



March 28, 2011

Our reference
IQALUIT-#452830

Sent by email: licensing@nunavutwaterboard.org

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
Gjoa Haven, Nunavut
X0E 1J0

Your reference
2BE-HOP0712/TR/I16

**Re: Type 'B' Water Licence No. 2BE-HOP0712 – Hope Bay Mining Ltd. –
Hope Bay Regional Exploration Project – Kitikmeot Region –
Submission of Windy Camp and Patch Lake Workshop Facility Final
Closure Plan**

Dear Phyllis,

Thank you for your February 23, 2011 request for written representations on the above referenced submission.

A Technical Review Memorandum is provided for the Board's consideration.

Please do not hesitate to contact me by telephone at 867 975-4555 or email at David.Abernethy@inac-ainc.gc.ca to discuss this submission.

Regards,

David W. Abernethy
Water Resources Regional Coordinator
Operations Directorate
Nunavut Regional Office
Iqaluit, Nunavut
X0A 0H0

Encl.

c.c.: J. Rogers, Water Resources Manager
P. Kusugak, Field Operations Manager

Technical Review Memorandum

TO	Phyllis Beaulieu Manager of Licensing Nunavut Water Board	OUR REFERENCE File #9545-2-1.2BE.HOPA IQALUIT-#452830
FROM	David Abernethy Water Resources Regional Coordinator Indian and Northern Affairs Canada	YOUR REFERENCE 2BE-HOP0712/TR/I16 DATE March 28, 2011
SUBJECT	Type 'B' Water Licence No. 2BE-HOP0712 – Hope Bay Mining Ltd. – Hope Bay Regional Exploration Project – Kitikmeot Region – Submission of Windy Camp and Patch Lake Workshop Final Closure Plan	

A. PROJECT DESCRIPTION

On February 23, 2011 the Nunavut Water Board (the Board) distributed notice of two (2) final closure plans submitted by Hope Bay Mining Ltd.'s (HBML) for their Windy Camp and Patch Lake Workshop Facility areas pursuant to Part I, Item 16 of Amendment No. 5 to their Type 'B' Water Licence, No. 2BE-HOP0712. These plans were prepared by SRK Consulting on HBML's behalf. Interested parties were requested to review these plans and provide representations to the Board.

Part I, Item 16 of the Water Licence states,

The Licensee shall submit to the Board for approval, by January 31, 2011, a Final Abandonment and Restoration Plan for the old Windy Lake camps site and Patch Lake site prepared in accordance with the Mine Site Reclamation Guidelines for the Northwest Territories, 2006 and the INAC Mine Site Reclamation Policy for Nunavut, 2002.

The Windy Camp and Patch Lake Workshop Facility are located on Inuit Owned Land administered by the Kitikmeot Inuit Association (KitIA) approximately 160 km southwest of the Municipality of Cambridge Bay. Following their acquisition of the Hope Bay Belt from Miramar Northern Mining Ltd., (Water Licence No. 2BE-HOP0712 assigned to HBML on January 23, 2008), HBML closed the Windy Camp and decommissioned the Patch Lake Workshop Facility in October 2008. Through Amendment Number 5 to their Water Licence, the entire Windy Camp (including fuel storage) will be relocated to Quarry Site D which is situated along the Doris-Windy all-weather road.

Studies carried out to support the submitted plans are as follows,

EBA Engineering Consultants Ltd. *Evaluation of Risk and Remedial Options for Contaminated Soil at Patch Lake Facility and Windy Lake Camp – Hope Bay Gold Project, Nunavut.* Edmonton: October 2010.

WESA Inc. A. *Hope Bay Gold Project: Derivation of Risk-based Hydrocarbon Remediation Criteria for Patch Lake Workshop and Windy Camp.* Prepared for SRK Consulting (Canada) Inc. Yellowknife: 2009.

WESA Inc. B. *Hope Bay Gold Project: Phase II Environmental Site Assessment of Patch Lake Workshop, Windy Camp, and Boston Soil Treatment Area.* Prepared for SRK Consulting (Canada) Inc. Yellowknife: 2009.

The EBA reports states that (EBA 2010), “Environmental sites assessments (ESA) at the Patch Workshop and Windy Camp were conducted in 2008 and 2009. The Phase 2 ESA Report (WESA 2009b) indicated that the chemicals of potential concern include the petroleum hydrocarbon (PHC) fractions F2 (diesel fuel) and fractions F3 and F4 (lubricating oils), as well as chromium, copper, nickel, and zinc.” The submitted plans state that further soil characterization work will be carried out this summer (2011) to finalize the hydrocarbon remediation plan that is scheduled for implementation between the summers of 2012 and 2015. Specific details of this soil remediation plan were not provided. However, in-situ remediation and the placement of soils from the Patch Lake Workshop Facility area as fill in a landfill facility, pending receipt of the necessary approvals from the Board and the KIA, are mentioned. The remediation objectives for PHC contaminated soils are presented in the 2010 EBA Engineering Consultants Ltd. (EBA) report.

Hope Bay Mining Ltd. plans to dispose non-hazardous wastes, including hand cleaned (fuel storage) secondary containment facility liners, in the yet unpermitted Quarry A Landfill (pending KIA and Board approval).

Other site reclamation works include,

- The construction of a temporary diversion berm near an abandoned fuel storage facility at the Windy Camp site;
- Demolition of site structures and removal of hazardous wastes to Roberts Bay for transfer to an approved treatment facility and removal of non-hazardous wastes to an approved disposal facility;
- Site-grading, completion of closure earthworks, and revegetation;
- Ground water quality monitoring; and,
- Post closure monitoring (geotechnical and revegetation).

Hope Bay Mining Ltd.'s estimated closure costs for the former Windy Camp and Patch Lake Facility are \$1,975,000 and \$1,609,000 respectively, in undiscounted 2010 Canadian dollars.

B. RESULTS OF REVIEW

On behalf of the Indian and Northern Affairs Canada (INAC) Water Resources Division, I am providing the following comments/ recommendations for the Board's consideration,

1. General Observations

The submitted plans provide a general overview of HBML's plans to reclaim the former Windy Camp and the Patch Lake Workshop Facility. The plans do not provide specific details but rather layout the approach that HBML are carrying-out. Prior to any remediation, disposal, or removal of PHC contaminated soils, the INAC Water Resources Division recommends that revised plans be submitted to the Board for approval. These plans should include, as a minimum, remediation criteria for contaminated soils (including parameters appropriate for metals and petroleum hydrocarbons), procedures for on-site remediation of contaminated soils, criteria and procedures for disposing contaminated soils and other non-hazardous wastes in an authorized project landfill, and quality assurance/ quality control plans for monitoring program activities (i.e., water quality and soil quality).

2. Ground Water Quality Monitoring

The submitted plans should be revised to include a detailed description of the ground water quality monitoring program that HBML are planning to implement at the former Windy Camp and Patch Lake Workshop Facility. As a minimum, justification for conducting this program, the locations where monitoring wells will be installed, the parameters that will be analyzed, the frequency of sample collection, the corresponding quality assurance/ quality control measures, and an appropriately scaled topographic reference map should be provided. Hope Bay Mining Ltd. should also indicate the areas thought to have liquid groundwater, for what periods and how monitoring wells will be kept open. In addition, HBML should consider if the monitoring wells and sampling program would lead to nearby permafrost degradation and probable mitigation measures.

3. Construction of Temporary Sedimentation Berm

The Board should remind HBML to comply with the Part G conditions of their Water Licence with respect to the construction of a temporary diversion berm at the former Windy Camp site. As-built plans and drawings stamped by an Engineer registered to practice in Nunavut must be submitted to the Board within ninety (90) days of completing this berm.

4. Soil for Abandonment and Reclamation Activities

Unless otherwise approved by the Board, any PHC contaminated soil not directed to an approved (southern) treatment facility should be remediated to the standards specified in Part D, Item 18 of the Water Licence. This also applies to any soil directed to an approved on-site landfill. These standards are as follows,

Parameter	Remediation Guidelines for Soil (Industrial), concentration in ug/g
Total Petroleum Hydrocarbons	2,500.0
Benzene	0.5
Toluene	0.8
Ethyl benzene	20.0
Lead	400.0

5. Removal of Culverts

The Table of Concordance included in the Windy Camp Final Closure Plan states that HBML “does not anticipate having to remove culverts from the Windy Camp site. Disturbed areas will be regraded to ensure free-drainage of water.” The INAC Water Resources Division recommends that HBML be required to remove all culverts from their project area, unless otherwise approved by the Board. Hope Bay Mining Ltd. has not provided an adequate justification for leaving culverts in place. Part I, Item 10 of the Water Licence states, “All culverts shall be removed and the drainage opened up to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.”

Prepared by David Abernethy

c.c.: J. Rogers, Water Resources Manager
P. Kusugak, Field Operations Manager