

Sharon Debler

From: Lisa Hurley [lhurley@mvlwb.com]
Sent: Tuesday, February 07, 2006 4:14 PM
To: 'MVLWB Permit'
Subject: FW: Reference Lake Study

File: MV2001L2-0002

SLEMA comments on Reference Lake Report

-----Original Message-----

From: Tony Pearce [mailto:tpearse@gulfislands.com]
Sent: Sunday, January 15, 2006 2:17 PM
To: Lisa Hurley
Cc: Jim Cunningham
Subject: Reference Lake Study

2/10/2006



January 13, 2006

Tony Pearse
T.D. Pearse Resource Consulting
C-9 Wilkes Road
RR1, Site 6, Compartment 9
Mayne Island, British Columbia
V0N 2J0

Dear Tony:

Thank you for the opportunity to review the report entitled, *Field Investigation and Reference Lake Selection for the Snap Lake Project* (Golder Associates 2005a). I am pleased to offer the following comments on the subject document.

1.0 Criteria for Identifying Candidate Reference Lakes

The criteria for identifying candidate reference lakes were identified in the reference lake screening report (i.e., *Reference Lake Desktop Screening for the Snap Lake Project*; Golder Associates 2005b). The criteria that were considered in the desktop screening exercise included lake size, lake shape, watershed area to lake area ratio, shoreline complexity, bedrock geology, proximity to the mine site, logistics of accessing the site, and availability of existing data. These criteria are reasonable and their consistent application is likely to identify the lakes that would be most relevant for consideration as reference lakes for the Snap Lake project. Based on the results of the desktop screening, a total of six lakes were identified as candidate reference lakes for the Snap Lake Project, including: Northeast Lake, Lake 33, Lake 34, Lake 13, Lake 3, and North Lake. Field surveys of each of these lakes were conducted in 2005 to provide the data and information needed to support the reference lake selection process.

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2.0 Field Surveys of Candidate Reference Lakes

Between July 19, 2005 and July 27, 2005, field surveys were conducted on each of the candidate reference lakes and on Snap Lake to collect the data and information needed to support the reference lake selection process. However, the results of the aerial survey of North Lake indicated that it was too shallow to be further considered in the process and, hence, no additional field data were collected on this lake. The field survey of each lake was carried out over one or two days. The variables that were included in the survey were:

- Lake bathymetry (i.e., average and maximum depth);
- Water quality (i.e., mid-water column at three sites for TDS and major ions, nutrients, chlorophyll *a* and *c*, TSS, and metals, with field profiling for pH, T°C, DO, conductivity, and secchi depth);
- Sediment quality (i.e., metals, nutrients, organic carbon, and grain size);
- Fish community (i.e., small- and large-bodied fish); and,
- Periphyton (i.e., qualitative near-shore assessment).

While the variables that were selected for inclusion in the field survey are important, several other key variables should also have been included in the survey. More specifically, interveners during the water licencing process indicated that changes in water quality conditions in Snap Lake due to mining activities have the potential to significantly alter the benthic invertebrate, phytoplankton, and zooplankton communities. Accordingly, information is needed on baseline conditions for these communities and on their similarities to Snap Lake. Without such information, it will be necessary to select a reference lake based on only a subset of the data that are required.

3.0 Interpretation of the Field Survey Results

The results of the field survey were compiled and summarized in Golder Associates (2005a). For each variable, the similarity between the candidate reference lake and Snap Lake was evaluated and assigned a subjective rating of low, medium-low, medium, or high. The following sections of this document provide discussions of the results of the field surveys by data type and the similarity ratings that were assigned by Golder Associates (2005a).

3.1 Lake Bathymetry

The results of the lake bathymetry survey provide a basis for estimating the maximum and mean depth of each of the five remaining candidate reference lakes. These results show that

Lake 13 had depth characteristics that were most similar to Snap Lake. Lake 33 had a higher average depth, but a similar maximum depth. On the basis of these results, Golder Associates (2005a) assigned a similarity rating of high to Lake 13 and medium for Lake 33. The other three candidate reference lakes had lower similarity ratings. The similarity ratings that were assigned to the five candidate reference lakes are reasonable (see Table 1 for comparable rankings of the candidate reference lakes based on the bathymetry data).

3.2 Water Quality

The results of the water quality survey provide a basis for identifying similarities and differences in water quality conditions between Snap Lake and the five reference lakes. In their evaluation Golder Associates (2005a), focused on TDS, total phosphorus, chlorophyll *a* and *c*, and metals to evaluate similarities between Snap Lake and each of the candidate reference lakes. The results of this analysis indicated that all five of the candidate reference lakes had a medium similarity ranking.

The results of my review of the water quality data presented in Golder Associates (2005a) show that there are important differences between Snap Lake and all five candidate reference lakes in terms of conventional variables. While pH, alkalinity, and TSS levels were similar among the six lakes surveyed (i.e., including Snap Lake), TDS, water hardness, conductivity, and turbidity were all substantially higher in Snap Lake compared to the five candidate reference lakes. Therefore, fewer than half of the conventional variables measured showed reasonable similarity between Snap Lake and any of the candidate reference lakes. As would be expected based on the hardness and conductivity measurements, Snap Lake also had substantially higher levels of most major ions (with the exception of bicarbonate, carbonate, and potassium) that was the case for the five candidate reference lakes. It should be noted that Table 4-1 in Golder Associates (2005a) shows an average TDS of 8 mg/L for Snap Lake, but Table 3-2 shows median measured and calculated values of 30 and 17 mg/L, respectively for this variable. So differences between the candidate reference lakes and Snap Lake are larger than noted by Golder Associates (2005a).

The results of the water quality survey also show that there are important differences between Snap Lake and all five candidate reference lakes in terms of nutrient levels. More specifically, these data demonstrate that the concentrations of total ammonia, nitrate+nitrite, nitrate, total phosphorus, and orthophosphate are substantially higher in Snap Lake than is the case for any of the other candidate reference lakes. However, the levels of nitrite and total Kjeldahl nitrogen (TKN; i.e., organic nitrogen) appear to be similar among all six lakes considered. As would be expected based on its trophic status, chlorophyll *a* and *c* levels were higher in Snap Lake than was the case for any of candidate reference lakes (i.e., by a factor of 2 to 7).

Based on their review of the survey results, Golder Associates (2005a) concluded that the concentrations of metals in each of the five candidate reference lakes are similar to those in Snap Lake. However, closer examination of these results indicates that there are some important differences in water quality conditions among the various lakes under consideration. For example, Northeast Lake appeared to have higher levels of copper and lead than Snap Lake, but lower levels of barium, boron, cadmium, chromium, iron, lithium, manganese, molybdenum, nickel, silver, and vanadium. The levels of mercury and strontium were much lower in Northeast Lake than they were in Snap Lake, probably due to an error in the units (in the case for mercury) and/or sample contamination (in the case of strontium). The levels of metals in Snap Lake were also generally higher than they were in the other candidate reference lakes. It is difficult to assign reliable similarity ratings to the various metals without systematically evaluating the underlying data; nevertheless, it appears that water quality conditions in Lake 13 are most similar to those in Snap Lake (i.e., based on the results of comparisons of the maximum concentrations in each candidate lake to the comparable level in Snap Lake; concentrations within a factor of two were considered to be similar in my evaluation).

Again, Golder Associates (2005a) assigned similarity ratings of medium for all five candidate reference lakes when the results of the water quality survey were considered. Although the differences in similarity were not marked among the five candidate reference lakes, it could be argued that Northwest Lake and Lake 13 were the most similar to Snap Lake (i.e., they had the most variables for which the maximum measurement was within a factor of two of the maximum measurement for Snap Lake; Table 1).

3.3 Sediment Quality

The results of the sediment quality survey provide a basis for identifying similarities and differences in sediment quality conditions between Snap Lake and the five reference lakes. Based on their review of the survey results, Golder Associates (2005a) concluded that lakes 3, 33 and 34 were most similar to Snap Lake in terms of grain size, that none of the candidate reference lakes were similar in terms of TOC, and that Northeast Lake was the closest match to Snap Lake in terms of metal concentrations. Hence, Northeast Lake, Lake 13, and Lake 34 were considered the best matches for Snap Lake in terms of sediment quality conditions.

Due to their high surface area-to-volume ratios, fine particles (i.e., clay-sized particles) play an important role in the sorption of contaminants to sediments. Therefore, it would be beneficial for candidate reference lakes to have similar proportions of clay-sized particles in their benthic substrates. As TOC also plays an important role in determining the bioavailability of contaminants, an appropriately selected reference lake would have levels of TOC that are similar to those in Snap Lake sediments. Examination of the data that were

collected during the field survey shows that Lake 34 (8.3%) and Lake 13 (10%) had similar levels of clay as Snap Lake (8.3%). Among the five candidate reference lakes considered, Northeast Lake (10.6%), Lake 13 (10.7%), and Lake 34 (10.5%) had TOC levels that were most similar to Snap Lake (16.3%). The mean concentrations metals in Snap Lake sediments were most similar to those in Northeast Lake, Lake 13, and Lake 34. With the exception of TKN, nutrient levels in Snap Lake were also similar to those in Northeast Lake, Lake 13, and Lake 34. Based on these results, Lake 34, followed by Lake 13 and Northeast Lake, is the most similar to Snap Lake in terms of sediment quality conditions (Table 1).

3.4 Fish Community

The results of the fish community survey was intended to provide a basis for identifying similarities and differences in biological conditions between Snap Lake and the five reference lakes. Based on their review of the survey results, Golder Associates (2005a) concluded that none of the candidate reference lakes surveys provided an exact match of the fish community composition in Snap Lake. However, Northeast Lake was considered to provide the best match in terms of the fish community due to similarities in species richness, lake trout and round whitefish populations, and fish habitat characteristics (i.e., proportions of boulder and cobble habitats).

While the data that were collected during the field survey are helpful, it is unlikely that they provide a comprehensive basis for evaluating the fish community in the five candidate reference lakes. The reason that community evaluations based on these data are likely to be inconclusive is that only limited sampling effort was expended and the fish community in virtually all of these lakes is dominated, numerically, by lake chub, round whitefish, and lake trout (as indicated by the results presented in the *Environmental Assessment* report). Most of the other species occur only at relatively low levels of abundance. Therefore, the presence or absence of a fish species in a sample collected within one day may not be a good indicator of actual presence or absence in a lake. Catch per unit effort (CPUE), age composition, and size at specified ages of individual species represent better indicators of similarity between lakes than does species richness. Because neither CPUE nor size at age data were reported for Snap Lake, a comparison of this parameter to that for the candidate reference lakes could not be conducted. Importantly, the data and analyses presented do not provide a convincing basis for determining similarities or differences in the fisheries communities between Snap Lake and the five candidate reference lakes (Table 1).

3.5 Fish Habitat

Information on the substrate in Snap Lake and in the candidate reference lakes provides a basis for determine which lakes are more similar to Snap Lake in terms of the habitat that they provide to aquatic organisms. Table 3-9 reported the percent composition of substrates in the candidate reference lakes; however, comparable data for Snap Lake were not reported. While the text indicates that boulder and cobbles were the most common near-shore habitat in Snap Lake, the absence of the required data makes it impossible to compare conditions in Snap Lake to those in the candidate reference lakes (Table 1).

3.6 Other Biological Characteristics

Intervenors during the water licencing process expressed concerns about the potential effects on diamond mining on phytoplankton, zooplankton, and benthic invertebrate communities of Snap Lake. However, no data on the status of these communities were collected during the 2005 field survey or reported in Golder Associates (2005a). This is an important limitation because the Aquatic Effects Monitoring Program for the Snap Lake Project is designed, in part, to evaluate the effects of mining-related activities on phytoplankton, zooplankton, and benthic invertebrate communities. The March 2005 reference lake workshop backgrounder (DCMI 2005) indicated that a reference lake would be needed to support interpretation of the phytoplankton and benthic invertebrate community data, but not the zooplankton community data. In spite of the perspective offered in the workshop backgrounder, I believe a reference lake is also needed to support interpretation of the zooplankton data. Therefore, the absence of information on these, biological communities within the candidate reference lakes could result in the selection of an inappropriate reference lake. Hence, a reference lake for the project should not be selected until appropriate information is collected on, at minimum, the phytoplankton and benthic invertebrate communities in the five candidate reference lakes, and likely the zooplankton community as well.

4.0 Conclusions

Based on the data that were collected during the 2005 field surveys and the subsequent analyses of these information, Golder Associates (2005a) concluded that Northeast Lake represented the most suitable reference lake for Snap Lake. Further, Golder Associates (2005) indicated that the results of the fish community analysis distinguished Northeast Lake from the other candidate reference lakes. The availability of three years of baseline data was cited as an additional benefit of selecting Northeast Lake as the reference lake for the project.

While the conclusions arrived at by Golder Associates (2005a) are not necessarily wrong, the data do support alternative interpretations. Table 1 provides a summary of similarity rankings for each of the candidate reference lakes that were identified. The results of this analysis show that Lake 13 could be considered to be the candidate reference lake that is most similar to Snap Lake. However, the real value of this analysis is that it demonstrates that much of the information needed to reliably identify the most appropriate reference lake is not readily available. While some of the requisite data have been collected, they were not reported by Golder Associates (2005a). Importantly, additional field and analytical work will be required to compile other key information. Therefore, it is recommended that additional information be collected and compiled to support a more robust evaluation of the five candidate reference lakes (i.e., on the phytoplankton, zooplankton, and benthic invertebrate communities). In addition, it is recommended that the complete data to support the AEMP be collected in 2006 at the two reference lakes that appear to be the most similar to Snap Lake (i.e., Lake 13 and Northeast Lake). That is, two references should be selected to support the AEMP and Lake 13 and Northeast Lake appear to be the best candidates identified thus far based on the available information. This will ensure that the data and information needed to evaluate project-related effects are collected.

Here's hoping that these brief comments are useful to you and the members of the Snap Lake Environmental Monitoring Agency.

Sincerely,



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

Attach.

References Cited

DCMI (DeBeers Canadian Mining Inc.). 2005. Backgrounder for the Snap Lake Project reference lake workshop. March 15, 2005. Yellowknife, Northwest Territories.

Golder Associates. 2005a. Report on field investigation and reference lake selection for the Snap Lake Project. Submitted to DeBeers Canada Inc. Yellowknife, Northwest Territories. 51 pp + app.

Golder Associates. 2005b. Reference lake desktop screening for the Snap Lake Project. Submitted to DeBeers Canada Inc. Yellowknife, Northwest Territories.

Table 1. Summary of Similarity Rankings for Candidate Reference Lakes.

Criterion	Northeast Lake	Lake 3	Lake 13	Lake 33	Lake 34
Bathymetry					
- Mean Depth	4	5	1	2	3
- Maximum Depth	5	4	2	1	3
Water Quality					
- Conventional	3	5	3	1	1
- Major Ions	1	1	1	1	5
- Nutrients	1	5	3	3	3
- Metals	3	5	1	5	3
- Chlorophyll a and c	1	1	1	5	4
Sediment Quality					
- Grain Size (percent clay)	3	5	2	4	1
- Total Organic Carbon (%)	1	4	1	5	1
- Metals and Nutrients	1	4	2	5	2
Fish Community					
- Species Richness	1	2	2	2	2
- CPUE	IN	IN	IN	IN	IN
- Age Structure	IN	IN	IN	IN	IN
- Size at Age	IN	IN	IN	IN	IN
Fish Habitat	IN	IN	IN	IN	IN
Phytoplankton	IN	IN	IN	IN	IN
Zooplankton	IN	IN	IN	IN	IN
Benthic Invertebrates	IN	IN	IN	IN	IN
Total Evaluation Score	24	41	19	34	28

Note: Similarity scores were assigned based on rank similarity to Snap Lake.
 IN = insufficient information to support ranking.

Lisa

Please find attached a report by Don Macdonald done for the SLEMA Core Group. The report has not yet been reviewed by the Core Group, but in the interests of a timely response for your deliberations, i am forwarding this to you now in the hope that you will find it helpful. The Core Group may follow this up with a formal position on this matter. I have urged them to consider it as soon as possible.

Regards

Tony

Tony Pearce
RR1, S6, C9
Mayne Island, BC
V0N 2J0
ph 250-539-3015
fx 250-539-3025

Sharon Debler

From: Lisa Hurley [lhurley@mvlwb.com]
Sent: Monday, December 19, 2005 9:30 AM
To: 'MVLWB Permit'
Cc: 'Horrocks, Kimberley'
Subject: FW: Follow-up Snap Lake Working Group Meeting #6

[File: MV2001L2-0002](#)

Response to SLEMA regarding comments on Reference Lake Report

-----Original Message-----

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: Monday, December 19, 2005 9:29 AM
To: 'Tony Pearse'
Cc: 'Rachel Crapeau'; 'James Marlowe'; 'Johnny Weyallon'; 'Roy Dejarlais'; 'Greg Empson'; 'Peri Mehling'; 'Don Macdonald'; 'Colin Macdonald'; 'Sheryl Grieve'; 'Robin Johnstone'; 'Jim Cunningham'
Subject: RE: Follow-up Snap Lake Working Group Meeting #6

[Hi Tony,](#)

[Thanks for the update. Unfortunately at this time I won't be extending the deadline as this process has been ongoing since March and I'd like to keep it moving forward. I believe this is appropriate because, as you noted below you have the option of submitting your comments directly to De Beers for their consideration.](#)

[Thanks again, and Happy Holidays to you as well.](#)

[Lisa](#)

-----Original Message-----

From: Tony Pearse [mailto:tpearse@gulfislands.com]
Sent: Friday, December 16, 2005 12:45 PM
To: Lisa Hurley
Cc: Rachel Crapeau; James Marlowe; Johnny Weyallon; Roy Dejarlais; Greg Empson; Peri Mehling; Don Macdonald; Colin Macdonald; Sheryl Grieve; Robin Johnstone; Jim Cunningham
Subject: Re: Follow-up Snap Lake Working Group Meeting #6

Lisa

thanks for this. I need to let you know that the SLEMA Science Panel will be looking at this document and will likely be submitting comments, but that this cannot happen by Dec. 16 (today). I don't know how long you can delay your process, and understand if you need to proceed. We will have to bear the consequences. We have a process to go through, and have admittedly been slow on our side. Our comments are not likely to be ready until early January. However, we also have the option of submitting directly to DeBeers, and by way of this email they are on notice that something is likely forthcoming from us.

If you have any questions please contact me..
thanks, and i hope you have a restful holiday season.
Tony

On 13-Dec-05, at 8:01 AM, Lisa Hurley wrote:

Good Morning,

The following email is meant to serve as a reminder for those who attended the Snap Lake Working Group meeting held Monday, December 12 and as an information item for those unable to attend.

The main topic for discussion at this meeting was the Reference Lake report.

At the meeting, it became apparent that members of the Working Group still had some concerns with the report and the Lake which was chosen. Therefore, a comment deadline of Friday, December 16 has been set. These comments will then be addressed by De Beers and a decision on the next step will be made at that time.

Please let me know if you have any questions/comments.

Thanks,

Lisa Hurley

*Regulatory Officer
Mackenzie Valley Land & Water Board
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Ph: (867) 669-0506
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Sharon Debler

From: Lisa Hurley [lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 3:57 PM
To: 'MVLWB Permit'
Subject: FW: Follow-up Snap Lake Working Group Meeting #6

File: MV2001L2-0002

NWTMN comments on the Reference Lake Report

-----Original Message-----

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 3:56 PM
To: 'Horrocks, Kimberley'
Subject: FW: Follow-up Snap Lake Working Group Meeting #6

The NWTMN comments on the Reference Lake Report

-----Original Message-----

From: Chris Heron [mailto:rcc@nwtmn.ca]
Sent: Friday, December 16, 2005 3:56 PM
To: Lisa Hurley
Cc: Rob Tordiff
Subject: RE: Follow-up Snap Lake Working Group Meeting #6

Lisa:

I have not had time to review in more detail the proposal from De Beers since the Monday meetings, as I was in the Diavik technical sessions. I would like to remain with my original position: the use of the Northeast Lake is not necessarily the best choice, when the data sets are put on an even playing ground. As I stated this may not be a scientific approach, but to give the data available for all other lakes the same weight as the preferred choice by De Beers. I did like the comment from DIAND: why not use two reference lakes, if all tested parameters were not available on one lake. We as the NWTMN are primarily concerned with the protection of the environment, operational economics are not as great a concern as there little to no economic benefit to the NWTMN from the current operation that is in our Traditional Territory.

Marci cho,

Chris Heron
Northwest Territory Metis Nation

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: December 13, 2005 9:01 AM
To: Chris Heron; Ursula Vogt; 'Adrian Paradis'; 'Anne Wilson'; Chris Paci; Colleen Roche; Craig Nowakowski; Dave Balint; 'Dora Enzo'; Fraser Fairman; Gavin More; Glen_MacKay@gov.nt.ca; Horrocks, Kimberley; Jane Howe; Jason McNeill; Jim Cunningham; Karin Clark; Kathleen Racher; Kelly Cott; Ledrew, Kevin; Louis Azzolini; Mark Davy; Michael Palmer; Monica Krieger; Nahum Lee; Patrick Simone; Rachel Crapeau; Rebecca Chouinard; Rob Thom; Robin Johnstone; Ron Barsi; Shirley Cook; Tamara Hamilton; Tom Andrews; Tony Pearse; 'Sheryl Grieve'; 'Director, Tli Cho Lands Protection Department'; 'Lisa Hurley'

12/19/2005

Subject: Follow-up Snap Lake Working Group Meeting #6

Good Morning,

The following email is meant to serve as a reminder for those who attended the Snap Lake Working Group meeting held Monday, December 12 and as an information item for those unable to attend.

The main topic for discussion at this meeting was the Reference Lake report.

At the meeting, it became apparent that members of the Working Group still had some concerns with the report and the Lake which was chosen. Therefore, a comment deadline of Friday, December 16 has been set. These comments will then be addressed by De Beers and a decision on the next step will be made at that time.

Please let me know if you have any questions/comments.

Thanks,

Lisa Hurley

*Regulatory Officer
Mackenzie Valley Land & Water Board
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Yellowknife, NT X1A 2P6
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Fax: (867) 873-6610*

Sharon Debler

From: Lisa Hurley [lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 9:31 AM
To: 'MVLWB Permit'
Subject: FW: Follow-up Snap Lake Working Group Meeting #6

File: MV2001L2-0002

DFO's comments on the Reference Lake Report

-----Original Message-----

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 9:30 AM
To: 'Horrocks, Kimberley'
Subject: FW: Follow-up Snap Lake Working Group Meeting #6

Kim, here are Dave's comments on the Reference Lake Report, I'll forward you any others as they arrive.

Lisa

-----Original Message-----

From: BalintD@DFO-MPO.GC.CA [mailto:BalintD@DFO-MPO.GC.CA]
Sent: Thursday, December 15, 2005 4:41 PM
To: lhurley@mvlwb.com
Subject: RE: Follow-up Snap Lake Working Group Meeting #6

Lisa:

I haven't had too much time to re-evaluate the recommendations in the Reference Lake Report.

However, because of concerns expressed at the meeting that another lake may be more appropriate than the Northeast Lake for some parameters but that the Northeast had much more information and that the Northeast Lake is used for fish health and population studies, it may be more appropriate to intensively sample both potential reference lakes and Snap Lake for the initial year before one or the other is eliminated.

This would provide better information than presently exists.

Dave Balint

-----Original Message-----

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: December 13, 2005 9:01 AM
To: Chris Heron; Ursula Vogt; 'Adrian Paradis'; 'Anne Wilson'; Chris Paci; Colleen Roche; Craig Nowakowski; Dave Balint; 'Dora Enzoe'; Fraser Fairman; Gavin More; Glen_MacKay@gov.nt.ca; Horrocks, Kimberley; Jane Howe; Jason McNeill; Jim Cunningham; Karin Clark; Kathleen Racher; Kelly Cott; Ledrew, Kevin; Louis Azzolini; Mark Davy; Michael Palmer; Monica Krieger; Nahum Lee; Patrick Simone; Rachel Crapeau; Rebecca Chouinard; Rob Thom; Robin Johnstone; Ron Barsi; Shirley Cook; Tamara Hamilton; Tom Andrews; Tony Pearse; 'Sheryl Grieve'; 'Director, Tli Cho Lands Protection Department'; 'Lisa Hurley'
Subject: Follow-up Snap Lake Working Group Meeting #6

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12/19/2005

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Please let me know if you have any questions/comments.

Thanks,

Lisa Hurley

*Regulatory Officer
Mackenzie Valley Land & Water Board
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Yellowknife, NT X1A 2P6
Ph: (867) 669-0506
Fax: (867) 873-6610*

Sharon Debler

From: Lisa Hurley [lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 3:11 PM
To: 'MVLWB Permit'
Subject: FW: SLWG meeting #6: Reference Lake report

File: MV2001L2-0002

DIAND - Water Resources Division Comments on the Reference Lake Report

-----Original Message-----

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 3:10 PM
To: 'Horrocks, Kimberley'
Subject: FW: SLWG meeting #6: Reference Lake report

Kim, here are DIAND - Water Resources Comments

Lisa

-----Original Message-----

From: Michael Palmer [mailto:Palmerm@inac-ainc.gc.ca]
Sent: Friday, December 16, 2005 3:11 PM
To: lhurley@mvlwb.com
Cc: Fraser Fairman; Kathleen Racher
Subject: SLWG meeting #6: Reference Lake report

Hi Lisa,

This email is intended to follow up on the discussion which took place at the Snap Lake Working Group meeting #6, regarding the Reference Lake report.

In general the Water Resources Division feels that the report is an extensive, clear and well researched document. Water Resources feels that DeBeers has done a commendable job throughout the process of selecting a reference lake. We do not have any major concerns regarding the reference lake report, however as we are revisiting the report and the analysis which took place in writing the report, Water Resources has the following comment to add to the discussion:

* Information collected during the desktop screening should be included in the analysis to select the most appropriate reference lake. The final selection of the reference lake should not be based solely on the data collected through the field program. The parameters collected during the desktop screening phase of the process (in particular the size and shape of the lake, and the watershed to lake area ratio) may have an influence on the parameters collected in the field study, and the suitability of the lake in general. Because the field study is essentially a snap shot in time of the lakes and does not account for temporal variation in the lakes it would be useful to include all available data. Including information on lake size, watershed, geology and inflows (headwater status) will allow for a more confident selection of a reference lake.

Thank you for the opportunity to comment and please do not hesitate to contact me if you have any questions or concerns.

Mike

Mike Palmer
Pollution Control Specialist
Water Resources Division

Sharon Debler

From: Lisa Hurley [lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 3:11 PM
To: 'MVLWB Permit'
Subject: FW: SLWG meeting #6: Reference Lake report

File: MV2001L2-0002

DIAND - Water Resources Division Comments on the Reference Lake Report

-----Original Message-----

From: Lisa Hurley [mailto:lhurley@mvlwb.com]
Sent: Friday, December 16, 2005 3:10 PM
To: 'Horrocks, Kimberley'
Subject: FW: SLWG meeting #6: Reference Lake report

Kim, here are DIAND - Water Resources Comments

Lisa

-----Original Message-----

From: Michael Palmer [mailto:Palmerm@inac-ainc.gc.ca]
Sent: Friday, December 16, 2005 3:11 PM
To: lhurley@mvlwb.com
Cc: Fraser Fairman; Kathleen Racher
Subject: SLWG meeting #6: Reference Lake report

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Thank you for the opportunity to comment and please do not hesitate to contact me if you have any questions or concerns.

Mike

Mike Palmer
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