Independent Environmental Monitoring Agency

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Re: Highlights from the Environment Workshop December 3, 2008

The Independent Environmental Monitoring Agency (IEMA) hosted a workshop to review Ekati's environmental monitoring and management programs on December 3rd, 2008. We have attached a summary of the workshop for your information. The presentations made by the Agency can be found on our website.

The purpose of the workshop was to review the Ekati monitoring programs, the results for 2007, and to provide the Agency perspective on these programs and results.

The workshop was well attended by community and government representatives. The Agency has a mandate to convey the concerns of Aboriginal peoples to BHPB and government about Ekati and the monitoring and regulation of the mine. This letter and the attached summary help fulfill that mandate.

The Agency would like to highlight the following observations from the workshop:

- There was a concern expressed over the numbers of fish being taken to provide data for the AEMP. The suggestion was made that fewer fish should be taken in order to have less effect on the overall fish population. The Agency would encourage efforts to reduce the numbers of fish taken, provided sufficient data are available in the AEMP.

- There was significant discussion and interest in the significance of elevated mercury levels appearing in fish. The Agency would support further study into mercury levels in fish and whether this is a mine related effect of significance

- There was mention several times of the need for BHPB and Diavik to better collaborate their monitoring efforts in relation to the wildlife and air quality monitoring. There is a strong interest in understanding how wildlife monitoring and related research is reviewed and approved, how TK is incorporated and the extent to which Aboriginal peoples are involved. The Agency supports better monitoring and collaboration between the two mines.

- There is a recurring and persistent concern about dust from the mine site and its possible effects on water quality, fish, vegetation and most importantly, wildlife and caribou in particular.

The Agency is aware of the recent initiative to better coordinate wildlife monitoring programs amongst the diamond mines in an effort to save costs, have more effective programs and contribute information that can better address cumulative effects. We encourage and support this initiative but also suggest there be a role for Aboriginal communities in reviewing any proposed changes to both wildlife and air quality monitoring programs.

We would be happy to discuss any of these matters at your convenience.

Sincerely,

William A. Ross
Chairperson

cc: Society members
Bruce Hanna, DFO
Anne Wilson, Environment Canada
John McCullum, EMAB
Dave White, SLEMA

Summary of Discussion from the Environmental Workshop

Independent Environmental Monitoring Agency

December 3rd, 2008

Prince of Wales Northern Heritage Centre

Participants

Society Members

Akaitcho Treaty 8 (Lutsel K'e First Nation):	Florence Catholique James Marlowe
Akaitcho Treaty 8 (Yellowknives Dene First Nation):	Todd Slack
Tlicho Government:	Eddie Erasmus Jean Michel Louie Rabesca Francis Williah Joline Huskey
Kitikmeot Inuit Association:	Kevin Tweedle Laura Adjun
North Slave Métis Alliance:	Ron Balsillie Shannon Hayden
Wekeezhii Land and Water Board:	Kathy Racher Ryan Fequet
DIAND:	Lionel Marcinkoski Jason Brennan
Environment Canada:	Anne Wilson Jane Fitzgerald
Government of the NWT:	Chandra Venables Erica Nysonnen Steve Matthews Claudia Haas Robert Mulders Dean Cluff

Agency Directors

Bill Ross

Tim Byers

Tony Pearse

Jaida Ohokannoak

Laura Johnston

Kim Poole

Brad Enge

Agency Staff

Kevin O'Reilly

Scott Duguid

Interpreters

Bertha Catholique (Chipewyan)

Margaret Mackenzie (Tlicho)

OPENING PRAYER

The opening prayer was given by Francis William (Tlicho elder).

WELCOME AND AGENDA REVIEW

Bill Ross (Agency Chairperson) began the workshop with a round of introductions. He went on to advise the participants that although an invitation was extended to BHPB, the company would not be participating in the workshop. He made it clear that the Agency was reporting on BHPB's monitoring programs and providing an Agency assessment. He then provided a summary of the mandate of Agency as it relates to facilitating collaborative discussion on environmental matters and conveying the concerns of Aboriginal peoples to the company and governments.

PRESENTATION ON AQUATICS EFFECTS MONITORING PROGRAM (AEMP) AND 2007 RESULTS

Tim Byers opened the round of presentations on behalf of the Directors with a presentation on the 2007 AEMP (all the presentation can be found on the Agency's website www.monitoringagency.net). The following is a summary of the comments and responses as the presentation was given.

James Marlowe of Lutsel K'e wanted an explanation of pH, sulphate, potassium, TDS, chloride, molybdenum and BTEX (benzene, toluene, ethylbenzene, and xylenes). Tim provided a plain language explanation of those terms. Florence Catholique asked for clarification on the locations (lakes) where there are changes in water quality and wanted to know how information is collected. Tim stated that sampling is done four times per year along with data from the Surveillance Network Program (SNP) under the water licences. He also clarified that the lakes where CCME guidelines for some parameters are exceeded are only the ones identified in the slide (Leslie, Moose and Nema).

A representative of Environment Canada inquired as to whether the changes to water quality in Lac de Gras are due entirely to Ekati or are they from other mines. Tim responded that Diavik mine is located on Lac de Gras and contributes to the overall effects.

Florence Catholique asked if the Sable, Pigeon and Beartooth operations are in the Lac de Gras watershed. Tim confirmed that Pigeon and Beartooth are in the Lac de Gras watershed, and Sable is in a

different watershed that drains into Exeter Lake. He further explained that, Pigeon Pond is within the Exeter watershed but the Pigeon development is designed to have its runoff flow into Koala watershed

Todd Slack expressed concern over the numbers of fish being taken to provide data for the AEMP. The suggestion was made that fewer fish should be taken for the 2012 sampling season, in order to lower the lethal sample, and thus have less effect on the overall fish population. Tim advised that there is no indication that there will be a change in BHPB sampling for the fish study portion of the AEMP, which takes place every three years. BHPB has moved to a DELT (deformities, eroded fins, lesions and tumours) approach instead of instituting a fish palatability program as a result of concern regarding oversampling.

Tony Pearse observed that there seemed to be an increase in mercury levels the closer you get to the mine (slide 12). Tim responded that the increases might be more likely due to ages of fish and bioaccumulation of mercury in livers – older fish having higher levels of mercury were sampled in lakes. For example, for those fish having mercury concentrations above Health Canada guidelines: Kodiak Lake average age 25 years, Nema Lake average age 23, Slipper Lake average age 20. Kathy Racher observed that the levels are not consistent as the gradient flows away from mine, regarding mercury.

Discussion then focussed on the apparently high levels of hydrocarbons detected in fish bile as indicated in the AEMP data. Tony asked Tim if these hydrocarbons are naturally occurring. Tim replied that the hydrocarbons are definitely mine related.

James Marlowe asked about what is done with the fish once they have finished testing them. Tim committed to finding out what is done with the fish and communicating that information back to James. BHPB has informed the Agency that those fish remains were put backnto the lakes from which they came to add nutrients to the lake. Florence observed that there is only mention of trout and whitefish in the study, and she wondered if there are other fish studied or tested. Tim replied that he is not sure if there is testing on burbot but promised to get back to Florence. Subsequently, Tim sent word to Florence that burbot are not sampled because they are not plentiful enough in the lakes near the mine to be able to sample without affecting the populations. Florence proposed that if there were high levels of tapeworms in sculpin, there should also be tapeworms in trout or other fish that eat sculpin. Tim conceded that it would be reasonable but there is no indication of tapeworms in trout and whitefish.

Todd Slack questioned about whether there is something going on in the Kodiak Lake system based on the presence of tapeworms in sculpin, and elevated mercury levels in lake trout livers. Tim advised that BHPB was looking at cell "E" as a potential source of contamination but the Agency would remain focused on the whole watershed.

Florence wondered how the AEMP relates to the Interim Closure and Reclamation Plan. Tim replied that the AEMP is in place to ensure that the water flowing through the system continues to meet appropriate guidelines, and it provides data for comparison and trend analysis in relation to the ICRP. There will be monitoring after closure that may include parts or all of the AEMP to ensure that closure criteria are achieved by the company.

Florence noted that there is no mention of mercury levels in the Agency assessment. Tim responded that is due to the fact that there has been no significant increase in mercury in water of AEMP lakes and this contaminant tends to accumulate in sediments which were not studied in 2007. Bill added that the Agency will look at the importance of mercury and whether it needs to be studied more in depth. Florence inquired whether it would be possible to do parallel studies of fish of similar ages in lakes, when looking at mercury to see if there is an issue with mercury and where it might be coming from. Tim added that it could be possible but mercury is also a naturally occurring element.

Brad Enge mentioned that perhaps mercury may be a long range transport issue. Tim explained that evaporated mercury from southern lakes gets transported through cloud to northern lakes where it is deposited by precipitation and remains here due to lower levels of evaporation. There is no indication of a mercury spill at Ekati and there is no mercury used in the mining or milling process.

PRESENTATION ON WATERSHED ADAPTIVE MANAGEMENT PLAN (WAMP)

Tim Byers presented information from the BHPB WAMP. There were no comments or questions during this presentation. The WAMP is currently being reviewed by the Wek'eezhii Land and Water Board, which is expected to provide further direction to BHPB on revising the document.

PRESENTATION ON LONG LAKE CONTAINMENT FACILITY (LLCF) WATER QUALITY PREDICTION MODELS

Laura Johnston presented the information on the LLCF water quality prediction models. She explained that the models are based on analysis and prediction. Brad Enge asked for an explanation of molybdenum. Laura explained that it exists in the processed ore from Misery Pit. It is then placed into the LLCF through the tailings from processing and introduced into the water. It is predicted that molybdenum levels will decrease as Misery ore is no longer being mined or processed. Excessive molybdenum in water is known to affect trout fry. Brad then asked whether chlorides and nitrates are concerns. Laura replied that they are of concern because they are significantly increasing and nitrates have reached or exceeded CCME limits. BHPB has committed to not discharge water from the LLCF unless the CCME guideline for nitrates can be achieved.

PRESENTATION ON 2007 WILDLIFE EFFECTS MONITORING PLAN (WEMP)

Kim Poole presented the results of the BHPB 2007 WEMP.

James Marlowe asked whether there had been any incidents with ducks and geese reported in the WEMP. Kim stated that ducks and geese are not classified as a Valued Ecosystem Component, so they are not specifically monitored, but no incidents with waterfowl have been recently reported.

Steve Matthews made a statement from ENR (Environment and Natural Resources, Government of the Northwest Territories) regarding a November 20 meeting with BHPB and Diavik on wildlife monitoring. GNWT hopes to hear soon from the companies how they intend to work together on wildlife monitoring.

Florence asked how caribou monitoring programs are designed. Kim stated that the design is based on best practices and to collect the information that is needed. The methods are fairly standard from one program to the next. Dean Cluff mentioned that BHPB and others need a wildlife research permit to carry out monitoring programs and that the methodology of the study is open for scrutiny. Florence stated that ENR should ensure the methodologies used by BHPB and Diavik are the same. Kim clarified that the monitoring methods are quite similar but there are differences in timing, distances between flight lines, and size of study area, and suggested that there should be stronger collaboration.

John Michel Louie Rabesca asked when the caribou monitoring takes place. Kim advised that the aerial monitoring generally takes place from about July to October rather than in the spring when the herds are on the way to the calving grounds and may move through the mine sites fairly quickly. Kim further added that the best time to identify if caribou are affected is during the summer and early fall when they are milling around and a zone of influence of the mine can be better studied.

Florence asked who was funding the wolf monitoring. Dean replied that ENR is doing the research in the Lac de Gras area, and it shares its data with BHPB. Florence asked whether BHPB was doing its own wolf studies or is it simply relying on ENR. Kim confirmed that BHPB is not doing its own wolf monitoring and that the Agency has recommended that BHPB look at all historic wolf den sites, including all those within its database. Florence stated that BHPB should have Aboriginal people involved in the wolf monitoring. Kim replied that BHPB has hired Aboriginal monitors and wildlife technicians in the past.

James questioned how researchers determine if it is wolverine that leaves hair on DNA sample posts. Kim explained that it is based on the hair root, from that researchers can identify species, and sex, and individual animals. Florence queried about who funds the bird and wolverine monitoring. Kim responded that those programs are paid for by BHPB.

Florence wondered how monitoring frequency is determined and if there is there a penalty for not doing studies in the time prescribed. Kim said that the frequency depends on the characteristics of what is being monitored and costs, but the idea is to detect changes and trends through time. Bill explained that the issue of penalty is a regulatory issue, not scientific, and that the Agency would look into this issue further.

James asked about whether Diavik and BHPB monitoring may come up with different findings and recommendations. Kim advised that while the Agency only deals with BHPB, he has personally seen both sets of data and there are similarities. He is aware that Diavik has increased the size of its aerial caribou survey study area to account for observed effects.

Florence asked whether TK was used in designing the WEMP and how the WEMP will feed into ICRP. Kim stated while TK may have used to help design wildlife monitoring there is no obvious role for it now in this particular program. Jaida mentioned that the Agency has asked BHPB for many years now to better document how it uses TK and how TK has improved environmental management at Ekati. Bill suggested that questions related to BHPB monitoring design and use of TK should be posed to BHPB the following day at the Agency's Annual General Meeting. Bill also mentioned that BHPB has installed some inokhok to try to divert caribou away from dangerous parts of the mine and that there has been some monitoring of the effectiveness of the inokhok. He also mentioned that TK was used to help design and place the caribou crossings on the Misery road. Finally, that dust monitoring has now been added to the air quality monitoring program as a result of concerns held by Aboriginal peoples. Kim added that the WEMP would help with some aspects of background data for the ICRP. BHPB has also committed to a post-closure WEMP to monitor the residual effects at the mine site. Bill commented that the Agency is pushing for greater collaboration between BHPB and Diavik for regional caribou monitoring studies.

PRESENTATION ON AIR QUALITY MONITORING

Jaida Ohokannoak presented the results of the BHPB 2005 Air Quality Monitoring Program and results.

James asked if there are links between dust and wildlife effects. Jaida replied that there is no link right now (although the detection of dust in the landscape roughly matches the apparent zone of influence of the mine on caribou), but the Agency is encouraging BHPB to explore this.

Brad wondered whether there are any cumulative effects as a result of the close proximity of Diavik and BHPB and whether the two companies collaborate on air quality monitoring. Jaida stated that the Agency has recommended that BHPB and Diavik work together but there has not been any collaboration to date. Dave Fox, Environment Canada, mentioned that Diavik is doing its own air dispersion modeling work

and that it will hopefully build on what BHPB had done. He also mentioned that dust from the sites seems to settle out quickly so the effects should be fairly local in nature.

Kathy Racher commented that dust can have effects on water, and that Diavik has been asked to study the effects of dust on water as part of its AEMP due to that mine being right on Lac de Gras. Bill mentioned that dust impacts on water quality are not directly studied at BHPB but snowmelt will contribute to the water quality. Kevin added that Environment Canada is monitoring sediments for residue from incineration and that this may also show links between air and water quality. Dave Fox stated that snow sampling could be part of an AEMP and dust monitoring might be part of a WEMP. Preliminary results from the sediment sampling work show elevated levels of some contaminants in Kodiak Lake (next to the mine site) versus a control lake that is farther away.

Claudia Haas asked what is analyzed in the dust and why the new incinerator has not been used. Jaida explained that the company measures the amount of dust deposited along with metals that may be in the dust to see if there are any differences between areas close to the mine versus farther away. BHPB is waiting for some more parts and repairs to be made to the incinerator, and proper training and calibration before it starts operations.

GENERAL DISCUSSION

Bill mentioned in closing that the Agency thanked everyone for their participation and that careful notes had been taken. The concerns and issues raised will be brought to the attention of BHPB and the regulators.

CLOSING PRAYER

The closing prayer was given by Jean Michel Louie Rabesca.