



***INDEPENDENT ENVIRONMENTAL MONITORING AGENCY***

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January 28, 2008

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

**Re: Verification Comments on Section 3 of the ICRP**

This letter represents the 'verification letter' required for the Section 3 review of BHPB's draft ICRP (Interim Closure and Reclamation Plan). Section 3 of the ICRP deals with the tailings containment areas, water diversion and management structures on the site, and buildings and related infrastructure.

The Agency has reviewed Section 3, submitted comments to WLWB, reviewed BHPB's responses to our concerns, and participated in the January 21, 2008 working group discussions on this topic.

Many of the specific comments have been resolved through the discussions to date, or will presumably be resolved by some of the follow-up actions that BHPB has committed to undertake as a result of the January 21 meeting. For example, a revision of the research program descriptions and the submission of an adaptive management plan for closure are both constructive initiatives from the company.

Other issues are not yet resolved and are the subject of this letter. They fall into two quite distinct categories. The first type are substantive issues relating to the actual state and progress of closure planning for the project, and are relevant to a number of items in BHPB's response table. The second type, of lesser but still serious importance, relate to the quality of information presented in the ICRP (see Attachment 1). In this section we deal with whether we believe that an issue has been resolved or not, could possibly be deferred to section 4, and what the WLWB could do to further resolve an issue.



Generally, we are of the view that there would be some value in the WLWB providing further guidance to BHPB and other participants in this process on the scope and content of the reclamation research plan and the development of a post-closure monitoring plan. Such direction should go a long way to resolving many of the outstanding issues below and in Attachment 1.

We deal with the substantive issues first.

### 1. Reclamation Research for Closure of the Long Lake Containment Facility

There are two issues related to this topic that are seriously deficient.

The first relates to the general lack of detail provided to describe the reclamation research program. In our view the level of information presented on this subject, given that we are halfway through the mine life, is not adequate. The research tasks related to the Section 3 mine components are presented as ‘summaries’ in Tables 46-48, implying that more detailed information exists elsewhere. In many cases, the summaries are all there is, and these consist essentially of a listing of the topics for which research is to be conducted. There is no clear identification of the uncertainties being addressed, nor any indication of exactly what work will be carried out, how it will be done, who will be doing it, how it will inform the closure plan, and when the results will be ready to use in modifying the ICRP.

During the course of the January 21 working group meeting, BHPB agreed that it would review, update and improve the research tables in time for the Section 4 review, and we offered to provide the company with a framework for describing the information that we feel ought properly to be in a research plan. We have attached a suggested format to this letter (see Attachment 2).

The second issue is more troubling. BHPB’s responses to many of the questions we have raised about timing of the various research projects is that the various pilot studies (for example, revegetation and metal uptake) will not be initiated until near the end of tailings discharge into the upper cells of Long Lake, approximately 2013 or so. The upper reaches of cell B are mentioned as the location for this work. The problem is that BHPB’s overall closure schedule (see Appendix D, Table 27) also shows that reclamation of cell B is scheduled to be completed this same year.

This example, which BHPB identified as an error in the schedule, was perhaps the most dramatic example of the timing problem, but all of the research activities that will require several years to complete are faced with tremendous time pressures if left until the end of tailings discharge in the upper cells. Since the end of mining is scheduled for 2020, the intervening seven years is all that is allowed for reclamation research to be completed in time to inform closure activities—even less since the final closure plan is scheduled for at least two years prior to closure according to BHPB’s Corporate Closure Standard. Not only should BHPB have clearly identified its reclamation research needs at this point in the mine life, but it should be well into the execution of the associated research tasks (some of them, at least). The emerging pattern of delay is worrisome.

In revising the ICRP, it is critical that BHPB review the linkages between the needed research tasks and closure activities, and explain how these will be successfully integrated into mine closure. To be clear, the Agency expects to see a fully designed research plan that is able to deliver the information necessary on a range of current uncertainties such as cover design and placement, metal uptake (based on what can grow on the tailings and preferred foods for VECs such as caribou), human and wildlife safety with regard to the tailings and water interface, and long-term management of the EFPK (extra-fine processed kimberlite) including settling rates, feasibility of a water cover, and alternatives such as removal to an empty pit.

## 2. Reclamation of Ponds

Section 3 does not identify the challenges for closure posed by the volumes of EFPK in the Long Lake facility. Despite on-going operational problems associated with the EFPK, and an array of uncertainties identified in the 2007 Wastewater and Processed Kimberlite Management Plan as to the long-term behaviour of these materials, the ICRP text is silent on the topic. The research summary tables do identify a series of research tasks related to construction challenges for reclaiming the water interface and mid zones in the facility. A revised ICRP should fully identify closure issues associated with the pools of EFPK, the uncertainties attached to these, and details of the reclamation option selected. Similarly, we hope that the revised research program descriptions that BHPB has committed to for the Section 4 review, will fully outline the various studies required to address the uncertainties.

## 3. Fish and the Reclamation Objective

BHPB's rationale for installing barriers to fish movement at the Long Lake outlet (as for the open pits) is not tenable. We agree, as do all parties, that BHPB has compensated for the various impacts to fish habitat from its project, and that it is under no legal obligation pursuant to its Fisheries Authorisation, to do anything more with regard to creation and maintenance of fish habitat. However, BHPB's legal requirements and accomplishments on fish habitat are distinct from the requirements for proper closure of the mine site under the water licence and Environmental Agreement.

The issue at hand is how to close the mine site in a manner that best achieves the overarching reclamation goal that we all have agreed to. This is to restore a functioning ecosystem if practicable. If parts of Long Lake (and the open pits) can be integrated into the natural landscape so that aquatic communities can flourish, or at a minimum fish can move safely through them, then that is a goal that all parties should embrace.

As we stated at the working group session, this issue will not be easily resolved, and will likely delay progress on the development of an acceptable closure plan for some time.

In our view, the Board should intervene at this juncture and issue a directive to the company: namely, in revising its ICRP, BHPB should either provide good technical evidence why fish passage into Long Lake (and the open pits) should be prevented or, alternatively, it should adopt a closure strategy that is consistent with the reclamation goal by providing fish passage into these water bodies.

On a more general note, we are of the view that a more productive discussion of Section 4 by the working group will require at least two days of meeting. The Section 3 discussion would have benefited from a more detailed discussion of many of the items.

We hope the comments contained in this letter and its attachments are helpful to the process of getting us closer to an acceptable closure plan.

Sincerely,

-Original Signed By-

Bill Ross  
Chairperson

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

2 Attachments

## Attachment 1

### IEMA's Comments on Specific Tracking Items

| <u>Item #</u> | <u>Agency Position and Rationale</u>  |
|---------------|---|
| 1, 5, 6, 145  | Unresolved. See discussion above under 'Fish and the Reclamation Objective' where the Agency asks that the WLWB provide appropriate direction to BHPB.  |
| 7             | <p>Unresolved (deferred to Section 4). IEMA's first point about the intent of the 2005 LLCF review still stands. While BHPB disagrees with our second comment about the WPKMP and the ICRP not demonstrating that progressive reclamation of the LLCF is planned or even practicable, it provided no information to support this contention. The WPKMP Sec. 3.7 reference cursorily describes 5 features of the LLCF in terms of their closure implications, but says nothing about progressive reclamation. Please note, these are comments made to correct the record, not substantive ones about deficiencies in the closure planning.</p> <p>The Agency continues to be of the view that progressive reclamation of the LLCF has not been demonstrated given the need for fundamental research to be carried out regarding cover design and placement, revegetation and metal uptake (see our point 1 in the covering letter). The WLWB should consider further direction to BHPB and others in developing the reclamation research plan required in Section 4.</p> |
| 8             | Unresolved (deferred to Section 4). IEMA's first point still stands, but it is relatively minor since it deals with correcting information in the text. The more important point about the ICRP providing an indication of when the two pilot studies referred to will be carried out remains unanswered. BHPB's response that 'a more definitive date and details for the pilot study are not available at this time and will be refined in future updates of the ICRP' is not acceptable. During the January 21 meeting, BHPB indicated that the next likely iteration of the ICRP would be about 2012-13. As indicated in 'Reclamation Research' section above, this is far too late in the game to be providing the details of a research project required for closure measures.  |
| 10            | Unresolved (deferred to Section 4). We agree with the proposed action in BHPB's response, but not the timing—this work should be commenced soon. The issue might be resolved in the review of the research program description that BHPB is undertaking for Section 4 review, if the work is to be initiated before the next ICRP iteration. The current version of the ICRP should be revised to discuss the uncertainties and issues associated with the placement of waste rock in the water interface zone.   |

- 11 Unresolved (deferred to Section 4). BHPB’s review of the research program to be delivered in Section 4 review may largely resolve these issues, although the timing problem may remain. The ICRP should provide for a schedule that initiates these two proposed pilot projects sooner rather than later.
- 12 Unresolved (deferred to Section 4). While the inclusion of this issue in the research program is a positive response, the ICRP still needs to be revised to include a discussion of these very challenging closure issues—the document should not remain silent on these.
- 15 Unresolved (deferred to Section 4). The ICRP needs to be revised to discuss the uncertainties surrounding Fox PK behaviour and its possible implications for closure. It should describe the studies currently underway to resolve some of these, and identify and further studies that may be required for issues not currently being addressed.
- 16, 18-23 Unresolved (deferred to Section 4). These items deal with the EFPK issue. In Item 16 the company responds that this material is not a major risk to operations or closure, but this contention is not supported with any evidence. This is a surprising statement, particularly since the issue was not identified or evaluated in the risk assessment the company described in Appendix E. EFPK is one of the main reasons why operations in the LLCF needed to be revised in 2005, and the many uncertainties associated with it have been identified in the 2007 WPKMP and other documents generated since the 1997 water licence hearings. There are serious challenges posed by this material for long-term stability, and they need to be acknowledged and addressed. The ICRP needs to include a substantive discussion of the issues, and demonstrate how they will be handled for closure planning purposes (see point 3 in the Agency’s covering letter).
- 24-26 Partially resolved with research concerns deferred to Section 4. These items deal with water management at the LLCF. The Agency again urges the company to submit the LLCF water quality modeling work as soon as possible. The research and design of the internal drainage channels has not been developed at this point and is not identified in the current research tables.
- 38 Unresolved (partially deferred to Section 4). BHPB’s response notes that caribou use of the LLCF ‘has been documented for the past number of years.’ Although caribou may have crossed through the dry portions of cell B, no details are provided about possible crossings through the EFPK or interface zones. The ICRP needs to be revised to include a summary or brief discussion of the documented information collected, not simply provide a reference to source documents. The reclamation research plan should specifically deal with cover design and safety (human and wildlife) considerations.
- 39 Unresolved (partially deferred to Section 4). The ICRP needs to be revised to include a discussion of the work being undertaken, results to date,

implications for closure, etc. Again, the delay in initiating the risk assessment until an area of the LLCF is revegetated is not, in our view, acceptable (see point 1 in the Agency's covering letter).

- 40 Unresolved (partially deferred to Section 4). The ICRP needs to include a discussion of the information presented in the response. There remains a concern about the direct ingestion of soils by ungulates, regardless of the vegetation cover. This should be discussed. This may be addressed through a properly designed research program but there are no details in the current summary tables.
- 41 Unresolved (partially deferred to Section 4). This is an issue which should be addressed now, not in the next revision of the ICRP in 2013 or so. Again, the timing of the toxicity study proposed is problematic, since this would not even get started by the time of the next iteration of the ICRP according to BHPB's proposed schedule. The Agency does not share BHPB's view that there were adequate opportunities for collaborative evaluation of closure options evaluation but encourages the company to carry out further consultations.
- 42 Partially resolved. See comments under item 38.
- 43-44, 82, 83, 85, 86, 88-90, 97-99, 149-156, 159-165, 195-202, 206, 209-213  
Unresolved (partially deferred to Section 4). For these tracking items, and others relating to BHPB's proposed reclamation criteria, the Agency is not satisfied with the use of non-measurable criteria such as 'no identified risk' or 'no surface hazards observed'. While we appreciate the responses from BHPB that in some cases further define some of the criteria, there was a general approach of not committing to change the ICRP to include these revisions. BHPB should simply add the explanations provided to the ICRP. Where BHPB cannot specify clear measurable criteria, there needs to be linkages to the reclamation research plan to show how such criteria will be developed.
- 48-49, 148 Resolved partially. BHPB needs to provide further details on fugitive dust monitoring and develop clear criteria for adaptive management.
- 50 Unresolved (partially deferred to Section 4). Information provided in the response should be included in the ICRP. The updated research program description should include details of the proposed PK weathering study.
- 59 Unresolved (partially deferred to Section 4). The ICRP should be revised to include a discussion of available data about the effectiveness of the clear water layer at securing the EFPK slurries, and how thick the layer needs to be to prevent slurry mobilization. More importantly, it should demonstrate how the required clear water thickness will be maintained in the post-closure condition based on the research and monitoring that company had done and

intends to continue. The issue of what extreme conditions the LLCF could withstand and maintain the EFPK inside the LLCF is an important matter.

61-67, 69, 71-75, 144, 192-194, 204, 215

Unresolved (deferred to Section 4). These items relate generally to scheduling and content of research activities, and our comments made above under 'Reclamation Research' are relevant here (see the first point in the Agency's covering letter).

84 Resolved.

87 Unresolved (deferred to Section 4). BHPB should not wait until the final closure water licence to propose specific water quality criteria. This should be the subject of ongoing reclamation research and Pit Lakes Studies but there should be target dates set for the development of these criteria.

91-92, 95, 96, 110, 111, 117, 120, 123, 142, 143, 147, 189-191, 203, 205, 219

Resolved.

100 Partially resolved. While the Agency appreciates the commitment by BHPB to continue wildlife monitoring after closure through a special WEMP, specific triggers or thresholds for adaptive management need to be identified.

101, 166 Partially resolved (deferred to Section 4). At the working group meeting, we understood that BHPB would change its post-closure monitoring program duration to state that the completion of monitoring would be based on achievement of the closure criteria over a reasonable period of time to ensure sustainability.

103-109, 168, 181, 218

Resolved. We understand that BHPB has committed to making these changes as part of the final version of this ICRP.

118 Unresolved. The ICRP should be revised to include a discussion of the pit disposal option for tailings, as per our comment here. Even though it may not be the preferred option for BHPB at this time, it clearly is a potentially available option that could have significant benefits for closure, and should be acknowledge as such. Studies pertaining to the feasibility of this option should be described.

158, 208, 214 Unresolved (deferred to Section 4). This is a general comment about the adequacy of the description of the proposed monitoring programs. Our comment still stands on the need for improvement, and we hope that BHPB in revising the ICRP will invest more effort in putting some flesh on these bones.

182 Unresolved. This issue should be discussed in the current version of the ICRP, not in future updates.

## **Attachment 2**

### Suggested Framework for Reclamation Research Plan

#### 1. Issue Identification and Statement

*Identify the uncertainty or issue requiring study, and its relevance to reclamation and closure.*

#### 2. Objective

*State the purpose and desired output of the research project, linking the research outcome to the information needed, as outlined in the issue identification and statement*

#### 3. Methodology

*Describe what the research activity will consist of, and where and how it will be carried out. Describe the types of data that will be generated, any analysis that will take place, and how this output will inform the closure plan. Provide sufficient information to demonstrate that output from the study will meet the stated objectives.*

#### 4. Timing

*Describe how long the research project will need to be designed and conducted, and provide estimated dates for when it can be started and completed. Ensure this timeline can meet scheduled reclamation target dates for various mine components and how this may relate to the overall mine plan. Provide any links to other research and the priority and timing of each program or project.*