 20 2007: Spill Oil at drill 1242; hole # 07PMD580 on ice, Patch Lake
- Location: Drill 1242; hole # 07PMD580, Patch Lake
  - Root Cause: Broken seal allowed engine oil to leak from the generator.
  - Amount Spilt and Spill Category: 5 litres. Minor Spill.
  - Remediation: The contaminated absorbent pads were removed and corn cobs were spread over the impacted area to absorb any remaining residual oil. Finally, the area was torched with a propane torch.
  - No further follow-up is required in 2008.
38. June 26 2007: Spill oil at drill 1242 hole #07PMD581 on ice, Patch Lake
- Location: Drill 1242; hole # 07PMD581, Patch Lake
  - Root Cause: Broken engine seal which allows engine oil to leak from the generator.
  - Amount Spilt and Spill Category: 5 litres. Minor Spill.
  - Remediation: The contaminated absorbent pads were removed and corn cobs were spread over the impacted area to absorb any remaining residual oil. The area was then torched with a propane torch.
  - No further follow-up is required in 2008.
39. June 30 2007: Drill grease was found on ice at completed drill site 07PMD589
- Location: Patch Lake drill site 07PMD589
  - Root Cause: Improper handling of substance
  - Amount Spilt and Spill Category: 1 litre of grease. Minor Spill.
  - Remediation: Grease was hand-picked using absorbent pads.
  - No follow-up required in 2008.
40. June 30 2007: Drill grease was found on ice at drill site 07PMD586 at Patch Lake.
- Location: Patch Lake at drill site 07PMD586
  - Root Cause: Improper handling of substance at drill site. Poor house keeping.
  - Amount Spilt and Spill Category: 2 litres of grease. Minor Spill
  - Remediation: Grease was hand-picked using absorbent pads.
  - No follow-up required in 2008.
41. October 11 2007: Two camp employees were cleaning out the RBC using a gas operated water pump. The pump used was moving water faster than the RBC pump could transfer treated water from RBC to the transfer box and thus caused the holding tank to overflow. The alarm system was activated and the pump was immediately shut down.



- Location: Windy Lake Camp Clementine Holding Tank
  - Root Cause: The pump and the outlet hose that were used were too big for the job. A 1-inch hose should have been used so as not to overpower the RBC pump. A 2-inch hose which was used.
  - Amount Spilt and Spill Category: 15 liters of grey water. Minor Spill.
  - Remediation: Corn cobs were used to spread over the effected area to eliminate the odour. As the grey water froze few minutes after being spilled, the area under the unit has to be mitigated in the spring of 2008. Follow-up is required in the spring of 2008.
42. November 25 2007: A plumber and a couple of helpers were cleaning out the Clementine RBC Unit. As they were pumping the grey water up to the lift station the line from the lift station going up over the hill froze and the grey water overfilled the holding tank at the lift station. Upon observing what was happening, camp personnel shut the pump down immediately and thus avoided a larger spill of grey water to the environment. It should be noted that the water being pumped met water licence discharge criteria but because of this incident was not released to the environment in the regulated location.
- Location: Windy Lake Camp Grey Water Transfer Box
  - Root Cause: The heat trace on the upper discharge line was burnt off. The line immediately froze and the pump wasn't pumping therefore the holding tank overflowed.
  - Amount Spilt and Spill Category: 20 litres. Minor Spill
  - Remediation: Corn cobs were spread over the effected area at the time to eliminate the odour and a permeable barrier was built for grey water to filter through during the spring of 2008.
  - Follow-up is required in the spring of 2008.
43. November 26 2007: A camp crew was working to thaw a frozen section of (grey water) sewer line close to the RBC Clementine Unit. The line in question, branches off the main line and is elevated on a ladder, to allow it to drain into a 205 L (44 Gallon) drum. The hose fell off the ladder and drained onto the ground. Winds at the time were gusting up to >45 km/hr. The crew noticed the incident in a timely manner as they were working in the area and lifted the pipe back into the catch barrel.
- Location: Windy Lake Camp Rotating Biological Contractor Unit Discharge Line
  - Root Cause: The line was not properly secured onto an anchor ladder before discharging into an open 205 L drum. It appears either a : (i) strong wind blow the line from its resting place; or (ii) the unsecured line could have been accidentally knocked off by a camp crew working around the facility.
  - Amount Spilt and Spill Category: <0.2 m<sup>3</sup>. Reported Moderate Spill



- Remediation: Corn cobs were used to spread over the impacted area to eliminate the odour. As the grey water froze few minutes after being spilled, the impacted has to be mitigated in spring of 2008. During follow-up in 2008, the contaminated pool of water should to be pumped back into the RBC Unit for proper disposal with the grey water over the ridge east of the camp.
- Follow-up is required in the spring of 2008.

## 5.0 PART B ITEM 2: (IV)

This section of the report provides a brief description of the follow-up action taken to address concerns detailed in inspection and compliance reports prepared by the Inspector.

HBML is preparing a detailed report to address the concerns raised by the INAC Water Resource Inspector. After the report is being finalized, it will be sent to the Inspector and filed with the NWB.

## 6.0 PART B ITEM 2: (V)

This section of the report provides up to date Spill Contingency Plan and contact information.

### 6.1 Spill Contingency Plan

The Spill Contingency Plan for Hope Bay Belt was revised in 2007 as shown in Appendix 6-1 and will be revised as required.

### 6.2 Contact Information

**Table 6.1: Hope Bay Mining Limited personnel and regulatory contacts information**

| Name                | Title   | Contact Details   |
|---------------------|---|---|
| Brian Anderson      | Director of Operations, Hope Bay                                | Email: <a href="mailto:Brian.Anderson@newmont.com">Brian.Anderson@newmont.com</a><br>Cell: 1-778-839-2574                           |
| Chris Hanks         | Director, Environment & Social Responsibility - Newmont         | Email: <a href="mailto:Chris.Hanks@newmont.com">Chris.Hanks@newmont.com</a><br>Cell: 1- 720-917-4489                                |
| Michael Meyer       | Interim Director, Environment & Social Responsibility - Newmont | Email: Michael. <a href="mailto:Meyer@newmont.com">Meyer@newmont.com</a><br>Cell: 1-303-945-6937                                    |
| Matt Kawei          | Senior Environmental Coordinator, Hope Bay                      | Email: <a href="mailto:mkawei@miramarmining.com">mkawei@miramarmining.com</a><br>Cell: 1-778-928-4575<br>Windy Camp: 1-604-759-2292 |
| Geoffrey Clark      | Director of Lands and Environment – KIA                         | Email: <a href="mailto:geoff@qiniq.com">geoff@qiniq.com</a><br>Phone: 1-867-982-3310  |
| 24 hours Spill Line | NU/NT 24 hour spill line, Yellowknife                           | Phone: 1-867-920-8130<br>Fax: 1-867-873-6924<br>Email: <a href="mailto:spills@gov.nu.ca">spills@gov.nu.ca</a>                       |
| Melissa Joy         | INAC Water Inspector  | Email: <a href="mailto:joym@inac.gc.ca">joym@inac.gc.ca</a><br>Phone: 1-867-982-4308  |
| Craig Broome        | Environment Canada  | Email: <a href="mailto:Crag.Broome@EC.GC.CA">Crag.Broome@EC.GC.CA</a><br>Phone: 1-867-975-4295                                      |

## 7.0 PART B ITEM 2: (VI)

This section of the report provides a summary of any closure and reclamation work completed during the year and an outline of any work anticipated for 2008.



The closure and reclamation work at Madrid was focused on the completed drill sites. These included removing of casings and anchors, removing of debris, drill cuttings, residual petroleum products, and reclaiming disturbed areas with the use of peat moss, this work will continue in 2008.

This section of the report provides a summary of drilling activities and progressive reclamation of drill sites.

### 7.1 Diamond Drilling Activities

The following discussion covers all of the drilling conducted during spring and summer 2007 campaigns on the Hope Bay Belt, excluding the work on the Boston Deposit. This includes work performed on the Madrid deposits (Naartok East and West, Rand, Suluk, South of Suluk,), Madrid Trend exploration targets (Main, Kink, Nexus), geotechnical drilling at Doris North, and regional assessment and non-assessment drilling.

Up to six drills were used in these programs. The programs ran from March 17 to October 15, with a total of 243 holes, totalling 54,293.57 metres, being completed.

Table 7.1 summarizes the 2007 drilling programs, and categorizes the holes as being drilled from either land or ice. Collar locations for each category are presented in subsequent tables.

**Table 7.1: 2007 Drilling Summary**

| <b>Program</b>        | <b>Total # Holes</b> | <b># Holes from Lake Ice</b> | <b>Holes from Land</b> | <b>Metres drilled</b> |
|-----------------------|----------------------|------------------------------|------------------------|-----------------------|
| Madrid / Madrid Trend | 195                  | 95                           | 100                    | 49,722.00             |
| Madrid Geotechnical   | 12                   | 9                            | 3                      | 315.40                |
| Regional              | 17                   | 2                            | 15                     | 4,090.77              |
| Doris Geotechnical    | 19                   | 0                            | 19                     | 3126.0                |
| <b>Total</b>          | <b>243</b>           | <b>106</b>                   | <b>137</b>             | <b>54,293.57</b>      |

During the spring, under freezing conditions and adequate snow cover, diamond-drilling activities were supported using tracked vehicles, such as the Caterpillar Challenger, Nodwell, pickup trucks with tracks and snowmobile. All summer diamond drilling activities were supported by helicopter.

The 'Polydrill' de-silting system was used to facilitate re-circulation of all drill fluids and minimize silt runoff from all spring (ice-based) drill holes. Cuttings from this drilling were stored in an approved area, and later were used as fill for the trench restoration program. Cuttings from some of the summer (land-based) drill holes were pumped into natural crevices or other settling areas near the drill if available; most drill holes utilized the Polydrill system. As part of standard operating procedures to ensure that drill sites are properly cleaned up, all sites were inspected upon completion of the hole.

#### **7.1.1 Madrid and Madrid Trend Drilling**

A total of 195 drill holes were completed on the various zones of Madrid mineralization and on the adjacent Madrid Trend targets during the spring and summer 2007 programs. These drill holes, which were both ice and land based, are tabulated in Table 7.2, and collar locations are also shown in Table 7.3.



**Table 7.2: 2007 DDH Collar Locations – Madrid and Madrid Trend**

| HoleID   | Length (m) | Easting (m) | Northing (m) | Area      | ice/land |
|----------|------------|-------------|--------------|-----------|----------|
| 07PMD500 | 155.00     | 434365.53   | 7549930.29   | Suluk     | ice      |
| 07PMD501 | 422.00     | 434265.28   | 7549809.12   | Suluk     | ice      |
| 07PMD502 | 293.00     | 434345.50   | 7549830.25   | Suluk     | ice      |
| 07PMD503 | 221.00     | 434409.99   | 7549820.08   | Suluk     | ice      |
| 07PMD504 | 848.00     | 434549.83   | 7550229.74   | Suluk     | ice      |
| 07PMD505 | 335.00     | 434330.69   | 7549985.49   | Suluk     | ice      |
| 07PMD506 | 512.00     | 434266.14   | 7549794.63   | Suluk     | ice      |
| 07PMD507 | 374.00     | 434350.54   | 7549770.30   | Suluk     | ice      |
| 07PMD508 | 332.00     | 434285.44   | 7549825.77   | Suluk     | ice      |
| 07PMD509 | 242.00     | 434325.95   | 7549880.50   | Suluk     | ice      |
| 07PMD510 | 116.00     | 434264.10   | 7549855.81   | Suluk     | ice      |
| 07PMD511 | 158.00     | 434429.80   | 7549887.38   | Suluk     | ice      |
| 07PMD512 | 230.00     | 434398.84   | 7549862.35   | Suluk     | ice      |
| 07PMD513 | 374.00     | 434273.99   | 7549859.81   | Suluk     | ice      |
| 07PMD514 | 65.00      | 434285.37   | 7550115.78   | Suluk     | ice      |
| 07PMD515 | 377.00     | 434211.93   | 7549889.10   | Suluk     | ice      |
| 07PMD516 | 281.00     | 434313.62   | 7549938.42   | Suluk     | ice      |
| 07PMD517 | 116.00     | 434344.46   | 7549715.71   | Suluk     | ice      |
| 07PMD518 | 512.00     | 434298.27   | 7549694.47   | Suluk     | ice      |
| 07PMD519 | 308.00     | 434359.68   | 7549959.71   | Suluk     | ice      |
| 07PMD520 | 213.80     | 434412.50   | 7549984.76   | Suluk     | ice      |
| 07PMD521 | 251.00     | 434267.65   | 7550024.27   | Suluk     | ice      |
| 07PMD522 | 215.00     | 434335.61   | 7550038.53   | Suluk     | ice      |
| 07PMD523 | 335.00     | 434219.22   | 7549914.39   | Suluk     | ice      |
| 07PMD524 | 245.00     | 434373.25   | 7550005.67   | Suluk     | ice      |
| 07PMD525 | 320.00     | 434152.91   | 7550037.08   | Suluk     | ice      |
| 07PMD526 | 230.00     | 434336.65   | 7550009.83   | Suluk     | ice      |
| 07PMD527 | 152.00     | 433800.12   | 7550504.53   | Rand/Bend | ice      |
| 07PMD528 | 326.00     | 434133.64   | 7550289.36   | Suluk     | ice      |
| 07PMD529 | 251.00     | 434359.91   | 7549877.06   | Suluk     | ice      |
| 07PMD530 | 142.67     | 433645.13   | 7550454.06   | Rand/Bend | ice      |
| 07PMD531 | 245.00     | 434340.21   | 7549858.35   | Suluk     | ice      |
| 07PMD532 | 161.00     | 433700.11   | 7550469.19   | Rand/Bend | ice      |
| 07PMD533 | 260.00     | 434063.32   | 7550140.15   | Suluk     | ice      |
| 07PMD534 | 236.00     | 434221.36   | 7550049.97   | Suluk     | ice      |
| 07PMD535 | 122.00     | 433850.05   | 7550437.99   | Rand/Bend | ice      |
| 07PMD536 | 251.00     | 434303.65   | 7549994.82   | Suluk     | ice      |
| 07PMD537 | 140.00     | 433899.68   | 7550449.48   | Rand/Bend | ice      |
| 07PMD538 | 260.00     | 434134.99   | 7550075.19   | Suluk     | ice      |
| 07PMD539 | 143.00     | 434280.60   | 7550100.04   | Suluk     | ice      |
| 07PMD540 | 140.00     | 433925.22   | 7550435.62   | Rand/Bend | ice      |
| 07PMD541 | 389.00     | 434120.19   | 7550640.96   | Rand/Bend | ice      |
| 07PMD542 | 230.00     | 433859.85   | 7550498.56   | Rand/Bend | ice      |
| 07PMD543 | 149.00     | 434196.81   | 7550182.12   | Suluk     | ice      |
| 07PMD544 | 227.00     | 434390.66   | 7549819.69   | Suluk     | ice      |
| 07PMD545 | 335.00     | 434126.42   | 7550070.87   | Suluk     | ice      |



| HoleID    | Length (m) | Easting (m) | Northing (m) | Area         | ice/land |
|-----------|------------|-------------|--------------|--------------|----------|
| 07PMD546  | 266.00     | 434383.40   | 7549788.98   | Suluk        | ice      |
| 07PMD547  | 185.00     | 434180.18   | 7550151.82   | Suluk        | ice      |
| 07PMD548  | 152.00     | 433860.24   | 7550460.18   | Rand/Bend    | ice      |
| 07PMD549  | 329.00     | 434144.44   | 7549991.44   | Suluk        | ice      |
| 07PMD550  | 233.00     | 434374.87   | 7549844.79   | Suluk        | ice      |
| 07PMD551  | 230.00     | 434132.30   | 7550151.62   | Suluk        | ice      |
| 07PMD552  | 296.00     | 434025.44   | 7550499.43   | Rand/Bend    | ice      |
| 07PMD553  | 140.00     | 434097.85   | 7550227.55   | Suluk        | ice      |
| 07PMD554  | 257.00     | 434353.74   | 7549896.89   | Suluk        | ice      |
| 07PMD555  | 116.00     | 434168.32   | 7550190.40   | Suluk        | ice      |
| 07PMD556  | 224.00     | 433925.22   | 7550495.83   | Rand/Bend    | ice      |
| 07PMD557  | 188.00     | 434394.59   | 7549761.86   | Suluk        | ice      |
| 07PMD558  | 302.00     | 434099.54   | 7550611.73   | Rand/Bend    | ice      |
| 07PMD559  | 386.00     | 434263.60   | 7549759.74   | Suluk        | ice      |
| 07PMD560  | 179.60     | 433840.05   | 7550488.58   | Rand/Bend    | ice      |
| 07PMD561  | 242.00     | 434423.37   | 7549752.17   | Suluk        | ice      |
| 07PMD562  | 293.00     | 434159.75   | 7550115.37   | Suluk        | ice      |
| 07PMD563  | 212.00     | 433840.08   | 7550488.80   | Rand/Bend    | ice      |
| 07PMD564  | 230.00     | 434258.10   | 7550255.33   | Suluk        | ice      |
| 07PMD566  | 86.00      | 434265.44   | 7550137.48   | Suluk        | ice      |
| 07PMD567  | 239.00     | 434390.79   | 7549925.47   | Suluk        | ice      |
| 07PMD568  | 299.00     | 434262.23   | 7549953.21   | Suluk        | ice      |
| 07PMD569  | 477.80     | 434261.24   | 7549775.32   | Suluk        | ice      |
| 07PMD570  | 278.00     | 434204.34   | 7550060.16   | Suluk        | ice      |
| 07PMD571  | 371.00     | 434083.99   | 7550052.14   | Suluk        | ice      |
| 07PMD572  | 152.00     | 434342.60   | 7550228.89   | Suluk        | ice      |
| 07PMD573  | 206.00     | 434366.57   | 7549863.74   | Suluk        | ice      |
| 07PMD574  | 320.00     | 434188.68   | 7550233.32   | Suluk        | ice      |
| 07PMD575  | 188.00     | 434442.24   | 7549816.95   | Suluk        | ice      |
| 07PMD576  | 89.00      | 434434.31   | 7549785.50   | Suluk        | ice      |
| 07PMD576A | 179.00     | 434434.30   | 7549785.50   | Suluk        | ice      |
| 07PMD577  | 152.00     | 434199.40   | 7550255.00   | Suluk        | ice      |
| 07PMD578  | 194.00     | 434378.14   | 7550079.30   | Suluk        | ice      |
| 07PMD579  | 398.00     | 434292.37   | 7549845.13   | Suluk        | ice      |
| 07PMD580  | 179.10     | 434358.06   | 7550153.48   | Suluk        | ice      |
| 07PMD581  | 152.00     | 434322.69   | 7550369.02   | Suluk        | ice      |
| 07PMD582  | 119.00     | 434350.64   | 7550277.50   | Suluk        | ice      |
| 07PMD583  | 242.00     | 434308.66   | 7550155.70   | Suluk        | ice      |
| 07PMD584  | 222.38     | 434410.19   | 7549923.10   | Suluk        | ice      |
| 07PMD585  | 130.00     | 434517.63   | 7549851.66   | Suluk        | ice      |
| 07PMD586  | 323.00     | 433859.76   | 7550580.69   | Rand/Bend    | land     |
| 07PMD587  | 503.00     | 433414.16   | 7550640.37   | Naartok East | land     |
| 07PMD588  | 245.00     | 433621.01   | 7550673.06   | Naartok East | land     |
| 07PMD589  | 289.40     | 433800.62   | 7550595.09   | Rand/Bend    | land     |
| 07PMD590  | 512.00     | 433860.43   | 7550665.71   | Rand/Bend    | land     |
| 07PMD591  | 224.30     | 433725.31   | 7550749.02   | Rand/Bend    | land     |
| 07PMD592  | 296.00     | 433177.82   | 7550550.52   | Naartok East | land     |



| HoleID    | Length (m) | Easting (m) | Northing (m) | Area         | ice/land |
|-----------|------------|-------------|--------------|--------------|----------|
| 07PMD593  | 470.00     | 433296.93   | 7550615.20   | Naartok East | land     |
| 07PMD594  | 273.68     | 433875.29   | 7550565.28   | Rand/Bend    | land     |
| 07PMD595  | 377.00     | 433580.98   | 7550663.11   | Rand/Bend    | land     |
| 07PMD596  | 437.00     | 433479.77   | 7550590.40   | Naartok East | land     |
| 07PMD597  | 264.78     | 433199.74   | 7550640.42   | Naartok East | land     |
| 07PMD598  | 278.00     | 433356.02   | 7550550.28   | Naartok East | land     |
| 07PMD599  | 289.00     | 433620.61   | 7550625.51   | Naartok East | land     |
| 07PMD600  | 419.00     | 433212.36   | 7550736.55   | Naartok West | land     |
| 07PMD601  | 545.00     | 433280.57   | 7550750.24   | Naartok East | land     |
| 07PMD602  | 326.00     | 433835.59   | 7550615.92   | Rand/Bend    | land     |
| 07PMD603  | 368.00     | 433561.24   | 7550720.34   | Naartok East | land     |
| 07PMD604  | 536.00     | 433175.48   | 7550809.85   | Naartok West | land     |
| 07PMD605  | 380.00     | 433240.46   | 7550749.77   | Naartok West | land     |
| 07PMD606  | 14.00      | 433820.38   | 7550620.12   | Rand/Bend    | land     |
| 07PMD607  | 422.00     | 433820.38   | 7550620.29   | Rand/Bend    | land     |
| 07PMD608  | 374.00     | 433470.45   | 7550775.10   | Naartok East | land     |
| 07PMD609  | 570.00     | 433197.19   | 7550778.80   | Naartok East | land     |
| 07PMD610  | 449.00     | 433600.17   | 7550875.42   | Naartok East | land     |
| 07PMD611  | 212.00     | 433645.05   | 7550582.16   | Rand/Bend    | land     |
| 07PMD612  | 461.00     | 433417.56   | 7550850.26   | Naartok East | land     |
| 07PMD613  | 101.00     | 433102.80   | 7550900.50   | Naartok East | land     |
| 07PMD613A | 113.00     | 433103.15   | 7550900.28   | Naartok East | land     |
| 07PMD613B | 749.00     | 433102.92   | 7550900.12   | Naartok East | land     |
| 07PMD614  | 329.00     | 433825.22   | 7550609.54   | Rand/Bend    | land     |
| 07PMD615  | 353.00     | 433338.10   | 7550880.18   | Naartok East | land     |
| 07PMD616  | 332.00     | 433750.32   | 7550617.66   | Rand/Bend    | land     |
| 07PMD617  | 300.56     | 433277.85   | 7550639.99   | Naartok East | land     |
| 07PMD618  | 377.00     | 433318.91   | 7550640.68   | Naartok East | land     |
| 07PMD619  | 244.60     | 433750.69   | 7550601.56   | Rand/Bend    | land     |
| 07PMD620  | 203.00     | 433499.62   | 7550781.91   | Naartok East | land     |
| 07PMD621  | 281.00     | 433715.31   | 7550619.80   | Rand/Bend    | land     |
| 07PMD622  | 362.00     | 433181.59   | 7550600.19   | Naartok East | land     |
| 07PMD623  | 233.00     | 433598.73   | 7550855.04   | Naartok East | land     |
| 07PMD624  | 260.00     | 433516.41   | 7550880.25   | Naartok East | land     |
| 07PMD625  | 500.00     | 433248.64   | 7550720.17   | Naartok East | land     |
| 07PMD626  | 251.00     | 433900.01   | 7550561.17   | Rand/Bend    | land     |
| 07PMD627  | 223.00     | 433825.07   | 7550550.00   | Rand/Bend    | land     |
| 07PMD628  | 284.00     | 433825.04   | 7550583.29   | Rand/Bend    | land     |
| 07PMD629  | 353.00     | 433298.17   | 7550705.32   | Naartok East | land     |
| 07PMD630  | 169.30     | 433077.07   | 7551049.15   | Naartok East | land     |
| 07PMD631  | 196.00     | 433447.24   | 7550900.01   | Naartok East | land     |
| 07PMD632  | 859.41     | 433077.33   | 7551049.31   | Naartok East | land     |
| 07PMD633  | 332.26     | 433207.45   | 7550705.49   | Naartok East | land     |
| 07PMD634  | 404.00     | 433283.14   | 7550780.41   | Naartok East | land     |
| 07PMD635  | 293.00     | 433509.60   | 7550830.06   | Naartok East | land     |
| 07PMD636  | 479.00     | 433395.82   | 7550775.38   | Naartok East | land     |
| 07PMD637  | 248.00     | 433740.00   | 7550718.85   | Rand/Bend    | land     |



| HoleID   | Length (m) | Easting (m) | Northing (m) | Area           | ice/land |
|----------|------------|-------------|--------------|----------------|----------|
| 07PMR001 | 25.25      | 433024.05   | 7550438.21   | Naartok West   | land     |
| 07PMR002 | 27.25      | 433025.15   | 7550418.28   | Naartok West   | land     |
| 07PMR003 | 26.19      | 433044.10   | 7550437.58   | Naartok West   | land     |
| 07PMR005 | 26.09      | 433074.34   | 7550448.31   | Naartok West   | land     |
| 07PMR007 | 26.32      | 433107.27   | 7550480.30   | Naartok West   | land     |
| 07PMR008 | 26.14      | 433107.53   | 7550462.03   | Naartok West   | land     |
| 07PMR009 | 26.14      | 433106.50   | 7550448.46   | Naartok West   | land     |
| 07PMR010 | 26.27      | 433105.77   | 7550419.17   | Naartok West   | land     |
| 07PMR011 | 25.84      | 433599.27   | 7550592.76   | Naartok East   | land     |
| 07PMR012 | 24.40      | 433601.97   | 7550592.78   | Naartok East   | land     |
| 07PMR013 | 25.91      | 433601.05   | 7550579.36   | Naartok East   | land     |
| 07PMR014 | 26.04      | 433601.81   | 7550561.94   | Naartok East   | land     |
| 07PMR015 | 25.96      | 433602.18   | 7550552.05   | Naartok East   | land     |
| 07PMR016 | 26.22      | 433608.27   | 7550538.44   | Naartok East   | land     |
| 07PMR017 | 25.91      | 433348.67   | 7550652.69   | Naartok West   | land     |
| 07PMR018 | 25.99      | 433326.45   | 7550653.36   | Naartok West   | land     |
| 07PMR019 | 25.91      | 433313.27   | 7550650.82   | Naartok West   | land     |
| 07PMR020 | 25.91      | 433302.24   | 7550650.43   | Naartok West   | land     |
| 07PMR021 | 25.86      | 433291.74   | 7550649.92   | Naartok West   | land     |
| 07PMR022 | 25.86      | 433252.21   | 7550548.78   | Naartok West   | land     |
| 07PMR023 | 25.71      | 433226.92   | 7550554.22   | Naartok West   | land     |
| 07PMR024 | 26.06      | 433216.38   | 7550551.65   | Naartok West   | land     |
| 07PMR025 | 26.14      | 433203.28   | 7550550.82   | Naartok West   | land     |
| 07PSD128 | 497.00     | 434475.28   | 7549660.52   | Suluk          | ice      |
| 07PSD129 | 392.00     | 434725.41   | 7549304.56   | Suluk          | ice      |
| 07PSD130 | 197.00     | 434810.94   | 7549392.55   | South Suluk    | ice      |
| 07PSD133 | 261.00     | 434340.68   | 7549590.52   | South Suluk    | ice      |
| 07PSD134 | 200.00     | 434470.82   | 7549331.18   | South Suluk    | ice      |
| 07PSD135 | 164.00     | 434604.47   | 7549838.51   | Suluk          | ice      |
| 07WLD001 | 270.00     | 431942.00   | 7550054.00   | Windy Lake     | ice      |
| 07PND014 | 419.00     | 434221.00   | 7552153.00   | North Patch    | land     |
| 07PWD027 | 299.00     | 434120.00   | 7545136.00   | South Nexus    | land     |
| 07PSD131 | 251.00     | 435139.62   | 7549201.30   | South of Suluk | ice      |
| 07PSD132 | 491.00     | 435201.60   | 7547900.01   | Patch 7        | ice      |
| 07KNK003 | 149.00     | 432027.20   | 7559237.86   | Kink           | land     |
| 07KNK004 | 134.00     | 431930.00   | 7559240.00   | Kink           | land     |
| 07KNK005 | 64.00      | 431800.00   | 7559500.00   | Kink           | land     |
| 07KNK006 | 269.00     | 431800.00   | 7559500.00   | Kink           | land     |
| 07PAD025 | 327.00     | 435460.00   | 7541930.00   | North Nexus    | land     |
| 07PAD026 | 281.00     | 435502.29   | 7541541.24   | North Nexus    | land     |
| 07PAD027 | 281.42     | 435738.09   | 7541504.04   | North Nexus    | land     |
| 07PAD028 | 290.00     | 435690.00   | 7541304.00   | North Nexus    | land     |
| 07PAD029 | 311.00     | 435727.62   | 7541508.68   | North Nexus    | land     |
| 07PAD030 | 302.00     | 435859.00   | 7542095.00   | North Nexus    | land     |
| 07PAD031 | 293.00     | 435860.00   | 7544880.00   | North Nexus    | land     |
| 07PAD032 | 302.00     | 436031.00   | 7544860.00   | North Nexus    | land     |
| 07PAD033 | 266.00     | 434838.00   | 7543241.00   | South Nexus    | land     |



| HoleID   | Length (m) | Easting (m) | Northing (m) | Area        | ice/land |
|----------|------------|-------------|--------------|-------------|----------|
| 07PAD034 | 332.00     | 435434.00   | 7541582.00   | Nexus/Main  | land     |
| 07PAD035 | 257.00     | 435477.00   | 7541920.00   | Nexus/Main  | land     |
| 07PAD036 | 242.00     | 435650.00   | 7541214.00   | Nexus/Main  | land     |
| 07PAD037 | 371.00     | 435020.00   | 7540440.00   | South Nexus | land     |
| 07PAD038 | 257.00     | 435600.00   | 7541020.00   | Nexus/Main  | land     |
| 07PAD039 | 335.00     | 436070.00   | 7542800.00   | South Nexus | land     |
| 07PAD040 | 294.58     | 435175.00   | 7542985.00   | South Nexus | land     |
| 07PAD041 | 263.00     | 435400.00   | 7542935.00   | South Nexus | land     |

All locations are NAD83 zone 13 datum.

### 7.1.2 Madrid Geotechnical Drilling

A total of 12 holes, listed in Table 2.4 and shown in Appendix 4, were drilled on the Madrid Deposits for the following geotechnical purposes:

- Evaluation of proposed dam site
- Identification of materials overlaying bedrock
- Identification of depth to bedrock

**Table 7.3: 2007 Geotechnical Drill Collar Locations**

| HoleID   | Length (m) | Easting (m) | Northing (m) | Area                 | ice/land |
|----------|------------|-------------|--------------|----------------------|----------|
| 07SRK027 | 40.02      | 435257.96   | 7548446.57   | Geotech-Suluk        | ice      |
| 07SRK028 | 24.89      | 435479.99   | 7548614.98   | Geotech-Suluk        | ice      |
| 07SRK029 | 37.40      | 435678.79   | 7548870.90   | Geotech-Suluk        | ice      |
| 07SRK034 | 19.66      | 432865.00   | 7550435.00   | Geotech-Rand/Bend    | ice      |
| 07SRK035 | 18.55      | 433290.10   | 7550662.23   | Geotech-Naartok West | land     |
| 07SRK036 | 12.50      | 433243.58   | 7551082.98   | Geotech-Naartok East | land     |
| 07SRK037 | 12.60      | 433536.67   | 7550575.34   | Geotech-Naartok East | land     |
| 07SRK038 | 45.56      | 433994.62   | 7550666.85   | Geotech-Rand/Bend    | ice      |
| 07SRK039 | 11.90      | 434297.36   | 7550236.31   | Geotech-Suluk        | ice      |
| 07SRK040 | 39.60      | 434345.64   | 7549835.35   | Geotech-Suluk        | ice      |
| 07SRK041 | 32.92      | 434677.56   | 7550102.85   | Geotech-Suluk        | ice      |
| 07SRK099 | 19.80      | 434531.85   | 7549988.03   | Geotech-Suluk        | ice      |

All locations are NAD83 zone 13 datum.



### 7.1.3 Regional Drilling

During the Exploration Program, 17 drill holes totalling 4,090.77 metres were drilled to test regional targets at various locations throughout the Hope Bay Belt. These drill holes are listed in Table 2.5. Collar locations are shown in table 2.5.

**Table 7.4: 2007 Regional Exploration Drill Collar Locations**

| HoleID    | Length (m) | Easting (m) | Northing (m) | Area               | ice/land |
|-----------|------------|-------------|--------------|--------------------|----------|
| 07PJD002  | 230.00     | 446000.00   | 7512425.00   | Flying Squirrel    | ice      |
| 07PJD003  | 275.00     | 445905.00   | 7512926.00   | Flying Squirrel    | land     |
| 07PJD004  | 194.00     | 445903.00   | 7513129.00   | Flying Squirrel    | land     |
| 07PJD005  | 212.00     | 446181.00   | 7512320.00   | Flying Squirrel    | land     |
| 07AIM004  | 273.54     | 438630.00   | 7510629.00   | spyder legs target | land     |
| 07AK2006  | 263.00     | 434107.00   | 7521169.00   | tonalite           | land     |
| 07CHI010  | 283.00     | 433270.51   | 7496576.31   | Chicago            | land     |
| 07CHI011  | 182.00     | 433398.00   | 7496551.00   | Chicago            | land     |
| 07CHI012  | 230.00     | 433190.77   | 7496461.34   | Chicago            | ice      |
| 07CHI013  | 249.63     | 433191.00   | 7496591.00   | Chicago            | land     |
| 07CHI014  | 80.00      | 433153.00   | 7496707.00   | Chicago            | land     |
| 07CHI014A | 248.00     | 433173.00   | 7496707.00   | Chicago            | land     |
| 07CHI015  | 308.00     | 433246.00   | 7496290.00   | Chicago            | land     |
| 07CHI016  | 164.00     | 434721.00   | 7498664.00   | Chicago            | land     |
| 07CHI017  | 356.00     | 432930.00   | 7497000.00   | Chicago            | land     |
| 07CHI018  | 293.00     | 433505.00   | 7495811.00   | Chicago            | land     |
| 07CHI019  | 249.60     | 433232.00   | 7496858.00   | Chicago            | land     |

All locations are NAD83 zone 13 datum.



### 7.1.4 **Doris Geotechnical Drilling**

A total of 19 holes, listed in Table 2.6, were drilled near the Doris Hinge Deposit for the following geotechnical purposes:

- Evaluation of proposed camp and mill site
- Identification of materials overlaying bedrock
- Identification of depth to bedrock

These holes were all land based and occurred late in the Program.

**Table 7.5 2007 Doris Geotechnical Drill Collar Locations**

| <b>HoleID</b> | <b>Length (m)</b> | <b>Easting (m)</b> | <b>Northing (m)</b> | <b>Area</b> | <b>ice/land</b> |
|---------------|-------------------|--------------------|---------------------|-------------|-----------------|
| 07DRC001      | 5.49              | 433188.6           | 7559327.4           | Doris       | land            |
| 07DRC002A     | 8.64              | 433079.9           | 7559291.4           | Doris       | land            |
| 07DRC003      | 6.65              | 432942.9           | 7559301.1           | Doris       | land            |
| 07DRC004      | 3.25              | 432939.6           | 7559179.9           | Doris       | land            |
| 07DRC005      | 4.06              | 433040.8           | 7559157.3           | Doris       | land            |
| 07DRC006      | 3.02              | 433096.8           | 7559205.6           | Doris       | land            |
| 07DRC007      | 11.20             | 433297.1           | 7559264.1           | Doris       | land            |
| 07DRC008      | 13.13             | 433350.4           | 7559328.2           | Doris       | land            |
| 07DRC009      | 9.17              | 433274             | 7559214.4           | Doris       | land            |
| 07DRC010      | 8.76              | 433301             | 7559150.1           | Doris       | land            |
| 07DRC011      | 3.38              | 433196.6           | 7559126             | Doris       | land            |
| 07DRC012      | 19.02             | 433308.1           | 7559075.5           | Doris       | land            |
| 07DRC013      | 10.21             | 433295.1           | 7559147.8           | Doris       | land            |
| 07DRC014      | 10.77             | 433264.6           | 7559043.5           | Doris       | land            |
| 07DRC015      | 9.25              | 433109.2           | 7558959.4           | Doris       | land            |
| 07DRC016      | 14.35             | 432960.7           | 7558922.9           | Doris       | land            |
| 07DRC017      | 9.07              | 432963.2           | 7558998.9           | Doris       | land            |
| 07DRC018      | 9.27              | 433107.6           | 7559053.1           | Doris       | land            |
| 07DRC019      | 6.71              | 433050.9           | 7559098.9           | Doris       | land            |

All locations are NAD83 zone 13 datum.

### 7.2 **Drill Casing and Anchor Removal**

During the winter of 2007, a contractor was hired to remove drill casings and anchors at completed sites around the Madrid Project areas. Approximately 200 rods were cut and removed from the tundra. This project could not be repeated during the summer program as the logistics in carrying out such task is not possible without the use of a helicopter. Skidoos were used during the winter months as a means of transport to carryout this operation.

### 7.3 **Progressive Reclamation of Drill Sites**

During the 2007 program at Madrid and other regional sites, completed drill sites were remediated. This process involved removal of drill cuttings that were not captured by the poly drill system process and ended up on the tundra. After removal of the cuttings, two bags of peat moss were spread over the area to promote future vegetation growth. In areas that were waterlogged, efforts were made to remove water within the cave-in holes to prevent further degradation of the permafrost. Drill cuttings were placed within the cave-



in holes to minimize ponding of runoffs; a bag of peat moss was then applied and covered with coconut fibre mats to hold the peat moss in place. Locally available native seeds were collected and cast over the prepared area. Approximately 200 bags of peat moss were used for drill site reclamation purposes at Hope Bay in 2007.

#### **8.0 PART B ITEM 2 (VII)**

This section of the report provides a summary of modification and/or major maintenance work carried out on the water supply and the waste disposal facilities, including all associated structures, and an outline of any work anticipated for the next year (2008).

- In 2007, the portable water intake was replaced with a new screen. The intake water line was replaced. The pump shed previously floated on Windy Lake was removed; replacing it with a more effective land based pumping system. This involved placing majority of the heat traced water intake line underwater with an electric water pump placed in the water treatment building on land.
- The old sewer line was replaced. No other significant modifications were done with the Windy RBC Unit. In 2008, plans are underway to upgrade the RBC unit at Windy Lake Camp. A contractor has been identified to carryout this work to meet the increasing demands on the aging waste disposal facility.

#### **9.0 PART B ITEM 2: (VIII)**

This section of the report provides a summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed.

- received no additional request from the Board

#### **10.0 PART B ITEM 2: (IX)**

This section of the report provides details on any other details on water use or waste disposal requested by the Board by November 1 2007.

- HBML received no additional requests from the Board.



## **APPENDIX 6-1 Hope Bay Belt Spill Contingency Plan**