

***Independent Environmental Monitoring Agency  
23<sup>rd</sup> Meeting of the Board of Directors  
Yellowknife, Northwest Territories  
March 30<sup>th</sup> – April 1<sup>st</sup>, 2001***

***Summary of Discussion***

---

Directors

Red Pedersen	Marc Stevenson
Peter McCart	Bill Ross
Tony Pearse	François Messier

Staff

Zabey Nevitt	Robin Staples
--------------	---------------

---

**Friday March 30<sup>th</sup>, 2001**

Meeting called to order by chair at 8:30 am

Agenda reviewed and accepted.

**Meeting Preparation:**

Directors discussed issues and concerns for upcoming meetings with the DIAND inspector, personnel from BHP and from the department of Resources, Wildlife and Economic Development (RWED).

Directors reviewed past inspection reports and briefly discussed a letter from Donald Andre of the Gwich'in Renewable Resource Board regarding monitoring and assessment of cumulative effects in the NWT.

***Action Item # 1***

Marc to draft Agency response to Donald Andre's letter.

**Meeting with DIAND Inspector (Darren Unrau)**

Darren provided an update on the various developments and ongoing activities at the Ekati™ mine site.

*Misery:*

- At his inspection in February he noted there was insufficient effort from BHP in starting the King Pond dam, as for example, an appropriate crusher was not being used. The engineering plans and schedules for dam construction that Darren requested have been received and it was noted that the construction schedule was tight and the potential exists that the dam may not be fully constructed by freshet.

- The waste rock dam at the east side of the waste rock pile will probably not be built in time to capture the snow pack runoff, but is to be completed before the anticipated seepage from the waste rock occurs this summer. The waste rock dam at the west end of the waste rock pile will probably not be constructed this summer.
- The total suspended solids (TSS) of the remaining Misery pit water continue to be a problem and Darren noted that a sump would be created for the Misery operation. Darren also mentioned that if the water could not meet TSS requirements then it would have to be pumped back into the pit.
- Darren noted that he feels that elevated ammonia and TSS may be the only significant concerns from the runoff and he might let the runoff go into Lac de Gras if it is determined to be natural runoff and meets licence discharge limits.
- In regards to land treatment at Misery, Darren believes that BHP will probably need additional approval from the Mackenzie Valley Land and Water Board (MVLWB).
- The ongoing problems at Misery camp including food & fuel handling, and wildlife habituation requires that the camp be more closely monitored. Increased inspection efforts from both Darren and personnel from RWED may be required.
- Acid Base Assessment (ABA) testing for Misery schist will be discussed in BHP's Annual report.

*Panda:*

- As pH is still an issue, BHP has initiated construction of a seepage retention berm around the east side of the Panda waste rock dump. The berm is being constructed out of till material mined from the Koala Pit and will be 30 – 50 metres wide and approximately five metres in height. BHP's intention is that seepage water that reaches the berm will freeze and be contained. Seepage monitoring in this area will be required over the summer to determine the effectiveness of this mitigative measure.
- Seepage stations 1, 15 and 22 will be covered up by the berm and will need to be moved. Seepage stations 18 & 19 will remain open.
- Thermister cables will be installed into the berms to monitor temperature conditions within it.

*Long Lake:*

- Tailings are currently being discharged into cell C, but this will change in the summer as discharge is redirected into cell B. Summer discharge into cell B will probably continue for two more years.
- The tailings characterization field drill program has been completed and it was indicated that a report would be available shortly.
- No water is being discharged from cell E to Leslie Lake at this time.

*Fox:*

- Construction of the all weather road to the Fox site will start this summer. Geotechnical drilling at the Nema-Nero stream crossing is also being carried out to determine what structures will be required to complete road construction.

- The Fox Lake fish out is to be commenced this summer pending approval from the Department of Fisheries and Oceans.

The road to Paul Lake was also briefly discussed.

The meeting with Darren Unrau was adjourned.

**Meeting with BHP (Scott Williams, Chris Hanks, Derek Chubb, Denise Burlingame)**

BHP personnel provided an update on the various developments at the mine site and discussed ongoing activities, which they are involved in.

*Waste Management:*

- Waste management building is working well and recycling programs continue to be successful.
- The annual clean up of the mine site will occur in early June after snow melt.

Following a discussion on the recent waste management problems identified at the land fill sites, Scott noted a number of mitigative measures that are being implemented at the Misery camp.

- Incinerator area will be reconfigured to make it impenetrable to wildlife.
- Skirting will be placed around all the buildings at camp.
- Electrical fencing will be placed around the camp, but activated only in the summer.
- Pipe covering will be modified to make them unattractive to wildlife.
- Continued training to educate employees and change behaviours in respect to waste management and feeding of wildlife.

*Waste Rock Management:*

- On April 23<sup>rd</sup> a meeting will be held to discuss the 2000 Panda Waste Rock, Beartooth – Bearclaw drainage Area Seepage Survey and the proposed workplan for 2001.
- Temperature data collected from the Panda waste rock pile is indicating that permafrost and super cooling is occurring with the waste rock pile.
- A toe berm is being constructed around the east side of the Panda waste rock pile to contain seepage.
- Thermister cables have been placed in the Misery waste rock pile.

*Reclamation:*

- A presentation on April 17<sup>th</sup> will describe the Monto Carlo Simulation model that BHP is using to estimate the reclamation liability of the Ekati™ mine.
- Research work continues on salt tolerant vegetation.

General discussion on when reclamation is considered completed and if reclamation criteria and standards are being addressed. Long Lake reclamation and revegetation experiments were also discussed.

### *Aquatic Monitoring*

- Levels of dissolved oxygen at Nema and Little Lakes are improving.
- Dr. Welch, of Northwater consultants, is writing a paper on dissolved oxygen in northern lakes.
- Comprehensive snow survey monitoring will begin shortly at the mine site.
- Andrew Hammond of BHP and Gerry Atatahak will oversee the fish out at Fox, which is to commence this summer.
- Snow clearing will begin shortly in the Panda diversion channel.

### *Wildlife Monitoring:*

- A request for proposals for the 2001 wildlife effects monitoring program has been issued.
- Wildlife monitoring at the Misery site will be increased this summer.
- Alan Niptanatiak will once again be helping out with wolverine surveys.

Following a discussion on fox trapping and management at the mine site it was recommended that evidence of wildlife habituation should be documented.

In addition, Directors inquired as to where reclamation work would be reported and noted that a summary on habitat reclamation is needed in the wildlife effects monitoring program report. Directors of the Agency also expressed their dissatisfaction with BHP's response to the Agency's follow-up requests relating to the wildlife effects monitoring report and discussed the importance and reasoning behind the questions in the request.

### *Permitting:*

- BHP is still working closely with the Mackenzie Valley Land and Water Board (MVLWB) to determine what specific permitting requirements may be needed for future developments at the EKATI™.
- For the Fox pipe, the preliminary screening has been completed and approved by the MVLWB. The process has thus moved into the regulatory phase and the public hearing will take place on May 14<sup>th</sup> – 15<sup>th</sup>.
- At this time, BHP will not be submitting an application to use the Ursula quarry.
- Work continues on the permitting of the Sable road and an application for a land use permit and water licence will be sent to the MVLWB shortly.
- BHP and Echo Bay mines are working together to consult with aboriginal groups on the re-licensing of the Lupin winter road.

General discussion on Misery land treatment and BHP personnel noted that a monitoring program would be put in place to monitor water quality from land treatment.

### *Traditional Knowledge (TK):*

- Phase II TK studies are ongoing.
- BHP has entered into a partnership with DeBeers to fund a Lutsel K'e TK project on land use planning.
- The archeological program for this summer is currently being developed and will involve the Dogrib Treaty 11 and the YK Dene First Nation. It was noted that the Lac de Sauvage narrows and areas around Fox Lake would be studied.

- Work also continues on the North Slave Metis Alliance (NSMA) and Prince of Wales heritage centre's GIS projects.
- Andrew Hammond, an archaeologist with BHP, will help facilitate aboriginal visits to the mine site during spring migration among other activities, as Chris Hanks will be spending a significant portion of his time dealing with the closure of BHP's Island Copper mine in British Columbia.

General discussion on aboriginal groups visiting the mine site to observe caribou migration and the reporting of their observations.

The Directors also expressed a need to place more emphasis on the process of increasing aboriginal participation and incorporating traditional knowledge into environmental management at the mine.

*Other Issues:*

- Scott noted that he is comfortable with the Agency's work plan and budget and will be sending a cheque shortly. Both the Agency and Scott expressed their pleasure with how well the negotiation process went this year.
- BHP's annual report is to be distributed shortly and the plain English summary is currently being worked on.
- Community visits by BHP will be less formal this year and attempts will be made to visits schools in the communities.
- The aquatic and wildlife monitoring workshop summaries have been distributed.
- The potential merger of BHP and Billiton will have no effects on operations or management structure at Ekati™.
- BHP and Arslanain cutting works are teaming up to market high end Ekati™ diamonds.

**Meeting with RWED (Steve Mathews, Doug Stewart, Robert Mulders)**

Agency Directors and personnel from RWED discussed a variety of issues and concerns that they had in regards to wildlife monitoring at Ekati™. These issues and concerns are noted below:

- BHP has given no formal response to RWED's review of the 2000 wildlife effects monitoring program or RWED's letter addressing carnivore problems at the mine site.
- Issues of food handling and wildlife habituation at Misery camp need to be addressed soon, especially considering that grizzly bears will be emerging soon. RWED personnel noted that Andy McMullen's bear awareness video, which has been recently released, is going to be incorporated into BHP's training program.
- Environmental training of contract workers at the mine, especially at the Misery camp, appears to be less than adequate and remains a concern.
- An increased number of visits by conservation and inspection officers may be required to monitor waste management problems at the mine site.
- The large numbers of foxes being relocated or killed at the site indicate that fox management and relocation practices need to be reviewed.

- Clarification and communication is required between BHP and RWED with regards to the handling of dead wildlife at the mine site.
- The upcoming Sable road application should be reviewed carefully to determine the likelihood of impacts on wildlife.
- A summary on habitat reclamation is needed in the wildlife effects monitoring program report.
- Wildlife research that is not limited to single projects is required to successfully address cumulative effects. There is a need for industry to participate in these larger scale wildlife research initiatives.
- Although a number of initiatives are in place, a common protocol is required to ensure that wildlife research data is compatible and is being shared to address cumulative effects concerns.
- Levels of dialogue and remedial actions need to be improved. RWED personnel have expressed to BHP that they are interested in meeting to discuss these and other wildlife monitoring concerns. The Agency also noted that they are interested in participating in such meetings.

***Action Item # 2***

Zabey to follow-up with personnel from RWED on proposed meeting with BHP, RWED, Agency and others to discuss recommendations arising from the wildlife effects monitoring program workshop.

Meeting adjourned for the day.

***Saturday March 31<sup>st</sup>, 2001***

Meeting called to order by chair at 8:30 am

**Information Updates:**

Chair: Red noted that he is visiting the office on a regular basis and continuing to meet with various people (including Jim Ross of Amec Environmental Services). While in Kugluktuk, Red met with the members of the hunters and trappers organization and also discussed the recent aquatic and wildlife workshops with a few people. He mentioned that overall those he spoke to who attended the workshops found them to be useful, but did note that the quality of BHP's answers did tend to reflect who was asking the question. Red also participated in the meeting with the Lutsel K'e wildlife and lands committee on March 14<sup>th</sup> and noted that the Agency was well received and that there was good elder participation. Concerns regarding caribou health, traditional knowledge research, environmental monitoring and funding were all discussed. The chair also participated in a meeting with the Environmental Monitoring Advisory Board for the Diavik project. The environmental monitoring paper published by the Agency was discussed and members from both boards expressed that they look forward to cooperating with one another. Red also met with Chris Hanks & Denise Burlingame of BHP, in regards to implementation of traditional knowledge by

BHP. In addition, Red attended the regulatory conditions workshop hosted by the MVLWB.

Pete: Noted that he too took part in the meeting with the Lutsel K'e wildlife and lands committee on March 14<sup>th</sup>. During his visit to Lutsel K'e he discussed the Stark Lake project with committee staff and offered advice on the research project in addition to presenting his assessment of what may be happening biologically in the lake. Pete mentioned that this project offers a good opportunity for people in the community to do some baseline research on the lake in addition to acquiring some training. Pete has also met with Aalice Legat of Dogrib Treaty 11 to discuss the Dogrib fish habitat compensation program research proposal. He noted that he is willing to offer any support he can to aid these two research programs, among others. Pete also mentioned that he has discussed his concerns about historical zooplankton data with Deborah Muggli of Rescan. Pete is to meet with Deborah and Jim Millard of BHP in the near future to discuss other aquatic data concerns.

Marc: Noted that he also attended the meeting in Lutsel K'e on March 14<sup>th</sup> and mentioned that it appears that funding for research is becoming more of a concern in the community. Those in the community attending the meeting expressed that they would appreciate any support the Agency could offer in promoting community research activities. He noted that there is a side benefit from these TK research studies for community training development. Marc also met with Chris Hanks of BHP a number of times to discuss how TK studies are being incorporated into BHP's environmental management. In addition, he met with Bob Turner of the North Slave Metis Alliance and Aalice Legat of Dogrib Treaty 11 and they both expressed support for a TK working group. Marc indicated that Aalice is still interested in the baseline TK studies that are currently ongoing. Marc noted that he has reviewed the recent TK reports published by Dogrib Treaty 11 and by Natasha Thorpe and is working on the TK section of this year's agency annual report.

Following Marc's update, there was a brief discussion on BHP's response to the Agency's annual report recommendations on TK and how BHP documents and uses TK work that they are involved in.

François: Mentioned that he has been working on the Agency's response to BHP regarding the recent aquatic and wildlife workshops and the wildlife effects monitoring program report. He also noted that he is encouraged to see that BHP has become more receptive to having its consultants approach experts outside the company for clarification and additional information. He sees this as a positive step to improving the quality of the BHP's monitoring programs. François has also been working on a number of treasurer items.

Bill: Reviewed any Agency documents that have been sent to him (e.g. Fox pipe amendment, first drafts of the Agency annual report, and etc...). He has also been involved in teaching a cumulative effects course in Banff, Alberta.

Tony: Noted that he also been reviewing all Agency documents that have been sent to him. In addition, as it was requested, Tony offered support and clarified some of the issues surrounding the Fox pipe amendment to Dogrib Treaty 11 environmental staff.

### **Staff Update**

Zabey: Briefly summarized the detailed staff activity report that was provided to the Directors, which described the activities of the staff since the last board meeting. Zabey went into further detail on some of the items on the report including: drafting of articles for the Agency annual report, arranging and participating in the meeting with the Lutsel K'e wildlife and lands committee, and completion of the public registry update.

After the staff update, there was a brief discussion on the differences in community consultation and liaison between BHP and Diavik and it was noted that Diavik's increased efforts appear to be resulting in more success.

### **Seepage Survey Update - (conference call with Kevin Morin & Nora Hutt of the Minesite Drainage Assessment Group)**

After introductions, Kevin led the Directors through the draft report that he and Nora had produced for the Agency reviewing the seepage and waste rock geochemistry information provided by BHP. Kevin briefly summarized the deficiencies in the reports that BHP and their consultants submitted and responded to the questions previously posed by the Agency.

- BHP and SRK Consulting are not submitting all the geochemical data. A substantial amount of data was not accessible as spreadsheets or data summaries. It is apparent that a clearer presentation of the data is required.
- BHP and SRK Consulting are not discussing and interpreting data for all the seeps as required by the water licence. Some of these seeps that are not being reported on, appear to have acid rock drainage (ARD).
- ARD appears to becoming more severe and extensive with time and as a result, concentrations of some metals are increasing.
- It was noted that ARD may be moving through the shallow groundwater system were it cannot be easily detected and it may also not be following previously determined drainage divides. It is recommended that BHP conduct further groundwater studies to determine if this is indeed the case.
- BHP's interpretations about the causes of water quality changes appear to be reasonable and technically supported. Sulphide oxidation and ARD have been identified as the cause of some acidic seeps with elevated sulphate. Other causes have been identified to explain the naturally acidic background tundra water. Thus, it is recommended that pH and sulphate should be linked as a set of criteria to differentiate ARD from acidic tundra water.
- The criteria that BHP and SRK consulting used to characterize ARD are not suitable and according to Kevin there appears to be significantly more cases of

ARD then were reported. In addition, since future pipes at Ekati™ are predicted to contain waste rock similar to the Panda pipe, ARD could be expected to pose an even larger water-management problem in the future.

- The failure to predict ARD at Ekati™ does not indicate a problem with the methodology, but rather incorrect interpretation of the data.
- Overall, concerns remain regarding the fact that BHP and SRK consulting cannot adequately explain why ARD has occurred and what its causes are. BHP needs to continue studying this issue and implement mitigative measures to deal with these emerging water quality problems. The toe berm around the east side of the Panda waste rock pile appears to be a mitigative step to contain this seepage.

***Action Item # 3***

Zabey to draft response to BHP that delegates from the Agency and Kevin Morin will be attending the April 23<sup>rd</sup> seepage workshop. Kevin Morin will also be making a presentation at the workshop and paper will be presented.

***Motion:** Approval of contract for Kevin Morin to attend the April 23<sup>rd</sup> seepage workshop and to make a presentation. Directors approve additional expenditure.*

Motion unanimously passed on the 31<sup>st</sup> day of March 2001.

**TK working group update**

Marc gave an update on the reformation of a TK working group and initiated a discussion on some outstanding issues:

- Dogrib Treaty 11, NSMA, KIA, and Lutsel K'e have all expressed that they would like to discuss further the creation of such a group.
- The funding arrangement and involvement of BHP needs to be addressed. BHP has indicated that it will not support a TK working group as it was previously set up.
- Communication lines need to remain open between all the parties that are involved and information should be shared to improve environmental management at EKATI™ and any other mines under development.
- Traditional knowledge and western science need to be considered equally valuable in terms of improving environmental management at the site.

Following the TK working group update, the Directors discussed differing views on the determination of consensus for decision making, and the implications this may have to the development of Agency positions.

**Fish habitat compensation fund update**

Pete and Zabey gave a brief update on the fish habitat compensation fund and noted the following:

- Out of the first round of proposals received by DFO, the NSMA project is the only project currently being funded. The Dogrib Treaty 11 and Lutsel K'e proposals are being evaluated and have not, as yet, received funding.

- At this time, second round proposals have been received from: Dillon Consulting to enhance habitat at Mathews Lake, Kitikmeot Inuit Association to enhance the sewage lagoon in Kugluktuk, the Deton Cho Corp for improvement work in Back Bay by N'dilo, and a letter of intent to submit a proposal was submitted by the Yellowknives Dene First Nation.
- DFO has indicated that there are specific criteria that must be met in order for DFO to approve any fish habitat compensation fund proposals.

In addition, Pete noted that he has been in contact with personnel from the Dogrib Treaty 11 Council and Lutsel k'e wildlife and lands committee and has offered support and advice on these research proposals.

### **Staffing**

Directors noted that they are happy with the work of the communications assistant and indicated areas for improvement.

***Motion:** to lift probationary period for communications assistant and offer permanent employment.*

***Motion:** to change position of communications assistant to environmental analyst and increase salary to \$55,000 with benefits.*

Motions unanimously passed on the 31<sup>st</sup> day of March 2001.

### **Reclamation**

Directors discussed the reclamation work that is ongoing at the mine site, specifically the results from the 1999 and 2000 reclamation research programs. Major points to be included in the annual report reclamation section were also discussed.

- It was noted that the Directors are encouraged by the improved reclamation research program at the mine site and look forward to future research that will result in practical reclamation techniques that can be applied at the site.
- Mention was made of revegetation work on the Long Lake Containment Facility in addition to work on the Panda Diversion channel and at the Fox portal.
- Criteria and Standards for reclamation success are required in order to determine when reclamation is deemed complete. This is also important in terms of determining the cost of reclamation.
- Concerns regarding vegetation uptake of metals and the potential effects to wildlife were also expressed.
- Other revegetation work in the north (e.g., dew lines) was also noted as a valuable source of information for BHP.

The reclamation variance report that is shortly being submitted for the reclamation plan and the Monte Carlo Simulation model presentation were also discussed.

***Action Item # 4***

Zabey to look into the date of the Monte Carlo Simulation model presentation that BHP is hosting and determine if the Agency will attend.

**Sable, Pigeon and Beartooth Update**

It was noted that DIAND is preparing the Minister's response to the Mackenzie Valley Environmental Impact Review Board's environmental assessment report on the BHP expansion. Directors then discussed what would be written in the annual report regarding this topic and how our recommendations and technical comments on the application were received and used. It was also noted that DIAND had solicited comments from the Agency on the MVEIRB's Environmental Assessment report on the proposed development. It was agreed that the Agency would not make any comments to DIAND.

**Aquatic and Wildlife Effects Monitoring Workshop follow-up**

The Directors discussed the Agency letter to be sent to BHP in follow-up to the aquatic and wildlife effects monitoring workshops. Outstanding issues and concerns were noted:

- The workshops were rushed and little time was available for community members or other agencies to make comments and reach accepted conclusions.
- The structural change of the workshops, to more resemble presentations rather than round table discussions, did not result in effective sharing of ideas.
- The purpose and structure of the workshops needs to be reviewed and modified to allow for both technical specialists and community members to effectively participate.

The Directors then briefly discussed some possible improvements to the environmental workshop process that may have the potential to alleviate some of these concerns.

***Action Item # 5***

François to draft letter to BHP regarding BHP's response to Agency's information request on the 2000 Wildlife Effects Monitoring Program Workshop.

***Action Item # 6***

Zabey to consolidate Directors comments on the existing letter to BHP regarding the Agency's comments, recommendations and follow-up from the 2000 Aquatic and Wildlife Effects Monitoring Workshops.

**Annual Report Planning**

Zabey briefly discussed the drafting process change from last year and asked that the Directors review the initial drafts of the articles and focus on content and style. Directors then discussed the content of individual articles and provided comments to staff that were to be incorporated into the second draft.

BHP's response to the Agency's annual report recommendations was reviewed and the recommendations to be included in this year's report were discussed and agreed upon.

***Action Item # 7***

Staff and Directors to continue drafting and editing process of annual report articles.

Meeting adjourned for the day.

***Sunday April 1<sup>st</sup>, 2001***

**Fox Pipe Update**

Directors discussed the Fox pipe amendment application and reviewed the regulatory process. The preliminary screening report by the MVLWB was also examined, as were the comments from other agencies on the additional information package supplied by BHP. The Directors discussed concerns that remained relating to the application.

- The lack of an updated waste rock management plan is a serious concern and it was noted that approval of an updated waste rock management plan should be a precondition to the licencing of mining at the Fox pipe. The current waste rock management plan is inadequate especially considering the seepage issues that are arising out of the Panda waste rock piles.
- Metal uptake by vegetation and the movement of metals into downstream water bodies has still not been adequately addressed by BHP.
- More specific monitoring requirements will need to be discussed with the MVLWB to ensure that land treatment is effectively scrutinized.

It was decided that a strategy for Agency involvement at the Fox public hearing would be developed after the April 23<sup>rd</sup> seepage meeting with BHP.

***Action Item # 8***

Zabey to determine what the scope will be for the Fox amendment public hearing and recommend pre-public hearing consultation and/or meetings if required.

**Treasurer's Report**

The treasurer reported that budget negotiations with BHP for the 2001 – 2002 work plan and budget have been completed. Mention was made that the budget negotiations were harmonious this year and any concerns were easily addressed.

Directors reviewed expenditures and budget projections.

François noted that as of March 31<sup>st</sup> the Agency has spent 98.5% of the budget and that the contingency fund will remain untouched.

Directors noted that the budget has been handled very effectively and that the treasurer has done an excellent job at managing the financial aspects of the Agency over the past year. Support and assistance from the Manager was also much appreciated.

## **Resource Library and Website**

Robin briefly noted he has completed updating the resource library and is currently working on updating the website. He also noted that he would be looking into purchasing adobe writer software for the Agency in order to place documents on the web in *.pdf* format.

### ***Action Item # 9***

Robin to continue updating website

## **AGM Planning**

Directors discussed dates for the annual general meeting, site visit and the next board meeting.

The Directors decided that the next board meeting would be from June 26<sup>th</sup> – 28<sup>th</sup>, 2001 with one day being allocated to the AGM, one to an Ekati™ site visit and one for a regular board meeting.

Directors noted their individual interests in regards to the site visit and discussed options of where the annual general meeting should be held.

*Next Board of Directors meeting: June 26<sup>th</sup> – 28<sup>th</sup>, 2001.*

### ***Action Item # 10***

Zabey to notify BHP on the preferred dates for the Agency Annual General Meeting and mine site visit and to begin looking into the logistics of hosting the Annual General Meeting.

Meeting adjourned at 3:45.

Approved by

Red Pedersen, Chair