



Aboriginal Affairs and Northern Development Canada  
Nunavut Regional Office  
Resource Management Directorate  
P.O. Box 100  
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October 14, 2012

Ms. Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0E 1J0

*Our reference:*  
IQALUIT-#601481

*Your reference:*  
2AM-DOH0713/TR/L

*Sent via email*

**Re: Water Licence 2AM-DOH0713 – Hope Bay Mining Ltd. – Doris North Closure and Reclamation Plan – Kitikmeot Region**

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Dear Ms. Beaulieu,

Thank you for your September 14, 2012 request for written representations on the above referenced Closure and Reclamation Plan.

A Technical Review Memorandum is provided for the Board's consideration. Comments/ recommendations have been provided pursuant to the Department's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me by telephone at 867-975-4555 or email at [david.abernethy@aadnc-aadnc.gc.ca](mailto:david.abernethy@aadnc-aadnc.gc.ca) to discuss this submission.

Regards,

David Abernethy  
Regional Coordinator  
Water Resources Division

Encl.

c.c.: Murray Ball, Manager of Water Resources  
Andrew Keim, A/Manager of Field Operations  
Karen Costello, A/Director of Resource Management

**TECHNICAL REVIEW MEMORANDUM**

<b>TO</b>	Phyllis Beaulieu Manager of Licensing Nunavut Water Board	OUR REFERENCE File #9545-2-1.2AM.DOHA IQALUIT-#601481
<b>FROM</b>	David Abernethy Regional Coordinator, Water Resources Aboriginal Affairs and Northern Development Canada	YOUR REFERENCE 2AM-DOH0713/TR/L  DATE October 14, 2012
<b>SUBJECT</b>	<b>Water Licence 2AM-DOH0713 – Hope Bay Mining Ltd. – Doris North Closure and Reclamation Plan – Kitikmeot</b>	

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**A. PROJECT DESCRIPTION**

On September 14, 2012 the Nunavut Water Board (“NWB” or “Board”) distributed Hope Bay Mining Ltd.’s (“HBML”) August 2012 Doris North Closure and Reclamation Plan (“Closure and Reclamation Plan” or “plan”) to interested parties for review and comment. Hope Bay Mining Ltd. submitted this plan pursuant to, “Part L: Conditions Applying to Abandonment, Reclamation, and Closure,” of their Type A water licence, 2AM-DOH0713.

The submitted plan details how HBML intend to close and reclaim the Doris North Project as it currently exists. In January 2012, HBML’s parent company, Newmont Mining Corporation, announced plans to place the project into care and maintenance. The Company had been working toward bringing the Doris North Project into operational status (i.e., a gold mine) by 2013. Construction of the project began in 2008, and a considerable amount of infrastructure is now subject to the submitted plan.

**B. Review Findings**

On behalf of Aboriginal Affairs and Northern Development Canada (“AANDC”), the following comments/ recommendations are provided for the Board’s consideration.

**Issue No. 1: Closure cost estimate****References:**

- Closure and Reclamation Plan, Section 6

- Closure and Reclamation Plan, Appendix C

**Context:**

The submitted plan provides a \$7.5 million cost estimate to close the Doris North Project. This amount is supported by a series of tables that outline the direct costs associated with activities considered necessary for the closure and reclamation of outstanding land and water liabilities. It is noted that this estimate includes a 20% contingency to account for uncertainties that may require attention during the plan's implementation.

**Recommendation:**

Although the submitted cost estimate appears to be complete and was approved by the professional engineers who prepared the plan, HBML should provide the following information:

- Identify the model used to calculate the cost estimate (the recognized methodology for calculating reclamation costs for purposes of financial security assessment is the RECLAIM or other similar, appropriate models);
- Confirm that the estimate is based on the principle of having the necessary reclamation work implemented by a third party;
- Identify the individuals who prepared this cost estimate and their qualifications; and,
- Provide a revised copy of the cost estimate signed and sealed by a professional engineer.

**Issue No. 2: Infrastructure scheduled to be left on-site****References:**

- Closure and Reclamation Plan, Section 1.4
- Closure and Reclamation Plan, Section 2.2.2
- Closure and Reclamation Plan, Section 2.2.3
- Closure and Reclamation Plan, Section 3.1.4
- Closure and Reclamation Plan, Section 3.6.4
- Closure and Reclamation Plan, Section 3.9.1

**Context:**

The submitted plan makes several references to leaving certain project infrastructure in place to support (potential) future industrial development of the Hope Bay Belt and the surrounding area. This infrastructure includes roads, bulk fuel storage facilities, the all-weather airstrip, the Roberts Bay port/ jetty, and rock pads. It should be noted that bridges and arch culverts associated with the airstrip and all-weather roads will be removed.

**Recommendation:**

AANDC recommends that the NWB not allow HBML to leave bulk fuel storage facilities in place for potential future use by other parties. This type of infrastructure should be maintained and authorized through a water licence or be adequately reclaimed (i.e., removed from site). AANDC understands the practicality of limiting the reclamation of the airstrip, all-weather roads, and rock fill pads to the removal of culverts and surface regrading / crowning to ensure positive drainage and prevent any permanent pooling of water.

**Issue No. 3: Care and maintenance planning****Reference:**

- Appendix B, Updated Water Quality Model

**Context:**

The submitted plan does not include details associated with the project's current care and maintenance status. Such details include the implementation of required monitoring programs, corresponding mitigation measures, and infrastructure maintenance (e.g., The updated water quality model assumes that 80% of the annual snowfall will be removed from the Doris Camp pad. This assumption impacts the volume of effluent discharged from the Pollution Control Pond to the Tailing Impoundment Area).

**Recommendation:**

AANDC recommends that HBML submit a stand-alone Care and Maintenance Plan to the Board for review and approval. This plan should address how the project's licensed monitoring program is being implemented, describe mitigation measures that will be applied, if necessary, to protect surrounding water sources, and how infrastructure (such as, but not limited to, accommodation units, office facilities, all support buildings, sewage treatment plant, waste management facility at jetty, tank farm and fuel distribution infrastructure at jetty) will be maintained until final closure and reclamation activities commence. This stand-alone plan should complement the project's Closure and Reclamation Plan.

**Issue No. 4: Decommissioning of Water Management Structures****Reference:**

- Closure and Reclamation Plan, Section 2.2.5
- Closure and Reclamation Plan, Section 3.6.5

**Context:**

Section 2.2.5 of the submitted plan states that, "existing water management structures will be maintained until post-closure water quality objectives are met. Until these objectives are met, impacted site runoff will be managed according to the current water

management plan. The primary sources of constituent loading are the waste rock and ore piles. Structures for managing seepage or runoff from the waste rock and ore piles will be maintained until final closure of the waste rock and ore stock piles.” All water management structures will be decommissioned, breached, or removed to restore natural drainage paths where possible once runoff from the Doris Camp pad meets licensed water quality objectives. Water management structures include the Sedimentation Pond, Pollution Control Pond, Temporary Pond, Sumps #1 and #2, and Diversion Berm.

**Recommendation:**

AANDC recommends that prior to breaching any ponds HBML remove collected sediment and install sedimentation curtains downstream to prevent the release of suspended sediment into the receiving environment.

**Issue No. 5: Remediation of hydrocarbon impacted soils****Reference:**

- Closure and Reclamation Plan, Section 3.1.10

**Context:**

The submitted plan outlines the remediation alternatives that HBML intends to implement on hydrocarbon impacted soils. These alternatives include in-situ bioremediation of localized areas with limited contamination, excavation and off-site disposal of large contiguous areas of contamination (if found), and, “encapsulation of impacted soils in place should it be demonstrated that hydrocarbon risk is minimal and/or remediation methods are ineffective or inappropriate for a given area.”

The Nunavut Environmental Guideline for Contaminated Site Remediation’s Tier 1 criteria-based approach for Industrial land use, coarse-grained soils will be used to determine if soil remediation is required.

**Recommendation:**

AANDC recommends that HBML describe their planned in-situ bioremediation method (e.g., aeration, application of nutrients, etc.) and the criteria that will be followed to determine whether hydrocarbon impacted soils will be subjected to in-situ bioremediation or excavation and disposal at a licensed off-site facility. Metal concentrations should also be evaluated. Furthermore, prior to encapsulating any contaminated soils, HBML should submit a written proposal to the NWB and obtain their written approval

**Issue No. 6: Using wood waste for reclamation purposes****Reference:**

- Closure and Reclamation Plan, Section 3.1.8

**Context:**

The submitted plan states that non-hazardous wood waste will be chipped and used for reclamation purposes (i.e., mixed with drill cuttings, overburden, or other material for fill material).

**Recommendation:**

AANDC recommends that HBML clarify what types of wood wastes can be considered as hazardous and non-hazardous. As a minimum, wood treated with pentachlorophenol, inorganic preservatives, lead paint, or PCB-amended paint should be classified as hazardous wastes.

**Issue No. 7: Post-closure revegetation considerations****Reference:**

- Closure and Reclamation Plan, Section 2.2.1
- 2005 Preliminary Mine Closure and Reclamation Plan, Section 8.2.2

**Context:**

Section 2.2.1 of the submitted plan states that revegetation of the project's rock fill pads is not practical because they cannot support vegetation.

**Recommendation:**

AANDC recommends that HBML follow the post-closure revegetation considerations presented in the project's October 2005 Preliminary Mine Closure and Reclamation Plan. Where appropriate, the crushed rockfill surfaces of building pads, the airstrip, and roadways should be regraded, contoured, and scarified to promote moisture retention and natural revegetation.