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Jason Ash
Mackenzie Valley Land and Water Board
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April 28th, 2008

RE: MV2001L2-0002 Change to Snap Lake AEMP Benthic Sampling

Jason,

Please find attached Snap Lake Environmental Monitoring Agencies recommendation on De Beers application MV2001L2-0002 to change the timing of the benthic sampling portion of the Aquatic Effects Monitoring Program Sampling.

If you have any questions regarding this submission please contact SLEMA's executive Director David White.

Sincerely

Original signed by

Rachel Crapeau
SLEMA Vice Chair

SLEMA



**MV2001L2-0002
RECOMMENDATIONS
FOR APPLICATION TO CHANGE BENTHIC SAMPLING TIME WATER
LICENCE AQUATIC EFFECTS MONITORING PLAN**

March 2008

RECOMMENDATION: SLEMA does not support De Beers application for amendment to the Water License MV2001L2-0002 to change the timing of the Benthic Sampling. Please find our comments justifying our position and the comments from our Science Panel expert (appendix 1) which the board supports.

Comments:

SLEMA was involved in the Snap Lake working group on January 24th, 2008 where De Beers presented their request to move the Benthic portion of the Aquatic Effects Monitoring Program from a winter sampling program to a summer program.

The issues raised by DeBeers were ones of Health and Safety and Logistics. Debating health and safety is difficult and contentious as the safety of workers is always of primary concern. SLEMA fully supports efforts to keep workers safe. SLEMA also is concerned that health and safety issues may be over emphasized or used arbitrarily when applying for amendments to licenses and permits.

DeBeers states that moving the sampling season to earlier in the winter would result in a greater amount of “weather days”. Environmental work in arctic environments will always present challenges. Innovative ideas will help overcome obstacles of working temperature parameters. -35 Celsius (the parameter set by De Beers) is a common temperature between November and March in this mines climatic zone. Temporary base camp shelters with heaters could be used to

shelter workers close to the sample sites so that when temperatures rise above -35 Celsius workers can be ready to take samples. When conditions deteriorate to below allowable working temperatures workers could also retreat to these shelters. Larger portable shelters, similar to ones currently in use could be constructed to also protect workers from the wind and cold when working. Within these shelters wind chill would no longer be a factor and would extend the days available to work.

De Beers also states that moving the sampling to later in the spring is not an option due to unsafe ice conditions. It has been noted that ice conditions in an arctic environment deteriorate in the late spring from the shore first and then towards the middle of the lake as a result of spring melt water (freshet) flowing from the land onto the surface of the ice. Until this freshet starts to flow and pool around the edge of the lakes, the ice conditions should be at its thickest and perfectly safe for travel. Normally travel on ice through out April and early May is very safe. This of course may alter in future annual climactic cycles, but as a general rule April and early May is an exceptional time of year for working on ice.

De Beers states a number of issues regarding logistics. During the working group meeting there were concerns raised by De Beers over equipment failures such as augers and snow mobiles at very cold temperatures. This type of equipment, in the high arctic, is often in operation in static temperatures down to minus -45 Celsius with wind chills down to minus -60 Celsius. There are certain methods, that can be used to make equipment function reliably in these temperatures, and which is used across Nunavut and the NWT by people who

work and hunt on the land. If De Beers needs advice on how to obtain better performance from their equipment, then this is an excellent area in which traditional knowledge could be utilized.

Again DeBeers states that using a smaller auger rather than the larger auger would be possible but would be a health and safety concern, as they need to drill more holes. SLEMA fails to see the logic in this argument. It could be suggested that increasing any activity in theory, increases probability of an undesired potential outcome, mathematically. Conversely if safe operating procedures and adequate training is promoted then repetition of an activity does not greatly increase the danger, proportionally.

Comments were also made regarding the complications of accessing Northeast Lake (Reference Lake) by aircraft, due to low visibility and low daylight hours and weather delays. Regarding this issue SLEMA does not fully understand why travel by snow mobile is not utilized to a greater extent. The distance is not great, only 5km to the beginning of Northeast Lake from the north portion of the mine site. Equipment such as oversized augers can be transported on specially built sleds. Or the auger could be slung by helicopter in advance of a possible sampling period when weather cooperates (or simply use a smaller auger). Workers could follow on snow mobile at a time determined for the sampling.

SLEMA feels that stronger commitment to the Benthic sampling program coupled with innovative methods, and the Utilization of people experienced in working in a northern environment is the best way to overcome these challenges.

SLEMA feels De Beers can overcome the obstacles, without compromising worker safety. The extra costs of facilitating alternative methods may off-set the cost of bill back time from the contractor, for long periods of down times of their employees while at site.

Appendix 1

Comment made by MacDonald Environmental Sciences Ltd.



March 26, 2008

David R. White
Executive Director
Snap Lake Environmental Monitoring Agency
POB 95, Main Floor Lahm Ridge Tower
Yellowknife, NT X1A 2L1

Dear David:

Thank you for the opportunity to review the following documents:

- The March 3, 2008 letter from Darren Campbell (De Beers Canada Inc.) to Willard Hagen (Mackenzie Valley Land and Water Board) regarding an amendment request to Water Licence MV2001L2-0002;
- The MVLWB's Application for a New Water Licence, Amendment of Licence, or Renewal of Licence, completed by Darren Campbell (dated February 29th, 2008); and,
- The February 12, 2008 memorandum from Zsolt Kovats and Hilary Machtans (Golder Associates) to John Bartlett and Darren Campbell (De Beers Canada) regarding additional information for the suggested timing changes for the AEMP benthic invertebrate sampling program for the Snap Lake Mine.

The amendment that has been requested to Water Licence MV2001L2-0002 proposes that De Beers conduct benthic invertebrate sampling in the late-summer (open-water conditions), instead late-winter (April; under-ice conditions). The stated reasons for requesting this amendment are various health and safety/logistic difficulties associated with completing the benthic invertebrate sampling program during the winter months. Golder Associates has conducted the sampling program

for two years (April 2006 and April 2007) and raised the following issues that complicated winter sampling and prevented the collection of the intended number of samples:

- Health and Safety

- Risk of injury/accident
- Cold exposure & ice conditions - timing of program

- Logistics

- Transport and mechanical issues related to the auger used for drilling holes through the ice
- Type of sampler used
- Access difficulties to the Northeast Lake
- Field crew size.

Responses are provided below to the three points highlighted by Jason Ash, Regulatory Officer, MVLWB, regarding the January 24th meeting of the Snap Lake Working Group (as presented in the February 12, 2008 Golder Associates memo):

1. Contrary to Golder's presentation the 2006 benthic report does show that effects are being seen in the near-field sampling area.

We support the conclusion that effects are being seen in the near-field sampling area. Species richness is a sensitive indicator that can be relied upon to identify adverse effects. Furthermore, as the reference envelope approach has been selected to identify effects, the magnitude of the exceedance of the reference envelope is not considered when identifying such effects (i.e., a 2% exceedance of the reference envelope represents an adverse effect).

2. The major concern in allowing the switch of the benthic program to the summer from the winter is the loss of comparable data to show effects over time. An option to complete both programs at the same time for a minimum of (5) years was put forward to calibrate the two data sets allowing a comparison of the different data. However, the competency of the calibration is unknown.

De Beers conducts an annual benthic invertebrate survey as part of the Snap Lake Mine's Aquatic Effects Monitoring Plan (AEMP). Both the AEMP and the Fisheries Authorization (Section 5.7.1) specify that these surveys be done in late-winter (under-ice) in conjunction with water quality monitoring, to evaluate the effect of the effluent discharge on the benthic community. This condition is specified because under-ice conditions represents the worst-case scenario for benthic invertebrate communities.

We support DFO's recommendation of completing both programs at the same time for a minimum of 5 years (i.e., collecting samples in both the summer and winter). This data may provide a basis for converting summer data into winter data. Establishment of this conversion methodology would provide a basis for switching the program to collect benthic invertebrate data in the summer only.

3. It was requested that more information be presented by De Beers to explain why changing the benthic program to the summer is the best option. What alternatives were examined?

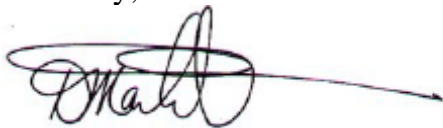
The table presented in the memo listed the health and safety/logistic issues encountered during the last two sampling seasons and the alternatives that were considered for overcoming the issues. The majority of the conclusions presented in the table indicated that the issues caused by sampling in winter conditions will be challenging to resolve. Importantly, all environmental sampling programs are complicated by logistical matters that must be overcome by careful planning. In order to build a useful data set, it will be necessary to devote adequate resources to the program and ensure that crews are available to work when conditions are suitable.

There is also a concern that the amendment to change the timing of a sampling program scheduled to occur in April was not received until March. This is a concern for two reasons.

First, the issues that arose during the last sampling program (April 2007) could have been presented months earlier, providing more time for regulators and field personnel to make decisions regarding the issues that have been encountered. Second, there is a concern regarding the status of the planning for the April 2008 sampling program, which should be in its final stages should the water licence amendment not be granted.

It is clear that the proposed amendment to Water Licence MV2001L2-0002 will not meet the requirements set out in the AEMP and the Fisheries Authorization. Therefore we do not recommend that the MVLWB grant this amendment.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Don MacDonald', with a long horizontal flourish extending to the right.

Don MacDonald,
President, R.P. Bio., C.F.P.

