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January 20, 2009

Violet Camsell-Blondin
Chairperson
Wek'eezhi Land and Water Board
Box 32
Wekweti NT
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Dear Ms. Camsell-Blondin

Re: Comments on the Ekati
Final Interim Closure and Reclamation Plan—Working Draft

This letter represents the Agency's comments on BHPB's ICRP (Interim Closure and Reclamation Plan) working draft dated December 2008. The Agency is generally pleased with the revisions that have been discussed and proposed over the last two years, and with BHPB's efforts in incorporating most of the Agency's advice.

In the initial submission from BHPB in January 2007, we were particularly concerned with the proper formulation of reclamation goals, objectives, and criteria, and that the reclamation research should focus on important outstanding areas of uncertainty with sufficient detail to ensure there would be timely and sound information for closure. The current version largely addresses these matters.

We are of the view that this ICRP is a significant contribution to the field of closure planning for the mineral industry of the NWT.

The Agency has invested a significant amount of time and resources in the development of a sound closure plan for Ekati over the last several years. The current version of the plan is on the right track but there are still some areas that can be further improved.

Organization and Structure

While we were able to find most of the information we needed to properly and thoroughly assess the document, much of the important detail is found in the appendices. It would be very helpful if there was a clear description of the organization and presentation of the information in the introduction to the document, and more obvious linkages of the appendices to the relevant text. For example, the appendices might be numbered

consecutively and there could be tabs for major sections and individual tables of content for each section to help the reader find relevant material or information.

Figures and diagrams in this version of the ICRP are greatly improved. The pre-disturbance and current development status figures using satellite imagery are particularly helpful as these are at the same scale and view. However, post-closure illustrations could have been added to provide the full range of reclaimed landscapes for each mine component. Part J 1(e) of the main water licence (MV2003L2-0013) requires a 'detailed description of the final desired landscape, with emphasis on the reclamation of stream banks and surface drainages over the reclaimed units.'

Fish in Pit Lakes and Cell E

The Agency notes that BHPB and DFO are still in discussion over the creation of shallow zones and fish habitat in the pit lakes and Cell E of the LLCF (Long Lake Containment Facility) after closure. It is unclear whether there will be final agreement between these two parties on these matters before the scheduled public hearing on April 7-8, 2009.

BHPB's closure objectives and options for the LLCF and the pit lakes include the construction and maintenance of fish barriers at the inflows and outflows of these waterbodies. This is inconsistent with the overall site reclamation goal to "return the Ekati mine site to viable, and wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities, and the surrounding environment".

The Agency does not agree with BHPB's rationale for installing barriers to fish movement at the Long Lake outlet and for the pit lakes. BHPB argues that it has compensated for the various impacts to fish habitat from its project, and that it is under no obligation to do anything more with regard to creation and maintenance of fish habitat. However, BHPB's legal requirements and accomplishments on fish habitat under the *Fisheries Act* do not override any requirements that the Board might set for proper closure of the mine site.

In our view, the Board has the authority to provide direction to the company to now revise its ICRP to allow for fish passage and the return of the pit lakes and Cell E to a self-sustaining ecosystem. BHPB should either provide good technical evidence as to why fish passage into Cell E and the pit lakes should be prevented or, alternatively, it should adopt closure objectives and options that are consistent with the reclamation goal by providing fish passage into these water bodies. This, we believe, would require some revision to the reclamation research plan to determine precisely how to meet the revised objective for these mine components. The most important addition would consist of reinserting that portion of the Terms of Reference for the Pit Lakes Study that was dropped by BHPB – Task 7 that dealt with providing "fish passage and refuge in the reclaimed pit lakes" (see Pit Lakes Terms of Reference page 17, accepted by the WLWB on May 17, 2005).

Water Discharge Criteria at Closure

The wording found in Appendix 5.1.1 refers to "water licence effluent criteria" (for example, Table 5.1-1, PKCA, Water Objectives 2). The Agency would like to confirm that this phrase

refers to closure effluent discharge criteria to be proposed in a future ICRP and formalized in a closure water licence.

Beartooth Pit

This version of the ICRP proposes to make use of Beartooth pit as a water retention pond from 2009 until 2020. The Agency will be commenting separately on this proposed change to the Wastewater and Processed Kimberlite Management Plan as requested by WLWB staff on January 6, 2009, but we make the following comment in the context of the ICRP.

The ICRP does not address the lost opportunities for reclamation research and monitoring with the use of the Beartooth pit as a water retention pond. The Agency had expected to see some assessment of the opportunity, costs or trade-offs of using Beartooth pit for minewater as opposed to testing the storage of processed kimberlite and/or pump flooding (to study and monitor meromixis). The next available pit for these purposes would be Fox in 2014.

Roads

The Agency is concerned about the need to undertake some experimental design and monitoring for road decommissioning, or at the very least to provide more detail on what is planned for road reclamation and closure. In section 5.7 on Buildings and Infrastructure, there is no classification of roads (including mapping of roads or sections, by type of road), or specific timelines provided for decommissioning various stretches when they may no longer be needed. We are unsure which sections of road will be modified at closure, and how these sections align with pre-development caribou travel routes and habitat. As a further example of this issue, page 5-186 states "Except in those sections of road considered hazardous to wildlife, shoulder berms will be knocked down and contoured to provide access for wildlife." The Agency would like BHPB to define what is meant by "hazardous" and map such sections. The Agency is concerned about the filter or barrier effect to caribou movement because of roads left on the mine site. The Agency expects to see this level of detail in the next version of the ICRP, along with more specific decommissioning activities and criteria. This is an excellent opportunity to incorporate Traditional Knowledge into closure planning.

Remediation Standard for Hydrocarbon Contaminated Soils

Table 5.1-1F in Appendix 5.1-1 that defines closure objectives and criteria for Buildings and Infrastructure, states in Land criterion 4 that hydrocarbon contamination will be remediated to the CCME Contaminated Sites Remediation Guidelines for “industrial use”. The Agency questions whether an industrial remediation standard is the appropriate one as the mine site will likely not be used for industrial purposes but returned to use by wildlife and occasional human activities. We are of the view that the ‘parkland’ remediation standard would be closer to the anticipated use and should be considered by BHPB and regulators.

Progressive Reclamation and Lessons Learned

The Agency is of the view that BHPB should make every effort to learn from the progressive reclamation that has taken place at site or will take place before final closure of all components. Some examples will help illustrate this point.

BHPB has now closed several of its exploration sites and there may be some good experience and lessons learned about natural plant colonization, remediation of hydrocarbons or other matters. If the Phase I PKCA closure option includes a drainage channel through the facility, this could be used to better design and monitor similar channels in the LLCF.

While the Misery site is in temporary shutdown until 2012, there are opportunities for monitoring of the open pit and waste rock storage area that can lead to better design of similar features in the Panda-Koala-Beartooth areas. For example, monitoring of the pit edges and the waste rock piles for wildlife use at Misery should lead to better design of wildlife use closure measures and criteria, the desirability and placement of access ramps, and similar matters. The Agency is prepared to work with BHPB and others to help design an active monitoring program at Misery while it is temporarily closed, which should facilitate improved closure at other parts of the mine site.

Wildlife Use Closure Criteria

Closure objectives and criteria are set out in Appendix 5.1-1 for each mine component. One of the stated wildlife closure objectives for each mine component is "wildlife are using the Ekati claim block", with an accompanying closure criterion that is stated as "wildlife observed using the Ekati claims block".

Closure criteria for wildlife use should be developed for each mine component along with appropriate monitoring methods and indicators that relate back to Valued Ecosystem Components. Therefore, a more appropriate closure objective might be something like "indigenous wildlife species can safely use (name the component)". For example, wildlife use closure criteria for the waste rock storage areas might be something like:

- Caribou use of the waste rock storage areas is similar to analogous landforms such as rocky plateaus;
- Waste rock piles do not result in increased predation rates on caribou; and
- The vegetation on waste rock piles is safe for wildlife consumption.

Reclamation Research Plan and Engineering Studies

The Agency acknowledges the amount of work and thought that has gone into the revised reclamation research plan and engineering studies presentation and content.

These sections could be made more easily understood by better cross referencing and minimizing duplication amongst the research plans and engineering studies, consistent numbering of tasks through the later sections and making sure that the research and engineering work is properly referenced in the Tables in Appendix 5.1-1 that set out the

Closure Objectives and Criteria for each mine component. More importantly, more information is required to properly describe the actual work that has to be done to address the existing information gaps as defined in the appendix.

A substantial body of work is urgently required to address these information gaps and we encourage the company to provide details on research progress (and proposed work for the following year) in its Annual Environmental Report. The current ICRP now proposes more detailed reporting on reclamation research and engineering studies on an annual basis. This will help to build confidence that the necessary effort is being invested by the company so that the overall site can be closed safely and in a timely manner.

Three specific areas of reclamation research require additional attention. First, it is our understanding that BHPB does not intend to deposit any further tailings in the top end of Cell B, following an internal review of the Fay Lake spill. The ICRP currently proposes to begin a pilot study on revegetation in Cell B in 2013, and ending either in 2016 (see Figure 5.1-4A line on Establishment of Self-Sustaining Plant Communities), or in 2019 (pg. 72 of the Reclamation Research Plan). Page 5-133 of the ICRP also suggests that at least two decades are needed to establish a mature plant cover. All of these point to a serious timing problem, and an urgent need to begin significant pilot-scale revegetation studies as soon as possible, ideally much sooner than 2013. Delaying this work to 2013 is very unlikely to provide sufficient time to properly design and carry out large-scale revegetation of the LLCF at closure.

Second, the Reclamation Research Plan (Appendix 5.1-4a) identifies eight research programs relating to the LLCF, and the Engineering Studies section (Appendix 5.1-4b) identifies three studies that will be undertaken with respect to PKCA stability. Our review of these reveals that more detail is required about the tasks that will be undertaken to deal with at least two of the known uncertainties about long-term tailings stability. These are [a] effectiveness and engineering specifications for the water cover required in the LLCF to keep EFPK stabilized in situ; and [b] constructability and trafficability for conducting reclamation work on the interface zone in the LLCF. While the ICRP recognizes that these issues need to be addressed, they do not describe how the investigations will be carried out. It is therefore difficult to be able to verify that the intended work will, in a timely fashion, produce the information needed to inform the respective reclamation measures that will need to be implemented.

The final area of concern is the sequencing and direction of the research for revegetation and stabilization of the LLCF (Plans 16-18). Three fundamental uncertainties about vegetation and ground stability on the LLCF need to be resolved to design the appropriate closure measures:

a) whether the plants are taking up significant amounts of toxins/heavy metals,
b) whether these plants are attractive to grazers (caribou, geese), and
c) whether the water interface zone is safe for animals.

Answers to these initial questions will determine whether BHPB should reconsider the closure objective of making the LLCF safe for wildlife or simply deter wildlife altogether. It is not clear which direction BHPB is going.

BHPB's initial health risk assessment suggests little risk to wildlife or human health (except for Ni as a potential risk) but, as recommended in our letter to BHPB of April 8, 2005, this study had several deficiencies and needed to be redone to get more reliable answers to these issues.

The safety of the water-tailings interface for wildlife is not currently demonstrated, and it is likely more conservative to consider measures to discourage wildlife use, particularly if natural plant colonization of the LLCF promotes plants that are preferred by caribou or other wildlife. The research plan should also consider the impacts to browsers (e.g. arctic hare) if willow is being planted on the LLCF.

In conclusion, while this version of the ICRP is much improved, there remains a few areas where some additional work is required. We look forward to the final meeting of the Working Group to discuss these comments.

Sincerely,

Bill Ross
Chairperson

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