

## **Implementation Plan for Improved Operations at Windy and Boston Camps Hope Bay Mining Ltd.**

### **Introduction**

An implementation plan has been developed to improve environmental and operational aspects of the Windy and Boston exploration camps in the Hope Bay district. These camps were initially developed by BHP World Minerals, which later sold their interest in the Belt to Miramar Mining Corporation, who recently was acquired by Newmont Mining Corporation. Newmont is operating in the belt at Hope Bay Mining Ltd. (HBML).

The implementation plan has been developed to address specific environmental and operational improvements and/or issues that have been noted in the following inspection reports and letters:

- Water License Inspection- Windy Camp- Hope Bay Joint Venture Project August 15<sup>th</sup>, 2007 (Letter dated Nov. 7, 2007 from Andrew Keim, INAC)
- Water License Inspection- Boston Camp- Hope Bay Joint Venture Project July 4<sup>th</sup> and August 16<sup>th</sup>, 2007 (Letter dated Nov. 11, 2007 from Andrew Keim, INAC)
- Assignment of License 2BE-HOP0712 (Letter dated Jan. 23, 2008 from Thomas Kabloona, NWB)
- Assignment of License 2BB-BOSO712 (Letter dated Jan. 23, 2008 from Thomas Kabloona, NWB)
- 2007 Annual Geotechnical Inspection, Boston Advanced Exploration Project, Hope Bay, Nunavut (Report prepared by SRK Consulting, Feb. 2008)
- Residual comments from the 2006 INAC inspection
- Issues identified by Miramar/Newmont

The implementation plan has reviewed the various improvements required, or desired, and has developed actions that will be undertaken to address them. The two Type B licenses for Windy and Boston are discussed separately, though there are many aspects that are common to both.

### **Windy Camp- License 2BE-HOP0712**

#### **1) License in effect**

It was noted that the renewal of the license for Windy Camp was not received in a manner that was timely. At this time, the license is current, and appropriate time needed for renewals will be factored in for future renewals. Currently, there is an application for an amendment to the Windy Camp license to modify the allowed water use from 50 m<sup>3</sup>/day to 100 m<sup>3</sup>/day. HBML will wait until the amendment is in place prior to modifying site activities.

#### **2) Operation of Waste Water Treatment Facilities**

Concerns have been raised on various aspects of the existing waste water treatment facility at Windy Camp. The primary concerns are a) the location of components within 30 m of Windy Lake, b) management of sewage sludge, and c) environmental compliance with standards. Newmont would again note that the location of the treatment facilities (e.g. RBC) is historical.

However, it is also important to note that the utilization of the camp has increased through time. In recognition of the increased pressures on the treatment facility, Miramar had upgraded the facility to improve its operation, though additional improvements are needed.

Currently, HBML has engaged SNC Lavalin to develop a plan to re-locate and provide additional upgrading of the facility to improve its operational capacity and efficiency. As of May 2008, these plans are being implemented. There were several challenges to moving the facility, including limited space in the area of the camp, required approval for the new location by the KIA as the land owner, and the ability to mobilize a crane to the camp to facilitate the moving of the plant. SNC is currently finalizing the location and required upgrades. HBML has already notified the KIA to request approval for relocation of the plant, as well as the ability to utilize gravel to establish a geotechnically-stable foundation. This was approved on April 22, 2008.

In terms of environmental compliance, HBML would note that monthly reporting of sampling of the treated effluent, which is conducted at the left station (HOP2) has been completed as required in the license. In February 2008 there were exceedances of parameter limits listed in the water license at this location. We would note that in March 2008 discharge was in compliance with the criteria in the water licence. Additionally, sampling was conducted in 2007 at HOP3, which is the point where discharged effluent enters Windy Lake. All sampling at HOP3 has demonstrated compliance with the standards in the water license, which indicates that operations of the facility have been protective of the environment. However, HBML recognizes the need to meet compliance at the discharge point, which requires improvement of the treatment effectiveness of the WWTF at Windy, which is why the above described plan is being implemented.

INAC has also asked if the sewage sludge has been moved to Boston Camp, as specified in the water license. Because Boston Camp does not have any facilities to manage the sludge, it is currently stored in barrels at the current treated effluent discharge point. In 2008, the sewage treatment plant for Doris Camp will be installed, which does have the capability for managing the sludge. Upon completion of that facility and the all season road to Windy Camp, removal of the stored sludge and treatment at the Doris facility will commence.

### 3) Reporting requirements

It was noted that the 2006 Annual Report failed to meet all requirements, including the identification of actual volumes of water used, locations where water was sourced, and location of drill holes. In 2006, water meters were installed to measure volumes of water pumped, but the effectiveness of the meters was compromised by the climate conditions at the site. For the current drilling session, new meters have been purchased and are being installed that should better handle the site conditions. For the 2007 annual report, locations of water sources and drill holes were provided, as well as best estimates of water usage. The reporting should be more accurate in the 2008 annual report.

### 4) Operation of Landfarm

Various concerns have been raised associated with the landfarm at Windy Camp that has been established to manage hydrocarbon-impregnated soils. The concerns are: a) location within 30 m of Windy Lake, b) approvals for operation not located, c) bagged core cuttings placed in landfarm, d) unmarked drums in landfarm, e) excess contact water in landfarm, f) notification and sampling of water discharged from the landfarm. Due to the limited land available near the camp, HBML has decided to close the landfarm and backhaul soils and drums from the facility prior to reclaiming the site. Several specific steps are needed to close the facility. First is the relocation of bagged drill cuttings within the landfarm, which are being relocated to a common area for drill

cuttings where they will then be used for backfilling exploration trenches as part of the reclamation of these areas. Second is that the drums will be sampled and labeled prior to being prepared for backhauling. Third is the sampling of excess water, which will be treated on-site using portable oil-water separation units, as needed. Lastly, soils will then be placed in drums, labeled and prepped for backhauling. While the NWB has acknowledged receipt of the operational plan for the landfarm, this will become irrelevant upon closure of the facility.

#### 5) Fuel Management

Several items associated with management of fuel have been raised. These include secondary containment for all fuels, including transfer sites and for drummed and stored fuels such as jet fuel. Since the 2007 inspections, liners have been placed in the shop, soil storage area, and in one area for drummed fuels. A second liner for additional drum storage space is on order and will be installed upon its arrival to site. There remains a question on the use of Envirotanks, which have built-in secondary containment, so the site contends that additional containment is not necessary, though additional discussion between Hope Bay, the NWB, and INAC may be needed to fully resolve outstanding questions.

#### 6) Waste management

Specific comments on waste management at Windy Camp included: 1) detail of hazardous material shipped from the camp, 2) proof of acceptance by the receiving facilities for hazardous waste, and 3) proper storage of salts and fuels during drilling. To support items 1 and 2, sampling of waste is planned for 2008 so that plans can be developed for their removal. This will include the identification of facilities to receive and manage these materials. For item number 3, frequent inspections of drill sites will be conducted by site environmental staff to assure that drill salts and fuels are stored properly at the drill sites, including that they are greater than 30m from any water bodies.

HBML would also note that significant efforts have been made to manage non-hazardous and non-combustible wastes at the site. This includes cleaning of historic waste at Robert's Bay beach front and preparing this material for backhauling to Yellowknife. Additional efforts have been completed to remove historic drill casing and anchors throughout the belt. Some of these materials have been in the belt since the BHP days. In 2007, a contractor was hired to collect and prepare these materials for backhauling, which was completed in the 2007 winter season.

#### 7) Erosion

The inspection report indicated that erosion was greater than desired, though it did note that efforts had been made to reduce erosion and that these efforts had been shown to reduce the siltation of Windy Lake. Specific areas of concern were evidence of driving on the tundra when it was not frozen and siltation in the lake, primarily from the camp roadway leading to the floatplane dock. HBML would note that it currently utilizes silt fences and other erosion prevention measures at the camp, such as restriction on the use of the roadway during spring runoffs. We are also requesting approval from the KIA for placement of crushed rock on the roadway to provide additional erosion protection. The camp is also developing a procedure for protection of the tundra, which will then be issued to site staff and contractors as a directive for operations at the camp. The environmental department will assure compliance with this directive.

#### 8) Incinerator

It was noted that there is no documentation that the incinerators at Windy and Boston camps meet Canada-wide standards for dioxins, furans, and mercury. HBML would note that this is not a requirement in the site water licences. However, it is the goal of HBML to operate in a manner that is protective of the environment. To that end, the incinerators were replaced in 2007 with new models that have improved performance. The site will also implement steps to improve the operations of the incinerators, including training site personnel on the optimal burning techniques and evaluating changes in purchasing to reduce the volume of plastic materials that are incinerated. The manufacturer of the incinerators, Westland, will be conducting training at Windy and Boston Camps in May 2008.

HBML would also note that the incinerator purchased for the Doris Camp is designed to meet the Canada-wide standards and will be utilized, as possible, to manage waste in the belt. Lastly, the incinerator at Windy Camp is slated to be moved in 2008 so assure that it is greater than 30 m from Windy Lake.

#### 9) Relocation of tents

It was noted in the INAC inspection in 2006 that five tents at Windy Camp were within the 30m buffer of Windy Lake. To date, one tent has been removed from the zone. In 2008, the Doris Camp will be constructed, which will reduce the number of people that will be housed at Windy Camp in future years. The four tents within the 30m buffer will be prioritized for removal once the Doris Camp is completed.

#### 10) Outstanding plans and manuals

It was noted that several reports, plans, and manuals were either missing or had not been approved by the Nunavut Water Board (NWB). Missing from the NWB ftp site were: a) Operation and Maintenance Manual for the Waste Water Treatment Facility, b) Land Farm Operation and Maintenance Plan, c) Quality Control and Quality Assurance Plan, and d) As-built Drawings and construction reports for the Bulk Fuel Storage and Land Farm facilities. Approval by the NWB was lacking for the Spill Contingency and the Closure and Reclamation Plans. Lastly, it was noted that a Quality Control and Quality Assurance Plan is required to be submitted to the NWB.

To date, the NWB has notified HBML that it is in receipt of the Quality Control and Quality Assurance Plan, the Landfarm Operation Plan, and the Operation and Maintenance Manual for the Waste Water Treatment Facility. HBML also commits to assuring that all As-Built drawings are provided to the NWB for their records. The Spill Response plan was also updated and included in the Annual 2007 Water Licence Report.

#### 11) Signage

Concerns were raised on the adequacy of signage at the water supply and waste disposal facilities. These concerns have been reviewed and additional signage was placed in October 2007. Continued inspections will be conducted to assure that signs have not been lost to wind or other factors.

## **Boston Camp- License 2BB-BOSO712**

### **1) License in Effect**

It was noted that the renewal of the license for Boston Camp was not received in a manner that was timely. At this time, the license is current, and appropriate time needed for renewals will be factored in for future renewals.

### **2) Security in Place**

The NWB letter of January 23, 2008, stated that security was required. HBML would note that security has been provided for all water licenses within the belt within the time specified in the different licences.

### **3) Operation of Waste Water Treatment Facilities**

Concerns have been raised on the environmental compliance with discharge standards for the treated effluent, though the comment from INAC is related to the NWT Limits for Effluent Parameters, which are not standards listed in the water license. As with the Windy Camp, HBML has engaged SNC Lavalin to develop a plan to upgrade the sewage treatment facility at Boston Camp to improve its operational capacity and efficiency. The upgrade will be directed at improving compliance with the water license requirements, though these upgrades should also improve overall treatment effectiveness. Improvements at the discharge point will also be evaluated to assure that impacts to the receiving environment are minimized. This may include more frequent re-location of the discharge point, or changes in how the treated effluent is discharged.

### **4) Reporting Requirements**

It was noted that the 2006 Annual Report failed to meet all requirements, including the identification of actual volumes of water used, locations where water was sourced, and volumes of treated sewage effluent discharged. As noted for the Windy Camp, the water meters used to date at the site have had limited effectiveness due to their inability to handle the climatic conditions. For the current drilling session, new meters have been purchased and installed that should better handle the site conditions. For the 2007 annual report, locations of water sources and drill holes will be provided, as well as best estimates of water usage and sewage effluent discharged. The reporting should be more accurate in the 2008 annual report.

### **5) Operation of Landfarm**

In recognition that the operation of the landfarm at the Boston camp is challenging, due in part to climate conditions, HBML has decided to close the landfarm and backhaul soils and drums from the facility prior to reclaiming the site. Specific steps to closing the facility will include 1) sampling and treating excess water on-site using portable oil-water separation units as needed, 2) placing soils into drums, which are 3) labeled and prepped for backhauling. HBML anticipates that completion of this plan, including backhauling of drummed soils will take until 2009. While the 2007 Annual Report for the Boston Licence included a revised operational plan for the landfarm, this will become irrelevant upon closure of the facility.

## 6) Landfill and Burn Pit

It was noted that there was no lined and bermed area for a landfill at the Boston Camp, and that there was the presence of an open burn pit at the camp, which is contrary to the current licence. In response, HBML would note that it has not operated a landfill to date at the site and is not planning to operate a landfill in 2008. As such, no landfill management plan has been, or will be, submitted to the NWB.

An open burn pit has been operated at the site historically, though this practice has been discontinued. Additionally, comments were made on the presence of hazardous materials, such as paint and grease, near the burn pit. Actions that have been completed or are underway by HBML are: 1) hazardous waste has been removed and is in the process of being backhauled for appropriate disposal, 2) the historical burn pit is being cleaned and prepared for reclamation, and 3) plans are in place to request an amendment to the water licence to allow open burning of non-hazardous waste utilizing burn pits that are designed to prevent damage to the permafrost. Closure of the historical burn pit and amending of the water licence to allow the use of burn pits are anticipated to be completed in 2008.

## 7) Fuel Management

Specific issues identified by INAC and the Geotechnical Inspection by SRK that are associated with fuel management are: 1) lack of secondary containment for all fuels, 2) lack of secondary containment in garage and outbuildings, 3) irregular base in jet fuel containment area, and 4) breached containment berms at the power plant fuel containment areas. Item 2 had been remedied through the placement of liners in the garage and outbuildings by the time of the second INAC inspection in 2007, which was acknowledged by the inspector. Other activities completed by HBML are the addition of expanded lined areas for jet fuel, though some additional space is still needed. Once the ordered liner arrives at site, the needed additional space will be completed. In regards to Item 4 that was noted by SRK, HBML would note that the breached berms are not containment berms, since the fuel tanks at the power plant are double-lined. The purpose of the berms is to prevent accidental impacts to the tanks from vehicles or other equipment.

The Geotechnical Inspection completed by SRK in 2007 also recommended the installation of survey beacons at the primary tank farm to allow for monitoring of potential settlement. HBML agreed with this recommendation and has already installed the beacons. These will be surveyed on an annual basis to assess settlement at the tank farm.

## 8) Waste Management

The INAC inspection was critical of the management of historical waste at Boston, much of which has been in the belt since the earliest BHP exploration days. The INAC inspector, however, also noted that significant efforts had been undertaken to remedy past waste management issues. HBML concurs with this assessment and would emphasize that it has completed significant additional efforts on consolidating this historical waste and preparing it for backhauling. The backhauling of this non-hazardous waste is scheduled for 2008. In addition to the non-hazardous waste, some hazardous waste is also present at the Boston Camp. Activities planned are sampling of this waste in 2008 in order to develop a plan for backhauling in 2009. All backhauled hazardous waste will be tracked using a manifest, which will also include records of the acceptance of the waste at certified facilities.

#### 9) Incinerator

It was noted that there is no documentation that the incinerators at Windy and Boston Camps meet Canada-wide standards for dioxins, furans, and mercury. HBML would note that this is not a requirement in the site water licences. However, it is the goal of HBML to operate in a manner that is protective of the environment. To that end, the incinerators were replaced in 2007 with new models that have improved performance. The site will also implement steps to improve the operations of the incinerators, including training site personnel on the optimal burning techniques and evaluating changes in purchasing to reduce the volume of plastic materials that are incinerated. The manufacturer of the incinerators, Westland, will be conducting training at Windy and Boston Camps in May 2008.

#### 10) Containment Pond

Both SRK and INAC noted the ripped liner in the containment pond, which was historically installed to manage seasonally larger flows from the waste rock. HBML believes that this pond is no longer needed and will close the facility through the following steps: 1) sample and analyze water, 2) treat on-site as needed and then discharge at the authorized discharge location, 3) remove liner and prepare for backhauling, and 4) re-vegetate the remaining disturbance.

#### 11) Outstanding plans and manuals

It was noted by the INAC inspector that the NWB ftp site lacked the following documents: a) Operations and Maintenance Manual for the Waste Water Treatment Facility, b) Landfarm Operation and Maintenance Plan, and c) the Waste Rock Management Plan. In response, HBML would note that the NWB has confirmed receipt of the Landfarm Operation and Maintenance Plan and the Operation and Maintenance Plan for the Waste Water Treatment Facility. Additionally, Jim Currie of Miramar Mining submitted a letter, dated December 20, 2007, to the NWB requesting a delay in the submittal of the Waste Rock Management Plan until ongoing geochemical testing of the waste rock at Boston has been completed. An effective plan cannot be developed until this characterization is completed, which is scheduled for completion in 2008.

The INAC inspector also noted that there was no indication that the NWB had approved the Environmental Emergency Spill Response Plan or the Abandonment and Restoration Plan. Revised plans were submitted to the NWB in conjunction with the filing of the 2007 Annual Report. Also submitted for approval by the NWB as part of the 2007 Annual Report was an updated Quality Control and Quality Assurance Plan.

#### 12) Signage

Concerns were raised on the adequacy of signage at the water supply and waste disposal facilities. These concerns have been reviewed and additional signage was placed in October 2007. Continued inspections will be conducted to assure that signs have not been lost to wind or other factors. Additionally, for the portal, an additional barricade will be placed on top of the portal in 2008 to increase the safety of this location.

#### 13) Weir at Stickleback Lake

The weir at Stickleback Lake was originally installed during the period that BHP was exploring in the belt. The weir was constructed using wood and sandbags, which through time degraded and ultimately failed. The remnants of the weir have been removed from the area, and HBML is

using this implementation plan to formally notify the NWB that the weir has been removed and is not operational at this time, nor is it projected to be re-installed within 2008.

#### 14) Drilling Practices

Some concerns associated with the drilling practices have been raised in the INAC and annual geotechnical inspections. These concerns are associated with: a) protection of the permafrost, b) management of salts and fuel, and c) remediation of the settling pond where drill cuttings are placed. HBML has active plans in place to minimize impacts to permafrost, which include the use of coco mats and proactive re-vegetation to limit erosion. These practices will continue in 2008, along with frequent inspections of the drill rigs to assure that salts and fuels are stored appropriately, including at a distance of greater than 30m from waterways, during drilling operations.

The final issue deals with a specific historical drill location, where settling has resulted in ponding of water and damage to the permafrost. HBML is aware of this location, as well as other isolated historic sites with similar issues, and is developing plans to limit further degradation of the permafrost. Specific actions include pumping out standing water from the depressions and then placing drill cuttings into the depressions to act as fill, thus preventing ponding of water. Active sediment control using coco mats and silt fences are also employed as needed. Once sufficient fill material has been placed, re-vegetation of these sites will be completed.

#### 15) Vent raise

The Geotechnical Inspection that was completed in 2007 identified the presence of a vent raise, though it was not inspected. HBML would note that raise has been completely covered by a locked trapped door, and the building is secured with a lock and secured boards to prevent access. The vent raise can be inspected in 2008 as needed.

#### 16) Airstrip and Camp Drainage

The Geotechnical Inspection that was completed by an SRK engineer in 2007 recommended that HBML maintain the existing management of the airstrip and camp infrastructure to assure that there is positive drainage from these facilities so that water does not pond and damage the surrounding permafrost. HBML will monitor and perform needed work to maintain drainage for these facilities.