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Nunavut Regional Office
Operations Directorate
Water Resources Division
P.O. Box 100
Iqaluit, NU X0A 0H0

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22 April 2009

Via Email

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

**Subject Water License #2AM-DOH0713, Hope Bay Mining Ltd., Doris
North Gold Project, Kitikmeot Region, Notice of Modification to
Water Treatment System at the Doris Camp**

Dear Phyllis,

Please be advised that on behalf of Indian and Northern Affairs Canada (INAC), I have completed a review of the above referenced document submitted by Hope Bay Mining Ltd. to the Nunavut Water Board.

A Technical Review Memorandum (attached) is provided to the Board for consideration.

Should you have any questions regarding this submission, feel free to contact me at 867-975-4555 or David.Abernethy@inac-ainc.gc.ca.

Regards,
David W. Abernethy

Cc. Kevin Buck, Water Resources Division Manager

Technical Review Memorandum

Date: Apr. 22/09

To: Phyllis Beaulieu, Nunavut Water Board

From: David Abernethy, Indian and Northern Affairs Canada, Water Resources Division, Iqaluit, NU

Re: **Water License #2AM-DOH0713, Part H, Item #1 – Notice of Modification to Water Treatment System at the Doris Camp**

A. Background Description

On Apr. 14/09 the Nunavut Water Board (NWB) distributed Hope Bay Mining Ltd. notification concerning proposed modifications to the Doris Camp water treatment system, requesting representations from interested parties by Apr. 29/09.

Due to the presence of algae *Oscillatoria*, a blue green algae (cyanobacteria) found in Doris Lake (the Doris Camp potable water source), HBML is proposing to implement measures that will ensure a safe potable water supply. The degradation by-product of this type of algae are microcystins. The Federal-Provincial-Territorial Committee on Drinking Water's May 2008 Guidelines for Drinking Water Quality criteria for microcystins in potable water is 0.0015 mg/L. Microcystins above this limit were detected in the Doris Camp raw water supply (Doris Lake) from samples taken by HBML staff on Dec 8, 2008. They were not detected in the Potable Supply. As a precaution HBML began trucking in potable water from their Windy Lake Camp (Windy Lake not a source of blue-green algae) . The Government of Nunavut's Department of Health and Social Services and the NWB were notified of this on Feb. 24/09.

Details of the proposed modifications include:

- The installation of a 2 inch intake line to separate potable water intake from the fire water intake;
- The installation of a 10 gallon per minute pump;
- The installation of flushable microscreens to remove algae and TSS found in Doris Lake water;
- Sediments removed from water will be processed through the Doris sewage treatment plant;

- Filtered water will go into an ozone treatment tank to breakdown microcystin toxins;
- Ozone treated water will pass through a granulated charcoal filter;
- Carbon filtered water will be directed to a storage tank; and,
- Prior to distribution, domestic water will be filtered once again through a 1 micron filter.

In addition to the submitted document, the following plans were reviewed:

- Miramar Hope Bay Ltd., *Water Management Plan, Doris North Project, Nunavut*. North Vancouver: April 2007;
- Miramar Hope Bay Ltd., *Monitoring and Follow-up Plan, Doris North Project, Nunavut*. North Vancouver: April 2007; and,
- Hope Bay Mining Ltd., Letter from to the Government of Nunavut Department of Health and Social Services and the Nunavut Water Board, *Re: Alternate Water Sources for Potable Water for Doris Camp*. North Vancouver: February 24, 2009.

B. Results of Review

The following comments / recommendations are provided to the Board for consideration in their review of the submitted document:

1. The submitted notice of modification appears to address the conditions specified in Part H, Item #1 of Water License #2AM-DOH0713;
2. For information purposes, INAC recommends that HBML include the sample analysis results for blue-green algae from the raw Doris Lake freshwater intake station #ST-7 in their monthly monitoring reports;
3. During my review, I noted that Part F, Item #1 of Water License #2AM-DOH0713 requires HBML to submit a revised Water Management Plan to the Board for review by May 1/08. The revised Plan must include the following:
 - a. A requirement to continuously monitor Doris Lake levels and outflow during the two (2) years of mining and beyond to confirm water balance model predictions;

- b. Requirements for on-going monitoring and calibration of the water quality model;
- c. A strategy to monitor and remove where necessary snow accumulation in the Pollution Control Pond, roads, ditches, and drainage channels; and,
- d. The Plan shall consider the monitoring requirements set out in Parts J and K of the Water License.

This revised Plan cannot be located on the NWB ftp site. Please confirm that this Plan has been submitted to the Board.