

***Independent Environmental Monitoring Agency  
60<sup>th</sup> Meeting of the Board of Directors  
Yellowknife, NWT  
June 3<sup>rd</sup> – 5<sup>th</sup>, 2008  
Summary of Discussion***

Revised: August 13<sup>th</sup>, 2008

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Directors

Tim Byers	Jaida Ohokannoak
Sheryl Grieve (first day only)	Tony Pearse (final two days)
Laura Johnston	Bill Ross
Kim Poole	

Staff

Sean Kollee  
Kevin O'Reilly

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INFORMATION UPDATES

In addition to routine review of Agency communications:

Bill – attended the ICRP section 4 working group meeting on May 29-30 and met with BHPB for an additional day on April 18 regarding the proposed reclamation research plan. He noted an upcoming mine reclamation conference in October 2008 is to be held in South Africa.

Jaida – worked on the Agency annual report and the Agency audit.

Laura – worked on Agency annual report and is now looking into the 2007 AEMP following her review of the LLCF water quality prediction models.

Tim – attended the Adaptive Management Workshop hosted by EMAB on May 14-15 and the Science and the Changing North workshop, and reviewed the AEMP. He was contacted by BHPB regarding the spill of processed kimberlite from the LLCF Cell B into Fay Lake.

Kim – worked on the Agency annual report and review of ICRP related discussion.

Sheryl – reviewed Agency correspondence and mentioned that NSMA may be appointing a new Director.

Kevin – worked with EMAB to finalize the technical review of the Ekati and Diavik adaptive management plans, attended the pit lakes studies meeting, provided updates at EMAB board meetings held on March 25 and May 20, met with BHPB on April 18

regarding the reclamation research, attended the ICRP section 4 working group meeting on May 29 and 30, participated in the April 21 BHPB annual report meeting, worked through the audit and financial statements, attended the IACT meeting May 23 and provided a summary to the Directors, renewed the Directors and Officers liability coverage (the former broker is no longer in business so a new one was retained).

Sean – delivered the Agency Annual Report material to Outcrop, attended many of the meetings mentioned above and compiled all Agency recommendations from 1997 to 2008 with some basic analysis for inclusion in the Annual Report and for other uses.

## FINANCES

Kevin updated the 2008-09 Agency budget and workplan to match the sum provided by BHPB prior to the deductions it pays for (office lease, copier). Draft financial statements for 2007-8 were distributed to the Directors. He reported that a new required change in accounting practices for the audit will require an additional two pages of notes in the Agency Annual Report as reporting requirements are becoming stricter. The audit proceeded smoothly and the accountants spent a week in the Agency office. The surplus for 2007-8 appears to be approximately \$15k, plus the surplus from the previous year that was not deducted from the second instalment from BHPB last year of about \$7,800.

Minor changes were suggested for Jaida and Kevin to follow up with the auditors.

*Motion to accept statements as amendments suggested*

*Moved by Kim*

*Seconded by Laura. Carried unanimously (Sheryl absent for this discussion)*

In response to a query on Director Workers Safety and Compensation Commission (WSCC, formerly the Workers Compensation Board) coverage, it was determined that even though Directors are treated as employees for the purposes of taxation, Directors are not employees for the purpose of workplace safety and compensation. As Directors for a registered society, the Board is not eligible for benefits. Options to consider include Directors applying for WSCC coverage as individuals, take no action or the Agency could investigate commercial insurance on behalf of the Directors for accident or injury while on Agency business.

Action Item #1 – Kevin to obtain details on commercial insurance and WSCC coverage and costs.
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## WATERSHED ADAPTIVE MANAGEMENT PLAN (WAMP)

Tim discussed the speakers who were present at the EMAB adaptive management workshop including Karen Munro of Jacques Whitford, ESSA, Don MacDonald and Barry Zajdlik and that the presentations were excellent. It was clear the reviewers did not believe the plans submitted by BHPB and Diavik are true adaptive management plans

(AMP) and tend to focus on monitoring rather than experimental adaptation. If change is detected, the next step suggested is further monitoring. Solutions to problems are based on trial and error if there is no established plan, reacting to problems by exploring and implementing options. A response to this statement from the companies may be that it is necessary to determine the cause before mitigation can be implemented. An intermediate step of more monitoring may be precisely a legitimate and necessary part of the AMP. But the adaptive management component is, or should be, an essential component of an AMP. It was also noted that more monitoring might not get to cause and effect so that a special study may be required. There was a clear message from EMAB's community representatives that more monitoring is not desirable; it is action that is needed.

As approved by the Directors, the Agency will be invoiced for half the costs of the technical review and EMAB covered all of the costs of the workshop other than Agency Director participation. The Directors reviewed the revised version of the technical review and identified a few minor errors to be corrected.

The Directors made some other comments on the BHPB WAMP. It appears likely that the Agency would probably recommend that the response to adverse changes should not be simply intensified monitoring. More research and presentation of options with the objective of timely mitigation would be more appropriate. Close consultation with stakeholders on thresholds and triggers to determine what level of change is deemed acceptable is also important. The BHPB AMP concentrates on abiotic characteristics so there is a need to look at biota as well.

It was decided that the final version of the technical review will be sent to the Wek'eezhii Land and Water Board (WLWB) now rather than wait for the formal review process to recommence. The report has already been submitted by EMAB and the report focuses on a high level review, something that the WLWB has indicated an interest in for this initial round of comments from interested parties.

Action Item #2 – Kevin to compile the desired changes to arrange for a final version of the technical reviews of the Ekati and Diavik AMPs.
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## LLCF WATER QUALITY PREDICTION MODELS

It was noted that the LLCF models handle the physical flow of water and contaminants through the area relatively well but that chemical processes are not considered. The second version of the model focuses on chloride and nitrate (likely the most important aspects) but further work is needed on other contaminants of potential concern. Pore water does not appear to be a large or important input into LLCF water quality in the modeling done by the company. Predicting water quality in the various cells can be done for Cells D and E but Cells A, B and C are considered as a single unit. The model reports are not for approval of the WLWB but comments submitted before June 20 will be passed on to BHPB for a response.

Action Item #3 – Laura agreed to revisit her earlier comments on the models and to prepare a draft letter for circulation amongst the Directors by June 13, and that the letter then be sent to the WLWB by Agency staff.

#### 2007 WILDLIFE EFFECTS MONITORING PROGRAM REPORT

The Directors reported that the report was well done and there were some suggestions for improvement. Comments are to be sent to BHPB and GNWT Environment and Natural Resources (including the Wildlife Division).

Action Item #4 – Kim agreed to revisit his earlier comments on the 2007 WEMP report and to prepare a draft letter for circulation amongst Directors, and that the letter then be sent to the BHPB and others, by Agency staff.

#### 2007 AQUATIC EFFECT MONITORING PROGRAM REPORT

It was noted that the heavy metal selenium was measured above the CCME level downstream of Ekati for the first time. Selenium affects the growth and survival of fish fry. Unfortunately no winter dissolved oxygen measurements were taken due to equipment failure. This means that there is no evidence to suggest the winter aeration in Cujo Lake or other water bodies was successful or even necessary.

Fish condition is good for round whitefish and lake trout and the fish are bigger than in 2002. This could be due to less competition for food as sampling mortality in the AEMP sampling process probably resulted in smaller populations. A small catch per unit effort was found as predicted due to the smaller populations in the affected lakes after the last sampling year of 2002. Gill nets are used to capture these two species while electro-fishing is commonly used in the lakes for slimy sculpin. Molybdenum and mercury are the contaminants of greatest interest found in fish. Twenty-four of the lake trout livers have a higher concentration than Health Canada guidelines. These are generally older fish (20+ years).

Action Item #5 – Tim and Laura to provide comments on the 2007 AEMP by June 13 for internal review, followed by submission to the WLWB by June 20.

#### EA IMPLEMENTATION MEETING

Lionel Marcinkoski (DIAND), Jason McNeill (GNWT) and Laura Tyler (BHPB) were the EA signatory representatives present for the June 2, 2008 Environmental Agreement implementation meeting. Some key issues discussed included the Fay Lake kimberlite spill. It was speculated that the inflow of water during freshet to Cell B of the LLCF may have caused the processed kimberlite to remobilize. The regulators and the company are carrying out studies to determine what had happened. The spill was estimated to be about 4500 cubic metres of processed kimberlite.

Other comments heard at the meeting from BHPB:

- Special studies to be launched include fish metabolites and Fay Lake follow-up;
- Continuous air quality monitoring – a new location for the building is being considered (near the emulsion plant);
- Sable monitoring – BHPB would like to curtail SNP monitoring at this location because no development has taken place (SNP monitoring is intended to measure compliance with the water licence), the baseline is adequate and the helicopter work poses an unnecessary safety risk;
- No discharge from the LLCF is proposed during 2008 due to nitrate levels higher than CCME guidelines – sources and treatment methods are being investigated including naturally occurring nitrate from a fault entering a pit;
- TK – BHPB has had workshops with some Aboriginal governments to examine how to move forward; and
- Dust suppressant for underground use – there is a need for dust suppressants on the underground ramp and the inspector was asked for authorization (calcium chloride is now being used on a temporary basis).

Government observations:

- Mediation agreement was reached regarding allocation of Agency expenses to the Separate Fund;
- GNWT is prepared to let the 2006 Environmental Impact Review go as the report cannot be fixed - the air quality monitoring cannot be redone. GNWT is pleased with the progress towards improving air quality monitoring at Ekati;
- DIAND is waiting for the plain language summary before beginning the formal review of BHPB's 2007 Annual Environmental Report;
- DIAND is going to respond to the Environmental Agreement five-year review letters from the Agency and NSMA (recently received via the Agency); and
- The Multi-Project Environmental Monitoring Agency steering committee will be meeting on June 17<sup>th</sup>.

## SCHEDULE PLANNING

The Agency Ekati site visit and Lutsel K'e board meeting is planned for September 9-10 and 11-12, respectively. The tentative plan is to fly to Ekati on the 9<sup>th</sup> and overnight there, then charter the following afternoon to Lutsel K'e. A board meeting would take place in Lutsel K'e September 11 and 12 until the flight leaves in the early afternoon. An open house could be held on the evening of September 11. It was noted that Arctic Sunwest (Lutsel K'e Air) has a better pick-up service and is a joint venture with the First Nation.

The areas the Directors would like to see during the mine site visit include:

- Fay Lake spill;
- Old Fox portal to see revegetation research;
- Airport Esker to see revegetation;
- Phase I camp and PKCF;
- Cell B west side road and Cell A new higher road;

- Ammonium Nitrate storage facility;
- Pigeon;
- Panda Diversion Channel;
- Nero-Nema fish habitat work;
- Beartooth Pit; and
- Panda/Koala UG entrance.

Kim would also like to participate in a caribou survey flight if possible.

Action Item #6 – Tim to arrange Director accommodation while in Lutsel K’e and begin discussions on meeting space and an open house.
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Action Item #7 – Kevin to work with BHPB to arrange the site visit.
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#### INTERIM CLOSURE AND RECLAMATION PLAN SECTION 4 WORKING GROUP MEETING

The Directors discussed the ICRP section 4 working group meeting that took place May 29 and 30. On the topic of Chapter 8 (environmental assessment), the Agency recommended the section include (and BHPB agreed) a residual impacts assessment to inform subsequent monitoring work so we can understand the condition the site is left in. This becomes part of the Reclamation Completion Report that is required under DIAND’s Mine Site Reclamation Guidelines for the NWT.

*Reclamation Research plan* – major improvements suggested to the research plan including removing the emphasis on past research that has been done and focusing on the main uncertainties. There appears to be a commitment from BHPB to establish the linkages from the uncertainties to detailed research tasks and activities that are then scheduled according to the Life of Mine Plan and related closure activities. The Agency has offered to meet with BHPB to work through an example of the critical path of research to ensure the deadlines are met for when mine components begin to close. The timing is a very serious issue that others raised at the working group too.

*Other topics* – at Misery Pit some natural infilling of the pit with water has taken place. A new water licence and fisheries authorization would be required for pit flooding using source lakes. BHPB will develop a separate Beartooth reclamation submission as it is set to close after the likely approval of the current ICRP. The Phase One Camp reclamation and closure will be part of that submission or perhaps a separate one. A separate process will follow the ICRP approval for a new reclamation liability estimate and financial security. BHPB intended that no new information be included in the ICRP after the original submission date of January 2007, including its own studies and research that have recently been submitted. It indicated that it would make some exceptions to this rule. The WLWB encouraged reviewers to specify any research that was sufficiently important to the ICRP that it should be included in the final version submitted later in 2008.

As for next steps, verification comments are due June 6. The WLWB will likely issue a direction letter to BHPB on or about July 17. BHPB had requested four months to revise the ICRP, and the Agency requested an extension for review of this revised version of the ICRP to allow for a six-week comment period. A final working group meeting would then be held followed by a public hearing probably in early 2009.

Action Item #8 – Staff to circulate the completed letter on the ICRP section 4 verification comments prior to the deadline.

Action Item #9 – Arrange a meeting with BHPB to discuss the reclamation research timelines.

#### WASTE ROCK SEEPAGE REPORT

The Directors noted that the 2007 waste rock seepage plan had been received and that June 30<sup>th</sup> is the deadline for comments. Tony agreed to review the seepage report.

Action Item #10 – Tony to review the 2007 waste rock seepage report to determine if further action is warranted.

#### SABLE PIGEON AND BEARTOOTH WATER LICENCE RENEWAL

The Directors considered the upcoming response to the request by the WLWB for further rationale on the potential public interest benefits of amalgamation of the SPB and main water licences:

- Special studies such as the proposed chloride discharge criterion done for one licence would then be applicable to the entire site;
- Changes the company proposed to licence the 008 have the effect of harmonizing reporting and other activities; and
- The financial security for the mine could be simplified.

If amalgamation of the licences is not possible, a condition that gave the WLWB discretion to direct that terms and conditions of the 008 could be made to apply to 0013 might be an option. An expiry date on the SPB renewal or August 2013 would also bring together both licences for renewal at the same time.

The same standard site wide for water quality makes sense – BHPB has requested harmonization of the effluent quality criteria. Some of these changes can be made through harmonization if amalgamation proves to be not possible as a solution.

Action Item #11 – Kevin to draft the response to the WLWB letter on additional rationale for amalgamation of the water licences, and circulate to the Directors.

## 2007-8 AGENCY ANNUAL REPORT

Some analysis of the Agency recommendations from 1997-2008 was presented to the Directors. An attempt will be made to include it in the annual report if space is available.

The Directors also reviewed the first draft layout of the 2007-8 Annual Report over the course of the meeting. There was some discussion on the production of the plain language version of the annual report.

Action Item #12 – Tim (aquatic monitoring component) and Jaida to write the plain language version of the Annual Report with Sean, who will coordinate the process.
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## EXTERNAL REVIEW OF THE AGENCY

There was some discussion on the need for and desirability of an external review of the Agency given that the last one was conducted in 2000 and MPEMA does not appear to be making much progress. It was agreed to revisit this point at the September 2008 Board meeting.

Action Item #13 – Kevin to prepare and distribute draft terms of reference for an external review of the Agency for further discussion at the September 2008 Board meeting.
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## COMMUNICATIONS TOOLS FOR YELLOWKNIVES DENE FIRST NATION

A communications tool requested for the Yellowknives Dene was discussed. The Yellowknives are looking for a chronology of the development of the mine site and environmental problems, important regulatory milestones and Agency activities. The Directors discussed various ways to address the request. During the discussion, it was also decided that a blog should be tested as another way to communicate Agency and other activities relating to the environment and Ekati.

Action Item #14– Sean to develop a draft blog site and staff to work on a chronology of development of the Ekati mine, regulatory milestones and Agency activities, for the upcoming September meeting.
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## MEETINGS WITH OTHERS

### *DFO – Bruce Hanna*

Bruce repeated the invitation to have the Agency (and others) comment on the Agreement in Principle (AIP) reached with BHPB, with comments due on June 13. The next step is to finalize the agreement into specific work commitments. The Directors mentioned that a guiding principle should be that aquatic life must benefit from this arrangement. The Agency view is that although there may be an agreement reached between BHPB and DFO, this really has nothing directly to do with the closure and reclamation requirements under the Environmental Agreement and the water licences.



Putting the shallow zone in place does not necessarily mean there will be fish habitat or passage. DFO agreed with the Agency that the research on pit lakes should continue under the original approved Pit Lakes Studies Terms of Reference. The Directors noted that the AIP does not make specific mention of fish passage and the onus is on DFO to authorize BHPB to remove fish barriers. The Agency view is that the ICRP ought to make sure that BHPB leaves water in pits in such a way that fish passage would be permissible and that this is a desirable end state. An agreement between DFO and BHPB cannot fetter the discretion of the WLWB with regard to aquatic life at closure.

The Directors asked DFO if there is a plan to consult with the Aboriginal groups on the AIP. While some Aboriginal groups are not participating in the ICRP an option to comment on the AIP exists now. Following the deadline for comments, DFO will move forward to reach a definitive agreement.

AEMP fish studies – It was noted that Slimy Sculpin parasites are higher immediately downstream of the mine. This is normally a sign of stress in the fish. It was agreed that the company may want to look into this issue further into the future.

*WLWB—Kathy Racher and Ryan Fequet*

Various topics were discussed with the WLWB staff including the WAMP review start date and the merit of the Agency submitting comments before the review process begins.

*Sable, Pigeon and Beartooth Water Licence Renewal* -The WLWB staff stated that the Board has deemed the Sable, Pigeon and Beartooth water licence application exempt from the screening phase. The next step is to review period the application and supporting documents. Further comments are to be requested on the amalgamation issue with rationale as to why amalgamation may be in the public interest. BHPB is concerned that this may involve reopening the main licence and has written to the board to oppose the amalgamation. The deadline for comment is the end of June 2008. The Directors mentioned that there are financial security issues that could be clarified by amalgamation. Different standards in different parts of the operation along with different definitions of key terms are also a concern. The WLWB is taking the amalgamation issue seriously and intends to provide detailed Reasons for Decision.

The Directors asked if exemption from screening would still apply if amalgamation of the licences occurs. The WLWB staff replied that they did not know what would happen in this scenario. BHPB has argued that only terms and conditions can be amended not the entire licence, yet the WLWB could effectively change the licence by amending every term and condition.

On the topic of the deadline for comments on the renewal application itself, the WLWB is interested in submissions that respond to BHPB's suggested changes.

*Interim Closure and Reclamation Plan* – It was noted that the ICRP working group meeting took place the previous week. The WLWB is now awaiting verification

comments, and an advisory from the Staff to the Board will be prepared and the Board then may issue further direction to BHPB on the final working draft of the ICRP. The response from the Board should be around July 17<sup>th</sup> and following this there will be four months for BHPB to re-write the ICRP. The working group will have another look at the document and another meeting to discuss it.

*Watershed Adaptive Management Plan* – The WLWB staff noted that ‘effect size’ was required to be reviewed (BHPB has stated that this work is found in its AEMP but it is actually the concept of minimum detectable limits) but it is not clear if BHPB consulted with any party about effects sizes. The EMAB workshop was helpful in better defining what should be in adaptive management plans. The Board is interesting in hearing from parties about the key support documents (i.e. LLCF Water Quality Prediction Models and the Variability Study) before proceeding with the formal review of the WAMP and may provide further direction to BHPB.

*LLCF Water Quality Prediction Models* – These reports are not for formal approval by the Board but comments received before June 20 will be sent on to the company for its response. The model was requested as a condition for approval of the AEMP review and directives can be given if the company has not fulfilled the requirements of that review. Any comments on utility of the models and what questions are left unanswered would be valuable for the WLWB. The Directors replied that the Agency view of LLCF model is that it is extremely valuable. The basic models appear reasonable but some variables were not included and further work needs to be done. The WLWB has Don Hart reviewing the models, the 2007 AEMP and the 2007 Annual Environmental Report.

#### *Meeting With BHPB – Eric Denholm*

The Directors invited Eric to discuss current events at Ekati. Eric provided a presentation that included an update on the clean-up efforts at the Fay Lake kimberlite spill. BHPB is planning a workshop on the Variability Study (part of the 2007 AEMP report) to include some consultation on effects sizes or variability as required as part of the licence. No dates have been set but this should happen during the late summer. The company will also be reporting on the relationship between hardness and toxicity of chloride, and the Waste Rock and Ore Storage Management Plan will be updated. The 2007 PDC report should be available soon, and the plain language version of the 2007 Annual Environmental Report should be distributed by the end of June 2008.

*LLCF effluent management* - Due to the steady increase in nitrate in the LLCF effluent, BHPB will not discharging from the LLCF during 2008. Effects on Leslie Lake will be examined but Little Lake and further downstream benefit from the Kodiak Lake inflow of water that comes from the PDC and beyond. BHPB will be investigating possible nitrate sources, mitigation and treatment options. Based on the gross load into LLCF of nitrate and ammonia it does not appear that the blasting practices can improve substantially. Treatment options for nitrate could include ‘hanging curtains’ (with phosphorus to encourage algae blooms to remove nitrate) and have been attempted in field trials.

*Fish hydrocarbon metabolites* – The Directors asked BHPB if it is possible that underground mine water could be high in hydrocarbon as figures in the ICRP table (tracking number 168) indicate there could be substantial inputs from the underground operations. Eric promised to get back to the Agency with information on underground hydrocarbon contamination in the water. There will be a 2008 special monitoring program on cell E of the LLCF and Leslie Lake to see if similar results are identified with the hydrocarbon metabolites in fish.

*AEMP clarification* – The Directors noted a difference in data in the AEMP on the number of instances of lake trout livers containing mercury in two different sections of the report. BHPB will look into this issue. Eric also agreed to share Michelle Gray's study on slimy sculpins with the Agency.

BHPB mentioned that each year BHPB does some pumping of water from Misery Pit. Drilling into the pit that occurs on occasion also requires lower water levels. Eric will report back on whether the Misery pit water quality sampling is being done.

The Directors noted that there was no sampling for dissolved oxygen during winter 2007 as part of the AEMP. The Directors wondered how BHPB was determining whether Cujo and Kodiak Lakes required aeration or not. Eric mentioned that the equipment was defective and that a second set was purchased and the original set was repaired so that there are now two sets at site. He mentioned that there was aeration of Kujo Lake and that none was carried out for Kodiak Lake after consulting with DFO.

*September site visit* – The Directors and BHPB agreed on the upcoming Agency site visit in September (9-10<sup>th</sup>). There is the potential to take the scheduled flight to Ekati on Tuesday the 9<sup>th</sup> and leave by charter to Lutsel K'e on Wednesday the 10<sup>th</sup> in the afternoon.

Schedule Planning – Next meeting at Ekati and Lutsel K'e in September 9-12, 2008

Meeting Adjourned

Summary of Discussion Approved by

-ORIGINAL SIGNED BY-

Jaida Ohokannoak, Secretary-Treasurer.