



# **Project Monitoring Report**

For

**Doris North Gold Mine Project  
(NIRB File No. 05MN047)**

**Proponent: Hope Bay Mining Ltd.**

**Project Monitoring Officer: Li Wan**

**November 3, 2010**

## TABLE OF CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Project Components .....	1
1.2	Project History and Current Status .....	1
<b>2</b>	<b>Project Changes and Monitoring Activities .....</b>	<b>2</b>
2.1	Jetty Upgrade and Improvement.....	3
2.2	Modifications to Locations of Explosives Facility and Doris North Portal.....	3
2.3	Modifications to Land Based Moorings .....	4
2.4	HBML's 2010/2011 Fuel Delivery Plan.....	4
2.5	Accommodation Barges in Roberts Bay .....	5
<b>3</b>	<b>Monitoring Compliance.....</b>	<b>6</b>
3.1	Compliance with the NIRB PC and Other Regulatory Requirements .....	6
3.2	Issues of Non-Compliance .....	8
3.3	2010 Site Visit.....	11
<b>4</b>	<b>Comments Regarding HBML's Annual Report from Parties.....</b>	<b>11</b>
<b>5</b>	<b>Summary.....</b>	<b>13</b>

## APPENDICES

<a href="#"><u>APPENDIX A</u></a> .....	15
<a href="#"><u>APPENDIX B</u></a> .....	20
<a href="#"><u>APPENDIX C</u></a> .....	24

## **1 INTRODUCTION**

### **1.1 Project Components**

In September 2006, the Nunavut Impact Review Board (NIRB or Board) issued Project Certificate # 003 (PC) to Miramar Hope Bay Ltd. (Miramar) for the Doris North Gold Mine Project (Doris North project or the Project), following the completion of the NIRB Part 5 Review that was conducted in accordance with Article 12 of the Nunavut Land Claims Agreement (NLCA). The Doris North project is located 110 kilometres (km) south of Cambridge Bay, in the West Kitikmeot region of Nunavut on the Canadian mainland. The site is accessed by sealift for fuel, equipment and supplies and by air for some freight and personnel travelling in and out.

The major components proposed for the Doris North project included a campsite, underground mine and associated mill plant at the mine site, a jetty, fuel tank farm and laydown area at the Roberts Bay area with a 5 km all-weather road linking the Roberts Bay area to the Doris mine site. The original development proposal indicated that tailings produced during the milling process would be deposited in Tail Lake, about 5 km southeast from the proposed mine site. An all-weather service road would be constructed along the east side of Tail Lake to its southern end, with a tailings pipeline following the roadway and emergency tailings dump ponds constructed at strategic locations.

According to the original project plan, the project has an approximate footprint of 62 hectares, with an ore processing capacity of 668 tonnes per day. The Project was expected to operate for 24 months, and to process an anticipated 458,000 tonnes of ore, yielding approximately 306,830 ounces of gold.

### **1.2 Project History and Current Status**

In early 2008, Newmont Mining Corporation (Newmont) successfully purchased all interests of Miramar and its subsidiary properties in the Hope Bay Belt, including the Doris North holding. Following this acquisition, Newmont pursued the establishment of a new business entity, Hope Bay Mining Ltd. (HBML), which was to operate the Doris North Project. Upon evaluation of the original development plan, in September 2008 HBML decided to defer the underground gold mine development with the intention to pursue a broader belt-wide development strategy for the Hope Bay Belt.

Following an evaluation of exploration and geotechnical drilling results from Doris North and other properties in the Hope Bay Belt, HBML announced in November 2009 that it intended to precede the Doris North Project with a staged development strategy. The implementation of this strategy was initiated by the planned construction of an underground decline to allow for access to and further evaluation of, the Doris North deposit. In January 2010, HBML further defined its staged development strategy to include a proposed development plan for other properties in the Hope Bay Belt. The Doris North Project subsequently resumed infrastructure construction in the summer of

2010. At the time of this report, HBML was in the process of compiling a new project description for the proposed Hope Bay Belt development.

In the fall of 2010, HBML continued with construction of mine facilities at the Doris North site, including development of the portal and decline at the Doris North ore deposit. Both of the roads from the Doris North site to Windy camp and to Tail Lake were under construction at the time of the Monitoring Officer's 2010 site visit. The completed infrastructure, including the jetty, fuel tank farm and laydown area at Roberts Bay, the Doris North camp and the 5 km all-weather road linking Roberts Bay and the Doris North mine site, have been used on an on-going basis to support mine facilities construction at Doris North, and exploration drilling programs in the Hope Bay Belt.

At Doris North Project/Phase 2 Project Mineral Development Advisory Group (MDAG) Meetings which was organized by Indian and Northern Affairs Canada in Cambridge Bay from October 26 to 28, 2010, HBML presented a detailed stage development plan. According to this plan, HBML has submitted an application to the NIRB and NWB for the second amendment to NWB Type A Water Licence, followed by the third amendment to NWB Type A Water Licence/ the first NIRB Project Certificate #003 in November 2010. The Phase 2 Project description for Hope Bay Belt development is expected to submit to the NIRB the first Quarter of 2011.

## **2 PROJECT CHANGES AND MONITORING ACTIVITIES**

On November 10, 2008, HBML submitted a project update to the NIRB<sup>1</sup>, indicating its intention to precede the Project with construction of an underground decline to support advanced exploration (bulk sampling) at Doris North while continuing its advanced exploration activities on other properties in the Hope Bay Belt, including the Madrid/Patch and Boston deposits, to support further development of a Hope Bay Belt project. A detailed project description associated with this Hope Bay Belt development was being prepared by HBML at the time of this report.

HBML presented the Board with a detailed projection of the staged development strategy for the Doris North and Hope Bay Belt projects in January 2010<sup>2</sup>. The following provides a summary of this projection:

- Phase 1a – Design revisions to Doris North underground mine and associated infrastructure – bulk sample and potential initial production
  - 2010 to 2014 / 2015
  - Modify and amend Project Certificate, Type A Water Licence and Fisheries Authorization

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<sup>1</sup> Letter to Stephanie Autut, from Chris Hanks, HBML on November 10, 2009 Re: *Hope Bay Mining Ltd. (HBML) Update on Doris North Project*.

<sup>2</sup> HBML Presentation to NIRB and NWB in NIRB office on January 14, 2010 Re *Project Update*.

- Phase 1b - Underground Bulk Sampling of Patch 14 and Doris Central with associated infrastructure
  - 2011 to 2014/2015
  - Amendment to Hope Bay Type B Water Licence to include Bulk Sample
- Phase 2 – Proposal to bring an enlarged Doris North / Connector / Central Underground / Open Pit, Patch 14 Underground, Boston Open Pit / Underground into production

Following the release of its strategic development plan, HBML commenced the execution of Phase 1a by applying for approvals and amendments with applicable authorizing agencies for the various changes to project activities and components.

## **2.1 Jetty Upgrade and Improvement**

On February 25, 2010 HBML submitted a “Doris North Jetty Improvements” project proposal with Fisheries and Oceans Canada (DFO) for an *Authorization for Works or Undertakings affecting Fish Habitat* as required for HBML’s planned repair and improvement to its existing Roberts Bay jetty including the following:

- Installation of a new sheet pile bulkhead at the deepwater end of the jetty;
- Raise the surface elevation and stabilize rock slopes around the jetty; and
- Fish habitat compensation.

After completing a review of the information provided and the comments received from parties regarding this project proposal, on March 18, 2010 the NIRB indicated that this application was exempted from screening in accordance with Section 12.4.3 of the NLCA, but made recommended that the Proponent submit a *Sediment and Erosion Control Plan* to DFO prior to carrying out the proposed activities. During the Monitoring Officer’s 2010 site visit, it was noted that the project had not commenced as proposed in the spring of 2010. The Monitoring Officer was informed that the project development had been postponed until 2011.

## **2.2 Modifications to Locations of Explosives Facility and Doris North Portal**

On March 24, 2010 the NIRB was copied on HBML’s notification to the NWB which proposed a number of modifications to components associated with the Project as provided for through HBML’s Type A Water Licence. The HBML notification of the proposed modifications included the following:

- Explosives facility modification notice
- Fuel tank installation modification notice (*notice subsequently withdrawn*)
- Portal location modification notice

Upon completion of an internal review, on April 15, 2010 the NWB determined that the proposed modifications to the Explosives Facility and Fuel Tank Installation were

inconsistent with conditions of the Licence and requested that HBML submit separate amendment applications detailing the proposed modifications. HBML subsequently withdrew the proposed modification to the Fuel Tank Installation, and the NWB processed HBML's amendment application for the Explosives Facility.

The NWB requested that the NIRB conduct its own review of the application information and determine whether or not the project would require further assessment pursuant to Article 12 of the NLCA. Following consultation with relevant regulatory agencies regarding the proposed activities (including DFO, Natural Resources Canada and the Government of Nunavut – Culture, Language, Elders and Youth), on July 7, 2010 the NIRB determined that the proposed modifications were exempted from further assessment by the NIRB in accordance with Section 12.4.3 of the NLCA, and that the activities therein were subject to the terms and conditions contained within the NIRB Project Certificate for the Doris North Project.

At the time of this report, the portal for the Doris North decline was under construction, and the relocation of the explosive facilities had been postponed due to unforeseen delays in construction of site roads.

### **2.3 Modifications to Land Based Moorings**

On May 7, 2010 the NIRB received notification from HBML regarding proposed changes to the land-based mooring configurations in Roberts Bay, including:

- Repositioning two previously assessed land-based mooring points
- Adding four land-based mooring points

By the time of this notice, HBML had not constructed any of the previously assessed land-based moorings. HBML would require no new authorizations or amendments to existing project authorizations to conduct this work and further, the proposed modifications were in compliance with Condition 34 of the NIRB Project Certificate which reads:

*34. If it becomes necessary, MHL shall give notice of any planned changes to the mine facility, including Tail Lake and its operation, to the regulatory authorities and NIRB through its Monitoring Officer, immediately.*

The NIRB notified HBML and the Doris North distribution list that the proposed modifications would not be subject to further screening by the NIRB, but that these modifications may be included in the NIRB's monitoring program for the Doris North project.

### **2.4 HBML's 2010/2011 Fuel Delivery Plan**

On May 28, 2010 the NIRB received HBML's 2010/2011 Fuel Storage and Delivery Plan designed to support construction activities of the Doris North Project and ongoing exploration activities at the Hope Bay Belt. The plan proposed the over-wintering of fuel barges in Roberts Bay due to canceled plans for a new fuel tank farm at Roberts Bay.

The proposed over-wintering of fuel barges was not assessed through the NIRB's Part 5 Review of the Doris North Project. The NIRB distributed the application to Doris distribution list and invited interested parties to provide their comments to the NIRB. Following receipt of comments from interested parties, the NIRB extended an opportunity to HBML to address the issues and concerns raised in parties' submissions. In its correspondence to the NIRB dated July 8, 2010, HBML provided the requested clarification and information regarding its 2010/2011 Fuel Delivery Plan.

After completing a review of all information received, the NIRB approved the Plan for implementation,, subject to the terms and conditions in the NIRB Project Certificate (#003), including the following:

*20. MHBL shall ensure the use of containment booms and berms to control potential spills whenever fuel and or waste is transferred between a barge and the shore. MHBL shall ensure spill kits are on hand at these locations at all times;*

*33. MHBL shall ensure that areas used to store fuel or hazardous materials are contained using the safest methods practically available;*

At the time of this approval, the NIRB also recommended that HBML revise its draft *Oil Pollution Prevention/Oil Pollution Emergency Plan* to incorporate the comments received from parties pertaining to the Fuel Delivery Plan, and then to submit the Oil Pollution Prevention/Oil Pollution Emergency Plan to Transport Canada for final approval. This Plan has been revised and at the time of this report, was pending TC's approval.

## **2.5 Accommodation Barges in Roberts Bay**

On July 16, 2010 HBML reported to the NIRB regarding its planned use of accommodation barges in Roberts Bay to support exploration activities at the Hope Bay Belt and ongoing work for the Doris North Project. According to HBML's plan, two accommodation barges, which were operated by Horizons North Camps and Catering Ltd., would provide accommodation and dining camps in Roberts Bay with a capacity of 128 persons from summer 2010 to late summer 2011.

After completing a review of the information provided by HBML as well as the the Final Environmental Impact Statement for the Project, the NIRB was of the opinion that the use of accommodation barges in Roberts Bay was not included within the original project

proposal nor had such activity been included in the Part 5 NLCA review of the project. As an authorization for the proposed activity was not required by any regulatory body, the NIRB determined that the project proposal could proceed, however the use of accommodation barges would be monitored through the NIRB's ongoing monitoring program for the Doris North project.

### **3 MONITORING COMPLIANCE**

Since the issuance of NIRB's 2009 Monitoring Report for the Doris North Project in November 2009, HBML has made a remarkable effort to meet the requirements stipulated in the NIRB's PC#003. However it there remain certain Terms and Conditions which have yet to be properly or fully implemented by HBML. These will be outlined in Section 3.2 and discussed in the Board's recommendations to HBML which will be provided under separate cover.

#### **3.1 Compliance with the NIRB PC and Other Regulatory Requirements**

##### **a) Compliance with Canada Shipping Act**

*20. MHBL shall ensure the use of containment booms and berms to control potential spills whenever fuel and or waste is transferred between a barge and the shore. MHBL shall ensure spill kits are at hand at these locations at all times.*

In addition to meeting the requirements of the NIRB PC Condition 20, HBML's Oil Handling Facility (OHF) in Roberts Bay requires an Oil Pollution Prevention/Emergency Plan (OPP/EP Plan) to be implemented upon approval by TC under the *Canada Shipping Act, 2001*. This regulatory requirement was initially identified by TC in 2008. Initially, HBML was of the opinion that the operation of its OHF, including the obligation to fulfill regulatory requirements, was delegated to its fuel contractor (NTCL) based on the fuel shipping contract. However, TC disagreed with HBML's interpretation, and following consultation with TC in 2008, the NIRB recommended that HBML fulfill this regulatory requirement.

While HBML and its contractor had taken substantive steps to fulfill the requirement by putting all of the required pollution prevention and response plans in place, in its 2009 Monitoring Report, the NIRB directed HBML to completely comply with this regulatory requirement and to finalize its OPP/EP Plan for TC approval. In May 2010, HBML provided its revised OPP/EP Plan to TC for review. In order to address the compliance with the noted Condition in NIRB PC#003 and regulatory requirement pursuant to *Canada Shipping Act, 2001*, the NIRB, in its 12.4.3 NLCA determination regarding the Fuel Delivery plan, requested that HBML distribute the final and TC approved OPP/EP Plan to the NIRB and other interested Parties. On September 16, 2010 a copy of most revised OPP/EP Plan was submitted to the NIRB and TC and at the time of this report, was pending final TC approval.



b) Noise Abatement Plan

29. *MHBL shall develop and implement a noise abatement plan to protect people and wildlife from mine activity noise, including blasting, drilling, equipment, vehicles and aircraft. The noise abatement plan will be developed in consultation with GN-DoE, EC and HC, and includes: restrictions on blasting and drilling when migrating caribou, birds or local carnivores may be affected; the establishment of strict standards for noise levels; use of equipment and vehicles with the best noise attenuation devices; when practical, the use of fences or berms around noisy machinery or sites; flight corridor restrictions over sensitive areas with known concentrations of wildlife and birds whenever possible; and requiring with the exception of take off and approach for landing, a minimum flight altitude of 300 metres above ground level when flights to and from the mine site are passing near sensitive wildlife and bird areas. The noise abatement plan will also incorporate the use of sound meters to monitor sound levels at sites in and around the mine site and local study area. The location and design of the sound meters shall be selected in consultation with EC and set up immediately upon issuance of the Project Certificate for the purpose of obtaining baseline data, and during and after operations. The final noise abatement plan shall be filed with NIRB's Monitoring Officer within six (6) months of the issuance of the Project Certificate.*

Miramar initially submitted the *Noise Abatement Plan* to the NIRB as required by Condition 29. HBML has been actively submitting required follow up reporting on noise measurements and analysis since 2007. However this reporting has not included information required regarding noise abatement measures employed in the mitigation of potential impacts (especially as relating to impacts on wildlife).

In light of HBML's decision to alter the development strategy for the Doris North Project, the NIRB requested that HBML revise its *Noise Abatement Plan* to reflect the most updated project activities in the region while taking into account potentially escalated noise levels resulting from ongoing construction at project site. On December 21, 2009 HBML submitted to the NIRB its revised *Noise Abatement Plan*. On February 5, 2010 the NIRB circulated this revised plan to the project distribution list and requested that interested parties provide comments. After completing a thorough review of comments and information provided, the NIRB requested that HBML provide a response to the questions and concerns raised. Following HBML's response to the comments and concerns, on March 29, 2010 the NIRB provided recommendations to HBML and requested that it incorporate these into its finalized plan. At the time of this report, HBML's submission of the finalized *Noise Abatement Plan* was expected to in November 2010.

### 3.2 Issues of Non-Compliance

#### a) Thermistor cables and temperature loggers

*19. MHBL shall install thermistor cables and temperature loggers in the jetty foundation. MHBL shall monitor the effects of the jetty on shallow water permafrost through operations and report the results of the monitoring collection to NIRB ' s Monitoring Officer.*

HBML installed the required thermistor cables and temperature loggers in the spring of 2009. HBML provided the NIRB with a construction summary memo and a monitoring plan in May of 2009. The thermistor instruments have been in operation since their installation, yet the Board has not received any of the required monitoring results as of the date of this report.

#### b) Wildlife Mitigation and Monitoring Plan NIRB PC Condition 20:

*MHBL shall update and revise the Wildlife Mitigation and Monitoring Plan to reflect these terms and conditions and shall submit the revised Wildlife Mitigation and Monitoring Plan to NIRB. NIRB may consult with relevant Government departments and the Nunavut Wildlife Management Board prior to approving the revised Wildlife Mitigation and Monitoring Plan. The Wildlife Mitigation and Monitoring Plan must be submitted within three (3) months of the issuance of a Project Certificate and it must be approved by NIRB prior to the commencement of construction. MHBL must also submit an updated plan on an annual basis which must also be approved by NIRB.*

The *Wildlife Mitigation and Monitoring Plan* (WMMP) was revised by Miramar in 2007 as per the requirement of noted Condition 20, and further, was implemented by Miramar in 2007. The monitoring report (WMMP report) associated with this plan has been submitted annually by the Proponent since the plan's implementation. In correspondence to the NIRB dated January 16, 2009<sup>3</sup>, the Government of Nunavut, Department of Environment (GN-DoE) highlighted the following issues based on its review of HBML's WMMP annual reports for 2007 and 2008:

- The need to clarify caribou survey data and survey protocols as well as the inclusion of Dolphin and Union Caribou herd in the monitoring program;
- The need to initiate hair snagging baseline studies and monitoring programa for grizzly bears and for wolverines;
- The need to explicitly outline mitigation actions that will be undertaken within an adaptive management framework; and,
- The need to estimate and mitigate for mine-related disturbance to raptors.

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<sup>3</sup> GN-DoE comments Re: Review of Doris North's Wildlife Mitigation and Monitoring Plan – 2008 Annual Report dated January 16, 2009.

After receiving the above-noted comments from GN-DoE, the NIRB encouraged HBML to dialogue with GN-DoE regarding the issues raised. In the NIRB's 2009 Doris North Project Monitoring Report, the NIRB re-iterated those issues, and further recommended HBML and GN-DoE work toward a plausible solution, recognizing that little progress had been made during communications between two parties at that time. In response to the NIRB's recommendation, HBML and GN-DoE held a meeting on November 24, 2009 to discuss the 2010 field season programs. At the meeting, a number of issues requested by GN-DoE were fully discussed, and interim action plans were committed to by both HBML and GN-DoE (see Appendix A). Confirmation from GN-DoE was required prior to the 2010 spring survey season in order to ensure the implementation of action plans and other commitments such as caribou surveying and the use of hair snagging to monitor grizzly bear and wolverine. On February 11, 2010, the NIRB followed up with GN-DoE regarding the anticipated discussions as outlined in HBML's correspondence however a response from GN-DoE was not received by the NIRB until July 7, 2010 (see Appendix B).

As a result of the delay in receiving confirmation from GN-DoE on this matter, the proposed caribou collaring program was not conducted during the 2010 spring survey season. To their credit however, HBML did conduct its traditional aerial survey as a component of the monitoring program, in addition to undertaking a snagging post survey for grizzly bear and wolverine. In terms of a tangible solution regarding the use of methods requested by GN-DoE for the WMMP, a meeting is scheduled in November 2010. The NIRB expects that most, if not all, of the outstanding issues, will be addressed at this meeting, and hopes to further the discussions with attendance of the Monitoring Officer.

c) Socioeconomic Monitoring Committee and Monitoring Program

28. *Within six (6) months of the issuance of a Project Certificate, a Hope Bay Belt Socio-Economic Monitoring Committee ( "SEMC " ) shall be formed to supplement, not duplicate areas covered by the Inuit Impact Benefit Agreement negotiated for this project. In order to ensure consistent data collection and tracking of data trends in a comparable form to be shared at the regional level and to minimize the duplication of efforts, the composition of the SEMC should include the same membership as the Kitikmeot Socio-Economic Monitoring Committee approved by the Minister. Additionally, the SEMC must engage the affected communities of Cambridge Bay, Kugluktuk, Gjoa Haven, Taloyoak, and NIRB ' s Monitoring Officer, and consider concerns from Bathurst Inlet and Omingmaktok. In consultation with these parties and immediately upon the SEMC ' s formation, MHL shall provide the terms of reference for a socio-economic monitoring program to the SEMC for review and subsequent direction by NIRB. The terms of reference are to include the role of MHL in data collection and analysis; the key socio-*

*economic indicators to be monitored; the reporting requirements; and the funding formula.*

The Doris North SEMC was established in April 2007, with a Socio-Economic Monitoring Program (SEMP) and its associated Terms of Reference (ToR) developed and subsequently revised by Miramar based on the comments from GN and INAC at the end of 2007. The SEMP and Terms of Reference however, were not approved by the Doris North SEMC owing to the following issues: 1) disagreement regarding certain provisions in the SEMP, 2) the project deferral decision made by HBML, and 3) the initiative to develop regional SEMC monitoring approach.

On November 18, 2009 the Doris North SEMC members held their second meeting to review the revised ToR, and associated SEMP for the Project. Early in 2010 following the meeting, HBML revised the ToR for the Doris North SEMC after soliciting input from other SEMC members. According to recent communication with HBML, the first Doris North SEMP annual report is being prepared by HBML for submission to the NIRB in 2011. Compliance with the Condition 29 however, requires further development of the Kitikmeot SEMC, development that the NIRB recognizes may not be entirely within HBML's power to initiate or implement.

d) Air Quality

30. *MHBL will install and fund an atmospheric monitoring station. This station and its location shall be developed in consultation with EC and HC air quality officials and focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported every six (6) months to NIRB through the Monitoring Officer, and from there to all of the parties.*

*Commentary: NIRB expects the Canada Wide Standards for Dioxins and Furans and the Canada Wide Standards for Mercury will apply and should be followed including stack testing of incinerators.*

In connection with the National Air Pollution Surveillance Network, HBML built an atmospheric monitoring station in September 2009 which is able to monitor ambient air quality at Doris North site and has been fully functioning throughout 2010. A monitoring report for the first six months of monitoring as required in Condition 30, however, had not at the time of this report been submitted to the NIRB.

In consideration of the *Canada Wide Standards (CWS) for Dioxins and Furans*, and the *CWS for Mercury*, HBML conducted an incinerator stack emissions test in late September and early October 2009. The testing results showed that there were no breaches to the thresholds set out in the *CWS for Mercury*, however, the dioxin and furan emissions exceeded the thresholds required by *CWS for Dioxins and Furans*. HBML has committed to conduct a stack emissions test in 2011 once the construction of a waste management facility is completed and a comprehensive waste management plan is

finalized. At that point, best management practices can be identified and implemented for HBML's waste management programs.

### **3.3 2010 Site Visit**

As an annual part of its monitoring program for the Project, the NIRBs Monitoring Officer visited the Doris North and Hope Bay Belt site on September 18, 2010. In general, all project components built in previous years were in full operation, and new infrastructure including the mill and other ancillary facilities, and the Doris Portal, were under construction at the time of the visit. Both operation sites and construction sites were notably well managed with appropriate environmental protection measures in place. A complete site visit report has been compiled and is appended to this report (Appendix C). Certain findings resulting from this site visit necessitate further action on behalf of HBML (and where necessary, other parties) in order for HBML to be compliant with the NIRB PC. The issues identified in the site visit report include the following:

- Air quality monitoring and reporting
- Wildlife mitigation and monitoring

The detailed information is presented in the Appendix C: Site Visit Report.

## **4 COMMENTS REGARDING HBML'S ANNUAL REPORT FROM PARTIES**

On June 24, 2010, HBML submitted its *2009 Annual Report for Doris North Project* to the NIRB. The NIRB distributed this report to the Doris North distribution list on June 30, 2010 and requested comments with regard to compliance and effects monitoring as well as other areas of expertise or mandated responsibility. The NIRB received comments from the following parties regarding the *2009 Annual Report*:

- Environment Canada (EC)
- Fisheries and Oceans Canada (DFO)
- Government, Department of Environment (GN-DoE)
- Indian and Northern Affairs Canada (INAC)
- Kitikmeot Inuit Association (KIA)
- Natural Resources Canada (NRCan)

The following provides a summary of comments received:

### **EC**

- Compliance Monitoring:
  - EC noted no compliance issues reported by HBML in 2009
- Effects Monitoring:
  - The conclusions reached in the annual report were found to be valid, and presently, no changes are required to the monitoring program.

**DFO**

- Compliance Monitoring (HADD- NU-02-0117):
  - HBML currently in compliance with the HADD-NU-02-0117;
  - Conditions of the authorization which remained applicable in 2009 were reported in the Jetty Fisheries Authorization Monitoring Report, submitted to DFO in December of 2009, and DFO is satisfied with the results of the monitoring program for 2009 pertaining to the near shore sediment transport around the jetty, the stability and successful utilization of the fish habitat compensation features to date; and,
  - DFO conducted an "orientation" site visit of the Doris North site in August 2009. The visit was not intended for compliance monitoring purposes and as such, no inspection report was prepared.
- Effects Monitoring:
  - The commitments, as outlined in Appendix A of the Final Hearing Report and Addendum, were incorporated into the conditions of the authorization; and,
  - HBML is required to implement a construction monitoring program to ensure that the mitigation measures specified in the submitted plan are implemented and works are conducted according to the schedule provided to DFO. HBML must report back to DFO on the results of the monitoring program by the end of 2011.

**GN-DoE**

- GN-DoE has no comments to make on the report at this time.

**INAC**

- Compliance Monitoring:
  - INAC's water resource department performed an inspection of water Licence compliance on July 8th and 9th, 2009. There were no issues of non-compliance with regard to its water license requirements; and
  - An inspection of land lease requirements was also performed by the same water resource inspector with regards to the Robert Bay Jetty, INAC noted compliance with all conditions of the jetty lease and was satisfied that the Proponent has made significant improvements from the previous year with regards to any non-compliance issues identified at that time.
- Effects Monitoring:
  - The annual report does not contain a complete list of all terms and conditions in the project certificate. It would be useful if the a complete list was included, with an explanation of how each condition was met, is still outstanding or was excluded from the 2009 annual report;
  - In addition to the data provided, the Proponent should include comparative statements that allow for an evaluation of the current impacts compared to the predicted impacts as identified in the FEIS. These changes would facilitate more effective review of future annual reports; and

- INAC looks forward to continued discussions regarding the implementation of the Doris North Socio-Economic Monitoring Program (SEMP). We also look forward to further discussions regarding the potential relationship between project-specific socio-economic monitoring and regional socio-economic monitoring in the Kitikmeot.

#### KIA

- KIA does not have any comment at this time.

#### NRCan

- Areas of significance requiring further study:
  - **Jetty Failure:** With regards to the proposal for upgrading the Jetty at Doris North, a more complete explanation of the circumstances under which failure of the existing structure occurred is required, to determine if this is an area of significance requiring further study. Any previous documents regarding the monitoring of the jetty by temperature cable and daily photographs used to assess the conditions that caused the failure should be provided ; and
  - **Silt Control for Jetty Replacement:** The impacts of the jetty upgrading on abandonment plans should be considered. If the plan to reduce the elevation of the jetty occurs, will the sheet piles still be removed, or will that be difficult if the piles become frozen in? Adding additional rock to the jetty sides as an apron will mean that more material will remain below the waterline following abandonment with continuing potential for affecting longshore transport. Longshore transport was not initially thought to be significant. Have any impacts of the structure been noted with respect to sediment movement along the coast? If there may be an effect on the coastline, placement of additional material could have a continuing impact following abandonment.
- Changes to the monitoring program which may be required:
  - **Temperature Cables:** NRCan would like to confirm that data from thermistor cables and temperature loggers will be provided in the 2010 Annual Report. As access to thermal data will provide further insights/clarification on the cause of the jetty failure.

The complete comment submissions received and pertaining to the *2009 Annual Report* can be obtained from the NIRB's ftp site at the following link:

<http://ftp.nirb.ca/03-MONITORING/05MN047-DORIS%20NORTH%20GOLD%20MINE/03-ANNUAL%20REPORTS/02-PROPONENT/2009/03-COMMENTS> .

## 5 SUMMARY

Due to deferral of the project throughout most of 2009, parts of the Post Environmental Assessment Monitoring Program (PEAMP), in particular those directly related to underground mining, mill plant operation, and tailings containment area are not to be implemented at the current stage of development. Other monitoring requirements, which

are applicable through ongoing advanced exploration and use of existing infrastructure at Doris North site as indicated in the NIRB's 2009 monitoring report, however, are still valid, and must be implemented by HBML and monitored by the NIRB. Applicable monitoring plans should be finalized and updated to reflect the changes made to the original project proposal such that the objectives set up in the NIRB PC can be fully achieved.

Overall, HBML has made commendable efforts over the 2009 reporting period to meet the requirements of the PC, and to date, except those not applicable to current project status, most of the applicable terms and conditions contained in the PC have been or are being met. However, there remain certain conditions that have yet to be fully implemented, and these will require HBML to continue working with parties. Furthermore, all of these agencies and departments need to fulfill their responsibilities related to the role of the Doris North SEMC as set out in the PC for this project. Pursuant to NLCA Sections 12.7.2 and 12.7.3, the NIRB will continue to provide periodic evaluation of monitoring efforts, results and compliance, and will also provide further directions to guide parties with respect to monitoring for the Doris North Project.



**APPENDIX A**

HBML Letter to GN-DoE Re: Doris North Wildlife Mitigation and Monitoring  
(December 8, 2009)



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8 December 2009

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Manager, Land Use and Environmental Assessment  
Environmental Protection Division  
Department of Environment  
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Mr. Mathieu Dumond  
Kitikmeot Wildlife Biologist  
Nunavut Wildlife Division  
Department of Environmental  
Box 377  
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Dear Mr. Mifflin and Mr. Dumond,

**Re: Hope Mining Ltd. (HBML) Doris North Wildlife Mitigation and Monitoring**

This letter confirms the substance of our discussion with Wildlife Division (DoE), held November 24, 2009 regarding the Wildlife Mitigation and Monitoring Plan (WMMP) for the 2010 field season at the Hope Bay Mining Ltd. (HBML) site. Pursuant to Conditions 22 through 27 of the Nunavut Impact Review Board (NIRB) Doris North Project Certificate, HBML is committed to minimizing our environmental effects and to conducting the best quality monitoring to measure and mitigate potential effects of the Project on the environment.

Several requests have been made by DoE to NIRB over the past two years for HBML to alter our WMMP. These requests have been made as part of a DoE review of HBML's 2007 and 2008 WMMP Annual Reports for NIRB. During our recent discussions between DoE, HBML and Rescan Mr. Dumond reiterated the need for some changes to the program. HBML would be pleased to work with DoE on your proposals consistent with the need to comply with Conditions 22 through 27 of our Project Certificate issued by NIRB.

The DoE review of the 2007 WMMP identified five points of improvement. These five points were discussed at our meeting are summarized below:

**A) Caribou**

During the last 12 years, HBML and its predecessors at the Hope Bay Project have conducted aerial surveys for Caribou and Muskoxen. In the 2005 Final EIS for the Hope Bay Project, a commitment was made to continue yearly caribou flights as part of our WMMP. This commitment is included in our NIRB Project Certificate.

After the discussions at the meeting, you described your concerns over the efficacy of these survey methods, while outlining recent Regional Wildlife Organization (RWO) concerns over aerial surveys of ungulates. We are receptive to the idea of altering our survey plans based on these concerns, including the consideration of alternate studies methods that support GN research objectives to develop baseline and to assess the potential for effects of the Doris North Project. At our meeting, two potential alternative methods have been put forward by DoE:

- 1) Contribute to an existing collaring and/or demography study in 2010 on the Ahiak herd, which calves to the south-west of the Project area in the Queen Maude Gulf Sanctuary.

We would like to point out that HBML provided facilities and other in kind support for the Government of the Northwest Territories aerial Ahiak calving ground study in 2009. Further, there have been past offers by other companies that have owned Hope Bay in the past, to sponsor additional Ahiak collars, which were not carried out because of issues raised by Aboriginal groups in the NWT. HBML agrees further collars on this herd are a very good idea and will participate. Further, we are now in receipt of the Ahiak plan forwarded to us after the meeting by Mr. Dumond. We have passed this on to Rescan and will work with DoE to participate in the Ahaik programme.

- 2) Contribute to an as yet to be designed GN collaring program for the Dolphin and Union (DU) herd, recognizing that HBML has scheduled a survey with in Hope Bay for March of 2010 as per required by our Project Certificate.

It is our understanding that the last aerial surveys on the DU herd at Hope Bay were completed by Rescan for BHP Billiton in the 1990's. HBML would be pleased, if instructed by NIRB and DoE, not to undertake that work and instead to contribute to a new collaring study on the DU herd. HBML understands that the details of the new DoE program will be discussed at a later date, early in 2010.

In the absence of Zone of Influence (ZOI) aerial surveys, a DU collaring program will become critically important to HBML. Data from this new study will then form part of the WMMP for existing operations at Doris North, as well as forming part of the basis for the assessment of expanded operations in the rest of the Hope Bay Belt. If the planned HBML aerial surveys do not occur in 2010, and no collaring has taken place an entire season of baseline and any form of monitoring for the Doris North Project will be lost. This could have an affect on the baseline we will have available to support assessment for the next phase of our project.

As per our discussions, HBML understands that it will be asked to contribute to collaborative projects on one or both of these herds with other companies and DoE..

## **B) Grizzly Bears**

Grizzly bears at the Hope Bay site are recorded both incidentally and using a method of surveying high value riparian habitats for Grizzly Bear sign, which we committed to in the 2005 EIA application.

Since the Project Certificate was issued in 2006, DoE has asserted that a better way to establish population estimates for grizzly bears is to use hair-snagging to collect DNA samples from individual bears to establish baseline population estimates in the region. HBML has committed to conduct one year of baseline surveys using this method in 2010. Our meeting with DoE represented a good start on discussions toward the appropriate survey methods for 2010 that will allow the data to be comparable with GN and GNWT genetic studies already underway on the Slave Geologic Province.

HBML will have Rescan undertake and report on the study using these agreed to methods. The habitat surveys were not performed in 2009. HBML understands that DoE would have the company replace those surveys in the future with the year of baseline DNA work proposed for 2010. HBML will provide DoE with a draft proposal for the DNA work shortly. The use of DNA to establish baseline population numbers is appropriate, it not however, necessarily the most useful monitoring tool to examine on going carnivore interaction with Doris North and ultimately expanded operations in the Hope Bay Belt. There needs to be follow up discussions on grizzly bear monitoring and mitigation at Hope Bay once the 2010 program has been completed.

### **C) Wolverine**

Surveys for wolverine were proposed in the 2005 EIS application using snow track surveys. DoE would like HBML to alter survey methods to use a DNA hair snag method, similar to that for grizzly bear, but using a sampling grid ¼ of the size of that proposed for the Grizzly Bears. As with Grizzly Bears, HBML is willing to collect one year of baseline wolverine DNA via hair snagging in 2010 to establish the local wolverine population. Once again, while DNA is an appropriate method to establish population, it is not necessarily a monitoring tool to gauge ongoing Doris North Project interactions with the resident wolverine population. We look forward to conducting the 2010 wolverine DNA work, providing DOE with results, and discuss future monitoring and mitigation for this important species.

### **D) Raptors**

DoE would like HBML to further estimate and mitigate for potential project-related disturbance to raptors. HBML will evaluate disturbance to raptors in future WMMP documents by comparing the nesting success of raptors within 1 km of the Project site compared to control areas at a greater distance. Mitigation measures will be outlined in the Noise Abatement Plan required by NIRB as part of the Project Certificate, which is currently being updated by HBML, following collection of background noise information in 2007 and 2008. DoE requested a copy of this plan be sent to them when it is completed. HBML will provide a copy of the Noise Abatement Plan once complete.

### **E) Mitigation Actions for Adaptive Management Framework**

DoE expressed concern that previous versions of the WMMP have asserted that potential effects of the Project will occur only within the Project footprint. DoE would like to see explicit mitigation plans for potential effects, which may be detected in the WMMP outside the footprint of the development, due to factors like noise from helicopters and future developments such as a Wind Farm that are currently being considered. HBML will update the management plans in the upcoming 2009 WMMP document to include a more detailed plan for monitoring and mitigation of potential effects from the Project.

The meeting ended with the identification of five action items:

- 1) Mr. Dumond will forward to HBML the DoE proposal to do a demography survey on the Ahiak herd this summer. He provided this to HBML on December 2, 2009. HBML has subsequently provided this document to Rescan.
- 2) Mr. Dumond will include HBML in upcoming discussions on the development of a DU caribou regional monitoring program and the potential for industry to participate in a satellite collaring partnership. This will need to occur before the date of HBML's

proposed DU Spring survey so as to preclude the need for this survey. Further discussions are needed very shortly to work out how to incorporate the DU with in our baseline and monitoring programmes.

- 3) HBML will send a proposal to DoE and NIRB for the grizzly bear and wolverine hair snagging studies. Mr. Dumond will review study methodology for HBML. We understand that the results of the HBML study at Hope Bay will be integrated into a more regional effort by GN. HBML would encourage DoE to collaboratively collect regional DNA carnivore data along the coast from Bathurst Inlet east to Parry River during the period that HBML is collecting the site specific samples in the Hope Bay Belts. This approach would strengthen the interpretive strength of the results.
- 4) An analysis will be conducted by Rescan for HBML on Raptors to examine potential effects of noise on breeding success and that a copy of the HBML Noise Abatement Plan will be forwarded to DoE for review.
- 5) HBML will review current proposed mitigation measures, and develop a framework for evaluating if effects have occurred and list adaptive management options for potential effects which can be predicted at this time.

HBML appreciates DoE concerns related to the existing monitoring methodologies contained in the WMMP, and in particular, Inuit concerns on aircraft over-flights of post calving caribou. HBML is however; worried that altering the sampling plans as requested by DoE may place HBML in contravention of NIRB Project Certificate Conditions and commitments. Prior to committing to altering our survey methodologies, we must seek the assurance of NIRB that these altered methods or contributions to DoE surveys meet the Project Certificate commitments. Therefore, **we request DoE provide NIRB with a documented response to this letter. HBML requires NIRB concurrence, that altering our study methodology is in compliance with Conditions 22 through 27 of the Doris North Project Certificate.**

We would be most pleased to continue progress on all 5 action items together with DoE once this clarification is obtained from NIRB, continuing our efforts to accurately monitor our effects on wildlife, and mitigate these impacts.

Sincerely yours,

Chris Hanks  
Director, Environment and Social Responsibility  
Hope Bay Mining Ltd. an affiliate of  
Newmont Mining Corporation

cc. Stephanie Autut, Executive Director, NIRB, Geoff Clark, Director Lands, KIA

## **APPENDIX B**

GN-DoE Letter to HBML and NIRB Re: Doris North Wildlife Mitigation and Monitoring  
(July 7, 2010)

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Department of Environment

Ministère de l'Environnement

July 7, 2010

Chris Hanks  
Director, Environment and Social Responsibility  
Hope Bay Mining Ltd. an affiliate of  
Newmont Mining Corporation

Li Wan  
Technical Advisor  
Nunaut Impact Review Board (NIRB)  
lw@nirb.ca

**RE: Hope Mining Ltd. (HBML) Doris North Wildlife Mitigation and Monitoring**

Dear Mr. Hanks and Mr. Wan,

This letter is in response to HBML's letter of December 08, 2009. As the proponent indicated, the Department of Environment (DOE) participated in a meeting on November 24, 2009 regarding the Wildlife Mitigation and Monitoring Plan (WMMP) for the 2010, 2011 and 2012 field seasons at the Hope Bay Mining Ltd. (HBML) site.

The meeting was held in response to requests made by DOE to NIRB over the past two years for HBML to amend some of their methodologies identified in the WMMP. The meeting was productive and a tentative agreement was made between HBML and DOE. For NIRB's information these are the points of agreement.

As background, DOE is concerned about the recent declines in the barren ground caribou herds, and the potential influence of human activities on the slope of these trends and on the recovery of these herds. In particular, DOE is concerned that the number of aircraft overflights on the caribou range should be reduced. Considering the limitations of site specific aerial surveys to monitor impacts on the distribution and abundance of caribou, and the number of flights required to implement these surveys, DOE would like to move towards a more integrated approach to the monitoring of anthropogenic impacts on caribou health, distribution and demography.

### General Points of Agreement:

### A) Caribou

- 1) HBML will contribute to an existing DOE collaring and/or demography study in 2011 on the Ahiak herd, which calves to the south-west of the Project area in the Queen Maude Gulf Sanctuary.
- 2) HBML will commit to a substantial contribution (at least equal to the prior investment in the caribou distribution and local abundance surveys) towards herd wide health, distribution and demographic studies.

- 3) HBML will continue to contribute to broader scale caribou studies for the period wildlife monitoring is required by NIRB.
- 4) HBML will contribute to a yet to be designed GN collaring program for the Dolphin and Union (DU) herd.

#### **B) Grizzly Bears**

- 5) HBML will commit to conducting three years of baseline surveys and will be using hair-snagging to collect DNA samples from individual bears to start establishing baseline population estimates in the region in 2010 and evaluate the method in their study area. The power of the method to establish baseline data and subsequent monitoring will be discussed after the first year to allow potential improvements of the method for subsequent years of baseline data collection and monitoring.
- 6) HBML will conduct periodic monitoring of grizzly bear every 2-3 years using the same technique.
- 7) HBML will have Rescan undertake and report on the study using these agreed to methods.
- 8) HBML will provide DOE with a draft proposal for the DNA work in advance of the study.
- 9) HBML & DOE will have follow up discussions on grizzly bear monitoring and mitigation at Hope Bay once the first year of the program has been completed.

#### **C) Wolverine**

- 10) HBML will alter survey methods to use a DNA hair snag method, similar to that for grizzly bear, but using a sampling grid ¼ of the size of that proposed for the Grizzly Bears.
- 11) HBML will collect three years of baseline wolverine DNA via hair snagging to establish the local wolverine population with an assessment of the data once the first year of the program has been completed.

#### **D) Raptors**

- 12) HBML will evaluate disturbance to raptors in future WMMP documents by comparing the nesting success of raptors within 1 km of the Project site compared to control areas at a greater distance.
- 13) Mitigation measures will be outlined in the Noise Abatement Plan required by NIRB as part of the Project Certificate, which is currently being updated by HBML, following collection of background noise information in 2007 and 2008.
- 14) HBML will provide DOE a copy of the Noise Abatement Plan once complete.

#### **E) Mitigation Actions for Adaptive Management Framework**

- 15) HBML will update the Adaptive management plans in the upcoming 2010 WMMP document to include a more detailed plan for monitoring and mitigation of potential effects from the Project.
- 16) HBML will include plans for potential effects, which may be detected in the WMMP outside the footprint of the development, due to factors like noise from helicopters and future developments such as a Wind Farm that are currently being considered.

DOE supports the ongoing efforts of HBML to work with us to improve their wildlife mitigation and monitoring programs. Please contact us if you have any further questions or concerns.



Yours sincerely,

***Original signed by***

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Michael Mifflin

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CC:

Mathieu Dumond

Kitikmeot Regional Biologist II

Department of Environment

Government of Nunavut

[mdumond@gov.nu.ca](mailto:mdumond@gov.nu.ca)

## **APPENDIX C**

NIRB 2010 Doris North Site Visit Report (November 9, 2010)



Project: Doris North Gold Mine Project

Project Owner: Hope Bay Mining Limited,  
300-889 Harbourside Drive  
North Vancouver, BC V7P 3S1  
Tel: (604) 985-2572 Fax: (604) 980 0731

Site location: Mainland of the West Kitikmeot region, Nunavut

Contact: Chris Hanks  
Director of Environment and Social Responsibility,  
Hope Bay Mining Limited

Visit conducted by: Li Wan, NIRB Doris North Gold Mine Project Monitoring Officer

Date of visit: September 18, 2010

Photography: Li Wan

## **1. Brief Introduction of the Doris North Project**

The Doris North Gold Mine project (the Project) is located on the mainland in the West Kitikmeot region of Nunavut, approximately 125 kilometer (km) southwest of Cambridge Bay, 75 km northeast of Umingmaktok. On September 15, 2006 the Nunavut Impact Review Board (NIRB) issued Project Certificate #003 to Miramar Hope Bay Mining Ltd. (Miramar), pursuant to Section 12.5.12 of Article 12 of the Nunavut Land Claims Agreement (NLCA).

In March 2008, Newmont Mining Corporation (Newmont) completed acquisition of the Doris North/Hope Bay Belt property from Miramar, and established a new business entity titled Hope Bay Mining Ltd. (HBML) to operate the Project. Upon completing a thorough evaluation of the original development plan, HBML deferred the underground gold mine development, the associated crushing and milling plant, as well as the other processing facilities. In order to pursue a broader belt-wide development strategy, HBML conducted intensive baseline environmental studies and geotechnical drilling programs in Hope Bay belt.

In November 2009, HBML decided to proceed with a staged development of Doris North by constructing an underground decline to support advanced exploration at Doris North deposit. In early 2010, HBML further defined its staged development strategy including other properties in Hope Bay belt. Accordingly the Doris North Project resumed infrastructure construction in 2010 while a new project description for Hope Bay belt is currently being developed by HBML.

This report is to provide a most updated status of construction activities at the Doris North Project sites and associated findings resulted from the Site Visit, as part of NIRB's general monitoring program.

## **2. Objectives & Purpose of Site Visit**

Pursuant to Sections 12.7.1 and 12.7.2 of the NLCA, the NIRB is responsible for the post environmental assessment monitoring of the Project in accordance with Project Certificate #003. As part of the monitoring, the objectives of the NIRB's site visit included the requirements to:

- a) determine whether, and to what extent, the land or resource use in question is being carried out within the predetermined terms and conditions pursuant to 12.7.2(b) of NLCA; and
- b) provide the information necessary for agencies to enforce terms and conditions of land or resource use approvals pursuant to 12.7.2(c) of NLCA.

## **3. Inspection Items of the Site Visit**

Prior to the site visit, the following documents were reviewed:

- Correspondences from HBML regarding staged development plan for Hope Bay Belt (November 10, 2009);

- HBML's Stack Testing Report and related correspondences (February 16, 2010);
- Project modification applications submitted to the NIRB and the Nunavut Water Board regarding the locations of Explosives Facility and the Doris North underground mine portal (March 24, 2010);
- Notice the NIRB regarding HBML's change to the configuration of land-based moorings in Roberts Bay (May 7, 2010)
- Notice to the NIRB regarding HBML's 2010/2011 Fuel Delivery Planning for Hope Bay Belt, and related HBML Oil Pollution Prevention Plan/Oil Pollution Emergency Plan (May 28, 2010);
- Notice to the NIRB for use of accommodation barges in Robert Bay (July 16, 2010);
- HBML Doris North Gold Mine Project 2009 Annual Report( June 24, 2010); and
- Other correspondences relating to the project monitoring.

Base on the review, a check list for this site visit was prepared by the Monitoring Officer, which included items to be inspected in the following major locations:

### **The Roberts Bay**

#### **a) Roberts Bay Jetty area**

- Newly built land based mooring points; and
- The completed jetty after "Jetty improvement" of early 2010.

#### **b) Barge accommodations**

- General setting and location;
- Preparedness for pill and fire emergency; and
- On board seawater desalination, waste management, including sewage and solid waste.

#### **c) 5 ML fuel tank and ancillary facilities**

- Fuel transfer pipe/hose connecting from the jetty to 5 M L tank; and
- Preparedness for spill and contingency associated with offshore fuel transfer operation.

#### **d) Waste segregation and management facilities**

- Waste segregation, labeling and shipping in lay down area;
- Combustible waste incinerator and its operation; and
- Incineration recording and management.

### **Quarry #2 Area**

- Current operation status of Quarry #2;
- Site waste management;
- Sewage discharge area; and
- Status of landform and landfill constructions.

## **Doris North**

### **a) Campsite**

- Completed/expanded campsite;
- Fuel tank farm construction;
- Waste management;

### **b) Doris North mine site**

- The status of portal construction;
- Construction status of the mill plant, ore crusher and other facilities;
- Waste rock and ore stockpile pads; and
- The construction status of the all weather road collecting Windy camp and Doris North.

## **Explosive storage and manufacturing facilities**

- Road to the explosive manufacturing and storage area;
- Construction status of the explosive manufacturing and storage; and
- Safety measures and site waste management.

## **Drilling sites in Hope Bay Belt**

- Disturbance of drilling area and surrounding environment; and
- Disposal of drilling cuttings and drilling water, fuel catch and storage of chemicals on drilling site.

## **4. 2010 Site Visit**

The 2010 site visit was conducted on Saturday September 18, 2010, by Li Wan, NIRB Monitoring Officer, accompanied by HBML staff, including Alex Buchan, Manager of Community and External Relations, Léa-Marie Bowes-Lyon, Regulatory Reporting Manager, and Jill Turk, Environmental Coordinator. The site visit consisted of a thorough site tour and a wrap up meeting. The site tour included visits to the Roberts Bay area, the all weather road, Doris North camp site, the mill plant area, Portal of Doris North underground decline, and part of Doris to Windy Camp road. At the conclusion of the site visit, the NIRB Monitoring Officer met with the HBML staff, including Russ Eby, Site Manager with HBML, to discuss the site visit, outstanding issues related to environmental compliance and reporting. The site visit was a success encompassing all major project components and relevant issues related to the project.

### **4.1. Roberts Bay Area**

The Roberts Bay area is linked to the Doris North camp/mine site by a 5 km all weather road, and serves as a logistic hub for supplying construction materials and fuel to support the Doris North Project. The major facilities, including the Roberts Bay jetty, 5 million litre fuel tank farm within the former quarry #1, and a lay down area including a waste segregation area, as well as sealift handling area, have been in full operation since 2008 to support ongoing advanced exploration and geotechnical activities over the Hope Bay Belt, and current infrastructure construction related to the Doris North Project.

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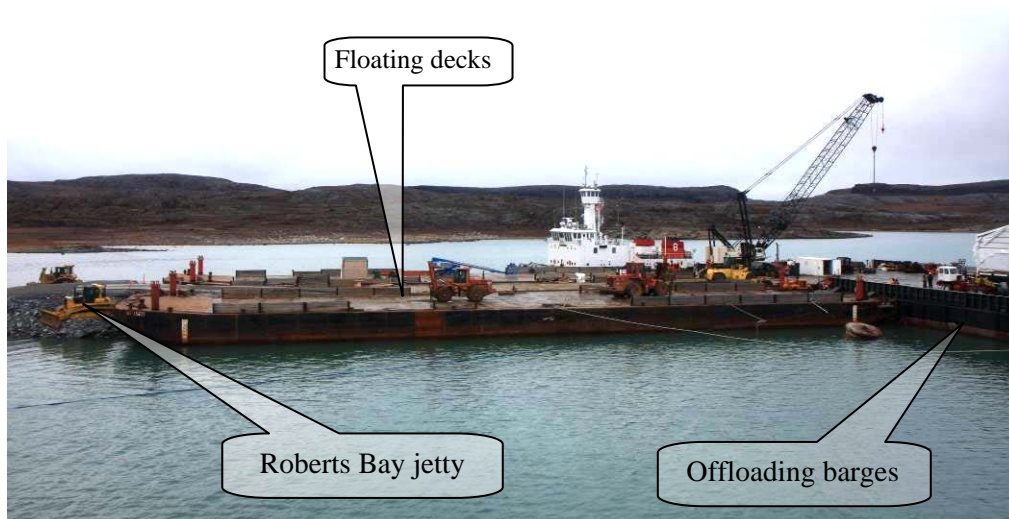


**Figure 1. Roberts Bay Area (towards North)**

#### **4.1.1. Roberts Bay Jetty**

The Roberts Bay Jetty was built in 2008, and has been in operation since. In March 2009, two sets of thermostat cable and temperature logger units required by Condition 19 of the NIRB Project Certificate were installed to monitor the potential impact on permafrost regime under the jetty foundation. In order to repair a slumped portion at the front end and improve the jetty, on March 4, 2010, HBML submitted a “Doris North Jetty Improvements” proposal with Fisheries and Oceans Canada (DFO), indicating that following activities would be executed during the spring season:

- Install a new sheet pile bulkhead at the deepwater end of the jetty.
- Raise the surface elevation and stabilize rock slopes around the jetty.
- Carry out fish habitat compensation in the nearby area.



**Figure 2. Temporary floating deck at the Roberts Bay Jetty**



During the 2010 site visit, it was noted that the proposed activities, which were approved by the amended DFO *Authorization for Works or Undertakings affecting Fish Habitat*, have been deferred until 2011. However, the jetty was in full function, supporting the offloading of fuel and freight barges by being tied to two floating docks owned by Northern Transportation Company Ltd (NTCL), HBML's shipping contractor.



**Figure 3. Tied up temporary floating decks**

In May 2010, HBML notified the NIRB that two previously assessed land-based mooring points would be repositioned due to operational needs, and four additional mooring points were to be built. During the site visit, it was noticed that two newly built mooring points have been put into use, and others will be established in future.



**Figure 4. Land based mooring point**

#### **4.1.2. Barges Camp at Roberts Bay**

In July 2010, HBML submitted a project proposal to the NIRB, indicating that HBML intended to contract Horizons North Camps and Catering (“Horizons North”) to provide and operate two floating barge accommodation and dining camps in Roberts Bay. Upon completing a thorough review of the information pertinent to this proposal, the NIRB approved the proposed activities to proceed subject to the NIRB’s ongoing monitoring.



**Figure 5. Accommodation Barges**

During the site visit, the NIRB Monitoring officer and HBML staff inspected the two accommodation barges, namely Arctic Star, a 3-story accommodation with a 88 men capacity, and John Wurmlinger with a 40 man capacity. Both barges are self-sufficient camps equipped with onboard desalination systems which convert sea water into drinking water. The sewage generated from both barges is collected and treated in a Membrane Bioreactor Sewage Treatment Plant housed on Wurmlinger, and combustible food waste is incinerated in an incinerator on the board.

The emergency response procedures, including the reporting telephone number, are posted in doorways on the barges, and muster areas are clearly marked for fire emergency. Spill kits are also prepared in designated areas. According to the introduction of the operating personnel, the state-of-the-art sewage plant is in a stable condition, and effluent quality is in compliance with designated values. It is HBML’s responsibility to ensure Horizon North operate the onboard sewage plant in continuing compliance with applicable standards by setting up sampling protocols and analysis reporting requirements during the operational period of the barge camps.

#### **4.1.3. Fuel Transfer and Storage Tank**

The NIRB PC Condition 20 states:

*MHBL shall ensure the use of containment booms and berms to control potential spills whenever fuel and or waste is transferred between a barge and the shore.  
MHBL shall ensure spill kits are at hand at these locations at all times*

A 5 million Litrer fuel tank within a secondary containment berm has been built, and has been used to store fuel from annual sealifts since 2008. During the site visit it was noticed that barreled aviation fuel contained in sea cans is also being stored in the secondary containment berm. It was explained that the sea cans would be relocated once a new fuel tank farm is built on the south side of current waste segregation area

When fuel from offshore barge is transferred to the fuel tank, spill prevention booms are anchored in place and floating on the water adjacent to the jetty. In 2008, Transport Canada (TC) raised an incompliance issue in respect to HBML's operation of the Oil Handling Facility (OHF), indicating that an Oil Pollution Prevention/Oil Pollution Emergency Plan should be developed and in place once approved by TC pursuant to *Shipping Act*. Following communications between HBML and TC, this plan has been finalized with TC's approval. During this site visit, spill kits, spill responding tools and equipment were kept properly in designated areas.

According to the introduction provided by HBML, steel pipelines would be used to transfer fuel once the new fuel tank farm is built and put into operation.



**Figure 6. The 5 million litre fuel tank and sea cans containing barreled aviation fuel**

#### **4.1.4. Waste Management at Roberts Bay Area**

All non-combustible wastes generated during infrastructure construction at Doris North as well as demolishing of abandoned old Windy camp, are transported to the waste management area at Roberts Bay for shipping out after waste segregation, including sorting, labeling and repackaging. All combustible waste (including food and sludge from by the sewage plants) generated at Doris camp is transferred to the Roberts Bay site



and incinerated on a daily basis. All hazardous materials are regularly shipped off site to authorized waste disposal facilities in the Northwest Territories.

As observed during this site visit, all hazardous wastes are segregated and stored in different areas in a neat fashion prior to shipping out by sealift, with appropriate containers or bags being used with name tags on each pallet. In general, the whole waste management area is kept in a well managed condition.



**Figure 7. Waste segregation area**

The NIRB PC Condition 30 states:

*MHBL will install and fund an atmospheric monitoring station. This station and its location shall be developed in consultation with EC and HC air quality officials and focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported every six (6) months to NIRB through the Monitoring Officer, and from there to all of the parties.*

*Commentary: NIRB expects the Canada Wide Standards for Dioxins and Furans and the Canada Wide Standards for Mercury will apply and should be followed including stack testing of incinerators.*

In 2009, an incinerator was established in the Roberts Bay waste management area to manage food waste and other waste suitable for incineration. In order to fully comply with provisions in the NIRB Project Certificate and the NWB Water Licence, HBML conducted an incinerator stack emissions test in late September and early October 2009. The testing results showed that there were no breaches to the threshold set in the *Canada Wide Standards (CWS) for Mercury*, however, the dioxin and furan emissions exceeded the limited required by *CWS for Dioxins and Furans*. HBML has committed to conduct a stack emission test in 2011 once the construction of a waste management facility is completed and a comprehensive waste management plan is finalized, and at that point

ensure that the best management practices can be implemented for its waste management programs.

During the site visit incompletely combusted ash was found in containers beside the incinerator, which implicated incomplete combustion might be a contributing factor to the poor stack test results. However a new waste management facility has been built as previously committed by HBML, and a detailed waste management procedure was being further delineated by HBML's waste management contractor.

#### **4.2. The All-Weather Road and Airstrip**

An approximately 5 km all-weather road linking the jetty at Roberts Bay to the Doris camp site has been in operation since 2008. The all-weather road and airstrip are both in good operational condition. As the airstrip was built by widening a portion of all weather roads, any vehicle approaching the airstrip has to suspend whenever an aircraft is about to land or take off. This practice is required and necessary for a safe operation both for ground vehicles and aircraft. However, it has caused traffic congestion as noticed during the site visit. Ultimately a road bypass at the portion of road used as an airstrip might be a solution to solve this problem, which will likely get worse when traffic volume increases significantly as a result of increased construction activities at other project sites.

EK-35, widely used at mines in the NWT, has been applied to replace water as a dust suppressant at the airstrip and roads at Doris North project sites, during the snow-ice free season since 2010. It was said this dust suppressant works well, and the Monitoring Officer did not observe obvious dust issues during the site tour.

#### **4.3. Quarry #2 Area**

Quarry #2 is still in full operation, with quarry material being extracted and transported to a nearby facility for crushing and classification of rock fines. It provides granular materials for all construction sites.

The treated sewage effluent is discharged at a designated area on the tundra as permitted by NWB Type A Water Licence. A landfarm, also approved by the NWB Water License, is being constructed on the east side of Quarry #2 site. Adjacent to the landfarm is an overburden stockpile used to accommodate all overburden stripped from quarry #2 and nearby construction sites.



**Figure 8. Quarry #2 site**

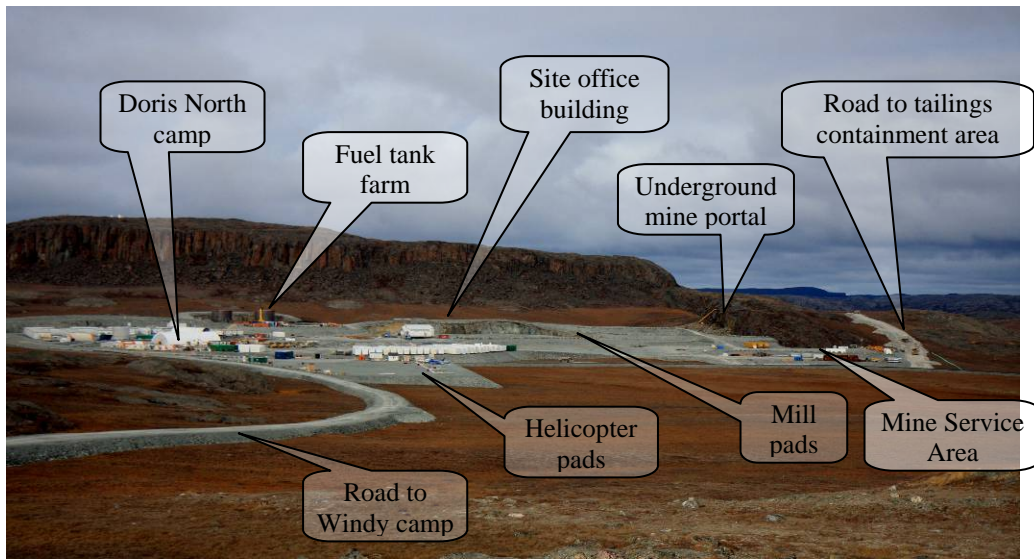
On the west side of the all weather road close to the Doris North camp site, a large laydown area has been built as a staging area for construction materials, equipment and sea cans shipped to site in 2010.



**Figure 9. Construction materials at staging area**

#### **4.4. Doris North Camp and Mine Sites**

In addition to the camp site, other infrastructure at the Doris North mine site (which is presently under construction) includes: fuel tank farm, mine services area, mill and crusher, administration buildings and mechanic shops, ore and waste rock stockpiles, underground mine portal, as well as the road to the tailings containment areas.



**Figure 10. Doris North mine site**

#### **4.4.1. Doris North Camp Site**

The original Doris North 118-person camp was built in 2008, and expanded to a capacity of 180 persons in 2009 by adding extra camp units. Other camp facilities, including a blue - green algae treatment unit for potable water supply, a sewage treatment plant, a power generator house, a fire muster area with fire water tank and related accessories, have been in operation since the commissioning of the Doris North camp in 2008.

#### **4.4.2. Mine Site Facilities**

At the mine site, very little infrastructure construction was accomplished in 2009 due to the fact that the project remained deferred until the end of the year. Following its decision to proceed with the Doris North Project in a staged fashion in November 2009, HBML submitted notice to the NIRB and NWB of its intent to modify the locations of the explosives facility and underground mine portal in March 2010. Upon completion of the review, the NWB processed the modifications to the location of explosives facility as an amendment to NWB Water Licence. Following a thorough review and communications with federal and territorial government agencies, the NIRB confirmed that the proposed modifications were exempt from further screening, recognizing that the proposed modifications would not significantly change the original scope of the Doris North Project, accordingly the NIRB issued 12.4.3 letter to the NWB which allowed HBML to proceed with the proposed changes.

As construction work started this summer, all mine site facilities are under early stage construction and surface rock blasting has just started at the portal face for the relocated underground mine portal. The construction of an all weather road connecting Doris North mine site and the Tailings Containment Area, as well as the relocated explosive facilities on the east shore of Tail Lake, had just started at the time of this site visit.



Another road connecting Doris North and Windy Camp, which was approved by KIA, is almost completed except for a waster crossing where a bridge is to be built.



**Figure 11. The all weather road towards Tail Lake**

#### **4.4.3. Tailings impoundment area (Tail Lake) and associated infrastructure**

Tail Lake, located at the east side of Doris Lake, will be used as a tailings impoundment area. A North dam and a South dam would be built prior to operation of a mill at the mine site. To date, no dams or related works have been constructed.

#### **4.5. Wildlife monitoring**

Condition 23:

*MHBL shall designate one of its employees as a primary wildlife contact for the mine, who will work with NIRB's Monitoring Officer and regulatory officials in communicating on-site activities and to fulfill reporting requirements.*

Condition 24:

*As part of the training for MHBL's on-site wildlife specialist, MHBL shall provide training to that person in areas of bear encounters and safety, effects of noise on wildlife, recording wildlife sightings, waste management, records management, and reporting to NIRB's Monitoring Officer and regulatory officials.*

Due to its operational schedule (employees work on 3-by-3 week cross-shift), HBML retains biologists as well as its onsite Environmental Coordinators to fulfill the requirements of wildlife monitoring and reporting. Furthermore, *BearWise*, a Yellowknife, NWT firm that specializes in the management of wildlife encounters, is brought to site each year to provide bear safety training for all project staff. According to site staff, grizzly bear attraction by camp facilities has not occurred to date in 2010, even though there are grizzly bears sighted when pass other project facilities (e.g. the all



weather road) at night, nor have any serious wildlife human encounters occurred in the field outside the camp.

Condition 25:

*MHBL shall file a monitoring plan focused on assessing and mitigating interaction between humans and wildlife at the mine site, including associated infrastructure such as the TIA (Tailings Impoundment Area), roads, and activity at the waterfall. A quarterly report must be sent to NIRB's Monitoring Officer on interactions that have occurred, any effect the interaction may have had on humans and wildlife, and mitigation measures taken to avoid similar interactions in the future.*

HBML has been in compliance with this condition by submitting a quarterly wildlife sighting report to the NIRB's Monitoring Officer, even though there have not been any activities at the Tailings Impoundment Area to date. The required specific information as per Condition 25 with regards to mitigation measures taken to avoid wildlife and human interactions has been incorporated in the submitted Quarterly Wildlife Reports.

Condition 27 and 28:

*MHBL shall consult with local Elders, Kitikmeot Hunters and Trappers Organizations, the Nunavut Wildlife Management Board, GN-DoE, and NIRB's Monitoring Officer to review and discuss the results of wildlife monitoring and develop mitigation measures, including measures to discourage wildlife and birds from coming into contact with Tail Lake and contaminated areas of the mill site. MHBL shall incorporate a plan for this consultation into a revised Wildlife Monitoring and Mitigation Plan.*

*MHBL shall update and revise the Wildlife Mitigation and Monitoring Plan to reflect these terms and conditions and shall submit the revised Wildlife Mitigation and Monitoring Plan to NIRB. NIRB may consult with relevant Government departments and the Nunavut Wildlife Management Board prior to approving the revised Wildlife Mitigation and Monitoring Plan. The Wildlife Mitigation and Monitoring Plan must be submitted within three (3) months of the issuance of a Project Certificate and it must be approved by NIRB prior to the commencement of construction. MHBL must also submit an updated plan on an annual basis which must also be approved by NIRB.*

Following the requirement of Condition 27, Miramar submitted the revised Wildlife Mitigation and Monitoring Plan (WMMP) to NIRB in early 2007, and the WMMP has been implemented by HBML since 2008 when it took over the Doris North Project. The monitoring and mitigation results, contained within the annual WMMP Report, were submitted to the NIRB in each of the past three years.

With regards to the annual WMMP reports, the Government Nunavut, Department of Environment (GN-DoE) has consistently raised concerns and requested that HBML adopt new methodologies for baseline studies of carnivore species (i.e. grizzly bear and wolverine), to which HBML has disagreed. Accordingly, NIRB encouraged the both parties to work out a solution for the outstanding issues. In November 2009, a meeting was held between the two parties, during which GN-DoE identified five issues to be

implemented or to be improved by HBML's WMMP. Based on discussion at the meeting, on December 8, 2010 HBML indicated to the NIRB and GN-DoE that it would implement DNA technology when conducting its baseline studies for carnivore species in the 2010 field season, and would conduct new caribou survey programs upon further discussion with and confirmation by GN-DoE. Unfortunately, the further discussion did not take place as expected until July 7, 2010 when GN-DoE responded HBML's letter dated December 8, 2009. Nevertheless, HBML undertook baseline studies of carnivore species using the DNA technique as committed. The interim results and outstanding issues will be likely further discussed by GN-DoE, HBML and NIRB.

#### **4.6. Noise monitoring**

Condition 29 states:

*MHBL shall develop and implement a noise abatement plan to protect people and wildlife from mine activity noise, including blasting, drilling, equipment, vehicles and aircraft. The noise abatement plan will be developed in consultation with GN-DoE, EC and HC, and includes: restrictions on blasting and drilling when migrating caribou, birds or local carnivores may be affected; the establishment of strict standards for noise levels; use of equipment and vehicles with the best noise attenuation devices; when practical, the use of fences or berms around noisy machinery or sites; flight corridor restrictions over sensitive areas with known concentrations of wildlife and birds whenever possible; and requiring with the exception of take off and approach for landing, a minimum flight altitude of 300 metres above ground level when flights to and from the mine site are passing near sensitive wildlife and bird areas. The noise abatement plan will also incorporate the use of sound meters to monitor sound levels at sites in and around the mine site and local study area. The location and design of the sound meters shall be selected in consultation with EC and set up immediately upon issuance of the Project Certificate for the purpose of obtaining baseline data, and during and after operations. The final noise abatement plan shall be filed with NIRB's Monitoring Officer within six (6) months of the issuance of the Project Certificate.*

The Noise baseline studies for Doris North Project have been conducted by Miramar and HBML since 2007, and HBML updated original *Noise Abatement Plan* in December 2009 as per the request of the NIRB. According to the comments received by NIRB regarding the updated plan, NIRB directed HBML to finalize the plan by incorporating the comments provided by parties in March 2010. This plan is currently being finalized and will be implemented once it is approved by the NIRB.

#### **4.7. Air quality Monitoring**

Condition 23:

*MHBL will install and fund an atmospheric monitoring station. This station and its location shall be developed in consultation with EC and HC air quality officials and focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported every six (6) months to NIRB through the Monitoring Officer, and from there to all of the parties.*

An air quality monitoring station was installed on the top of Doris Mountain in September 2009, and has been operated by trained professionals since then. It appeared to be in good working condition during this site visit. The first report of monitoring results is to be submitted to NIRB in the end of 2010.

#### **4.8. Drilling Sites in Hope Bay Belt**

Prior to conducting this site visit, a site tour to one of the drilling sites was expected to help the NIRB's Monitoring Officer understand HBML's fuel and waste management practices used at drilling sites. However, due to the fact that most of drilling work had completed for 2010 field season, there was no active drilling at the time this site was conducted, therefore drilling site inspection did not occur during the site visit.

### **5. Findings**

#### **5.1. Wildlife Issues**

Over the past two years GN-DoE has recommended that HBML use DNA sampling as part of their baseline study methods for carnivore species through the Doris North wildlife monitoring program. During the meeting held between GN-DoE and HBML in November 2009, HBML agreed to use the recommended DNA sampling method for the 2010 field study season for a one year period for both grizzly bear and wolverine, and agreed in principle to participating in collaring programs for caribou monitoring. However, the detailed execution plan and associated protocols projected at the November 2009 meeting were not confirmed and further delineated by the both parties. Ultimately this resulted in HBML proceeding to conduct its 2010 aerial caribou surveys as per its WMMP rather than by participating in the collaring programs as requested by GN-DoE and discussed by both the parties.

#### **5.2. Air Quality Monitoring**

An air quality monitoring station located on the top of Doris Mountain near the Doris Camp has been in operation since September 2009. This station will provide air quality data reflecting the concentration of gaseous pollutants and Total Suspended Particles (TSP), which are of concern for human health at the camp site.

An important part of general air pollution control and air quality monitoring program, the requirements for waste incineration operation at Doris North, are not yet in compliance as the dioxin and furan emissions exceeded the thresholds set in *CWS for Dioxins and Furans*. A possible contributing factor, incomplete combustion, was also noticed during the site visit.

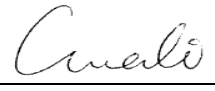
### **6. Summary**

Since the decision was made for a staged development of the Doris North Project by HBML in November 2009, the construction of infrastructure at the Doris North mine site has made significant progress up to the date of this site visit. Based on the observations

made during this site visit, all facilities which have been in operation and all sites currently under construction appear to be well managed and maintained with adequate environmental protection measures and procedures in place.

As part of efforts made by HBML to be in full compliance with regulator requirements, major project changes were reported to NIRB and appropriate approvals and licences were obtained from authorizing agencies prior to execution on project sites. Observations made by NIRB Monitoring Officer during the site visit in 2010 have shown that HBML has been compliant with the majority of the terms and conditions contained within the Doris North Gold Mine Project Certificate. The findings listed in this report may warrant further efforts by HBML in order to ensure the objectives of the terms and conditions in Project Certificate #003 are satisfied.

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Date: October 27, 2010

Signature: 