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September 6, 2012

Aboriginal Affairs and Northern Development Canada Field Operations Nunavut Regional Office Box 100 Iqaluit, NU X0A 0H0

Attn: Eva Paul

### **Doris North Project/ Boston/ Windy Care and Maintenance**

Thank you for your letter of today's date, and for our conversation this afternoon regarding the current status of planning for the care and maintenance phase of the Doris North, Boston, and Windy projects. As discussed, HBML has undertaken a comprehensive review of the approved plans that were in place for the construction and operation phases of the projects, and identified those plans which remain applicable and/or require revision to be relied upon during care and maintenance. Our preliminary draft of this analysis is attached to this letter. This is a working document, that is used internally to guide the C&M process and has been used as a source for changes suggested in the current amendment of our Type A Water Licence 2AM-DOH0713. As noted in the attached document, certain updated plans will be available for review by September 30, 2012. Other plans will be updated during the Fall following temporary closure of site commencing in October 2012.

I would like to take this opportunity to provide you with an overview of the activities that will be occurring at site into October 2012 and beyond. Our foremost objective is safety, and care and maintenance at Hope Bay will proceed in a manner that is protective of the environment and of Nunavut and Arctic waters. As discussed in March 2012 and today, HBML is currently preparing site facilities with a view to placing the Hope Bay Belt in care and maintenance in October 2012. Buildings and facilities are being secured. We anticipate all individuals will have left site by mid-October. All activities at site will be suspended between October 15, 2012 and April 2013. HBML will re-engage at the site in April 2013 in order to prepare for active water management and related environmental monitoring activities, and will manage water in compliance with all applicable water licences over the summer months.

With respect to fuel tanks specifically, in August 2012 HBML transferred 8 million litres of fuel offsite in accordance with Transport Canada requirements and without incident. The remaining

approximately 7 million litres at site will be divided among the various tank farms at Doris North over the next month. This action will minimize fuel that would be spilled into the containment berms in the event any of the tanks are damaged. 70,000 litres of fuel will remain in the Boston tanks. HBML has been in contact with the Kitikmeot Hunters and Trappers Association to arrange for some of their members to monitor site facilities on a periodic basis during October - March. In addition to this, HBML plans to install cameras at site to provide security and wildlife monitoring during periods when site is not occupied.

I look forward to our next conversation and for the opportunity to obtain your advice about these matters. In the meantime, please let me know if you have any questions or information requests <chris.hanks@newmont.com>.

Sincerely,

for Chris Hanks
Vice President, Environmental Affairs
Hope Bay Mining Ltd.

# Hope Bay Mining Ltd.

Care and Maintenance Plan Doris North Project, Nunavut

September 6, 2012



# **Doris North Project**Care and Maintenance Plan

# List of Abbreviations

AANDC Aboriginal Affairs and Northern Development Canada

**AEMP** Aquatic Effects Monitoring Program

**DFO** Fisheries and Oceans Canada

**DNA** Deoxyribonucleic Acid

**EEM** Environmental Effects Monitoring

**ESR** Environment and Social Responsibility

**GN-DOE** Department of the Environment, Government of Nunavut

**HBML** Hope Bay Mining Ltd.

**HSLP** Health Safety and Loss Prevention

KBL KBL Environmental Ltd.MHBL Miramar Hope Bay Ltd.

MMER Metal Mining Effluent Regulations

NIRB Nunavut Impact Review Board

NWB Nunavut Water Board

QA/QC Quality Assurance/Quality Control

SRK Consulting (Canada) Inc.

STP Sewage Treatment Plant

TIA Tailings Impoundment Area

WMMP Wildlife Mitigation and Monitoring Program



# 1. Introduction

## 1.1 Purpose

This document is the Care and Maintenance Plan for the Doris North Project, and exploration in the Madrid/Patch and Boston districts of the Hope Bay Greenstone Belt It describes activities required to maintain the site and infrastructure, to prevent harm to the environment, and to comply with a range of authorizations, agreements, certificates, leases, licences and permits.

Broadly this plan is split by three water licences – the Doris Type A, a Type B for Hope Bay for surface exploration (including but not limited to the Windy Camp, and Madrid/Doris district) and a Type B for the Boston Camp, underground/bulk sample and surface exploration on the Boston deposit. This document contains a set of plans that were modified from the management plans submitted by Hope Bay Mining Ltd. (HBML) to the Nunavut Water Board (NWB) and to the Nunavut Impact Review Board (NIRB), Department of Fisheries and Oceans, Transport Canada, and Kitikmeot Inuit Association. The original plans focused on Project construction, operation and closure. The modified plans focus on the specific conditions of care and maintenance, a phase that was not anticipated when the management plans were first developed. The modifications described in this Care and Maintenance Plan are not intended to supersede the original submission but are supplementary for care and maintenance. In the event that construction and/or operation of the Doris North Project resumes, HBML would apply the approved plans applicable to the project.

#### 1.2 Location

The Doris North Project is located approximately 125 km southwest from Cambridge Bay, Nunavut; on the south shore of Melville Sound. The nearest communities are Omingmaktok (75 km to the southwest of the property), Cambridge Bay, and Kingaok (Bathurst Inlet; 160 km to the southwest of the property).

The Hope Bay Belt is located in the Doris district, one of three known districts of the Hope Bay Belt, a greenstone belt that stretches 80 km long in a north-south direction. Doris is at the north end, Madrid/Patch is south of Doris North, and Boston is at the south end. The Doris district is the only deposit region that has been approved for mine construction and operation. However, exploration has occurred in other areas of the belt including underground bulk sample exploration at Boston.

There are four locations of infrastructure in the belt:

- Doris North Project is the main infrastructure and is supported by a jetty in Roberts Bay, fuel tanks and laydown areas in Roberts Bay, an airstrip between Roberts Bay and Doris Camp, and ancillary infrastructure.
- Old Windy Camp was an exploration camp located on the east shore of Windy Lake, approximately 10 km south
  of Doris Camp. It was closed in October 2008 and has been in care and maintenance pending approval of the
  closure and reclamation submitted to the NWB early in 2012.
- The Patch Lake Facility was a maintenance yard and workshop for exploration drilling located 2.5 km southeast of Windy Camp on the shore of Patch Lake. The facility was decommissioned in October 2008 and has been awaiting final closure and reclamation following approval of the Closure and Reclamation Plan submitted to the NWB in early 2012.

 Boston Camp is an advanced exploration camp located on the shore of Aimaokatalok Lake at the south end of Hope Bay belt 60 km from Doris Camp. It was temporarily closed in late 2011, and will be placed in care and maintenance.

# 1.3 History of the Property

The Hope Bay greenstone belt has been explored by several mining companies for mineral deposits since the 1960s. While the geologic potential is high, the belt characterized by high grade narrow vein deposits which are difficult exploration targets, further it is remote and lacking infrastructure which makes exploration and development challenging. Consequentially, there is a long history of exploration by a number of companies which has slowly explored and expanded knowledge. Each company's project has built on previous work. From an historic perspective, Newmont's strategy going into care and maintenance is to preserve infrastructure with in the framework of a safe, environmentally sound and financially prudent plan to allow for the next step at Hope Bay.

During the 1970s and the 1980s, Roberts Bay Mining and Noranda Exploration Ltd. explored portions of the Hope Bay Belt for precious and base metals, respectively. In 1987, Abermin Corporation staked claims in the vicinity of Aimaokatalok Lake and Doris Lake and completed some reconnaissance exploration. These claims were allowed to expire. In 1991, BHP Minerals Canada Ltd. acquired a contiguous block of claims covering approximately 1,016 km<sup>2</sup>. This was then expanded by the staking of additional claims.

In December 1999, the Hope Bay Project was purchased from BHP Billiton by the Hope Bay Joint Venture, which was a 50/50 joint venture between Cambiex Exploration Inc. and Miramar Hope Bay Ltd. (MHBL), which was a wholly owned subsidiary of Miramar Mining Corporation. All claims were registered in the name of Cambiex Exploration Inc., which changed its name to Hope Bay Gold Corporation Inc. in 2001. Exploration Agreements with Nunavut Tunngavik Inc. were obtained during 2000. During 2001 several additional adjoining claims were staked. In May 2002, Hope Bay Gold Corporation Inc. merged with Miramar Mining Corporation. On September 15, 2006, the Nunavut Impact Review Board ("NIRB") approved development of the Doris North Project with the issuance of Project Certificate No. 003 to MHBL. In September 2007 the Nunavut Water Board ("NWB") issued Type A Water Licence No. 2AM-DOH0713.

On May 27, 2007, Type B Water Licence No. 2BE-HOP0712 was renewed by the NWB to MHBL to allow MHBL to continue with exploration activities in the region south of Doris North, and on July 6, 2007, Type B Water Licence No. 2BB-BOS0712 was renewed to allow ongoing exploration activities in the Boston region at the south end of the Hope Bay belt to continue..

In December 2007, Newmont Mining B.C. Ltd., an indirect wholly-owned subsidiary of Newmont Mining Corporation (Newmont), purchased MHBL and created Hope Bay Mining Limited (HBML). HBML delayed the Doris North Project to allow further study of the resource and consideration of development alternatives.

In November 2009, HBML announced it intended to proceed with construction of the Doris North Project and to remove an underground bulk sample from the Doris North section of the Doris deposit. By the end of 2011, a decline had been mined to the face of the Doris North deposit, and development rock, waste rock (altered material) and ore was stockpiled at the surface, but pending evaluation of the advanced exploration results, Newmont had not made a decision to bring a mill to site until the success of the bulk sample was determined.

Following extensive evaluation, on January 31, 2012, HBML announced that the Project would move from an active exploration and construction project into care and maintenance.



#### 1.4 Overview of Current Construction Status of Doris North

When Doris North Project is placed into care and maintenance (October 2012), the following major facilities had been constructed.

- Jetty;
- Roberts Bay fuel tank farms;
- Camp site fuel tank farm;
- Roberts Bay laydown areas;
- Waste management facility;
- · Camp site;
- Reagent laydown areas;
- Airstrip;
- Quarry 2;
- Doris Camp;
- Doris underground decline and portal;
- North Dam (Tail Lake Tailings Impoundment Area).

The following major facilities that were planned as part of the Doris North Project had not been constructed.

- Mill;
- South Dam (Tail Lake Tailings Impoundment Area);
- Doris North landfill.

To date, the Doris North Project has not processed any ore or created any tailings.

# 1.5 Objective of Care and Maintenance Plan

The primary objectives of the Care and Maintenance Plan are to ensure a safe, financially prudent transition that protects the environment and preserves to the degree possible the Doris North site infrastructure during the care and maintenance phase. This Plan includes in its appendices all plans which apply to the Doris North Project, Hope Bay and Boston during care and maintenance. Note HBML has proposed amendments for several of these plans where they included commitments that are only appropriate during the construction and operations phases. As noted within this document,

several plans in their entirety are not directly relevant to care and maintenance but are part of the overall regulatory package and so are include and labeled as to why they do not apply.

Management plans that were written before January 2012 were based on the assumption that the Project was going to be an operating mine and did not consider the possibility of care and maintenance. After a review of those plans, HBML determined that some had to be changed for the care and maintenance phase. The requirements for the other management plans remain largely the same under care and maintenance as they did under the construction phase. Both sets of plans are shown in this document to ensure that all of the relevant management plans are contained in one place.

#### 1.6 Overview of Care and Maintenance

This section describes the details of care and maintenance. The primary goal during care and maintenance is for HBML to maintain the in-situ infrastructure that would allow future exploration and development to occur as safely as possible.

# 2. Management Plans

#### 2.1 Sources

Management plans for the Project were required pursuant to the following certificates, licences, authorizations, and legislation:

- NIRB Project Certificate No. 003, which was issued by the NIRB on September 12, 2006.
- Type A Water Licence No. 2AM-DOH0713, the primary water licence for the Doris North Project, which was issued by the NWB on September 19, 2007. It expires on September 30, 2013, and application for renewal and amendment was submitted to the Nunavut Water Board on Aug. 13, 2012.
- Type B Water Licence No. 2BE-HOP0712 was issued by the NWB on May 20, 2007. It covers exploration activities and infrastructure at the Patch Lake Facility and at Windy Camp. The licence will expire on June 30, 2012. HBML has submitted an application for renewal.
- Type B Water Licence No. 2BB-BOS0712 was issued by the NWB on July 6, 2007. The licence covers
  exploration activities and infrastructure at Boston Camp. It will expire on July 31, 2012. HBML has submitted an
  application for renewal.
- Fisheries Authorizations were issued by Fisheries and Oceans Canada (DFO) between 2007 and 2010 to permit HBML to proceed with installation of a jetty, construction of the tailings impoundment area (TIA) dam and Schedule 2 MMER listing of Tail Lake as a tailings impoundment area.
- Legislation pertaining to oil handling facilities, as follows
  - o Canada Shipping Act, 2001, Part 8, Paragraphs 168(1),168(2), 168(3) and 182(a),
  - o Part II of the Response Organizations and Oil Handling Facilities Regulations,



- o Pollutant Discharge Reporting Regulations, 1995, and
- Oil Handling Facilities Standards 1995.

# 2.2 Plans Required under Project Certificate No. 003

#### 2.2.1 Plans Not Prepared

A total of 12 management plans were required under the Project Certificate No. 003, but seven of those plans had not been written by January 2012 because they are only required for an operating mine that is processing ore. Those seven management plans are the following:

- Auditing and Continuous Improvement Plan;
- Community Relations Plan;
- Education and Orientation Plan;
- Environmental Protection Plan;
- Human Resources Plan; and
- Inuit Involvement Plan.

They are not discussed further in this document.

#### 2.2.2 Occupational Health and Safety Plan

The Occupational Health and Safety Plan is required. HBML renamed the plan and the Health, Safety and Loss Prevention (HSLP) Management Plan Version 1.1 (HBML 2010a) was submitted to the NIRB to fulfill this requirement in October 2010. The Project Certificate does not compel any changes to be made to this plan during care and maintenance. However, HBML has reviewed and updated the plan in consideration of the reduced numbers of individuals that are expected to be at site during care and maintenance. This plan is currently being updated by HSLP and will be available for submission by Sept. 30, 2012.

#### 2.2.3. Doris North Noise Abatement Plan

This plan was prepared to meet the requirements of Section 4, Item 29, of Project Certificate No. 003 (Rescan 2010d). Version 3.0 was submitted to the NIRB in December 2010. This plan was focused on measurement of noise during construction and operation, comparison of those levels with baseline noise levels, and the employment of mitigation measures to reduce noise levels.

While HBML will continue to implement mitigation measures to reduce noise levels during care and maintenance, the formal implementation of the Doris North Noise Abatement Plan will be held in abeyance during care and maintenance. As the PC

required noise levels be monitored at least once during each project stage (baseline, construction, operation, closure); therefore, the next noise monitoring program will be completed during the first year of operations.

#### 2.2.3 Wildlife Mitigation and Monitoring Plan

The Wildlife Mitigation and Monitoring Plan (WMMP) was prepared to meet the requirements of Section 4, Items 1 to 6, of Project Certificate No. 003 (Rescan 2011). Version 2.0 was submitted to the NIRB in April 2011.

HBML anticipates that the WMMP will be held in abeyance during care and maintenance (given that the program was designed with an operating mine in mind, rather than an advanced exploration project in care and maintenance). However, HBML is considering the installation of cameras which would serve the dual purposes of providing monitoring data and site security. Mitigation strategies will continue in place as there is seasonal (April-October) potential for interactions between wildlife, people and existing infrastructure during care and maintenance.

Surveys of birds and the hair-snagging DNA analysis program for bears and wolverine are complete. The results of the grizzly bear DNA study that was conducted in 2010 and 2011 have been analyzed and a summary report was prepared in 2012.

#### 2.2.4 Monitoring and Follow-Up Plan

This plan was prepared to meet the requirements of Section 4, Item 32, of Project Certificate No. 003 (HBML 2011b). Version 2.0 was submitted to the NIRB in May 2011. As this plan is an administrative summary document for all environmental monitoring commitments included in the other management plans, HBML will not create a specific monitoring and follow-up plan for care and maintenance.

However, the plan includes some material that is also covered by other plans listed in this report. Related plans will be revised for care and maintenance to reflect the following changes:

- Removal of those parts of the plan that describe processes that will only occur during construction and operation such as dust control at the crusher and submerged release of tailings to reduce dust production.
- Changes in the program for collection of baseline environmental data, as follows:
  - o Meteorological data. The Doris North meteorological station will continue operation
  - Air quality data. The Doris North air quality monitoring station will cease at some time during care and maintenance after at least 2 years of baseline data has been collected at a single station.
  - Noise data. Noise monitoring will cease during care and maintenance because sufficient baseline data has already been collected.
  - o Hydrological data. Measurement of stream flows and lake surface elevations will continue.
  - Geotechnical monitoring. As noted in the recent application to amend the Type A Water Licence, certain reductions to this monitoring are being sought.



- Water quality. Monitoring of water quality at all Surveillance Network Program (SNP) stations will continue in compliance with conditions of all water licences during the period activities are underway and camp is occupied (between April – October).
- Fish and fish habitat compensation monitoring. This work will continue in Roberts Bay, Roberts Outflow, Roberts Lake and Windy Lake in compliance with conditions of all DFO Fisheries Authorizations.
- Aquatic Effects Monitoring Program (AEMP). HBML anticipates following the AEMP during the period activities are underway and camp is occupied (between April – October) and will apply for a reduced program.
- o An Environmental Effects Monitoring (EEM) program under the Metal Mining Effluent Regulations (MMER) will not be triggered by the use of Tail Lake as a polishing pond for surface runoff.

#### 2.2.5 Emergency Response and Spill Contingency Plan

This plan consisted of two plans – the Emergency Response Plan (HBML 2012) and the Spill Contingency Plan (SRK 2011) – that had already been prepared for the NWB to meet the requirements of Type A Water Licence No. 2AM-DOH0713. Those two plans were submitted to the NIRB in October 2011. They are further discussed in Sections 2.3.10 and 2.3-11.

#### 2.2.6 Emergency Response

The emergency response and spill contingency plans are administered by HBML as one document. This plan will be updated in October 2012 following camp closure.

#### 2.3 Plans Required under Type A Water Licence No. 2AM-DOH0713

#### 2.3.1 Plans Not Prepared

A total of 17 management plans were required under Type A Water Licence No. 2AM-DOH0713, but four of those plans had not been written by January 2012 because they were only required for an operating mine. Those four unwritten management plans are the following:

- Tailings Management Plan, which was not prepared because tailings have not been produced at the Doris North Project site.
- De-icing Fluid Management Plan, which was not prepared because de-icing equipment has not been used at airstrips in the Hope Bay belt.
- Final Closure and Reclamation Plan is not yet appropriate as a closure decision has not been made.
- The Landfill Management Plan was prepared in June 2010 (EBA 2010), but was not submitted to the NWB because the Kitikmeot Inuit Association (KIA) has not authorized HBML to construct a landfill. Therefore, it is not discussed further in this document A Non-hazardous Waste Management Plan was prepared since a landfill has not been constructed at Hope Bay. The plan addresses the requirements of Part G, Items 5, 8, 10, 12 and 13, of the water licence. Version 1.1 was submitted in March 2012 (HBML 2012a; appendix?)

These plans are not discussed further in this document.

#### 2.3.2 Quarry A Landfill Management Plan

The Landfill Management Plan was prepared in June 2010 (EBA 2010), but was not submitted to the NWB because the Kitikmeot Inuit Association (KIA) has not authorized HBML to construct a landfill to date. Therefore, it is not discussed further in this document.

An interim Non-hazardous Waste Management Plan was prepared since a landfill has not been constructed at Hope Bay. The plan addresses the requirements of Part G, Items 5, 8, 10, 12 and 13, of the water licence. Version 1.1 was submitted in March 2012.

#### 2.3.3 Water Management Plan

The Interim Water Management Plan addresses Part F, Item 1, of the water licence (SRK 2012). Version 3.0 of the plan was submitted to the NWB in January 2012. It was written specifically to describe the water management plan that will be followed in 2012 and in following years, as the project enters care and maintenance (Appendix 2.3-1).

#### 2.3.4 Sewage Treatment Management Plan

The Sewage Management Plan addresses Part D, Item 20; Part G, Item 2; and Part J, Items 12f and 20f, of the water licence. Depending on anticipated camp loading during April – October 2013, this plan may require revision. If revision is required, updated plans will be submitted to the NWB in February 2013.

#### 2.3.5 Hazardous Waste Management Plan

The Hazardous Waste Management Plan addresses the requirements of Part G, Item 11, of the water licence. The first version was prepared by SRK in August 2008 when waste management on the Hope Bay site was conducted by mine operations staff. A second Version 1.1 was prepared by HBML submitted in March 2012. The way in which waste is managed on site is not expected to change qualitatively as a result of the change in Project phase, although volumes of waste are expected to decline substantially. Therefore, no revisions were made to the second version.

#### 2.3.6 Incineration Management Plan

The Incinerator Management Plan addresses the requirements of Part G, Item 5, of the water licence. The first iteration was prepared by SRK in July 2009 when waste incineration on the Hope Bay site was conducted by mine operations staff. A second version was prepared by KBL and that is the plan that is currently followed at site.

The way in which the incinerators at Roberts Bay are managed is not expected to change qualitatively as a result of the change in Project phase, although volumes of incinerated waste are expected to decline substantially. Therefore, no revisions were made to the second version. Revision 1.1 was prepared by HBML and submitted in March 2012.



#### 2.3.7 Land Farm Management Plan

The Land Farm Management Plan addresses the requirements of Part G, Item 14, of the water licence. Version 1.0 was prepared in May 2010 and subsequently approved by the NWB (SRK 2010a). The plan describes the Doris North land farm and how it is to be managed and monitored. This plan will not change qualitatively as a result of the change in Project phase, although volumes of contaminated snow and soil brought to the land farm are expected to decline substantially. Therefore, no revisions were made to this plan.

#### 2.3.8 Waste Rock and Ore Management Plan

The Waste Rock and Ore Management Plan addresses the requirements of Part G, Item 15, of the water licence. The first version of this plan was prepared by Miramar Hope Bay Ltd. (MHBL) in April 2007 and was approved by the NWB. The plan was revised in December 2010 (SRK 2010c), and was then submitted to the NWB in November 2011 as Appendix B of amendment application no. 4 ("Project Proposal: Doris North Mine Modifications and Related Amendments to Project Certificate No. 003 and Type A Water Licence No. 2AM-DOH0713") (HBML 2011c). That plan and related amendments were approved by the NWB in Feb 2012. The plan will not change significantly as a result of the change in Project phase. The plan is not appended to this document.

#### 2.3.9 Emergency Response Plan

This plan was originally prepared by MHBL in November 2007. The Emergency Response Plan is revised regularly by the Health Safety and Loss Prevention department of HBML. The construction version was prepared by the HSLP department in February 2010 and was then revised 14 times over the next 2 years to reflect the frequent changes in site infrastructure, activities and organization during construction of Doris North. The latest version (number 2.4) was prepared in February 2012 (HBML 2012). This plan was further revised to account for changes in site personnel and organization that accompanied care and maintenance. This plan will be available for review by November, 2012.

#### 2.3.10 Spill Contingency Plan

This plan was originally prepared by MHBL in July 2007 to meet requirements set out in Part I of the Type A Water Licence 2AM-DOH0713. It was revised by HBML's HSLP department in August 2011 to meet additional conditions set out in Part H of the two Type B Water Licences 2BE-HOP0712 and 2BB-BOS0712, and to provide a single management plan regarding spills for the entire Hope Bay belt (SRK 2011c). This plan was further revised to account for changes in site activities that accompanied care and maintenance. The revised version will be available for review by September 30, 2012.

#### 2.3.11 Quality Assurance/ Quality Control (QA/QC) Plan

The QA/QC plan meets the requirements of Part K, Item 1, of the water licence. It describes the procedures to be used when conducting environmental sampling, analysis, and reporting for the Doris North Project. It outlines the criteria for sample collection, preservation, documentation and transportation, as well as data management and reporting. This plan is revised at least annually to capture changes to the sampling programs undertaken for the project.

The QA/QC plan was first written in February 2002 before the Doris North Project received its Project Certificate. The plan was then revised a total of five times over the next 9 years as the environmental monitoring plan for the site evolved. The latest version was submitted to the NWB was prepared by HBML's Environmental and Social Responsibility (ESR) department in June 2011 (HBML 2011). The QA/QC program will not change as a result of care and maintenance, however, the plan will be revised to address only the specific sampling programs that will be completed during care and maintenance. Revision 7 of this plan was submitted in August 2012.

#### 2.3.12 Aquatic Effects Monitoring Program (AEMP)

The AEMP was prepared in consultation with Environment Canada to satisfy the requirements of Part K, Items 7, 8 and 9, of the water licence. The AEMP is a monitoring program designed to: (1) determine the short and long-term effects in the aquatic environment resulting from the Project; (2) evaluate the accuracy of impact predictions; (3) assess the effectiveness of planned impact mitigation measures; and (4) identify additional impact mitigation measures to avert or reduce environmental effects. The AEMP was submitted to the NWB in February 2011 and was subsequently approved (Rescan 2010a).

To date and during care and maintenance, there has been and will be no operating mine and hence no tailings or effluent from a process plant will be stored in the TIA. Instead, the TIA will be used to temporarily store surface runoff from Doris Camp. For the same reasons, the full EEM plan mandated by the MMER for an operating mine is not appropriate for Doris North in its current state of construction. HBML is proposing to suspend the AEMP during care and maintenance or significantly reduce its requirements, as set out in the recent amendment application to the Type A Water Licence.

The AEMP will be revised, if necessary, upon recept of the renewed water licence.

# 2.4 Plans Required under Type B Water Licence No. 2BE-HOP0712

#### 2.4.1 Patch Lake Facility Final Closure Plan

This plan was required by Part I, Item 1, of the water licence. It was submitted to the NWB in January 2011 (SRK 2011a). It describes how the Patch Lake facilities will be permanently closed and reclaimed. An updated plan has been submitted to the NWB for consideration (July 2012).

#### 2.4.2 Windy Camp Final Closure Plan

This closure plan was submitted to the NWB in January 2011 (SRK 2011b). It describes how the Windy Camp facilities will be permanently closed and reclaimed. Closure activity at the old Windy Camp continued through 2011, and some will continue into 2012. all core has been moved off the tundra, the remaining couple pieces of debris will be removed from within 30 m of the shore by Sept 28, 2012. The updated plan was submitted to the NWB in July 2012.

#### 2.4.3 Quarry A, B & D Management and Monitoring Plan

This plan was required by Part D, Item 25, of the water licence. Clean rock from these three quarries was used to construct the Doris-Windy all-weather road. The plan was prepared in 2010 (SRK 2010b). Going forward the quarries may be used for maintenance of the Windy Road. The quarries will require ongoing monitoring under the seepage survey.



#### 2.4.4 Quality Assurance/ Quality Control (QA/QC) Plan for Patch/Madrid

The QA/QC plan meets the requirements of Part J, Item 11, of the water licence. It describes the procedures to be used when conducting environmental sampling, analysis, and reporting for the Windy Lake Camp and the Patch Lake fuel farm area. It outlines the criteria for sample collection, preservation, documentation and transportation, as well as data management and reporting.

The QA/QC plan was first prepared in December 2007, and was then revised a total of five times over the next 4 years as the environmental monitoring plan for the site evolved. The latest version submitted to the NWB was prepared by HBML's ESR department in December 2010 (HBML 2010c).

With a few exceptions, the requirements of environmental monitoring will be the same under care and maintenance as they were prior to 2011. There will be few changes in the required number of sampling locations, the frequency of sampling at those locations, the number of parameters measured from each sample, and the required number of QA/QC samples.

As per the above, revision 7 of this plan was submitted to the NWB in August 2012.

# 2.5 Plans Required under Type B Water Licence No. 2BB-BOS0712

#### 2.5.1 Boston Camp Final Closure Plan

The Closure Plan is required by Part I, Item 1, of the water licence. An updated plan was submitted to the NWB for its consideration in July 2012.

#### 2.5.2 Water and Ore/Waste Rock Management Plan for the Boston Site

The Water and Ore/Waste Rock Management Plan was prepared as a condition of Part E, Item 8, of the licence to address the ARD and metal leaching potential of the materials left at the Boston site by BHP (SRK 2009)). The plan stated that although the runoff contained elevated metal concentration it was attenuated rapidly downstream and was not affecting the downstream tundra and aquatic environment. Monitoring of water quality was recommended, but no protocols for diverting, storing or treating runoff were proposed. Nitrates, chlorides and copper remain evident at some locations and are above levels predicted in 2009 (SRK 2012). Ongoing seep monitoring is required.

Revisions to this plan related to the recent renewal of the Boston water licence are currently underway.

#### 2.5.3 Quality Assurance/ Quality Control (QA/QC) Plan for Boston

The QA/QC plan meets the requirements of Part J, Item 17, of the water licence. It describes the procedures to be used when conducting environmental sampling, analysis, and reporting for Boston Camp. It outlines the criteria for sample collection, preservation, documentation and transportation, as well as data management and reporting.

The QA/QC plan was first prepared in December 2007, and was then revised a total of two times over the next 4 years as the environmental monitoring plan for the site evolved. The latest version submitted to the NWB was prepared by HBML's ESR department in December 2010 (HBML 2010d).

With a few exceptions, the requirements of environmental monitoring will be the same under care and maintenance as they were prior to 2011. There will be few changes in the required number of sampling locations, the frequency of sampling at those locations, the number of parameters measured from each sample, and the required number of QA/QC samples.

Revision 7 of the QA/QC was submitted in August 2012.

# 2.6 Plans Required under Fisheries Authorizations

#### 2.6.1 Doris North Project No Net Loss Plan

DFO issued a *Fisheries Authorization* for jetty construction (DFO file no. NU-02-0117) and, later, a second *Fisheries Authorization* for jetty improvements (DFO file no. NU-10-0028). Shoals were installed in Roberts Bay and monitoring of their use by fish began according to the schedule proposed in the No Net Loss Plan (Golder 2007).

The No Net Loss Plan for fish habitat compensation at Doris North was prepared in December 2007 (Golder 2007updated in 2010 (Rescan2010a and Rescan 2010b). The loss of marine benthic habitat as a result of installation of the jetty in Roberts Bay was compensated for by the installation of four rock shoals in Roberts Bay. The loss of Tail Lake was compensated for by removal of a boulder garden in Roberts Outflow that restricted upstream migration of Arctic char spawners, enhancement of juvenile char rearing habitat in a tributary to Roberts Lake, and the installation of two rock shoals in Windy Lake. The loss of Tail Outfow was compensated for by the installation of two more shoals in Windy Lake.

The Fisheries Authorizations specify monitoring programs and schedules that must be adhered to for determining the effectiveness of the fish habitat compensation completed. These programs and schedules will be maintained during care and maintenance.

DFO issued a *Fisheries Authorization* for jetty construction (DFO file no. NU-02-0117) and, later, a second *Fisheries Authorization* for jetty improvements (DFO file no. NU-10-0028). Shoals were installed in Roberts Bay and monitoring of their use by fish began according to the schedule proposed by Golder (2007).

However, the issuance of a *Fisheries Authorization* for freshwater habitat loss was delayed almost 3 years by DFO staff turnover. During that period, HBML's environmental consultants (Rescan), while conducting baseline surveys of the Hope Bay belt, realized that Doris North was too turbid a lake to allow monitoring of plant and animal colonization of shoal habitat. Instead, Rescan proposed to install the shoals in Windy Lake, which has half the turbidity of Doris Lake. This meant that updated plans had to be prepared. These plans, which are described below, superseded the Golder (2007) plan. Hence, it is not shown in this document.



#### 2.6.2 Updates to the Doris North No Net Loss Plans for Tail Lake and Tail Outflow

2.7 The updated No Net Loss Plans for Tail Lake and Tail Outflow were completed in September 2010 (Rescan 2010b, 2010c) and Fisheries Authorization NU-02-0117.3 was finally issued. Although the plans were developed within the context of an operating mine at Doris North, this has no impact on monitoring protocol or schedule. Plans required under Legislation Pertaining to Oil Handling Facilities

#### 2.7.1 Oil Pollution Prevention Plan and Oil Pollution Emergency Plan (OPPP-OPEP)

The OPPP-OPEP was prepared by HBML in August 2010 (HBML 2010b) and updated to reflect new offload plans for 2011 and 2012. Each iteration was submitted to Transport Canada for review to confirm that all applicable regulatory standards were met. The OPPP-OPEP It is a comprehensive standard to ensure all shore preparations, emergency preparedness, equipment and personnel are in place to co-ordinate between HBML and the fuelling contractor Northern Transportation Company Ltd. to off-load fuel from barges moored in Roberts Bay to the 5 million litre tanks located in the Roberts Bay fuel farm. Fuel offloading is not expected to occur during care and maintenance, at least not for several years.

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