ORIGINAL

NUNAVUT WATER BOARD

BENACHEE RESOURCES INC. WATER LICENSE APPLICATION

DECEMBER 8, 2004 VOLUME 4

LOCATION: KUGLUKTUK COMMUNITY COMPLEX

KUGLUKTUK, NUNAVUT

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(Hearing commenced at 8:40 a.m., December 8, 2004)

CHAIRMAN: Good morning, and welcome back. Let's reconvene. Okay. Is the applicant ready to ask questions with our last intervenors?

LICENSEE QUESTIONS NTI AND KIA:

GREG MISSAL: Thanks very much. Greg Missal with Tahera Diamond Corporation. Yes, we are, Mr. Chair. And I would just ask for a little bit of indulgence with some of our questioning, perhaps we would be making some statements of fact, as well, but I think it helps to present our position on the items, but we will certainly try to work through that the best we can. And if there are any objections, please let us know.

I would ask maybe Pete to begin.

PETER McCREATH: Good morning, Mr. Chairman, members of the Board. Pete McCreath, Clearwater Consultants. I'm going to address the water quantity recommendations contained in Table 3.1.1 of the -- I guess it is at the back of the Rescan report at page 3-1. There are ten individual items listed under water quantity as recommendations. I'm not going to address them individually, but on a collective basis, I was

wondering if KIA was aware of the fact that all of them, in one form or another, are included within the various monitoring plans, the surface water monitoring and waste management plans that we have already presented.

There are two exceptions which I would like to address briefly, one is the hydrometric stations. We have addressed the issues of measuring flows from C3 as in responses to previous intervenors. Our concern is that it may not be practical to establish stations on the streams at the outlet of Lake C3. We are proposing to measure lake levels in C3, and as best we can, develop a relationship between the lake levels and the flows in C3 to use as a means of adjusting our discharges from the PKCA.

The other items, the monitoring of seepage which is requested as three times per year, our proposed seep monitoring plan proposes to measure those seeps, in fact, once a year when the concentrations of the flows enhance the potential environmental concerns concerned with them would be at their highest levels.

Thank you, Mr. Chair.

CHAIRMAN: Any further questions?

GREG MISSAL: Yes, there are,

Mr. Chair. I don't know if KIA wishes to comment that they were aware or not that those items that Mr. McCreath had mentioned were in the plan in the AEMP plan as he had mentioned. I will leave that up to KIA to comment.

A MICHAEL McGURK: Michael McGurk. We weren't aware that you were going to have a hydrometric station at the outlet of C3, and that is novel. We didn't know that until we came here, and that's great, that's what we wanted.

What we are concerned about is the relationship between the flows coming out of Lake C3 and the flows coming out of the PKCA. The whole idea behind asking for a site there was to guarantee that the flows coming out of the PKCA would never be more than one-tenth of the flows out of Lake C3, and I haven't seen Tahera explicitly address that connection. But by having a station there, at least that can be done.

In regard to seepage, the recommendation of three times a year was based on Ekati experience. It is not an absolute, it is just something that was developed over time. As long as you are measuring it at least once a year, that's good.

GREG MISSAL: Mr. Chair, I would like to ask Kelly Sexsmith to present her question.

Thanks.

Q KELLY SEXSMITH: This is Kelly Sexsmith, Mr. Chair. I have a question for the KIA regarding the statement that as a general guide that discharge limits should not be set at levels below that used at other diamond mines. I wondered if KIA could please clarify why they feel that a general principle of consistency with other diamond mine licenses in the north in another jurisdiction, though, should take precedence over limits derived using site-specific information and sound science?

A MICHAEL McGURK: Michael McGurk. In our submission, and I don't think this was covered last night, but in our submission we say as a general guide, we recommend the discharge limits should not be higher than those for diamond mines unless there are scientifically defensible reasons for allowing higher limits, and that last phrase was not included in our verbal testimony. So I agree with you that science is key.

But I attached three reasons why we recommended that. The first is that there is limited dilution capacity in the system. The second is that it seems unlikely from the history of water license -- water licenses in the Northwest Territories that discharge limits will increase in

the future. If anything, they will stay the same, or they will become more restrictive in the future. And the third reason was that the Jericho mine is the first diamond mine in Nunavut, and it is going to set a precedent. It is going to be closely watched by other miners. And at the very least, Nunavut should have discharge limits that are no higher than those in other mines, so that's the logic.

Q KELLY SEXSMITH: Mr. Chair, I have another question regarding that. Are you aware of how those limits in other -- at those other mines were set and what the basis for them was?

A MICHAEL McGURK: No, I'm not, and that is a problem. I have to say that the mechanism, the method that Tahera used was one of the clearest, most transparent methods that I have ever read, and Tahera should be commended for making it as simple and straightforward as it is. I have absolutely no problem with the method. I think it should be applied widely, I think it should be applied to other mines as well, that's my personal, professional opinion.

And I think what we are talking about is really details. We are arguing about scientific issues, but the method is good, and I have no

problem with it.

Q KELLY SEXSMITH: Okay. So you agree that it may not be scientifically -- those may not have any more scientific basis than ours do, and that ours are certainly appropriate -- derived in an appropriate manner. Do you agree?

A MICHAEL McGURK: I think you have used the right method. It is state of the art. There are also good reasons for arguing about each limit. And in our submission, I have tried to identify things that are arguable. If it turns out that you can present convincing arguments to have slightly higher discharge limits -- well, that's a technical issue, but I still feel that there is enough room between what is predicted -- the predicted concentrations in your PKCA, and the discharge limits for you to be able to meet, at the very least, the discharge limits, the maximum discharge limits under the other mines. I don't see any reason why you can't meet those discharge limits.

Q KELLY SEXSMITH: Mr. Chair, I have a second question for KIA regarding discharge limits. Rescan recommends on KIA's behalf that Tahera set the TDS aquatic threshold at 200 milligrams per litre instead of 400 milligrams per litre, and this is a minor point because I believe they do agree

with the discharge criteria that we have set. But the reason for this is that they didn't wish to set a precedent of having an aquatic threshold defined for TDS. We would suggest that any other site would have to come up with their own aquatic thresholds, and so that wouldn't be a precedent-setting decision. And so it really has no basis on the license, but that is just a comment on that request.

A MICHAEL McGURK: Michael McGurk. I think everybody at Rescan was surprised at the idea that Tahera wanted to release effluent with a TDS concentration as high as 4000 milligrams per litre, that was your provisional limit. You reduced that to 2000 milligrams per litre. That is still brackish water effluent, and it just seems quite high, just intuitively. But if it is diluted tenfold, we don't have a problem with that, if it can be guaranteed to be diluted tenfold consistently.

Q KELLY SEXSMITH: Okay. Thank you. I just want to comment that I would hardly define 2000 milligrams per litre as brackish, but that's just a comment. You might taste components in the water, but they would not be harmful to you. And brackish would normally apply that it is barely

drinkable. You could certainly drink water at 2000 milligrams per litre.

CHAIRMAN: Any further questions?

Q KELLY SEXSMITH: Yes, Mr. Chairman, I have one more question regarding discharge limits. Tahera was asked to reconsider the aquatic threshold for nitrate using chronic end points rather than acute end points as the basis for the aquatic threshold.

We had an opportunity to consult with our aquatic toxicology specialist on this issue, and while he agreed that the testing that was done was acute criteria, there were factors of safety applied, which is the typical method for which chronic criteria are derived. Typically there are acute tests done in the lab which are then applied several conservative factors, and they are used to come with up a chronic criteria, and that was the basis for that. It is a basis for many of the CCME guidelines, and the key is the factor of safety that's applied.

I have a memo from the specialist, which I would be happy to submit to the Nunavut Water Board for information purposes.

BILL TILLEMAN: Thank you, Mr. Chairman, we should file that. So once Kelly

can give the name on it at a break or something.
JOHN DONIHEE: Mr. Chairman, we haven't seen the memo. You know, when do we stop seeing new memos?
BILL TILLEMAN: Thank you, Mr. Donihee. And so that's kind of part of the point which is why don't we -- the good news is she has it right on her table. If we can -- let's tentatively propose to mark it, but we will get it over to Mr. Donihee, and if he has any objections, then he will let us know.
(EXHIBIT TO BE MARKED WHEN RECEIVED)
GREG MISSAL: Mr. Chair, if I could, I would maybe just like to add for the benefit of KIA's legal counsel that the memo isn't any new material, it is just a preparation notes for Tahera for this particular topic. It is certainly no new information on -- it is not a report. We are just offering it to table, but we wouldn't have to either.
CHAIRMAN: Further questions?
GREG MISSAL: Yes, Mr. Chair. I would like to ask Rick Pattenden if he could table his questions, please.
Q RICK PATTENDEN: Mr. Chair, Rick Pattenden. My questions will focus on some

clarification regarding the monitoring program, and I will refer specifically to Appendix A of the KIA written submission.

The first is in relation to the recommendation for baseline toxicity tests, Section 2.4.3.1. KIA has requested a baseline toxicity test be applied or conducted in Long Lake, Lake C3 and Carat Lake to identify any compounding effects that would affect the usefulness of the toxicity results.

I would ask KIA at first why they would request toxicity tests in Long Lake as it will be used for the PKCA? And, second, have they got specific experience in Arctic lakes, which are usually ultratrophic, for evidence of baseline toxicity for water bodies that contain healthy biotic populations?

A MICHAEL McGURK: The reason why we put in that recommendation was to help Tahera, because the problem is not that the water isn't pristine and toxin free, it is. The problem is that the experimental animals that are used for these toxicity tests are not used to that kind of water and will -- may have a reaction to this very clean water that could confound subsequent toxicity tests. And it's a suggestion, it is not -- it is

not a major point. It was an attempt to help Tahera provide a little bit more accurate toxicity tests by factoring out the response of the experimental animals to this kind of water, which is something they are not used to, because they are bred in cultured water.

Q RICK PATTENDEN: Mr. Chairman, Rick Pattenden. Could KIA comment on the use of toxicity tests for Long Lake water?

A MICHAEL McGURK: Well, I presume that there would still be some water in Long Lake when the effluent -- when the discharge was going to be pumped into it, so that was it. The presence of some residual Long Lake water in the pond.

Q RICK PATTENDEN: Mr. Chair, Rick Pattenden. We don't expect or we assume there won't be any aquatic biota left in the PKCA once it is activated.

My next questions pertain to Table 2.6.1, suggested sampling stations for the AEMP. KIA has suggested a number of additional sites and a number of additional components to be sampled. We -- my opinion is that our proposed monitoring program is comprehensive enough to identify effects when required, and the addition of more sites and more parameters won't add value or the effectiveness of

the program.

I would ask KIA to clarify why they have asked for additional sites, particularly in downstream locations like the Jericho River and Jericho Lake, as well as sites in Stream C3 or stream environments which have not been included in our program.

A MICHAEL McGURK: I'm not sure that we added any AEMP stations. We added two SNP stations in Ash and Key Lake, but what we did was we added variables to the AEMP sampling stations. And the reason why we added variables was that as part of -- well, the Jericho River station, what we called in our submission SNP14 was required under the NIRB certificate.

Item number 4 of NIRB stated that

> "Tahera shall initiate a long-term monitoring program regarding the health of fisheries in the Carat Lake systems as far down as the Jericho River, not only to protect this fishery, but to enhance it."

Therefore, we felt that the Jericho River station should be sampled for all biological variables just to be compliant.

We suggested more benthic invertebrate sampling at Lake C3, Carat Lake, and the Stream C1

above the mill, and we suggested that fish should also be taken in the north basin of Jericho Lake because fish in the lake -- the fish community in the lake will be different than the fish community in the river, that was the reason why we wanted sampling in the lake, as well as the river.

And we added periphyton to Stream C1 above the mouth because we felt that periphyton is only really very useful in streams, so we should be sampling it in the stream.

Q RICK PATTENDEN: Mr. Chairman, Rick Pattenden. The NIRB certificate specifies protection of fisheries as far down as the Jericho River. Tahera does have a monitoring site in the Jericho River, which is specific to collection of water qualify and sediment quality, and we feel that that information is quite appropriate as an indicator of the health of the aquatic system, and therefore the protection of the fisheries.

Tahera also has monitoring sites in Carat Lake and in Jericho Lake. Again, an advanced warning of hazards to the fisheries in the Jericho River. So we feel that is appropriate to address the NIRB certificate.

In regards to the additional parameters at other sites, again, it is my position that our

proposed program is quite adequate to detect effects, if they occur, and these additions won't add real value to the program, it will just increase the complexity and the cost.

JOHN DONIHEE: John Donihee for KIA. Mr. Chairman, I think Tahera is going to have lots of time for a final argument, and I'm -- I mean, we are being debated, and I just think that, you know, this isn't the time for that kind of comment.

CHAIRMAN: Any further questions?

GREG MISSAL: Mr. Chair, just one other question. I will ask Kelly Sexsmith for that, please.

Q KELLY SEXSMITH: Mr. Chair, Kelly Sexsmith. I have a question about the abandonment and restoration recommendations.

KIA has recommended that Tahera demonstrate the technical usefulness of in-situ fertilization as a water cleaning technique. They indicate this will require a well-documented research program that can be scaled up to meet Jericho's requirements on closure. And I just-- we laid out a plan for that in our work, but that was pending triggers. And we wonder if you agree whether it would be appropriate to initiate those investigations if the water quality -- updated

water quality predictions, which we will do when we have more monitoring data, indicate whether or not treatment will be required at that time?

A MICHAEL McGURK: I'm not sure I understand. You mean triggers in post-closure monitoring?

Q KELLY SEXSMITH: No, sorry, that wasn't very clear. My question is really is it necessary to initiate in-pit treatment study prior to developing a better understanding of what the water quality is and whether or not we will need treatment of the pit water upon closure?

A MICHAEL McGURK: Michael McGurk. I think -- I think a program should be considered. Certainly, whether you should do it or not, that is definitely something you should be evaluating. Rescan has some experience with this at the island copper mine, and we have been following other attempts to use in-situ fertilization to -- as a passive water treatment technique. And what we have seen in other places is that it is very site specific. At the island copper mine, it seems to be a good technique for removing copper, cadmium and zinc, but those may not be the problem metals at Jericho.

Also, the sequestering of metals in the

sediments is only really effective if they cannot be remobilized. In other words, the lake has to be stratified permanently for the metals to be permanently sequestered, and that may not be the case in the Jericho pit when it is flooded.

So I think the big take-home lesson is that in-situ fertilization is something that has to be studied on a site-specific basis. It can't simply be applied across all pit lakes. And that the Jericho -- for Jericho it may work, it may not work, and this uncertainty should lead to some prior research on the issue. How much research and how fast you want to scale up, that is something you are going to have to decide for yourself.

Q GREG MISSAL: Mr. Chair, just one other question that I thought of, and it is in regard to the abandonment and reclamation estimate. And I guess my question is the proprietary model that KIA has used for its calculation, has that model been used in other projects like this or tested in other projects like this? And that's my question.

A GEOFF CLARK: The company that helped KIA develop this model has mine reclamation experts and computer modelling experts on staff, and that company's name is Gartner Lee Limited.

And they have helped other boards, McKenzie Valley Land and Water Board, develop a security assessment on objectives-based outcomes in the Northwest Territories, and they have done -- and so they have used this approach before. And we are satisfied that it worked well. Thanks.

Q GREG MISSAL: I think I am more referring to the -- it is Greg Missal with Tahera Diamond Corporation. I am more referring to the KIA proprietary model, if that has been used with other projects?

A GEOFF CLARK: This is Geoff Clark. This is the first time that we have used our model for assessing security. It is proprietary, but it is fairly simple. So there is -- this isn't full of complex numeric calculations that you need to be a Ph.D. mathematician to figure out. And, in fact, part of our model is using the information that's provided by other parties to generate the estimate.

So it was quite simple imputing a lot of the information into this model, because most of the information was provided by Tahera. And where information wasn't provided by Tahera, we tried to use information sources that have been used in the past, and those information sources are derived from the reclaim model, which is the accepted

calculation method used by DIAND.

So I guess what I am trying to let you know, Mr. Chairman, is that the -- the model is not complex, and the information sources that we used are standard information that's available in the industry.

Q GREG MISSAL: Greg Missal, with Tahera Diamond Corporation. Thanks, Geoff. I just thought it would be useful for the Board to know that this was the first time that the proprietary model is being used. And it seems quite often that these models take some time to develop, but thanks very much for your comments.

No further questions, Mr. Chair.

CHAIRMAN: There is a request here to have a five-minute break.

(BRIEF ADJOURNMENT)

CHAIRMAN: Welcome back. Is the applicant done with questions? Thank you.

JOHN DONIHEE: Mr. Chairman, I would just like to make one clarification. Of the comments made in our written submissions, this is in response to something Mr. Cavanagh has drawn to my attention. On slide 12 of the -- that would be Exhibit 13, and also again on slide 14, the comment is made that KIA has responsibility for the

protection and management of water on IOL.

And Mr. Cavanagh asked me about our use of the term "management," and the clarification I would like to add is simply that as the Board may be aware, Nunavut Tunngavik has developed a water policy for Inuit-owned lands which addresses questions of both protection and management of water on those lands pursuant to Inuit rights under Article 20 of the land claim. And as we indicated in our comments, our written and verbal, Kitikmeot Inuit Association is the designated Inuit association for the Kitikmeot region for purposes of Article 20.

And so just to give a bit of an example, under Section 20.2.2 of the Land Claim Agreement, Inuit have the exclusive right to the use of water on Inuit-owned lands. Now the underlying ownership of the water is retained by the Crown, but the exclusive right to use it belongs to Inuit.

And pursuant to that right, Inuit could, for example, charge a fee for water use on IOL. None of this affects Tahera, because they are drawing all their water from Crown land. But it is that background, Mr. Chairman, that provided the basis for us saying that Inuit had the right to manage water on IOL, particularly here KIA in the

Kitikmeot region. The comment is made in reference to our responsibilities as a DIO and under Article 20. And it was not some kind of veiled challenge to the Government of Canada's authority over water generally and through the Nunavut Waters Act. So I just wanted to make that clarification, sir.

CHAIRMAN: Thank you. Okay. Any questions from DIAND to NTI and KIA?

GLEN STEPHENS: Mr. Chairperson, it is Glen Stephens. INAC would like to request a short postponement in questioning the NTI and KIA representative since the plane carrying the rest of the INAC team went mechanical. The questions INAC would like to ask the NTI/KIA representatives seek clarification on the issues of A&R, security and aquatic discharge. We expect the plane to arrive about 10, 10:15.

BILL TILLEMAN: So, Mr. Chair, I think you just simply ask the parties how they feel about the request, and then you can decide from there.

CHAIRMAN: Are the parties in agreement with DIAND's request?

JOHN DONIHEE: Mr. Chairman, John Donihee. KIA and NTI, we will make ourselves available whenever DIAND can get their nonresident experts here.