



INDEPENDENT ENVIRONMENTAL MONITORING AGENCY

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January 27, 2009

Violet Camsell-Blondin
Chairperson
Wek'eezhi Land and Water Board
Box 32
Wekweti NT
X0E 1W0

Re: Comments on the Proposed Use of Beartooth Pit as a Minewater Retention Pond

Dear Ms. Camsell-Blondin

This letter is in reply to the e-mail from your staff of January 6, 2009 requesting comments regarding a proposal from BHP Billiton (BHPB) to use the Beartooth pit as a minewater retention pond and necessary changes to the Wastewater and Processed Kimberlite Management Plan.

The Agency has been aware for some time that BHPB was considering the future of the Beartooth pit for a variety of purposes including underground mining, deposition of tailings, deposition of the extra-fine fraction of the processed kimberlite, and storage of minewater. The Agency itself has advocated that there be some consideration of these options, particularly in the interest of closure planning and progressive reclamation.

The Agency is not opposed in principle to the use of Beartooth pit for minewater storage. While we understand the economic rationale for BHPB's preferred use of Beartooth as a sump, we had hoped that there would be a careful examination of the environmental trade-offs and lost research and monitoring opportunities, in providing a rationale for whatever decision was reached. This is not part of the three-page December 15, 2008 letter the company has submitted to the Board to support its request. The next available pit for these other purposes would be Fox in 2014. If Beartooth pit was used for processed kimberlite deposition, it may be possible to avoid using Cell D for any tailings disposal and provide an extra measure of protection for water coming out of the Long Lake Containment Facility.

The Agency is of the view that BHPB should submit additional information that discusses the trade-offs and lost opportunities and a rationale for the preferred use of Beartooth as a sump.



We believe that there are some supporting documents that BHPB should submit to the Board and the interested parties to help ensure that an informed decision is reached about this significant change in wastewater management. We found references to the following documents in the Final Interim Closure and Reclamation Plan Working Draft, and would like to suggest that BHPB should submit these to support this change request:

Fluor, 2006. Conceptual report on feasibility of processed kimberlite backfill into Beartooth Pit. (BHP Billiton internal document)

Mathis, 2005. Proposed Beartooth Pit Pushback Geotechnical Investigation. Assessment Present and Future. Prepared by James I. Mathis, Ursa Engineering. May, 2005. (BHP Billiton Internal Document). [If this document can shed light on the integrity of the permafrost around Beartooth or the geochemical reactions that may take place with the minewater.]

Rescan, 2006. Conceptual Plan for Storage of Mine Water and Processed Kimberlite in Beartooth Pit. (BHP Billiton internal document)

Rescan, 2008. *Conceptual Plan for Storage of Mine Water and Processed Kimberlite in Beartooth Pit*. Prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd. March 2008. (BHP Billiton Internal Document)

SRK. 2003. Beartooth Pipe Acid/Alkaline Drainage (ARD) and Geochemical Characterization Plan. Prepared for BHP Billiton Diamonds by SRK Consulting, January 2003.

The Agency's other concerns with the use of Beartooth pit for minewater storage relate to water quality and integrity of the permafrost around the pit.

The Agency would like to know what changes may occur in the stored minewater (rich in chloride, nitrates and perhaps other contaminants including hydrocarbons) when it is in Beartooth pit in terms of any chemical interactions resulting from contact with the pit walls and kimberlite and what the final water quality may be after storage for eleven years. This may require some characterization of the predicted minewater inputs and likely chemical interactions. These topics may already be the subject of scrutiny as part of the Pit Lake studies (see pg. 7-11 and 7-12 of the ICRP), but information is needed now to help evaluate the safety of Beartooth pit minewater storage.

The letter from BHPB states that if the water quality in Beartooth pit at closure does not meet discharge criteria, it will be pumped into Panda pit or the underground workings. The Agency would like to know what the anticipated water quality will likely be in Panda with the addition of the stored Beartooth minewater, with or without pump flooding? Will it be possible to discharge the resulting Panda pit water into the receiving environment? If not, what is the contingency at that point?

If the decision is made to use Beartooth pit for minewater storage, the Agency would like to know whether BHPB intends to undertake any monitoring or research during the 11 year

period of its use? We are of the view that there may be some opportunities to learn about the behaviour of the minewater, through analysis of physical and chemical changes (e.g. the extent of meromixis) during the use of Beartooth that may improve pump flooding techniques and water management for later pits.

Finally, the Agency is concerned about the possible effects on permafrost of storing minewater in Beartooth. Outstanding questions should be answered before this option is approved. How much permafrost now separates Beartooth from the nearby Panda pit and underground workings, and what is the potential for the water retained in Beartooth to leak into Panda?

We look forward to further information to better understand and evaluate BHPB's proposal. We would be happy to discuss this with your staff, BHPB and others as necessary.

Sincerely,

A handwritten signature in black ink, appearing to read "W.A. Ross". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Bill Ross
Chairperson

cc. Society Members
Laura Tyler, BHPB
Jason Brennan, DIAND Water Inspector
Bruce Hanna, Fisheries and Oceans
Anne Wilson, Environment Canada