



Aboriginal Affairs and Northern Development Canada
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October 1, 2012

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

Our reference:
IQALUIT #559496

Your reference:
2BE-HOP1222/TR/I1

Sent via email

**Re: Water Licence 2BE-HOP1222 – Hope Bay Mining Ltd. – Hope Bay Regional
Exploration Project – Submission of Windy Camp and Patch Lake Facility
Final Closure Plan – Kitikmeot Region**

Dear Ms. Beaulieu,

Thank you for your August 1, 2012 request for written representations on the above referenced Final Closure Plan.

A Technical Review Memorandum is attached 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 to discuss this submission.

Regards,

David Abernethy
Regional Coordinator
Water Resources Division

Encl.

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

TECHNICAL REVIEW MEMORANDUM

TO	Phyllis Beaulieu Manager of Licensing Nunavut Water Board	OUR REFERENCE File #9545-2-3.2BE.HOPA IQALUIT-#559496
FROM	David Abernethy Water Resources Regional Coordinator Aboriginal Affairs and Northern Development Canada	YOUR REFERENCE 2BE-HOP0712/TR/I,1 DATE October 1, 2012
SUBJECT	Water Licence 2BE-HOP1222 – Hope Bay Mining Ltd. – Hope Bay Regional Exploration Project – Submission of Windy Camp and Patch Lake Facility Final Closure Plan – Kitikmeot Region	

A. PROJECT DESCRIPTION

On August 1, 2012 the Nunavut Water Board (NWB or Board) distributed Hope Bay Mining Ltd.'s (HBML) June 2012 Windy Camp and Patch Lake Facility Final Closure Plan to interested parties for review, requesting written comments/recommendations by September 1, 2012. The NWB subsequently extended this deadline to October 1, 2012. Hope Bay Mining Ltd. submitted this plan pursuant to Part I, Item 1 of their Type B water licence, 2BE-HOP1222. This term and condition states,

The Licensee shall submit to the Board for approval in writing, within ninety (90) days of issuance of this Licence, revisions to the abandonment and restoration plans for both the Windy Camp and the Patch Lake Facility, dated January 2011 and submitted to the Board January 24, 2011. The revised, updated Plans are to be prepared in accordance with the *Mine Site Reclamation Guidelines for the Northwest Territories, 2006* and consistent with the *INAC Mine Site Reclamation Policy for Nunavut, 2002*, taking into account the comments received during the technical review distribution of February 23, 2011 and the current care and maintenance status of the project.

Following their acquisition of the Hope Bay Property HBML decided to close and reclaim their former Windy Camp and Patch Lake Facility. The former Windy Camp site was used as an exploration camp and was effectively closed in October 2008. Since this time HBML have completed progressive closure and reclamation activities at this site that include decommissioning of the site's land farm in 2008, the relocation of fuel tanks and useable infrastructure to their nearby Doris Camp, the construction of a diversion berm

upstream of the former fuel tank farm's secondary containment area, and a Phase 3 Environmental Site Assessment to delineate the nature and extent of contaminated soils (hydrocarbon and metal concentrations). The scope of HBML's planned closure and reclamation of the former Windy Camp site as presented in section 2.1 of the submitted plan includes the following activities:

- Salvage useable equipment and supplies;
- Demolition of site structures;
- Decommissioning of diversion berm;
- Decommissioning and reclamation of the fuel storage area;
- Collection and disposal of hazardous wastes;
- Collection and disposal of non-hazardous wastes;
- Remediation of permafrost degradation areas;
- Remediation of hydrocarbon contaminated soils; and,
- Drainage control and revegetation, where appropriate.

The Patch Lake Facility was used as a maintenance yard, fuel storage area, and workshop for exploration drilling by previous operators and briefly by HBML in 2008. Progressive closure and reclamation activities completed to date include the decommissioning of the maintenance yard and workshop in October 2008, the demobilization of buildings and equipment during the 2009 sealift, relocation of fuel tanks to the Doris North site in June 2010, investigations to delineate the nature extent of hydrocarbon contamination on site, and a Phase 3 Environmental Site Assessment. The scope of HBML's planned closure and reclamation of the Patch site as presented in section 2.2 of the submitted plan includes the following activities:

- Collection and removal of debris;
- Demolition of the secondary containment facility;
- Regrade Tank Farm spoil piles;
- Remediation of hydrocarbon contaminated soils;
- Remediation of permafrost degradation areas; and,
- Drainage control and revegetation, where appropriate.

HBML's Phase 3 Environmental Site Assessments for the two sites conclude that the former Windy Camp has approximately 575 m³ of petroleum hydrocarbon contaminated (PHC) soils and the Patch Lake Facility has approximately 202 m³ of PHC soils that exceed the Government of Nunavut's Environmental Guideline for Contaminated Site Remediation (industrial land use and coarse grained soil texture) from 8 locations at each site. The Patch Lake Facility also has approximately 127 m³ of PHC soils that exceed the Canadian Council of Ministers of the Environment (CCME) Soil Criteria for Metals (industrial land use and coarse-grained soil texture) at 2 locations and other miscellaneous areas.

RESULTS OF REVIEW

On behalf of Aboriginal Affairs and Northern Development Canada (AANDC), the following comments/ recommendations are submitted for the Board's consideration,

General

The submitted Final Closure Plan appears to adequately address the comments/ recommendations included in AANDC's January 2011 technical review of the previous Windy Camp and Patch Lake Facility Final Closure Plans. More specifically, the revised plan references the implementation of the Government of Nunavut's Environmental Guideline for Contaminated Site Remediation for hydrocarbon contaminated soils through its supporting Phase 3 Environmental Site Assessments, that the free drainage of water will be ensured through site contouring and the removal of culverts, and the groundwater monitoring wells installed in 2009 appear to have no detrimental effect on the permafrost in their respective areas.

Issue 1: Closure cost estimate

Context: Appendix B of the submitted plan provides a \$4,346,000.00 closure cost estimate for the former Windy Camp and Patch Lake Facility. This amount is supported by a series of tables that outline the direct costs associated with activities necessary for the closure and reclamation of outstanding land and water liabilities.

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

- Identification of 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,
- A revised copy of the cost estimate signed and sealed by a professional engineer.

Issue 2: Land use criteria for the remediation of petroleum hydrocarbon and metal contaminated soils

Context: Section 3.1.8 of the submitted plan and section 3.5 of its supporting Phase 3 Environmental Site Assessment state that PHC and metal contaminated soils will be remediated to the “industrial land use” criteria as specified in the Government of Nunavut’s Environmental Guideline for Contaminated Site Remediation and the Canadian Soil Quality Guidelines. Section 3.2 of the supporting Phase 3 Environmental Site Assessment states that the project area is currently classified as industrial and that this land use will be applicable until the final closure of exploration and mining activities, after which the land use will revert to wildland.

Recommendation: HBML should explain why they intend to apply the industrial land use criteria from the Government of Nunavut’s Environmental Guideline for Contaminated Site Remediation and Canadian Soil Quality Guidelines for the remediation of contaminated soils. Accordingly, any soils used for reclamation purposes (e.g., sand recovered from the fuel storage facility berms) must satisfy the remediation criteria once approved by the Board.

Issue 3: Methods of remediating hydrocarbon and metal contaminated soils

Context: Section 3.2.5 of the submitted plan states that the two methods of remediating hydrocarbon and metal contaminated soils are in-situ bioremediation and off-site disposal to an approved facility. Furthermore, this section makes reference to maintaining, “the option to encapsulate impacted soils in place is preserved should it be demonstrated that hydrocarbon risk is minimal and/or other remediation methods are ineffective or inappropriate for a given area.” The submitted plan provides little information on what in-situ bioremediation techniques will be applied and the criteria for off-site disposal.

Recommendation: AANDC recommends that HBML describe their planned in-situ bioremediation method (e.g., aeration methods, application of nutrients, etc.) and the criteria that will be followed to determine whether in-situ bioremediation or excavation will be applied. Furthermore, prior to encapsulating any contaminated soils in place HBML should submit a written proposal to the NWB and obtain their written approval.

Issue 4: Using wood waste for reclamation purposes

Context: Section 3.1.4 of the submitted plan states that chipped wood waste may be used for reclamation purposes. According to section 3.1.2, this wood

waste will be non-hazardous demolition waste originating from demolished structures.

Recommendation: AANDC recommends that HBML clarify what types of wood wastes can be considered 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 5: Revegetation and minimizing sedimentation of receiving water bodies

Context: As stated in sections 3.1.9 and 3.2.6 of the submitted plan, “once all surface infrastructure has been removed and cleared of all debris, the site will be regraded to prevent ponding and reduce erosion potential.” Furthermore, “reclaimed areas where there is sufficient soil substrate to support vegetation will be managed to promote revegetation.”

Recommendation: When carrying out their post-closure monitoring program HBML should ensure that all reclaimed areas being revegetated do not pose risks to the quality of receiving water bodies through by means of erosion. Mitigation measures should be implemented when erosion attributed to past project activities or revegetation efforts is observed.

Prepared by David Abernethy