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4 MACKENZIE VALLEY ENVIRONMENTAL  
5 IMPACT REVIEW BOARD  
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9 HELD BEFORE:

10 Board Chairperson Gordon Wray  
11 Board Member Danny Bayha  
12 Board Member Frank Pope  
13 Board Member John Stevenson  
14 Board Member Charlie Snowshoe  
15  
16  
17

18 HELD AT:

19 Northern United Place  
20 Yellowknife, NT  
21  
22

23 April 28th, 2003  
24 Volume 1  
25

1 APPEARANCES

2 John Donihee ) Board Counsel  
3  
4 Robin Johnstone ) De Beers Canada Mining  
5 John McConnell ) Ltd.  
6 Eric Groody )  
7  
8 Yvonne MacNeil ) Department of Justice

9 (GNWT)  
 10  
 11 Chief Archie Catholique ) Lutsel K'e Dene First  
 12 Florence Catholique ) Nation  
 13  
 14 Kris Johnson ) North Slave Metis  
 15 Robert Turner ) Alliance  
 16  
 17 David Livingstone ) Indian and Northern  
 18 Sevn Bohnet ) Affairs Canada (INAC)  
 19  
 20 Gavin More ) Government of Northwest  
 21 Doug Doan ) Territories (GNWT)  
 22  
 23 John Ramsey ) Natural Resources  
 24 Canada  
 25

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1 APPEARANCES (Cont'd)  
 2  
 3 Julie Dahl ) Fisheries and Oceans  
 4 Canada  
 5  
 6 Mark Dahl ) Environmental Canada  
 7  
 8 Rachel Crapeau ) Yellowknives Dene First  
 9 Tim Byers ) Nation  
 10  
 11 Jean Teillet ) Dogrib Treaty 11  
 12 Council  
 13  
 14 Kevin O'Reilly ) Canadian Arctic  
 15 Resources Committee  
 16  
 17 Mike Vaydik ) NWT and Nunavut Chamber  
 18 of Mines  
 19  
 20 Jason Lepine ) Northwest Territory

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1 --- Upon commencing at 9:05 a.m.

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3 THE CHAIRPERSON: Good morning, ladies and  
4 gentlemen. If everybody could take their seats, please,  
5 we'll get the proceedings underway.

6

7 (BRIEF PAUSE)

8

9 THE CHAIRPERSON: Okay, thank you very much.  
10 I would now like to call this Hearing to order. The  
11 Mackenzie Valley Environmental Impact Review Board has called  
12 this Hearing into the De Beers Canada Mining Snap Lake  
13 Diamonds Project in order to assist in making a determination  
14 required by Section 128 of the Mackenzie Valley Resource  
15 Management Act.

16 The Hearing is scheduled for five (5) days and  
17 I will have more to say about the conduct of the Hearing in a  
18 little while. First, however, the Board must rule on a  
19 preliminary Application from the North Slave Metis  
20 Association -- the North Slave Metis Alliance, one (1) of the  
21 directly affected parties in this proceeding.

22 Rule 64 of the Rules of Procedure established  
23 for De Beers Snap Lake Project specifies that a Notice of  
24 Preliminary Jurisdictional and Constitutional matter must be  
25 filed twenty-five (25) days prior to the Hearing. The North

1 Slave Metis Alliance filed such a Notice in a letter on April  
2 the 3rd, 2003.

3 The concerns listed in the NSMA letter  
4 included two (2) allegations. First, that the Review Board's  
5 environmental assessment process has been conducted in breach  
6 of the Rules of Procedural Fairness. And secondly, that the  
7 Federal and Territorial Governments and the developer, De  
8 Beers Canada, have failed to adequately consult with NSMA,  
9 thereby effecting the Review Board's jurisdiction to continue  
10 with this Hearing.

11 The NSMA has asked for an adjournment of this  
12 Hearing, until the concerns are addressed. The Review Board

13 circulated the NSMA's April the 3rd letter to the parties to  
14 this proceeding and filed it on the Public Record. We asked  
15 the parties to indicate their intention to participate in the  
16 argument of the NSMA Application.

17 The Review Board set dates for the submission  
18 of evidence and argument by the NSMA, for a response by  
19 parties, and reply by the NSMA. Only the North Slave Metis  
20 Alliance and De Beers have participated in this process.

21 I am now going to provide the Review Board's  
22 ruling on the NSMA Application. Because of the tight  
23 timetable set for resolving this matter, the Review Board  
24 will provide this ruling and reasons orally this morning. We  
25 will then file reasons for decisions on the Public Record and

1 circulate them to the parties after the conclusion of the  
2 Hearing.

3 The Mackenzie Valley Environmental Impact  
4 Review Board is a co-management institution established by  
5 Section 112 of the MVRMA. The MVRMA has been in force since  
6 1998 and was enacted in response to the requirements of  
7 Aboriginal land claims in the Mackenzie Valley.

8 The Review Board is responsible for the second  
9 and third levels of environmental impact assessment process  
10 set out in Part 5 of the MVRMA, environmental assessment,  
11 environmental impact review.

12 As a permanent, administrative tribunal  
13 responsible for adjudication in an environmental impact  
14 assessment context, the Review Board is bound by the Rules of  
15 Fairness.

16 The Review Board operates under a set of rules  
17 of procedure adopted for its proceedings after extensive  
18 public consultation. Those rules provide the flexibility  
19 required for the Review Board to manage a proceeding such as  
20 the De Beers EA and to adapt the process as required.

21 As with other administrative tribunals, the  
22 Review Board is a master of its own process and the rules  
23 provide the authority for the Board to make any changes  
24 necessary during the course of a proceeding to respond to

25 events as they unfold as long as the changes are consistent

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1 with the requirements of fairness.

2           Such changes have been made from time to time  
3 in this proceeding which has lasted almost two (2) years and  
4 which has required adjustments to the work planned by the  
5 Review Board on a number of occasions.

6           I will provide the Review Board's analysis of  
7 the issues raised by the NSMA dealing first with the fairness  
8 issue. The Review Board extends its thanks to both the NSMA  
9 and De Beers for their submissions and the assistance that  
10 they provided the Board.

11           In the interests of time and for other reasons  
12 set out below, we will not respond to each of the instances  
13 of unfairness alleged by the NSMA. We note that the NSMA's  
14 submission of April 16th included some fourteen (14)  
15 paragraphs citing examples of what they argued were breaches  
16 of the rules of fairness.

17           It is also fair to note that the NSMA advised  
18 the Review Board on several occasions during the course of  
19 this EA that they felt that certain actions and decisions  
20 taken by the Review Board were unfair. The Review Board  
21 responded to these concerns and all of the relevant  
22 information and correspondence is on the record of this  
23 proceeding.

24           The position taken by De Beers on the fairness  
25 question is best summarised by paragraph 3 of their

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1 April 23rd submission.

2           "3. The purpose of the rules of procedural  
3 fairness is to enhance the quality of  
4 decision-making ..."

(BRIEF PAUSE)

THE CHAIRPERSON: "3. The purpose of the rules of procedural fairness is to enhance the quality of decision-making and the acceptability of the decision. The complaints set out in the NSMA brief, even if established, do not alone or in combination amount to breach of the rules of procedural fairness."

De Beers points out that the courts have made it clear that the content of the rules of fairness varies depending on a variety of particular circumstances. De Beers goes on in their response to address a number of the specific allegations of unfairness made by the NSMA and to argue that the rules of fairness were not breached.

It is clear to the Board that the administrative law related to fairness can be complex, fact specific, and that to apply it would require significant legal expertise. None of the Board Members are legally

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trained.

The Board is, however, subject to supervision by the courts pursuant to Section 32 of the MVRMA. In the Review Board's view it would not be appropriate for us to argue through our reasons for decision for or against application made by the NSMA.

The Review Board must remain independent and unbiased. If we argue that we were fair and our procedure was correct, we are arguably being unfair to the NSMA. If we agree with the NSMA, we are not fair to De Beers.

This is precisely why the courts do not allow administrative tribunals such as ourselves to appear in response to judicial review applications which allege breaches of the rules of fairness.

The Review Board notes, as well, that in administrative law, and here the authorities are very clear,

17 a breach of the rules of fairness is treated as a  
18 jurisdictional error.

19 In other words, if the Review Board's process  
20 has been unfair then the Board would have lost jurisdiction  
21 over these proceedings. In the case of a fairness error  
22 leading to a loss of jurisdiction, the authorities are also  
23 clear that the administrative process is void.

24 That means that a jurisdictional error would  
25 deprive the Review Board of the authority to intervene to

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1 somehow alter the process and fix the problem. Consequently,  
2 if a fairness error has been made by the Board -- if a  
3 fairness error has been made, the Board cannot fix the  
4 problem, because it would not have the jurisdiction to do so.  
5 Only a court can deal with such an issue. Section 32 of the  
6 MVRMA provides a route for the NSMA to seek a remedy in the  
7 Courts.

8 The review board is cognizant of the  
9 tremendous effort and expenditure made by all the parties to  
10 prepare for these Hearings. As noted in paragraph 37 of the  
11 De Beers submission, quoting an administrative law text:

12 "A request for an adjournment will not  
13 likely be granted at the request of one (1)  
14 participant in a multi-party proceeding  
15 when all others are present with their  
16 lawyers and witnesses."

17 Mackenzie Valley Environmental Impact Review  
18 Board, therefore, rules that it does not have the  
19 jurisdiction to rectify a breach of the rules of procedural  
20 fairness. An adjournment will not be assist the NSMA, or any  
21 other party in this regard, since it is our view that we lack  
22 the authority to fix a fairness problem.

23 Considering all the circumstances, the Review  
24 Board denies the application for an adjournment on the  
25 grounds of breaches of procedural fairness. The remedy for

1 the fairness concerns identified by NSMA must be sought in  
2 the courts.

3 The NSMA also alleges that the Federal and  
4 Territorial Governments have failed in their duty to consult  
5 with the NSMA. They also suggest that this duty binds the  
6 developer, De Beers, in this case.

7 The duty to consult must be properly  
8 characterized in order to respond to these allegations. The  
9 NSMA has cited many important and relevant cases on the duty  
10 to consult. Our brief characterization of the duty in this  
11 ruling is not suggested to be authoritative, but only to  
12 provide background for the way in which the Review Board have  
13 responded to the NSMA's consultation allegations.

14 Cases beginning with the Supreme Court of  
15 Canada's decision in Sparrow have dealt with this issue. A  
16 duty to consult can arise when the Crown authorizes an action  
17 which may have the effect of infringing on the exercise of an  
18 Aboriginal right. This duty arises because of the fiduciary  
19 relationship between the Crown and aboriginal people.

20 One (1) of the things which must be done in --  
21 in such a situation is to consult the Aboriginal rights  
22 holders to see how to avoid or minimize the effects on their  
23 rights. This consultation is a part of the Crown's  
24 obligation to justify any infringement of an Aboriginal  
25 right.

1 We must distinguish this duty to consult,  
2 which arises from the Crown's obligation to justify  
3 infringements of Aboriginal rights from the consultation that  
4 is intended to inform and assist communities, and to exchange  
5 information in order for the developers and communities to be  
6 good neighbours.

7 This latter kind of consultation may make good  
8 business sense, but it is not a constitutional obligation.  
9 The consultation issue raised by the NSMA only arises in

10 situations where there is a fiduciary relationship, and it  
11 only results when Aboriginal rights may be infringed by the  
12 fiduciary.

13               The fiduciary relationship is one (1) of  
14 utmost good faith. It is a special kind of relationship.  
15 The case law is clear -- sorry, the case law is clear with  
16 respect to the existence of a fiduciary relationship between  
17 the Crown and Aboriginal people, and the Crown's duty to  
18 consult.

19               The law is not so clear about the duty, if  
20 any, of a developer. There is case law from British Columbia  
21 which is under appeal. There are no cases from the NWT on  
22 the developer's duty to consult.

23               The Review Board notes, and the record in this  
24 proceeding shows, that De Beers has filed evidence of their  
25 efforts to work with communities. Some of these efforts are

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1 related to benefit agreements, but that evidence is not on  
2 the record of this proceeding.

3               Both NSMA and De Beers have made conflicting  
4 arguments about which activities do or do not qualify as  
5 consultation, and what duties apply to the company and the  
6 Government.

7               This, at its roots, a constitutional argument,  
8 one (1) which the Review Board is not suited to handle. The  
9 NSMA has requested that the Review Board grant them an  
10 adjournment, and that the Review Board support their position  
11 with an interim recommendation to the Minister of DIAND that  
12 Canada, the Government of the Northwest Territories, and the  
13 developer enter into a proper consultation process.

14               The dispute about consultation is, in the  
15 Review Boards view, collateral to the main purpose of this  
16 Hearing. The remedy being sought by the NSMA is related to  
17 the rights of Aboriginal people in relation to the Crown, and  
18 the activity proposed by De Beers.

19               The Review Board is of the view that it does  
20 not have the authority to make a constitutional ruling on a  
21 question like this.

22                   The proper venue for an argument about  
23 consultation is the Courts. In ruling this way the Review  
24 Board relies on the Supreme Court of Canada's decision in the  
25 case called Quebec v. Canada, or the Attorney General v. The

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1 National Energy Board [1994] 1 S.C.R. 159.

2                   As we said in our ruling on the fairness  
3 allegations, the Review Board must be independent and fair.  
4 The Review Board itself cannot be both an independent  
5 Tribunal and a fiduciary. The Review Board does not have a  
6 duty to consult, only a duty to be fair.

7                   If we favor the consultation argument of the  
8 NSMA against the developer, we are not fair. If we rule for  
9 De Beers, we have a similar problem with respect to the NSMA.

10                  The Review Board is also of the view for the  
11 reasons expressed above that is not appropriate to adjourn  
12 the Hearing at this time.

13                  We do not believe we have the jurisdiction to  
14 make the recommendation to the Minister as requested by the  
15 NSMA.

16                  The proper forum for a constitutional  
17 argument, like the one advanced on consultation by the NSMA  
18 is the Courts.

19                  For the reasons expressed, the Review Board  
20 denies NSMA application for an adjournment. The Courts are  
21 the appropriate forum for seeking the remedies requested by  
22 the NSMA.

23                  In the circumstances, an adjournment would  
24 greatly prejudice all the other parties in this proceeding,  
25 therefore, we intend to proceed with the Hearing forthwith.

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2 (BRIEF PAUSE)

3

4 THE CHAIRPERSON: The Mackenzie Valley  
5 Environmental Impact Review Board will now proceed with this  
6 Environmental Assessment Hearing into the De Beers Canada  
7 Snap Lake Diamond Mine Project.

8 The Hearing is the culmination of a process  
9 which has lasted almost two (2) years. The Review Board and  
10 the registered parties have tested the environmental  
11 assessment report and the technical report submitted by De  
12 Beers through a process which has included three (3) rounds  
13 of information requests, a series of technical workshops, and  
14 two (2) pre-hearing conferences.

15 Our goal this week is to address those issues  
16 of a technical nature which have not yet been resolved, and  
17 to give the public an opportunity to address the Review Board  
18 about this project.

19 Before going any further, I would first like  
20 to introduce my fellow Board Members, and then to introduce  
21 staff and counsel.

22 On my immediate left, Danny Bayha. Danny was  
23 born in Deline, and makes his home there. He worked for the  
24 Government of the Northwest Territories as a trades  
25 apprentice before receiving his journeyman certificate in

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1 mechanics in 1987.

2 Danny then went to the University of Calgary,  
3 where he received his Bachelor of Science Degree in 1998.  
4 His community involvement includes two (2) years as a Band  
5 Councillor, two (2) years as a member of the local Education  
6 Council, and ten (10) years as the assistant Fire Chief in  
7 Deline.

8 He has operated his own mechanics shop and  
9 contracting company in Deline for the past ten (10) years,  
10 and for the past two (2) years has been teaching pre-trades  
11 math and science.

12 On the far right, Mr. Frank Pope. Mr. Pope  
13 has been a resident of the Northwest Territories since 1962,

14 and has lived in Norman Wells for the past sixteen (16)  
15 years.

16 He first came north as the last Hudson Bay  
17 manager for Reindeer Station in 1962. He transferred to  
18 Aklavik, working for the Federal Northern Affairs as an  
19 administrator, moved to Fort Good Hope in 1969 where he was  
20 settlement manager.

21 In 1973, he took on a position with the  
22 Mackenzie Valley Highway and pipeline coordinating group in  
23 Inuvik.

24 After a brief stint in Alberta, he returned  
25 north, working as a manager of the Hunters and Trappers

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1 Association in Fort Good Hope, he moved to Norman Wells in  
2 1984 where he was Manager of the Sahtu Development Impact  
3 Zone Society.

4 He has served eleven (11) years as Councillor  
5 and three (3) years as Mayor while living in Norman Wells.  
6 In his off hours, he runs a recreational outfitting business  
7 out of Norman Wells.

8 On my immediate right is Charlie Snowshoe.  
9 Mr. Snowshoe was born in Fort McPherson and educated in  
10 Aklavik. He has had a long involvement in community,  
11 Gwich'in and Dene politics and the land claims since the  
12 1970's, where he worked as a field worker for the Dene  
13 Nation.

14 He later served a two (2) year term as Vice-  
15 President of the Dene Nation in 1984. He also served two (2)  
16 terms as Chairman of the Fort McPherson Settlement Council  
17 and then a term as Mayor of the community.

18 He has been active in many Boards and  
19 organizations, serving on the Inuvik Regional Health Board,  
20 on the Board of the Peel River Alcohol Centre, on the  
21 Association of Municipalities Board and on the Gwich'in Land  
22 Use Planning Board and its predecessor, the Mackenzie Delta  
23 Beaufort Sea Land Use Planning Commission. Mr. Snowshoe was  
24 re-appointed to a second three (3) year term on the Board in  
25 2000.

1                   On the far left, Mr. John Stevenson. Mr.  
2 Stevenson is a homegrown northerner. He attended Sir John  
3 Franklin High School. He received his Renewable Resource  
4 Management Diploma from Selkirk College in Fort Smith and  
5 then embarked on a long career with the Government of the  
6 Northwest Territories.

7                   Mr. Stevenson lived and worked across the  
8 north as a Wildlife Officer and Senior Manager with Renewable  
9 Resources and then RWED. He worked for the Government of the  
10 Northwest Territories for eighteen (18) years and was a  
11 Regional Superintendent of Renewable Resources in the Baffin  
12 and Kitikmeot regions.

13                  He has also served as the Assistant Deputy  
14 Minister of Renewable Resources based in Yellowknife for  
15 Nunavut. He left RWED in 1999 to work as a Management  
16 Consultant with RT and Associates.

17                  My name is Gordon Wray. I will be the Chair  
18 for these proceedings. I have lived and worked in the  
19 Northwest Territories in Nunavut since 1970. I was a Hudson  
20 Bay Manager, civil servant and private businessman.

21                  For ten (10) years I was a member of the NWT  
22 Legislative Assembly and held several Cabinet portfolios,  
23 such as Transportation and Economic Development and Tourism.  
24 I have served as Vice-Chair of the Workers' Compensation  
25 Board from 1992 to 2000, Chair of the NWT Water Board from

1 1994 until present and I've also been a member of the MVERB  
2 Board since 1999. I was re-appointed to the Board in 2002  
3 for three (3) years and I also am a small business owner here  
4 in Yellowknife.

5                  The Board staff and counsel present with us  
6 today, on my left, Vern Christensen, Executive Director, Alan

7 Ehrlich, Senior Environmental Assessment Officer, Roland  
8 Semjanovs, Communications Officer, John Donihee, Board Legal  
9 Counsel. We also have with us, Glenda Fratton who is working  
10 on behalf of the Review Board as a De Beers Snap Lake  
11 Environmental Assessment Co-ordinator.

12 The Board also has a number of consultants in  
13 attendance, which includes Gartner Lee, Praxis Group, Terra  
14 Firma Consultants, Ellis Consulting and A.J. Keen Mining  
15 Consultants.

16 The Review Board is a co-management body which  
17 makes its decisions by consensus. The Board has  
18 quasi-judicial powers with respect to securing evidence and  
19 its decision on this EA.

20 I've some comments which I intended to outline  
21 the Review Board's purpose and approach to these Hearings.

22 First, please note that there's a detailed  
23 agenda for the week and copies are available at the staff  
24 table. The agenda has been revised slightly since April the  
25 10th to reflect the names of presenters and cancellations of

21

1 presentations.

2 Secondly, I wish to be clear that the evidence  
3 presented this week will only be a part of the record in this  
4 proceeding, and that the Review Board will consider all of  
5 the material filed on the public record in making its  
6 decision.

7 Third, we have a number of registered parties  
8 in addition to the developers that have played a continuing  
9 role in this proceeding. We welcome their participation and  
10 the participation of members of the public.

11 The order of questioning and presentation in  
12 this proceeding is, however, based on the order in which the  
13 parties registered in the EA proceeding.

14 The order is as follows:

- 15 1. Yellowknives Dene Nation.
- 16 2. Indian and Northern Affairs Canada.
- 17 3. NWT and Nunavut Chamber of Mines.
- 18 4. Northwest Territory and Metis Nation.

- 19 5. North Slave Metis Alliance.
  - 20 6. Fisheries and Oceans Canada.
  - 21 7. Dogrib Treaty 11 Council.
  - 22 8. Canadian Arctic Resources Committee.
  - 23 9. Natural Resources Canada.
  - 24 10. Government of the Northwest Territories.
  - 25 11. Environment Canada and
- 

22

- 1 12. Lutsel K'e Dene First Nation.
  - 2 If you are not a registered party in this
  - 3 proceeding and you wish to address the Board, please fill out
  - 4 a form at the door. The Review Board will also provide time
  - 5 for the public to address us each day.
  - 6 There are tables provided for some of the
  - 7 registered parties to set up and spread their papers out.
  - 8 Space is extremely limited as we've already heard a few
  - 9 minutes ago. Please work together. If you're not due up for
  - 10 a while and you don't particularly need your table, allow
  - 11 others to use it if they are going to be up prior to you.
  - 12 I will attempt to solve some of the table
  - 13 problems after the close of proceedings tonight. We can't do
  - 14 anything about it right now because of the sound system and
  - 15 all of the cables that are running around but I will try and
  - 16 -- and fix some of the problems after the proceedings today.
  - 17 There is a table at the front for party or
  - 18 persons making presentations and I would ask that all
  - 19 registered parties with the exception of the proponent come
  - 20 to the front table when they are making their presentation.
  - 21 You may ask questions from any of the microphones but please
  - 22 come forward when you're making your presentations.
  - 23 The Review Board expects that all participants
  - 24 and presentations will be professional and respectful. This
  - 25 is not an adversarial proceeding. We ask that you do your
- 

23

1 best to help the Review Board understand this proposed  
2 development and its potential environment and socio-economic  
3 effects.

4 Our time this week is limited. Timelines for  
5 presentations have been communicated to the parties. You do  
6 not need to read your presentations verbatim. The Board has  
7 reviewed all of the filed materials.

8 Remember, as well, that the Board will  
9 consider the whole record in making its decision. I will  
10 limit presenters who run beyond their allotted time. Please  
11 also remember that we have simultaneous translation. Please  
12 consider the interpreters, speak slowly and clearly, so that  
13 everybody can have the benefit of these proceedings in their  
14 own language.

15 Our proceeding is also being transcribed in  
16 order to make a transcript. Our reporter is Ms. Wendy  
17 Warnock. Transcripts will be available through the Review  
18 Board's website within three (3) days.

19 If you need to make other arrangements, please  
20 talk to Ms. Warnock directly at the break and she also has  
21 her own website which is warnockw@tscript.com -- or her e-  
22 mail, sorry.

23 This Hearing is part of an evolving process.  
24 The Board relies on the cooperation of the parties in order  
25 to ensure that there are no surprises and that the Hearing

1 process is fair. I note, in this regard, that we asked the  
2 parties to file CV's for their witnesses who would be  
3 providing opinion evidence to the Review Board. Not all  
4 parties have complied.

5 However, note should be taken that the Board  
6 has not decided to make an issue at this time but be aware  
7 that in future Review Board proceedings the filing of this  
8 information will be mandatory and that we will not hear from  
9 witnesses who do not comply with the Board's instructions.

10 The procedure we will follow at this public  
11 Hearing is as follows. First, I will ask the proponent, De

12 Beers Mining -- De Beer Canada Mining to make their  
13 presentation.

14 Then I will open the floor for questions to be  
15 directed to the proponent. The order of those who may  
16 question is as follows and it's the order that I've  
17 previously read out and we will follow that order throughout  
18 the entire proceedings; then, members of the public and then  
19 the Board.

20 The parties to the EA will then have the  
21 opportunity to provide presentations in the order outlined in  
22 the agenda. After each presentation the floor will again be  
23 open for a question period.

24 The order of those who may question is as  
25 follows: the proponent, other parties to the EA, members of

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1 the public, and finally, the Board.

2 All questions must be addressed through the  
3 Chair. I may not recognize a question that is not clear, not  
4 on topic, or not within this Board's terms of reference.

5 The purpose of questioning in the course of  
6 this Public Hearing is to seek clarification on the points  
7 made in the presentation, not to engage in debate, or  
8 adversarial cross-examination.

9 In order that we can ensure we have the  
10 presentations and questions on tape for the transcript of the  
11 proceedings, each speaker is required to speak into a  
12 microphone and to identify themselves and indicate the  
13 organization they represent, if applicable.

14 Members of the public wishing to ask questions  
15 are asked to go to the microphone in the middle of the room,  
16 and obtain permission from the Chairman before speaking. We  
17 also have provided a microphone upstairs.

18 As I say, space is limited, and there are  
19 members of the public upstairs, and there is a microphone  
20 available for them as well.

21 Finally, time will be allocated at the end of  
22 the Hearing for closing remarks. These remarks are an  
23 opportunity for the proponent and parties to the EA to

24 clarify, correct, and, if necessary, change their submission  
25 prior to the close of the Hearing.

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1 And, one (1) other point, as technology  
2 evolves, I would ask that all people turn off their cell  
3 phones, please? And, if you wish to speak on a phone, please  
4 go outside to the -- the hallway.

5 The developer and registered parties were  
6 requested to identify a spokesperson for the Hearing. I will  
7 now ask each party to identify, for the record, their main  
8 spokesperson.

9 First of all, De Beers Mining Canada?  
10 MR. JOHN McCONNELL: John McConnell and Robin  
11 Johnstone.

12 THE CHAIRPERSON: Thank you. Yellowknives  
13 Dene First Nation?

14 MR. TIM BYERS: Rachel Crapeau will be our  
15 main spokesperson.

16 THE CHAIRPERSON: Thank you. Indian and  
17 Northern Affairs Canada?

18 MR. SEVN BOHNET: It will be Sevn Bohnet.

19 THE CHAIRPERSON: NWT and Nunavut Chamber of  
20 Mines?

21 MR. MIKE VAYDIK: Mike Vaydik.

22 THE CHAIRPERSON: Northwest Territory Metis  
23 Nation?

24 I'm sorry, sir, can you speak into the  
25 microphone?

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27

1 MR. JASON LEPINE: Jason Lepine for the  
2 Northwest Territory Metis Nation.

3 THE CHAIRPERSON: Thank you, sir. North

4 Slave Metis Alliance?  
5 MS. KRIS JOHNSON: Kris Johnson and Bob  
6 Turner.  
7 THE CHAIRPERSON: Fisheries and Oceans  
8 Canada?  
9 MS. JULIE DAHL: Julie Dahl.  
10 THE CHAIRPERSON: Dogrib Treaty 11 Council?  
11 MS. JEAN TEILLET: Jean Teillet, and Dr.  
12 Steve Wilbur, and the Grand Chief Joe Rabesca.  
13 THE CHAIRPERSON: Canadian Arctic Resources  
14 Committee?  
15 MS. SHELAGH MONTGOMERY: Kevin O'Reilly and  
16 Shelagh Montgomery.  
17 THE CHAIRPERSON: Government of the Northwest  
18 Territories?  
19 MR. GAVIN MORE: Gavin More.  
20 THE CHAIRPERSON: Environment Canada?  
21 MR. MARK DAHL: Mark Dahl and -- and Anne  
22 Wilson.  
23 THE CHAIRPERSON: And, Lutsel K'e Dene First  
24 Nation?  
25 CHIEF ARCHIE CATHOLIQUE: Yes, good morning,

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1 Archie Catholique, and I have an Elder here, Liza Enzoe, and  
2 Florence Catholique.  
3 THE CHAIRPERSON: And, I'm sorry, I skipped  
4 over one (1). Natural Resources Canada, who are number ten  
5 (10) in those --  
6 MR. JOHN RAMSEY: Yes, Mr. -- Mr. Wray, it's  
7 John Ramsey.  
8 THE CHAIRPERSON: I apologize for that, sir.  
9 Okay. Thank you very much. We will now continue with the  
10 Hearing.  
11 And De Beers are first up with their  
12 presentation. We'll just take a quick five (5) minutes for  
13 De Beers to set up, and the Board will have to move out to  
14 the front because the screen is behind us.  
15 So, five (5) minutes, and then De Beers will

16 make their presentation. Thank you.

17

18 --- Upon recessing at 9:40 p.m.

19 --- Upon resuming at 9:51 a.m.

20

21 THE CHAIRPERSON: Thank you very much  
22 everybody. We'll now bring the Hearing back to order and the  
23 first order of business is the proponent, De Beers Canada.  
24 If you'd like to take it away, Mr. McConnell.

25 MR. JOHN MCCONNELL: Thank you. Mr. Chairman

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29

1 and members of the Board, I'd like to thank you for the  
2 opportunity to speak today.

3 I will begin by introducing myself and Robin  
4 Johnstone. We will be representing De Beers during the  
5 Hearings and tag teaming this morning's presentation. Other  
6 team members will be making presentations later in the  
7 Hearing and we will introduce them at that time.

8 As you can see from this slide, I'm no  
9 stranger to mining in the north with thirty (30) years of  
10 mining experience including twelve (12) years of experience  
11 at the Nanasivik Mine on Baffin Island.

12 Although I am currently the Vice-President of  
13 NWT Projects for De Beers, I've been part of the Snap Lake  
14 Diamond Project beginning in 1999 when Winspear Diamonds  
15 first begin exploring this diamond deposit.

16 I remained with the project through the  
17 transition from Winspear to De Beers and have been involved  
18 through the evolution of the project and all the regulatory  
19 steps. I've been meeting with many of the people in this  
20 room, including both people from the communities and  
21 government representatives for the past four (4) years.

22 Robin Johnstone is senior environmental  
23 manager for De Beers. He's a wildlife ecologist by  
24 background with sixteen (16) years experience in wildlife  
25 monitoring and environmental assessment. Robin's

1 introduction to Northern Canada came in 1991 when he started  
2 work on his PhD in peregrine falcons around Rankin Inlet  
3 studying contaminants and population dynamics.

4               Firmly bitten by the Northern bug he settled  
5 with his family in Yellowknife in 1998. His involvement with  
6 the Snap Lake Diamond project dates back to that time.  
7 Initially he was working on the project for Golder Associates  
8 as an environmental assessment specialist. In 2002, Robin --  
9 2001, Robin joined De Beers.

10              Our presentation will begin by addressing the  
11 question why are we here? We all need to be clear on the  
12 purpose of the Hearing and the mandate of the Board. I will  
13 also provide a quick overview of the Snap Lake Diamond  
14 Project then I will go back in time to review the regulatory  
15 process and evolution of the project.

16              These two (2) topics are linked because the  
17 project has changed over time as De Beers has responded to  
18 advice from regulators, communities and our project team.  
19 This will lead to a brief description of the current project  
20 and project commitments related to human resources  
21 development and environmental management.

22              Many points raised by Intervenorors have been  
23 addressed by responses to the Information Requests and by  
24 information supplied during the technical sessions and in  
25 technical memoranda.

1              Robin will provide examples of issues that  
2 have been resolved later in our presentation, and then go on  
3 to the outstanding important issues that we think should be  
4 addressed at these Hearings.

5              He will also provide our view on the  
6 underlying reasons why issues are outstanding, which relate  
7 to certainty and significance. Mechanisms to address  
8 concerns beyond the assessment process include the permitting

9 process and non-legislated agreements such as the  
10 environment, socio-economic, and impact benefit agreements.

11 The thoroughness of the assessment process  
12 means that a large amount of information has been submitted  
13 to the public record, and an extensive list of questions and  
14 issues have been generated over time.

15 As we near the end of the process, I believe  
16 it is essential to focus ourselves. This involves three (3)  
17 questions. What is the purpose of the environmental  
18 assessment process generally and this Hearing in particular?  
19 What is the mandate of the Board and what must the Board  
20 decide? It is worthwhile to take a minute to review the  
21 reasons why we are here.

22 The purpose of the environmental assessment,  
23 including this Hearing, is to ensure that the impact of the  
24 Snap Lake Diamond Project on the environment receives careful  
25 consideration before actions are taken, and to ensure that

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1 the concerns of Aboriginal people, and the general public are  
2 taken into account in the process.

3 These Hearings represent the culmination of  
4 years of data gathering and analysis, information exchange,  
5 and consultation.

6 The intent of activities over the last half  
7 year in particular have been to resolve as many issues as  
8 possible, and focus on the remaining important issues to  
9 enable the Board to complete its statutory process.

10 The Board has a very clear mandate provided  
11 under Section 128 of the Mackenzie Valley Resource Management  
12 Act. This mandate is determine -- to determine whether the  
13 Snap Lake Diamond Project is likely to have a significant  
14 adverse environmental impact, or be a cause for significant  
15 public concern.

16 There are three (3) key words in this  
17 sentence: likely, significant, and adverse. Many of it  
18 predicted impacts and concerns raised and discussed  
19 throughout the EA process are not likely to occur or do not  
20 have the potential to be significant.

21                   Many of the topics that have been discussed  
22 will likely be -- or -- many of the topics that have been  
23 discussed, and will likely be discussed this week can be  
24 dealt with through other processes, such as the Water Board  
25 Hearings, permitting, and monitoring.

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1                   It must be remembered that it is the nature of  
2 the impact after mitigation is applied that the Board must  
3 consider. In EA terms, the residual impact.

4                   The likeliness of whether impacts will occur  
5 is largely a scientific or traditional knowledge assessment.  
6 That is to say, it is adverse impact probable?

7                   Significance is more a matter of opinion. The  
8 Board is called upon to exercise its judgment on what impacts  
9 are acceptable and what are unacceptable.

10                  In our presentation, Robin will identify and  
11 address the key issues that we say lie within the Board's  
12 mandate. During the Hearings we will be stating for your  
13 consideration our position on those remaining issues that are  
14 important and, therefore, potentially significant.

15                  Based on the determination of likely  
16 significant adverse impact or public concern, the Board must  
17 make one (1) of four (4) recommendations. A further  
18 environmental impact review is not required. An  
19 environmental impact review is required. Development  
20 approval is recommended, or development is rejected.

21                  I submit to you that we will be able to  
22 demonstrate to the Board that the development is not likely  
23 to have a significant adverse impact or cause significant  
24 public concern.

25                  Therefore, you will have good reason to

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1 recommend approval of the development, subject to mitigation  
2 measure needed to prevent against significant adverse impact.

3 Now I would like to introduce the Snap Lake  
4 Diamond Project. Although Robin and I will be going into  
5 more detail throughout the Hearing, this introduction answers  
6 the first questions you might have, such as: Who, what,  
7 where, when, and why, of the project.

8 I will begin with who. De Beers is known to  
9 many as the world leader in exploration mining and marketing  
10 of rough diamonds.

11 De Beers is also known as the South African  
12 company, but the fact that we have been exploring in Canada  
13 for diamonds since the early 1960's is not as well known.

14 De Beers commitment to Canadian exploration  
15 has increased substantially, so that now 50 percent of our  
16 budget for global exploration is spent in Canada.

17 In 2002, over \$30 million was spent directly  
18 in the NWT. And we are the only major exploration company  
19 with a permanent office in the Northwest Territories.

20 The owner and sole proprietor of the Snap Lake  
21 Diamond Project, and therefore the project proponent, is De  
22 Beers Canada Mining Inc., a wholly owned subsidiary of De  
23 Beers Canada.

24 What is the Snap Lake Diamond Project? It is  
25 a relatively small underground mine. As such, it is very

1 different from the other diamond mines in the NWT. To  
2 illustrate the differences in sides -- size, we have compared  
3 the nominal production rate for the Snap Lake mine to the  
4 Diavik and EKATI mines. The De Beers production rate will be  
5 approximately 1/3 that of the EKATI mine.

6 When the project was at the scoping stage,  
7 regulators and consultants told us that one of the most  
8 effective ways to minimize environmental impacts was to  
9 reduce the project footprint to the smallest area possible.

10 The dimensions of the active area are  
11 approximately one (1) kilometer by four (4) kilometers. The  
12 total area is five hundred and fifty (550) hectares. The

13 mine footprint at Snap Lake is approximately 1/3 of the  
14 Diavik mine footprint, and 1/6 of the BHP EKATI mine  
15 footprint. All of these areas would fit easily within the  
16 city limits of Yellowknife.

17               Where is the Snap Lake Project in relation to  
18 our location here in Yellowknife? Snap Lake is a small lake,  
19 approximately two hundred and twenty (220) kilometers  
20 northeast of Yellowknife. The Diavik mine is located  
21 approximately a hundred (100) kilometers due north of Snap  
22 Lake.

23               Although in the same region, there are  
24 important environmental differences in the their locations.  
25 Snap Lake is in a different watershed. The Lockhart River

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1 watershed, which eventually flows south, while the other two  
2 (2) diamond mines are in the Coppermine Water -- River  
3 watershed, that eventually flows north.

4               The terrestrial environment in the Snap Lake  
5 area is also different. It is in the Taiga Shield eco-zone,  
6 while the other mines are in the southern arctic eco-zone.

7               There are no communities near the Snap Lake  
8 Diamond Project, but the communities that are expected to be  
9 the most effected by the project are Lutsel K'e, Wekweti,  
10 Gameti, Wha Ti, Rae-Edzo, N'Dilo, Dettah, and Yellowknife.

11               Now, when will the Snap Lake Diamond Project  
12 occur? Assuming that De Beers receives the necessary  
13 licences and permits by early 2004, underground development  
14 and limited construction would begin in 2004.

15               The main mobilization of construction  
16 equipment and materials would take place in 2005, and full  
17 construction of the surface infrastructure would begin that  
18 year.

19               Limited plant operation would begin late in  
20 2006, achieving full production by mid-2007, and continue  
21 through to 2027.

22               Decommissioning and reclamation would  
23 accure -- would occur throughout the operations phase where  
24 ever possible. For example, the North Pile would be

25    contoured and capped with granite as it is developed.

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1                   The final decommissioning and reclamation will  
2 occur between 2028 and 2030. Monitoring is expected to  
3 continue beyond 2030.

4                   Why develop the Snap Lake property? What are  
5 the reasons why this project should go ahead? De Beers is  
6 committed to the concept of sustainable development, which  
7 requires balancing good stewardship of the environment with  
8 economic growth.

9                   I believe that later in this presentation and  
10 during the coming week, we will be able to demonstrate to you  
11 that significant impacts to the environment will not occur.  
12 If our monitoring should identify impacts, we have an  
13 environmental management system in place to mitigate adverse  
14 impacts.

15                   Good stewardship of the land should also be  
16 balanced with economic growth. Clearly, there is a financial  
17 advantage for De Beers, but what benefit is there to the  
18 primary communities, the NWT and Canada?

19                   Direct positive effects will include increased  
20 employment, job training and increased family income. The  
21 project will provide about five hundred (500) jobs during  
22 operation. The total of direct and indirect labour income to  
23 the NWT is estimated at 81.2 million annually.

24                   To ensure that local communities receive the  
25 maximum benefits of employment, De Beers is committed to

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1 hire, in order of priority, qualified Aboriginals born or  
2 residing in the primary communities. Secondly, to hire  
3 qualified residents of the NWT and, thirdly, to hire  
4 qualified workers willing to re-locate to the NWT.

5 To help individuals to qualify for the jobs  
6 that will be made available, De Beers has a long term  
7 recruitment, employment, and training plan that will include  
8 adult training programs and training facilities in the  
9 primary communities and at the mine site.

10 Business opportunities is one (1) area where  
11 cumulative impacts can be positive. A third mine provides  
12 workers and contracting companies a choice of opportunities  
13 and a chance to expand the experience they have gained so  
14 far. It will provide another chance for companies and  
15 individuals to learn from earlier mistakes. It provides a  
16 broader base for growth.

17 The Board and the people here today may not be  
18 aware of all the decisions that De Beers has made over the  
19 years to prevent impacts to the environment. A brief summary  
20 of the project history will help place the last remaining  
21 issues into context.

22 The Snap Lake Diamond Project changed  
23 substantially in the scoping and pre-feasibility phases.  
24 This was a very interactive process with discussions between  
25 De Beers and regulators, particularly through informal

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1 meetings with the Mineral Development Advisory Group, or  
2 MDAG, composed of regulators and community representatives.

3 Some of the most significant reductions in  
4 potential environmental impacts occurred at this stage.  
5 Regulators reviewed baseline study designs before field work  
6 started.

7 Also, data from the ongoing environmental and  
8 economic studies and advanced exploration program were  
9 reviewed by De Beers, regulators, and communities, resulting  
10 in design changes. For example, the locations of fish  
11 bearing streams identified by the baseline studies were  
12 avoided in the site layout.

13 The history of the Snap Lake Diamond Project  
14 began in 1997, when drilling and sampling delineated a  
15 kimberlite dyke at Snap Lake. Bulk samples were taken in  
16 March 1998 and March 1999.

17                   The activities leading to a mine were greatly  
18 expanded in 1999, a scoping study looking at development  
19 alternatives and preliminary economics was released in April  
20 1999. At the same time, community meetings were held in Rae-  
21 Edzo, Yellowknife, Dettah and Lutsel K'e.

22                   A wide range of both aquatic and terrestrial  
23 baseline studies were conducted in 1999. Winspear met with  
24 MDAG in May. The purpose of this meeting was to review  
25 exploration results, preliminary development plans, and the

40

1 baseline study designs.

2                   So as early as the spring of 1999, we were  
3 sharing information and listening and responding to the  
4 advice of federal departments, territorial departments and  
5 communities.

6                   In October 1999, Winspear submitted an  
7 application for a Class A Land Use Permit and a Class B Water  
8 Licence to allow the Advanced Exploration Program to begin.  
9 This was the first formal regulatory review of the  
10 development. The permit and licence were granted in December  
11 1999.

12                   Environmental baseline studies and public  
13 consultation continued throughout 2000. The Advanced  
14 Exploration Program was mobilised in February and continued  
15 for the rest of 2000.

16                   Winspear also met with MDAG in February of  
17 that year to review exploration results, preliminary  
18 development plans, and the upcoming environmental baseline  
19 study. A pre-feasibility study was released in April 2000  
20 and in May Winspear again met with MDAG to review the pre-  
21 feasibility study, discuss project environmental issues, and  
22 the permitting process.

23                   Through both MDAG and community meetings, many  
24 of the people in this room today were again able to influence  
25 the study designs for baseline data collection and the design

1 of the project.

2 As a result of their constructive comments  
3 many changes were made to the project.

4 To begin the environmental review process,  
5 De Beers submitted to the Mackenzie Valley Land and Water  
6 Board an application for a Class A Land Use Permit and a  
7 Class A Water Licence. The Land and Water Board then  
8 referred the application to the Mackenzie Valley  
9 Environmental Impact Review Board.

10 Communities and regulators had an opportunity  
11 to provide input to the draft terms of reference for the Snap  
12 Lake Diamond Project between May and September of 2001. The  
13 underground work related to the advanced exploration was also  
14 completed in September and the mine was allowed to flood.

15 Therefore, all development of the project has  
16 been stopped for over a year and a half. Very few people are  
17 at site as activities have been reduced to care and  
18 maintenance only pending approval of the project.

19 The Environmental Assessment Report was  
20 submitted to the Board over a year ago in February 2002. To  
21 help people understand the information presented in the  
22 report, De Beers provided nearly a week of technical  
23 information sessions in April in Yellowknife. The MVEIRB  
24 also collated Information Requests from First Nations,  
25 regulators, and stakeholders in three (3) rounds of requests.

1 De Beers responded to more than nine hundred  
2 (900) questions. Workshops were also conducted on specific  
3 topics and where of interest -- that were of interest to  
4 stakeholders and regulators.

5 In some cases, additional data were obtained  
6 and presented to stakeholders in 2002 to address specific  
7 concerns. A good example is the North Lakes Report and  
8 Workshop.

9 The conformity check was completed in

10 September 2002 concluding that the Environmental Assessment  
11 Report had addressed all the terms of reference. At the end  
12 of November, the MVEIRB provided another opportunity for  
13 technical specialists to discuss and, where possible, resolve  
14 the outstanding issues.

15 De Beers invited specialists to continue  
16 discussions in their boardroom after the day's session to  
17 further understand complex issues. This resulted in  
18 agreements on an approach to resolve the issues.

19 The exchange of technical information  
20 continued in 2003. De Beers' consultants met with regulators  
21 and other interested parties to define what information was  
22 needed to resolve the remaining issues and De Beers placed a  
23 series of technical memoranda on the public record. The  
24 Intervenors also submitted their technical reports and  
25 addenda.

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1 This summary of the review process has been  
2 rather long, I'm afraid, because review of this project and  
3 responses to reviewers has been going on for four (4) years.  
4 It has been very -- it has been a very thorough interactive  
5 process involving an expensive exchange of information and  
6 the resolution of many issues.

7 In the last few slides, I summarized the  
8 consultation process causing the project to evolve over the  
9 last four (4) years. Changes in the project design early in  
10 its developments substantially reduced potential impacts on  
11 the environment.

12 I will highlight three (3) of these early  
13 decisions related to limited development within Snap Lake,  
14 limited activities on the north shore, and no open pit.

15 All of these decisions resulted in a project  
16 footprint that is much smaller than the footprint of EKATI or  
17 Diavik.

18 The diamond-bearing kimberlite dyke extends  
19 under Snap Lake. The dyke is a relatively flat sheet that  
20 slopes downwards from the northwest peninsula under Snap Lake  
21 as outlined on this slide.

22 This is a different structure than the  
23 vertical pipes found in the other NWT diamond mines.  
24 Expanding into Snap Lake by construction of dykes, and open  
25 pit mining, similar to the Diavik approach was rejected

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1 primarily because of environmental concerns.

2 Including the north shore within the  
3 footprint, was also considered, since kimberlite extends  
4 under this area as well, but we were able to confine the  
5 surface activities to the northwest peninsula. This  
6 eliminated the need for any type of connection across the  
7 lake.

8 Two (2) small vent raises that will provide  
9 mine ventilation will be located on the north shore, but they  
10 will be serviced internally from the mine or by helicopter.  
11 Both decisions greatly reduce the impact of that -- of impact  
12 that the project could have on Snap Lake.

13 After rejecting the option of an open pit in  
14 Snap Lake, De Beers considered three (3) other mining  
15 options. All three (3) included an underground mine, but the  
16 first and second options also included an open pit.

17 In the first option, the large open pit would  
18 have included most of the northwest peninsula. The second  
19 option included a smaller open pit on the northwest  
20 peninsula. There were advantages and disadvantages to both  
21 options.

22 The main disadvantage of the open pits was the  
23 amount of waste rock that would have to be removed before the  
24 ore could be extracted. Some of this waste rock was  
25 potentially acid-generating. All of it would have been

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1 placed in piles on surface.

2 Open pits also result in much more dust and  
3 noise than underground mining. The main advantage of the  
4 open pits was economic. There were convincing financial  
5 reasons for choosing the open pits.

6 The large pit would have allowed mining to  
7 begin sooner, resulting in earlier cash flow from the  
8 company. The second option provided the greatest economic  
9 advantage of all three (3) options.

10 The third option, which includes only  
11 underground mining, was selected because it will result in  
12 the least environment impact. It will produce the smallest  
13 amount of waste rock, and processed kimberlite placed on the  
14 surface.

15 Since mining and crushing will occur  
16 underground in a wet environment, and ore will be transported  
17 to the surface by conveyor, rather than trucks. Thus, the  
18 noise will be reduced in this option, compared to the other  
19 options.

20 In making this decision, De Beers decided that  
21 the loss in revenue from this option compared to the second  
22 option, was balanced by greater benefit to the environment.  
23 This decision is a direct result of De Beers' commitment to  
24 sustainable development.

25 Earlier slides illustrated some of the key

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1 decisions made during the evolution of the project. The next  
2 three (3) slides briefly describe the project as it now  
3 stands. More details are available in the environmental  
4 assessment report; however, the environmental assessment  
5 occurs in an early stage of the engineering of a project.

6 The environmental assessment looks at a broad  
7 range of issues, to formulate a big picture to determine if  
8 it should go ahead. The detailed engineering will be done  
9 after the project is approved.

10 De Beers continues to look for opportunities  
11 to optimize the project, and further reduce environmental  
12 impacts and reduce energy consumption.

13 This slide looks at the northwest peninsula,

14 towards Snap Lake at the top of slide. The north arm of Snap  
15 Lake lies along the left of the slide.

16 Most of the above ground structures will be  
17 located at the main plant site, on the tip of the Northwest  
18 Peninsula shown at the top of the slide.

19 The North Pile will contain primarily waste  
20 rock and processed kimberlite. Two (2) lay down areas are  
21 located to the south of the North Pile. The explosives area  
22 -- explosive storage shown at the bottom of the slide, must  
23 be located away from the other facilities.

24 Kimberlite rock will be crushed underground.  
25 The conveyer will carry the crushed rock up through the mine

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1 portal to the process plant, or to an enclosed storage  
2 building, the crushed ore reclaim building.

3 The crushed kimberlite will be washed and  
4 screened, then mixed with a water/ferrosilicon mixture to  
5 create a slurry.

6 The slurry will be spun in a cyclone, where  
7 the mixture will separate into layers. The layer that  
8 contains the diamonds will be dried and the diamonds will be  
9 detected by X-rays. The rough diamonds that are recovered  
10 will be cleaned and sorted for evaluation.

11 The kimberlite slurry that is left over after  
12 the diamonds have been removed is called processed  
13 kimberlite, or PK.

14 Water is drained from the PK to create a  
15 paste. Cement is added to about half of the PK paste and is  
16 pumped back into the mine as backfill.

17 The remainder of the paste is placed in the  
18 North Pile behind the containment berm, built of rock that is  
19 not acid generating.

20 Other facilities, such as a service complex  
21 and permanent accommodations complex are also provided on  
22 site.

23 The accommodations are located away from the  
24 hub of activity. Different types of storage areas are  
25 provided on site, including diesel fuel storage, shown in the

1 slide.

2 Almost all water that comes into contact with  
3 the project during construction and operation will be treated  
4 before being released to Snap Lake.

5 Water comes into contact with the project in  
6 three (3) ways. Ground water seeps into the underground  
7 workings. Fresh water is withdrawn from Snap Lake to use in  
8 the diamond processing, or as domestic potable water.  
9 And three (3), rain and snow fall directly on the surface  
10 areas of the site.

11 Water that seeps in to the underground  
12 workings will be pumped to the water treatment plant on  
13 surface. Underground water will account for most of the  
14 total water generated by the project. The water used by the  
15 process plant will be recycled or incorporated in the PK  
16 paste.

17 Water used in the camp will be treated in the  
18 sewage treatment plant. It will then be combined with the  
19 treated water from the water treatment plant and discharged  
20 into Snap Lake through a diffuser.

21 Drainage from the North Pile will include  
22 surface runoff from rainfall and snow melt, as well as water  
23 that drains from the key -- PK before it becomes frozen.

24 Water from the North Pile will be collected in  
25 sumps and drainage ditches, then it will be directed to

1 settling ponds, where most of the suspended solids will  
2 settle out. From there, water will be pumped to the water  
3 treatment plant.

4 A water management pond will be located next  
5 to the water treatment plant. It will be used to store  
6 excess water in case the treatment plant shuts down. It will

7 also collect surface runoff.

8 De Beers has prepared a simulation that shows  
9 the plan mining and processing, which was shown during the  
10 technical sessions in November. It was also provided to the  
11 Board for their information.

12 I think most people have seen it, however, if  
13 you feel it would be helpful we will show the simulation at a  
14 convenient time, such as coffee break or at lunch.

15 In the previous slides, I described the  
16 project in engineering terms as buildings and kimberlite  
17 processing, but the project also includes plans and programs.  
18 They form an important component of the corporate commitments  
19 that De Beers has made.

20 I will focus on three (3) categories of  
21 commitments. Commitments that have been achieved,  
22 commitments that are underway, and commitments that are  
23 planned.

24 Many of these commitments include  
25 collaboration with local communities and various levels of

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1 government. The best way to demonstrate that these  
2 commitments are more than just words is to show you some  
3 concrete examples.

4 A few commitments can only be implemented  
5 during later stages of the project or under special  
6 conditions. For example, De Beers has stated a commitment  
7 that if large numbers of caribou occur on site and management  
8 measures such as herding caribou from the air strip are  
9 overwhelmed, then flights to or from site will be postponed  
10 until such time that aircraft movement can be made with the  
11 safety of wildlife and people protected.

12 Two (2) areas where we are already  
13 implementing our commitments are our Environmental Management  
14 System, or EMS, and our Human Resource Development Strategy,  
15 or HRD.

16 De Beers is committed globally to have all its  
17 operations Environmental Management Systems certified to ISO  
18 14001, an internationally recognized standard, by 2003. To

19 meet this standard, an EMS has been developed and implemented  
20 at the Snap Lake site.

21               This EMS includes a set of standard procedures  
22 that must be followed and a process, including audits by  
23 external third party auditors, to ensure that the procedures  
24 have been followed, that any problems identified are dealt  
25 with and none have been missed.

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1               Continual improvement is a requirement of ISO  
2 14001. At the Snap Lake site the system was also designed to  
3 be built upon, so that it evolves as the project moves from  
4 exploration to construction, operations, and closure. The  
5 Snap Lake Project achieved certification in January of this  
6 year.

7               Among the environmental management programs  
8 included in the EMS are these nine (1) programs, some of  
9 which are required under other legislation. Why have we  
10 decided to certify our Environmental Management System to ISO  
11 14001? The reason is a bit like the reason why people make  
12 purchase decisions based on other standards.

13              Whether you are buying steel toed safety  
14 boots, an infant car seat, a helmet for a bike, people know  
15 that if it has CSA or Canadian Standards Association  
16 approval, then they might have confidence that the product  
17 will do the job intended.

18              To date, we are one (1) of the few mining  
19 organizations in Canada to certify our EMS to ISO 14001  
20 standards. BHP and Diavik, however, have recognized the need  
21 to meet such a high standard and are presently developing  
22 plans for registration.

23              The second key area where we have begun to  
24 implement our commitments is our Human Resource Development  
25 Strategy. The strategy includes pre-employment initiatives,

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1 community programs, wellness initiatives, mine training  
2 school, human resource development initiatives, and community  
3 capital infrastructure development.

4 De Beers has committed 665,000 towards  
5 regional human resource development initiatives in 2003. The  
6 NWT apprenticeship support materials were developed in  
7 partnership to provide northerners with study curriculum to  
8 prepare them for the apprenticeship trades entrance exams.

9 A total of thirty-three (33) educators from  
10 various communities, such as Yellowknife, Hay River, Inuvik,  
11 Wrigley, Fort Simpson, Fort Providence, Fort Smith, Rae and  
12 Lutsel K'e attended a train-the-trainer session.

13 A Trades Entrance Study Tutorial Program,  
14 using the NWT apprenticeship support materials, is being  
15 provided in partnership to twenty-seven (27) northerners.

16 A Community Literacy Program is presently  
17 underway, in partnership. It provides a book order program  
18 so that each grade school child in the Dogrib community,  
19 Lutsel K'e, Dettah, and N'Dilo can order three (3) free books  
20 for their own personal use.

21 The Career and Technical Centre, developed in  
22 partnership, will be used by the Yellowknife Catholic Schools  
23 and other organizations to introduce trades training to  
24 middle and high school students to the larger community.

25 De Beers has committed to contributing a hundred thousand

1 (100,000) each year to the project for each of the next five  
2 (5) years.

3 Mr. Chairman, Robin will be making the rest of  
4 the presentation. Under the headings of resolving issues,  
5 Robin will provide examples of issues that have been resolved  
6 and then list the outstanding issues.

7 We think that two (2) important reasons  
8 underlying why these issues are outstanding are uncertainty  
9 and significance. He'll describe the steps we have taken to  
10 increase certainty during the assessment.

11 Next steps looks beyond the Hearings to the

12 other regulatory steps such as licences and permits and non-  
13 legislated agreements which include the socio-ec impact  
14 benefits and environmental agreements. Over to you, Robin.

15 MR. ROBIN JOHNSTONE: Thank you, John.

16 Mr. Chairman and Members of the Board, during the next five  
17 (5) days discussion will focus on outstanding issues related  
18 to the environment including the human environment.

19 This may leave the impression that there  
20 hasn't been much work done to get us to this point but that's  
21 definitely not the case. All parties have come a long way in  
22 an understanding of the project, the potential impacts it  
23 might have, and ways to reduce or, in some cases, totally  
24 avoid those impacts.

25 Many issues were resolved during the

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1 Information Requests, follow up workshops, or at the  
2 technical report stage. I will highlight a few of these.

3 How have we determined that an issue was  
4 resolved? If there was a direct request for mitigation and  
5 De Beers met that request then the issue was considered  
6 resolved.

7 Issues were also resolved when Intervenor  
8 reported in technical reports or technical report addenda  
9 that they no longer had a concern. In some cases, there was  
10 verbal agreement among Intervenor and De Beers at the  
11 technical sessions.

12 Right from the start of consultation, by  
13 either meeting with regulators and their officers or with  
14 people and the community or even the cook shacks at the Snap  
15 Lake site we were told that we had to respect the air, water,  
16 land, including wildlife and the landscape and, of course,  
17 the people. I'll discuss the issues following these themes.

18 Several air related issues have been resolved,  
19 specifically Intervenor requested more detail on the  
20 modelling methods and assumptions used to verify the  
21 modelling results. This was provided and no further  
22 questions around this have subsequently been raised.

23 Both Environment Canada and the Government of

24 the Northwest Territories requested that De Beers make a  
25 commitment to specifically include monitoring of fine

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1 particles known as PM10 and PM2.5 in air quality monitoring.  
2 De Beers has committed to doing this monitoring and will  
3 finalize the air quality monitoring program in consultation  
4 with these organizations and communities.

5           Intervenors also suggested that De Beers  
6 should join the Voluntary Challenge Registry as part of a  
7 commitment to reduce greenhouse gas emissions. De Beers  
8 recognizes its responsibility to work diligently to reduce  
9 greenhouse gas emissions and has volunteered to join the VCR.

10           In addition, De Beers has committed through  
11 its environmental management system, to continually improve  
12 in this aspect of environmental performance.

13           Water related issues. The Snap Lake Project  
14 does not result in a physical alteration of water bodies  
15 through the use of dykes or de-watering like previous diamond  
16 projects but water has been a very important topic in the  
17 environmental assessment. There have been extensive meetings  
18 where the results of analyses were discussed and new  
19 scenarios were modelled at the request of Intervenors.

20           This resulted in substantial progress on  
21 issues such as predicted impacts to lakes north of Snap Lake  
22 related to groundwater flow, and seepage from mine workings  
23 after closure.

24           Also, concern was raised at the technical  
25 sessions that there was the possibility of seepage from the

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1 North Pile, seeping from the collection ditches and migrating  
2 to Snap Lake.

3           To mitigate this, we have deepened the ditches

4 to the -- to reverse the flow, so that a small amount of  
5 water will migrate from the lake to the ditch, thereby  
6 eliminating this possibility. Intervenor, in the technical  
7 report addenda, indicated agreement on this design  
8 improvement.

9               Resolved issues related to impacts to the  
10 terrestrial environment included: there was an initial desire  
11 that the impacts to the environment at a landscape level be  
12 assessed using a standardized land classification system,  
13 used broadly in the Slave geological Province. De Beers had  
14 worked with RWED to achieve this from the start.

15               Intervenor noted that the potential of -- the  
16 potential attraction of wildlife to the site could be reduced  
17 by relocating the incinerator so that food waste did not have  
18 to be transferred or stored outside of the building.

19               De Beers has subsequently revised the site  
20 plans to make this design change. More detail regarding  
21 closure and reclamation over that provided in the EA was  
22 requested. De Beers have subsequently provided a detailed  
23 draft plan for Intervenor.

24               Again and again we were told during  
25 consultation that northerners, especially Aboriginals, sought

1 meaningful employment. To ensure that northerners had the  
2 skills and training for access to high level possessions, De  
3 Beers has developed a comprehensive human resource strategy.

4               Some details are yet to be worked out with  
5 other parties, but a plan is in place. Human Resource  
6 initiatives are already being implemented, and it is on  
7 schedule.

8               Intervenor sought commitment that De Beers  
9 would extend the mandate of its South African social  
10 investment fund, the De Beers fund, to include Canada. De  
11 Beers has provided details to the public record about the De  
12 Beers Canada Fund, which will support non-profit community  
13 development projects in the NWT and other locations in  
14 Canada.

15               At community meetings, we heard the problems

16 associated with community members stopping in Yellowknife, on  
17 -- returning from their work cycle at the mines, so we  
18 changed our plans, and will fly directly to the primary  
19 communities, bypassing Yellowknife.

20           Although De Beers and Intervenorors have been  
21 working pro-actively, some unresolved issues remain. The  
22 most important issues have been summarized on the next five  
23 (5) slides under the headings of land, water, and people.

24           We have not included issues where substantial  
25 progress has been made, although we recognize that some

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1 Intervenorors may continue to have concerns.

2           The remaining important issues will be  
3 addressed during the week and presentations specific to each  
4 environmental component; geo-technical, groundwater,  
5 wildlife, and others.

6           These presentations will be more detailed. In  
7 this opening presentation, I would like to look at the issues  
8 from a much higher level, which allows us to see the  
9 fundamentals of the issues confronting the Board.

10           Although the EA covered a broad range of land  
11 related topics, the remaining important land issues  
12 identified by the Board's consultants focus on three (3)  
13 wildlife species, and the mitigation and monitoring related  
14 to these species.

15           The issues around caribou, wolverine, and  
16 grizzly bears relate to the confidence and predicted impacts  
17 and proposed mitigation measures. Some Intervenorors have  
18 expressed interest in more detail around mitigation and  
19 monitoring, while others, for example RWED, have suggested  
20 that the details should be finalized under environmental  
21 agreement negotiations.

22           The significance of predicted impacts to  
23 wildlife is also in the area of great interest to the public.

24           Water from the main sources on site, which  
25 include mine water, North Pile seepage, and site runoff; all

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1 flow to the water treatment plant and then to Snap Lake after  
2 treatment.

3           Inputs to that waste stream will be discussed  
4 within the geotechnical and hydrogeology components.

5           The potential impacts to Snap Lake occur later  
6 in the sequence and they will be discussed in the water  
7 quality and aquatic presentations.

8           Most of the geotechnical issues were resolved  
9 but the Board's consultants identified that three (3) remain.

10           All pertain to the North Pile, and all relate  
11 to the quantity and quality of water seeping from the North  
12 Pile. The predicted quantity and quality of treated mine  
13 water discharge we use to model changes to water quality in  
14 Snap Lake.

15           Intervenors have expressed concern about  
16 certainty in the predictions of the quantity and quality of  
17 ground water entering into the mine.

18           The water issues include four (4) related to  
19 the physical and/or chemical changes in water quality, plus  
20 the overall effects of these changes considered together,  
21 known as multiple stresses, on aquatic organisms and keystone  
22 species in particular.

23           This list includes all the major issue themes  
24 identified by the Board's consultants. The concerns largely  
25 relate to certainty in predictions and the significance of

1 the predicted effects.

2           Overall, the key issues related to people, or  
3 socio-economic issues, are related to whether northerners  
4 will get the maximum possible benefit from the project,  
5 including employment and on an individual, family, and  
6 community level.

7           Intervenors also want to be sure that the  
8 appropriate socio-economic support systems and monitoring

9 will be developed and implemented effectively. De Beers has  
10 stated that partnerships are key to ensuring that the  
11 measures are put in place and work.

12  
13 (BRIEF PAUSE)

14  
15 MR. ROBIN JOHNSTONE: There are two (2) common  
16 themes to why issues are outstanding: significance and  
17 certainty. Are any of the issues just listed likely to  
18 represent significant adverse impacts, or result in  
19 significant public concern?

20 We have all focused on issues in the last few  
21 months, but we need to step back and look at significance.  
22 In many presentations this week it will be apparent that some  
23 -- some Intervenor agree with De Beers' conclusions, while  
24 others do not.

25 By the end of the week, there might still be

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1 issues that are not resolved. That is, there is not complete  
2 agreement. Due to the limits of knowledge, agreement may not  
3 be possible.

4 In focusing so strongly on issue resolution,  
5 we are at risk of forgetting about impact significance. Will  
6 the project, after mitigation is in place, have a residual  
7 adverse impact on the environment that is significant.

8 Mitigation includes engineered structures,  
9 programs, and adaptive environmental management processes.

10 For example, monitoring may be used to  
11 identify the need for further mitigation, and that mitigation  
12 may be added at a later date when it is needed. It is the  
13 impact after that mitigation is in place, the residual  
14 impact, that must be considered.

15 Another question is: How sure are we? This  
16 brings us to the subject of certainty. Can we make wise  
17 decisions in the face of uncertainty?

18 First of all, uncertainty is part of the world  
19 we live in, so we often face decisions in light of  
20 uncertainty. We all make such decisions daily, sometimes,

21 with little conscious thought and often with large stakes.  
22                   We northerners, far more regularly than most  
23 Canadians, crowd into aircraft headed for remote areas under  
24 weather conditions that are sometimes poor and most usually  
25 unpredictable.

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1                   There are elements of risk, uncertainty, and  
2 natural variability in this decision, but most often we  
3 choose to go. That decision to proceed is usually based on  
4 our evaluation of both elements and the measures in place to  
5 reduce that risk, such as the experience of the pilot, the  
6 type of plane, and our experience with weather at that  
7 location.

8                   Similarly, Aboriginal people have travelled  
9 this land for generations and have always faced the  
10 uncertainty inherent to their traditional lifestyle in a  
11 natural world. Their stakes were high, the survival and well  
12 being of their families.

13                   They were not guaranteed that the hunting  
14 would always be successful, but they reduced that uncertainty  
15 with the know -- their knowledge of an animal's behaviour,  
16 its preferred habitat and seasonal movements.

17                   Decisions to proceed with development in the  
18 NWT or elsewhere, all contain a degree of uncertainty. Let's  
19 look at the measures to manage uncertainty used by De Beers.

20                   These are some of the factors that allow us to  
21 proceed with confidence. To begin with, a team of  
22 experienced engineers and environmental professionals from  
23 reputable companies were assembled to design and evaluate the  
24 project.

25                   They have substantial education in their

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1 fields and years of experience to call upon, much of it  
2 gained in the north.

3 Working in teams means that all work is  
4 reviewed by peers and predictions are not made by one (1)  
5 person alone. This team is knowledgeable about state-of-  
6 the-art techniques as well as the tried and proven.

7 They also understand the limitations of their  
8 tools. They selected appropriate models or methods, for  
9 assessing impacts of the project which were supported by  
10 appropriate information and assumptions. The team has also  
11 relied on information from a traditional knowledge study  
12 provided by Lutsel K'e and first-hand advice provided by  
13 Elders at the site.

14 Where information was limited, multiple  
15 sources or lines of information were used to increase  
16 certainty and predictions or conclusions. This is sometime  
17 referred to as a weight of evidence approach.

18 Predictions of caribou movement are a good  
19 example. Historic trails and traditional knowledge provided  
20 long term information to augment more recent monitoring by  
21 RWED and by De Beers.

22 The experience of the operator is another  
23 factor in increasing certainty. De Beers is the world leader  
24 in diamond mining. It brings that depth of knowledge, along  
25 with the experience of Canadians, who have a great deal of

1 northern experience to this project.

2 Certainty was also increased by using the  
3 experiences and information from EKATI and Diavik. While  
4 those projects are much larger and inherently different from  
5 the proposed Snap Lake Diamond Project, a great deal has been  
6 learned from those projects that is relevant to predicted  
7 impacts, mitigation measures and monitoring for Snap Lake.

8 In some cases, those projects have already  
9 provided information about the -- the acceptability to the  
10 people of the NWT of project related impacts. We have paid  
11 close attention to the lessons learned at these projects,  
12 both from their challenges and their successes.

13 Furthermore, we have had the chance to apply  
14 these lessons and gain experience with them during the Snap  
15 Lake Advanced Exploration Program, when we had up to one  
16 hundred (100) people on site. For instance, we have found  
17 that mitigation measures to prevent the attraction of  
18 wildlife to the project work.

19 We have used all of this information,  
20 experience, and tools to make conservative impact  
21 predictions.

22 Conservatism means that we have used  
23 assumptions that build in layers of safety, so that we can be  
24 sure that the impacts of the project will not be greater than  
25 predicted. It is likely that the observed impacts will

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1 actually be less than predicted.

2 Some common sense is required when adding  
3 layers of safety. If this layering is overdone, predictions  
4 are no longer realistic, even for the worst case. We think  
5 that some of the scenarios that have been modelled and will  
6 likely be discussed this week fall into that category.

7 The measures that we have discussed so far  
8 relate to the environmental assessment and the prediction of  
9 environmental impacts. There are also measures that can be  
10 applied in the future that will increase our level of  
11 certainty.

12 For example, De Beers has stated that it will  
13 intentionally cease production to temporarily flood the  
14 underground mine if the capacity of the water management  
15 system is in danger of being exceeded.

16 In this case, De Beers obviously has some very  
17 strong incentive to ensure that the predictions are  
18 conservative so that the ground water quantity entering the  
19 mine will not be greater than predicted.

20 Earlier, John described the commitment to an  
21 ISO 14001 Certified Environmental Management System. As part  
22 of the system, monitoring data will be reviewed regularly and  
23 the adequacy of mitigation will be re-evaluated. De Beers  
24 will act to ensure that the residual impact, the impact after

25 mitigation, does not become significant.

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1           The Human Resources Development Plan will also  
2 be reviewed to ensure that the programs within the plan are  
3 being tailored to the varying needs of the communities  
4 identified by monitoring.

5           Protection of the environment will be  
6 continually regulated. The many permits and licences provide  
7 another level of certainty. De Beers commitment to negotiate  
8 the socio-economic impact benefit and environmental  
9 agreements is yet another tool.

10           In Information Request 2.2.13 Lutsel K'e  
11 stated that they, quote:

12                   "maintain it is extremely difficult to  
13 accurately predict the behaviours and  
14 movements of animals."

15           The real key to ensuring that wildlife is not  
16 adversely impacted by the project is through a rigorous  
17 monitoring program and mitigation action plan. Monitoring is  
18 important to increasing certainty. Because most changes  
19 occur over time, monitoring can also be used to reduce impact  
20 as part of adaptive management.

21           For example, the first cell of the North Pile  
22 will be constructed as far away from Snap Lake as possible so  
23 that construction techniques can be refined before the North  
24 Pile is expanded.

25           Maximum impacts usually occur after the

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1 project has been operating for a long time. The quantity of  
2 water discharged to Snap Lake is a good example. The water  
3 treatment plant will be constructed to its full capacity from  
4 the outset but this will not be needed in the first few

5 years.

6 Monitoring data obtained during these years  
7 can be used to verify model predictions and to determine  
8 whether additions to the treatment plant to increase capacity  
9 will be required. Capacity can be installed before it's  
10 needed.

11 De Beers is committed to developing and  
12 implementing monitoring programs that meet the requirements  
13 of the environmental assessment and regulatory review  
14 processes and are developed in collaboration with  
15 communities, Elders and governments.

16 In response to interest expressed by  
17 Intervenors at the November technical hearings, De Beers  
18 submitted a document to the public record in February that  
19 outlined its approach to finalising detailed monitoring  
20 programs and a proposed schedule for that in relation to  
21 project milestones.

22 A comprehensive list of monitoring commitments  
23 was also provided for review and comment.

24 Overall, the next steps proposed include  
25 incorporating feedback from the public Hearings into

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1 monitoring commitments, distributing revised monitoring  
2 commitments for Intervenor review and comment during the  
3 Summer of 2003, meeting with regulatory agencies and  
4 community representatives for further input in the fall of  
5 2003, updating draft programs prior to water license  
6 hearings, and finalizing detailed monitoring programs on time  
7 lines agreed to in environmental agreement negotiations.

8 Under Federal and Territorial Legislation, a  
9 series of environmental permits, licenses, authorizations,  
10 and approvals will be required before the project can  
11 proceed.

12 The land use permit will be issued with  
13 conditions that must be met, including the submission of  
14 updated plans, such as the spill contingency plan, the  
15 environmental response plan, and others.

16 The review process required to obtain a Type A

17 water license includes: a public hearing intended to identify  
18 site specific mitigation issues, and specific conditions to  
19 water license.

20 The point I am making is that the assessment  
21 and subsequent regulatory process is a part of many mandatory  
22 processes that will regulate potential environmental impacts  
23 related to the construction, operation, and closure of the  
24 Snap Lake Diamond Project.

25 Some of the issues brought forward during

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1 these Hearings, may be more appropriately addressed during  
2 one (1) or other of these other processes.

3 Environmental assessment should identify the  
4 potential impacts and mitigation, while the regulatory  
5 process will provide details on the implementation of  
6 standards related to environmental performance. Protection  
7 of the environment will be continually regulated.

8 Other measures to increase certainly include:  
9 the environmental agreement, socio-economic agreement, and  
10 impact benefit agreement. De Beers is committed to  
11 negotiating these agreements in good faith, and is working  
12 diligently with Government agencies and representatives from  
13 primary communities.

14 With regard to a socio-economic agreement,  
15 baseline conditions now are quite different than they were in  
16 the 1990's, when the first socio-economic agreement was  
17 signed. A variety of programs, such as training, pre-  
18 employment, education, counselling, et cetera, have been or  
19 are being established.

20 People from affected communities are presently  
21 employed in greater numbers than before. Monitoring of  
22 adverse social, cultural, and economic impacts is also taking  
23 place.

24 The commitment to employ Northerners, and  
25 Aboriginals is now the baseline, the way of doing business in

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1 the NWT, and De Beers plan has proceeded on that basis.

2 Current issues go beyond just jobs to  
3 literacy, continuing education, trades, and advancement.  
4 Discussions with the GNWT, and communities are ongoing.

5 Components of the socio-economic agreement  
6 include: project specific monitoring body, employment  
7 targets, business targets, education and training, and supply  
8 of rough diamonds to the NWT-based cutting and polishing  
9 industry.

10 Impact benefit agreements are being negotiated  
11 with four (4) groups: The Dogrib Treaty 11 Council, the  
12 Lutsel K'e Dene, the North Slave Metis Alliance, and the  
13 Yellowknives Dene. There has been good progress to date.

14 Components of the discussion include:  
15 financial, including cash payments for project equity or net  
16 profits; employment; training and education; monitoring and  
17 monitoring committee; community liaison; business  
18 opportunities; and health and wellness.

19 Discussions related to the Environmental  
20 Agreement have been informal to date. However, the informal  
21 environmental agreement will play an important role in  
22 monitoring plans for the project.

23 Components could include security, monitoring  
24 requirements, and the commun -- and community involvement  
25 in monitoring.

1 Initial discussion with INAC concluded that  
2 negotiation regarding an environmental agreement should begin  
3 after the public Hearing, subject to interest from other  
4 parties.

5 Also, De Beers has participated in an INAC  
6 workshop on a single regional monitoring agency. While these  
7 discussions continue, De Beers sees a need to negotiate a  
8 Snap Lake agreement to ensure that monitoring is in place  
9 during the early stage of development.

10                   John opened our presentation by reminding us  
11 all that the mandate of the Board was related to three (3)  
12 words: likely, significant, and adverse.  
13                   I'd like to examine the first of these words,  
14 likely. In this context, likely means probable, as opposed  
15 to possible. An impact that is probable is one that can be  
16 reasonably expected to occur, while an impact that is  
17 possible only has the potential to occur.  
18                   To bring this point back to the Snap Lake  
19 Diamond Project, the environmental assessment used  
20 conservative assumptions.  
21                   The authors believed that the actual impact  
22 that will be observed by future monitoring will be less than  
23 the production in the EA. That is, the likely, or probable  
24 impact, will be less than predicted.  
25                   The EA predicted the possible impact. Some

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1 Intervenor feel that we should go beyond possible by  
2 adapting scenarios that are unlikely to occur.  
3                   A good example is the discussion of the  
4 quantity of ground water that might flow into the mine. At  
5 the Intervenor's request, De Beers has modeled a range of  
6 scenarios, some of which are unlikely.  
7                   The Board's mandate specifies that it must  
8 consider likely impacts, while most scientific debate takes  
9 place in the realm of possible but unlikely.  
10                   The significance of an impact is determined by  
11 its magnitude, geographic extent, duration, reversibility;  
12 which is related to ecological resilience, and frequency.  
13 The impacts remaining as issues have been assessed in the EA  
14 based on these criteria.  
15                   The criteria have also been combined to give  
16 an overall rating of environmental consequence for each  
17 potential impact.  
18                   Thus, the Environmental Assessment Report, and  
19 subsequent documents provide considerable information to help  
20 the Board determine significance as was required by the terms  
21 of reference for the project.

22                   Each criterion is based on a carefully defined  
23 ranking system of negligible, low, moderate, or high. De  
24 Beers has carefully avoided the use of the term significance,  
25 and therefore, the acceptability of these categories to the

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1 Board.

2                   Over the last fourteen (14) months of  
3 information exchange and discussion, the ranking of impacts  
4 has not changed. They are differences of opinion on  
5 certainty, adequacy of data, choice of models and scenarios,  
6 layers of safety, et cetera.

7                   There is, inevitably, a desire for more  
8 information, but at no point in this process have Intervenors  
9 shown convincing evidence that the impacts are likely to be  
10 substantially greater than predicted.

11                   On the whole, new information has shown  
12 impacts to be less, which is to be expected when using a  
13 conservatives approach.

14                   A good example of this is the information for  
15 the north lakes presented since submission of the EA. The  
16 results presented in a report and workshop in the fall showed  
17 that the impacts to the north lakes are likely to be much  
18 less than assumed in the Environmental Assessment Report.

19                   In the next few slides, I would like to review  
20 the predicted impacts of the project, as defined by the  
21 criteria. Only the following -- only the outstanding  
22 important issues will be addressed.

23                   The outstanding important issues related to  
24 land pertain to caribou, wolverine, and grizzly bear; more  
25 specifically, they relate to the movement and behaviour and

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1 the potential for mortality of these species.

2                   Habitat is not an important issue because the  
3 project is confined to a limited area that is very small in  
4 comparison to the home ranges of these species.

5                   The topics that are relevant to the unresolved  
6 issues were examined in detail in the Environmental  
7 Assessment Report. In fact, twenty-four (24) individual  
8 subsets of this issue were assessed.

9                   In all of these, the impact was predicted to  
10 be reversible when decommissioning was completed, which is  
11 predicted to occur by about 2030. Therefore, the duration of  
12 the impact was limited to approximately twenty-six (26)  
13 years.

14                  The geographic extent was variable, but many  
15 of the potential impacts would occur close to site. Impact  
16 magnitude ranged from negligible to moderate. Impacts that  
17 had the potential to cause mortality were -- were rated as  
18 moderate for these species, even though the numbers were  
19 expected to be very small.

20                  Data on mitigation methods proved that  
21 mitigation can be effective. Being the third diamond mine  
22 provides a substantial advantage, because De Beers has been  
23 able to review five (5) years of data on how mines effect the  
24 movement and behaviour of these wildlife species.

25                  This information comes from monitoring at

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1 EKATI and Diavik, as well as data from the West Kitikmeot  
2 Slave Study, Resources, Wildlife and Economic Development,  
3 and the advanced exploration at the Snap Lake site.

4                   As a result of this information, we have  
5 reason to be confident in our assessment. The overall  
6 environmental consequences of these impacts were assessed as  
7 low because the duration of the impacts was limited to mine  
8 life, and mitigation will be in place to limit effects on  
9 movement and behaviour, including the attraction of animals  
10 to the -- to the site.

11                  Issues related to the quantity and quality of  
12 mine water and North Pile seepage remain to be discussed this  
13 week. These mainly cause impacts indirectly, since they form

14 components of the waste stream. Direct impacts to Snap --  
15 Snap Lake include changes in dissolved solids, nutrients and  
16 dissolved oxygen concentrations, and the effects of these  
17 changes on aquatic organisms.

18               The magnitude of changes to the water quality  
19 of Snap Lake will assist in relation to the protection of  
20 aquatic life. The magnitude of the impacts to the water  
21 quality and the organisms range from negligible to low. The  
22 geographic extent of all impacts is local, as it is limited  
23 to Snap Lake and all impacts are reversible.

24               Although impacts are usually considered  
25 negative, it is likely that nutrient inputs may slightly

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1 increase the productivity of some organisms, which could be  
2 considered positive. The overall environmental consequence  
3 of the project was assessed as low for water quality and each  
4 of the communities and organisms at Snap Lake.

5               We believe it is important, when determining  
6 significance, to look at the lake as a whole. The overall  
7 trophic or productive status of the lake is not expected to  
8 change.

9               The issues related to people are related to  
10 whether individuals, families and communities will get the  
11 maximum possible benefit from the project. Employment,  
12 socio-economic support systems and an effective monitoring  
13 program have been identified by Intervenors as being  
14 important.

15               Application of impact criteria is more  
16 difficult for the socio-economic component than land or water  
17 components. Overall, the direct impact will include  
18 increased employment, mining job training, increased family  
19 income and tax revenues.

20               There will be up to five hundred (500) direct  
21 employment opportunities and many spin-off, indirect and  
22 induced jobs. Other indirect economic impacts will include  
23 increased opportunities for diversification and economic  
24 sustainability.

25               There are challenges to building additional

1 capacity such as building increased wellness, education and  
2 training within families and communities. However, with the  
3 impact management measures described in the Environmental  
4 Assessment Report applied in full, the impact will be  
5 substantial and positive.

6           This positive impact will extend to the  
7 primary communities, the larger employment catchment area,  
8 the NWT and Canada. Impacts are expected to occur throughout  
9 the mine life. Duration and magnitude will vary depending on  
10 an individual's or community's response to the opportunities.  
11 It is expected that positive impacts such as education,  
12 training, and wellness will not be reversed at project  
13 closure.

14           To summarize, the environmental assessment of  
15 the project has been rigorous with extensive input from  
16 Intervenor's dating back to early 1999, with a huge amount of  
17 work done since submission of the EA over the last fourteen  
18 (14) months. This week the Review Board will likely hear  
19 that there is not total agreement among all the scientists on  
20 each -- every scientific issue.

21           Some Intervenor's differ with us on some issues  
22 as they disagree with each other. On the basis of all the  
23 information at our disposal, we are firm in the opinion we  
24 have arrived at and our confident we will show that there are  
25 no significant adverse impacts after mitigation.

1           The theme we regularly will return to and  
2 which is the substance of our submission is that you should  
3 know -- have no hesitation recommending to the Minister that  
4 the project should proceed, Mr. Chairman and Members of the  
5 Board.

6           This mine is not likely to have a significant

7 adverse environmental impact having regard to mitigation  
8 measures proposed. The mine is not a cause of significant  
9 public concern and there are many positive reasons for the  
10 project to proceed. Thank you very much.

11 THE CHAIRPERSON: Thank you, Mr. Johnstone.  
12 Just a couple of minutes for the Board to retake their seats.

13  
14 (BRIEF PAUSE)

15  
16 THE CHAIRPERSON: Thank you. We're just  
17 having a short discussion here. We -- we'd like to try and  
18 keep as close to the timetable as possible on -- on the  
19 agenda, simply because it's going to be a long week, and  
20 unfortunately for us, it happens to be a week when there's a  
21 lot of activity in Yellowknife, and this is the only room  
22 that was available for the Board to -- to rent.

23 There are some issues that we have to deal  
24 with with regards to seating tables, and some of the Elders  
25 will need to be reseated down on the main floor, simply

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1 because they're having a tough time getting up and down the  
2 stairs. So, we need to re -- rejig the room.

3 So, as such, we will take a short five (5)  
4 minute break, and then we will come back, and we will hear  
5 opening statements of the Yellowknives Dene First Nation, and  
6 Indian and Northern Affairs Canada.

7 And then, we will close for lunch, and that  
8 should be -- give us a few extra minutes to try and rejig the  
9 room before we proceed again at 1:30.

10 So, like I say, we'll take a short five (5)  
11 minute break, and then we'll reconvene to hear from the  
12 Yellowknives Dene First Nation.

13  
14 --- Upon recessing at 11:15 a.m.

15 --- Upon resuming at 11:30 a.m.

16  
17 THE CHAIRPERSON: Just a couple of quick  
18 housekeeping issues before I ask the Yellowknives Dene First

19 Nation to make their opening comments.  
20 All power plant presentations received to date  
21 are on the MVEIRB website, and we will update -- update it on  
22 an ongoing basis as we get those presentations.  
23 We'll also -- hard copies of any presentations  
24 which are provided by the parties, will be placed on the  
25 table -- on a table which we'll set up out front after lunch.

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1 And I neglected to mention, although probably  
2 most of you had figured out, on the translation system,  
3 Dogrib is on 6, Chip is on 4, and English is on 1. Thank  
4 you.

5 Now, we'll proceed now with the opening  
6 statement by the Yellowknives Dene First Nation, Ms. Crapeau,  
7 I believe.

8 MS. RACHEL CRAPEAU: Hello, my name is Rachel  
9 Crapeau. I work with the Elders and the Line Environment  
10 Committee members who are trappers, hunters, and fishermen of  
11 the Yellowknives Dene First Nation.

12 We've been looking at the proposed Snap Lake  
13 Diamond Project since the last couple of years. And the work  
14 that was going on there before it became public that they  
15 wanted to develop a mine.

16 We had people like Mike Francois (phonetic),  
17 Patrick Goulet, and George Goulet, on the project site about  
18 1997/98, when they were doing some work on fish, to see what  
19 kind of fish were there, and also, a little bit of baseline  
20 data work.

21 Back then, our people thought that this  
22 project was maybe going to be big or small, we were not sure  
23 what -- what the mine development was going to be like.

24 Today we know more about the foot size of the  
25 project and how their buildings are going to look, where the

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1 rock piles are going to be, and we do have some concerns.

2 And we've got -- we --we've got presentations  
3 that we're going to be doing during this week, in regards to  
4 the geo-technical, and we've also got some socio-economic  
5 concerns, and some concerns regarding the water and water  
6 quality, the fish and basically concerns about the impact on  
7 the wildlife, and especially the caribou.

8 We thought that we would have been at a  
9 workshop for the caribou long before today but that did not  
10 happen. From what I understand the workshop is going to be  
11 held next month and that we'll be attending the workshop on  
12 the caribou.

13 But our concern was that if we had already had  
14 that workshop already, we would have had our concerns  
15 regarding caribou all written down and put together so that  
16 you could look at it this week.

17 The other information regarding the water --  
18 I'll say water bug, but in Tim's learning and the learning of  
19 the people who know more about the Zooplankton and Benthos,  
20 we've got information that we want to present later, and also  
21 about the dissolved oxygen.

22 Our other concern that we wanted to bring  
23 forward and that we were thinking about during the technical  
24 sessions, was the impact on the communities of Dettah and  
25 N'Dilo, the social impacts.

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1 Through an environmental assessment and a  
2 Hearing like this, we never hear from people like the RCMP.  
3 We don't know what sort of working relationship we're going  
4 to have with them in case there are some serious problems.

5 Because in the past, with development and with  
6 community people making a lot of money, and especially a  
7 community the size of Yellowknife that is right next to  
8 N'Dilo, we notice that maybe there's an increase in social  
9 problems and we don't know, right now, today, what the  
10 working relationship ought to be.

11 And so these impacts have been a concern for

12 parents and grandparents for the young people because it  
13 impacts on the child's education and their ability to live  
14 normally, the life of school children, at that age where they  
15 should be living without any fear of any problems during  
16 their school years.

17 And also, with our young people, the parents  
18 are saying that, with more money in a community there are  
19 more problems with alcohol and drugs that will impact the  
20 young people. We do not want to lose our young people to  
21 these problems.

22 So at the Hearing today, or this week, and the  
23 Hearings of the other two (2) mines, Diavik and BHP, we had  
24 never heard anything from people who are in charge of the  
25 RCMP.

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1 How are they going to deal with these types of  
2 problems? Do we wait until something seriously happens and  
3 then we -- we deal with the situation later? We do not know.

4 But our -- also, concerns are really about the  
5 caribou and the wildlife in that area. We don't think that  
6 there was a lot of work done in -- in that area. And we were  
7 in an agreement with RWED that we needed more information.

8 And also, from what I understand, that water  
9 will change down the road, maybe not in Year 1 or Year 5, but  
10 maybe by the fifteenth year of the mine's operation, the  
11 water in that area will change. How will that water affect  
12 MacKay Lake? And the water that flows out towards Coppermine?

13 There are drainages and the way the water  
14 flows, everything is affected especially the fish and the  
15 habitat of the fish. These things, we notice, do not damage,  
16 but they do affect the growth of the fish in the area.

17 In MacKay Lake and that area for hunting,  
18 fishing and trapping has always been a very good place for  
19 our people and we do not want to see the hunting, fishing,  
20 and trapping areas of our people changed significantly.

21 So, therefore, we're going to be addressing  
22 the fish and fish habitat and the water quality issues this  
23 week.

24 Later on we understand from the -- from the  
25 schedule this week we might be having an evening session and

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1 that's when Isadorre said that he would like -- he would like  
2 to make his presentation then. So this is it for my pitch or  
3 my opening statement for this week and we'll see what happens  
4 later on. Thank you.

5 THE CHAIRPERSON: Thank you, Ms. Crapeau.  
6 I'll now move to Indian and Northern Affairs Canada for their  
7 opening statement.

8 MR. DAVID LIVINGSTONE: Thank you, Mr. Chair.  
9 My name's David Livingstone. I'm the Director of Renewable  
10 Resources and Environment with DIAND here in Yellowknife.

11 Before we get into an overview of the  
12 intervention, I would like to relay a personal anecdote.

13 Last week I was travelling and picked up a  
14 paper on the way back and the way the article was written it  
15 sounded as though Charlie Snowshoe had passed on.

16 So I just want to say, Charlie, that I'm  
17 pleased to see you here. Glad to see that the rumours of  
18 your death have been exaggerated. Back to business.

19 DIAND's intervention was prepared by a team of  
20 DIAND's staff and consultants and I'll briefly introduce them  
21 now. You'll be seeing more of them over the next few days.  
22 I'll ask them to identify themselves when I read out their  
23 names. Sevn Bohnet and Francis Jackson are from the Water  
24 Resources in DIAND.

25 Also from DIAND is Buddy Williams with the

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1 Land Administration Division. Yvonne MacNeil is legal  
2 counsel with the Department of Justice and our experts team  
3 is composed of several individuals, John Brodie, Dr. Chris

4 Burn, Peri Mehling, Ken Raven, Eugene Yaremko and Dr. Peter  
5 Chapman.

6 Don MacDonald, who is not here today, also  
7 assisted in our review and in the preparation of our  
8 intervention and I believe the Board has the CVs of all the  
9 experts.

10 Before I overview the material we intend to  
11 present over the next few days, allow me to outline briefly  
12 what we see to be the central purpose of our intervention.

13 Few developments, if any, come without impact  
14 on the environment. The Snap Lake project is no exception.  
15 Our intention is to provide for the Board our assessment of  
16 the likely impact of the project on water quality and aquatic  
17 life of Snap Lake. The environmental cost of doing business,  
18 so to speak.

19 In reaching our conclusions, we have conducted  
20 a thorough review of the proposed project and in doing so  
21 considered a number of factors including the fact that Snap  
22 Lake is a headwater lake in the Lockhart River watershed. A  
23 watershed previously unimpacted by major diamond mining  
24 development.

25 Our goal, and I believe the goal of most, if

1 not all, people in attendance here today, is to ensure that  
2 if Snap Lake proceeds its effects on the environment are  
3 minimized.

4 Our presentation will cover several areas,  
5 geo-technical, geo-chemical, and geo-thermal permafrost  
6 issues will be covered in one (1) presentation because they  
7 are closely interdependent.

8 We will also address hydro-geological and  
9 surface water hydrology issues and conclude with a  
10 presentation on Snap Lake water quality issues.

11 Overall, we feel that the mine plan proposed  
12 by De Beers is largely sound and we have little in the way of  
13 additional mine plan improvements to recommend at this time.

14 We feel that paste technology is a superior  
15 chase to the more conventional approach of damming large

16 surface areas or infilling lakes to dispose of processed  
17 kimberlite. That said, there are some challenges associated  
18 with this paste technology and we'll get into those in more  
19 detail during our presentation.

20 Baseline and other information provided by  
21 De Beers is less than satisfactory in some key areas. While  
22 we've done our best to deal with this, it would have been  
23 much preferable had the information we requested been  
24 provided prior to this Hearing.

25 And while we agree with De Beers that there

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1 will be an impact on Snap Lake, we feel that the Company has  
2 significantly underestimated that impact.

3 In our view, the combined effect of baseline  
4 uncertainties, groundwater uncertainties, paste water quality  
5 issues, geo-technical issues, geo-chemical concerns and  
6 mixing issues, lead us to conclude that the impacts on Snap  
7 Lake will be two (2) to three (3) times greater Lake-wide,  
8 than predicted by De Beers, and perhaps higher locally.

9 However, and this is important, our conclusion  
10 is that while the project is very likely to have  
11 environmental effects greater than those predicted by De  
12 Beers, we believe that Snap Lake will largely recover thirty  
13 (30) to forty (40) years after mining ceases.

14 Changes in the species numbers, composition  
15 and ecosystem structure will occur, and while recovery is not  
16 like -- likely to be to pre-development conditions, these  
17 effects are tolerable in our view.

18 Finally, our review indicates that there is a  
19 need for continued and better focussed baseline monitoring  
20 programs that improve contingency planning as necessary, and  
21 that further treatment -- further consideration, sorry, of  
22 water treatment options, including reverse osmosis, should be  
23 undertaken.

24 Our presentations over the next few days will  
25 focus on outlining for the Board our reasoning behind these

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1 conclusions. We feel that, based on what we know now, and  
2 subject to the Board's recommendations, that the Snap Lake  
3 project can proceed to the regulatory phase.

4 The -- as the De Beers folks mentioned this  
5 morning, the department expects that there will be an  
6 environmental agreement with De Beers, as has been the case  
7 with other projects, normally be -- notably BHP Billiton and  
8 Diavik.

9 De Beers has indicated it's prepared to enter  
10 into an environmental agreement negotiation soon, and I  
11 agree, I hope these negotiations can begin in the near  
12 future.

13 I understand that the Board doesn't have  
14 copies of the existing environmental agreement, so I'll make  
15 sure that -- that those are made available to you.

16 And, that's it for our opening comments.

17 THE CHAIRPERSON: Thank you very much, Mr.  
18 Livingstone. Okay, we will now adjourn for lunch, and we  
19 will reconvene at 1:30, and we will start off with opening  
20 comments from, in order, the NWT Metis Nation, then the North  
21 Slave Metis Alliance, Dogrib Treaty 11, Canadian Arctic  
22 Resources Committee, Government of the Northwest Territories,  
23 and Lutsel K'e Dene First Nation.

24 So, thank you very much, and enjoy your lunch.  
25

1 --- Upon recessing at 11:47 a.m.

2 --- Upon resuming at 1:31 p.m.

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4 THE CHAIRPERSON: Good afternoon, ladies and  
5 gentlemen. We had broken off this morning after the opening  
6 statements by Indian and Northern Affairs Canada and next up  
7 on the agenda is the NWT Metis Nation.

8 Just before we hear from them, a couple of

9 housekeeping. We've tried to, at lunch time, add a couple of  
10 extra tables and I hope it meets with everybody's  
11 satisfaction. If it doesn't, too bad.

12 We don't have any small tables left and we  
13 have no channels left, so our ability to fix it is slim to  
14 none and none left room.

15 So we also have added a row of chairs just  
16 behind the -- the CARC and Chamber of Mines' table, for  
17 Elders. And we will exclusively reserve this for the Elders,  
18 primarily because, as some of us who are getting older can  
19 appreciate, it's a little bit tough for them to get up and  
20 down the stairs.

21 Just to remind you that Channel 6 is Dogrib,  
22 Channel 4 is Chip and Channel 1 is English.

23 So if we can continue now, and we now hear  
24 opening statement from NWT Metis Nation, Mr. Lepine?

25 And one (1) other thing. Originally we were

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1 going to ask for people to come forward to the front table to  
2 make their presentations, however, given the limited space  
3 and the fact that the Board is going to be jumping up and  
4 down to use this table in order to see presentations, we will  
5 allow people to make presentations from the table that they  
6 are sitting at and to ask questions. And it will just save a  
7 lot of hassles that way.

8 So with that, Mr. Lepine?

9 MR. JASON LEPINE: Thank you, Mr. Chairman.  
10 To start off, my name is Jason Lepine, I'm the Interim  
11 Measures Agreement Co-ordinator with the Northwest Territory  
12 Metis Nation.

13 Mr. Chairman, the De Beers Snap Lake Project,  
14 in our opinion, will impact South Slave Metis interests, and  
15 as it presently stands, that impact will be negative.

16 The negativeness of the impact is due to a  
17 number of factors, but ultimately culminates with the lack of  
18 compensation and the lack of participation by and on behalf  
19 of the Northwest Territory Metis Nation.

20 Our participation in the environmental

21 assessment process that is currently ongoing, and the  
22 benefits arising from the Snap Lake Diamond Mine are areas  
23 that we feel that we are certainly limited in receiving any  
24 benefits from.

25 First, Mr. Chairman, I'd like to bring to the

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1 attention of the Review Board that the community of Fort  
2 Resolution, which was originally listed as a primary  
3 community in the Terms of Reference, Section 2.2.1, has since  
4 been excluded as a primary community and currently stands  
5 they're simply a catchment community.

6 One of the -- I guess that's one of the  
7 reasons why we're sitting here. We're trying to figure out  
8 why Fort Resolution was excluded and we'd certainly like the  
9 Review Board or De Beers to answer that question for us if  
10 they can find some time.

11 Mr. Chairman, the Northwest Territory Metis  
12 Nation, in terms of the primary community status of  
13 Fort Resolution being revoked, holds you, the Review Board,  
14 responsible to find that out on our behalf.

15 We've asked a few questions and a few letters  
16 that we've written to De Beers and we haven't received any --  
17 anything concrete back indicating why it was removed.

18 Mr. Chairman, a little has to be said about  
19 excluding Fort Resolution as a primary community. By its  
20 exclusion itself, Fort Resolution does not currently get to  
21 enjoy the benefits and involvement as other primary  
22 communities do.

23 This primary community status and why it  
24 was -- was taken away, there's very little evidence  
25 supporting it but there is probably a sufficient amount of

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1 evidence supporting why it should not be taken away.

2 Mr. Chairman, in De Beers Environmental  
3 Assessment Report primary study communities have been defined  
4 as:

5 "Communities that De Beers has determined  
6 are likely to experience the greatest  
7 impacts due to their proximity to project  
8 sites and expected contribution to the  
9 project workforce."

10 The key issues from that description,  
11 Mr. Chairman, of primary study communities are proximity and  
12 contribution to the project workforce. Simply based on these  
13 two (2) descriptors Fort Resolution should have never been  
14 removed from the primary community list.

15 As a comparison in relative proximity,  
16 Fort Resolution is approximately 320 kilometres away from the  
17 Snap Lake site. Wha Ti in the heart of the Dogrib Nation is  
18 roughly the same distance. Unfortunately, Fort Resolution  
19 doesn't share the same involvement as Wha Ti does.

20 In addition, the second descriptor was the  
21 contribution to the project workforce. The community at  
22 Fort Resolution has never really actively engaged in  
23 employment in either one of the two (2) existing diamond  
24 mines and, for that matter, any large industrial activity  
25 throughout the territory.

1 Many other communities in the North Slave have  
2 already, to a certain degree, probably exhausted their labour  
3 pool supplying labour to the other two (2) diamond mines and  
4 other industrial activity in the North Slave region. And  
5 I -- it would be fair to surmise that Fort Resolution could  
6 probably contribute a great number of people to the workforce  
7 at the Snap Lake mine.

8 So that would help meet the second descriptor  
9 of primary community, potential workforce contribution to the  
10 mine site.

11 Mr. Chairman, the Northwest Territory Metis  
12 Nation, once again, holds the Review Board responsible to

13 require De Beers to present evidence why Fort Resolution does  
14 not have primary community status.

15 My third issue, Mr. Chairman, in a recent  
16 letter from De Beers to the Northwest Territory Metis Nation,  
17 it would appear that traditional South Slave Metis use of the  
18 Snap Lake area has not been found to be significant by  
19 De Beers or by other parties involved in this process.

20 Mr. Chairman, I'm here before you today to  
21 advise the Review Board that any conclusion by De Beers that  
22 there is no significant land use by South Slave Metis of the  
23 Snap Lake area is simply incorrect.

24 One of the things we would have liked to have  
25 done with De Beers was sit down with them and discuss land

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1 use issues that the South Slave Metis have to the area in and  
2 around Snap Lake and I guess you really can't do that unless  
3 you're -- you're heavily involved in the process.

4 And for anybody to arrive at any conclusions  
5 disputing land use by our Elders and generations before of  
6 the Snap Lake area, speaking bluntly, I wouldn't take that  
7 worth anything at all. It simply would be incorrect.

8 We're certainly still quite happy to sit down  
9 with De Beers and anybody who wants to listen to us. We'll  
10 sit on down to you and talk -- talk land use with you.

11 Further, Mr. Chairman, it is the opinion of  
12 the Northwest Territory Metis Nation that a bias has been  
13 formed against South Slave Metis fostered by the belief that  
14 the North Slave region has always been and continues to be  
15 used only by North Slave residents.

16 Mr. Chairman, the term North Slave is simply  
17 an administrative title and it does not accurately reflect  
18 the traditional land use overlaps that the Aboriginal groups  
19 have in the South and North Slave.

20 Fourth, Mr. Chairman, the Northwest Territory  
21 Metis Nation is one of the most recent organizations to be  
22 granted direct -- directly affected party status. So we're  
23 relatively new at entering the game here, even though this --  
24 this Review Board process is nearing an end.

1 accessing much-needed funding so that we can collect data,  
2 and compile a force with strength, and -- and support our  
3 positions we -- we bring for you today.

4 Mr. Chairman, the Northwest Territory Metis  
5 Nation feels that our participation should have been  
6 mandatory from the beginning, simply because we are one (1)  
7 of the Northern Aboriginal Groups that are currently engaging  
8 the Government of Canada in land and self-government  
9 negotiations.

10 That's somewhat significant, Mr. Chairman,  
11 because we are the only Metis organization in the Country who  
12 currently enjoys that privilege with the Government of  
13 Canada.

14 Another thing that would heavily weigh on --  
15 on the impact that Snap Lake will have on South Slave Metis  
16 is some of the beneficiaries we have to -- to our  
17 negotiations. At present, our -- our remuneration shows just  
18 roughly five thousand (5,000) beneficiaries, the South Slave  
19 Metis negotiation process.

20 Mr. Chairman, if we put that in a territorial  
21 perspective, that's when a -- the population of this  
22 Northwest Territories.

23 Mr. Chairman, the Review Board and -- and De  
24 Beers will have to recognize the importance of the processes  
25 that are going on at the negotiations table, and we certainly

1 would, once again, like to sit down with them, as we have  
2 recently, and -- and continue discussing this matter with  
3 them.

4 But all in all, we hold both the Review Board

5 and De Beers responsible for -- for either your actions or  
6 inactions, and we feel that further inaction is -- is sort  
7 of, derogatory toward the processes that are occurring at the  
8 negotiations table, and sort of, smacks our -- our rights to  
9 the land and the resources in the face, and that doesn't  
10 necessarily make us too happy.

11 Mr. Chairman, given the stated reasoning, and  
12 taking into consideration the limited time that Northwest  
13 Territory Metis Nation had to participate in this EA process,  
14 it is of the opinion of the Northwest Territory Metis Nation  
15 that De Beers should make every possible effort to address  
16 our concerns and meet our expectations, as one (1) of the  
17 NWT's Aboriginal groups.

18 In the absence of any support from the Review  
19 Board or De Beers, I guess we could probably best categorize  
20 this entire environmental assessment process as (1): a  
21 regulatory agency not actively engaging or involving one (1)  
22 of the Northwest Territories' Aboriginal Groups, especially  
23 when it will -- it involves introducing an industrial  
24 presence on our traditional land.

25 And (2): A large multi-national corporation

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1 exploiting the opportun -- exploiting the Northwest Territory  
2 Metis Nation in our late entering, and we certainly can -- we  
3 can work around that given enough time, and given cooperation  
4 and partnership on both sides of the table.

5 Mr. Chairman, in closing, without mincing  
6 words, De Beers desires to extract diamonds from Snap Lake.  
7 Those very diamonds are not your average diamonds that you  
8 find anywhere else in the world.

9 They are Metis diamonds. They are Dogrib  
10 diamonds, and they are Chipewyan diamonds. They're our  
11 diamonds, and De Beers wants to dig them up and process them,  
12 we're just asking them to -- to pay attention to us, and  
13 perhaps mitigate the certain concerns that we have and we're  
14 quite -- quite prepared to sit down with them, given any  
15 opportunity.

16 Mr. Chairman, this concludes my presentation

17 on this issue. I'd like to thank you, the Review Board, the  
18 opportunity for allowing me to express the Metis Nation's  
19 concerns.

20 Thanks very much, Mr. Chairman.

21 THE CHAIRPERSON: Thank you, Mr. Lepine.

22 All right, next on the agenda is the North  
23 Slave Metis Alliance, and Ms. Johnson, are you making the --  
24 the opening statement?

25 MS. KRIS JOHNSON: Yes, I will be.

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1 THE CHAIRPERSON: Thank you, and I forgot to  
2 add, just to remember to state your name, and organization  
3 prior to speaking into the microphone. Thank you.

4 MS. KRIS JOHNSON: Good afternoon. For those  
5 of you who don't know me, my name is Kris Johnson. I'm the  
6 Land Resource Coordinator for the North Slave Metis Alliance.

7 As everyone will appreciate, this EA has  
8 generated extremely large volumes of information. In  
9 particular, the volume of information generated in the later  
10 stages of this process that were not anticipated at the  
11 outset.

12 Although the North Slave Metis Alliance very  
13 much needs the assistance of expert consultants and legal  
14 counsel to fully assess and understand the impacts this  
15 project may have on their rights. There has not been  
16 adequate funding, consultation, or accommodation to ensure  
17 that they could do so.

18 I stepped into the process only recently, and  
19 I'm here to represent the NSMA to the limited extent possible  
20 under these circumstances.

21 Furthermore, regardless of the Board's ruling,  
22 the NSMA's participation in the EA is subject to our  
23 objections regarding breaches of procedural fairness, and  
24 breaches of duty to consult.

25 The information I will be presenting was made

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1 available to me the NSMA members, by my review of information  
2 provided earlier by a legal counsel and technical experts.

3 We have not had sufficient time or funding to  
4 conduct complete community consultation with our members and  
5 all of the information produced by the EA process.

6 Furthermore, we have not received sufficient  
7 information on the impact of this project to be able to fully  
8 explain how this project will impact the rights of our  
9 members.

10 Accordingly, our comments are limited in  
11 scope. Also, I am in no way an expert on the scientific or  
12 legal issues in question and I ask that any factual question  
13 the Board may have, any scientific or legal questions, be  
14 submitted to the NSMA in writing.

15 We will then, once again, approach the  
16 Government and the developers to assist us in funding or  
17 other support to obtain the advice we require to be able to  
18 respond to your questions.

19 The Snap Lake Diamond Project is a very  
20 complex, detailed plan to mine kimberlite underground, crush  
21 the ore, and remove diamonds.

22 The project will require approximately six  
23 hundred (600) people during construction, and approximately  
24 five hundred (500) during operation.

25 These details of the Snap Lake Diamond Project

1 have been documented. In fact, the process of removing  
2 diamonds from the ground is quite well known.

3 What is not known, or discussed, or diagramed,  
4 or mapped, are the environmental and cumulative effects of  
5 the project on wildlife, fish resources, and Aboriginal  
6 communities, to name a few.

7 Consequently, because adequate baseline  
8 information does not exist, monitoring and mitigation  
9 measures have been brushed aside in this EA.

10 Allow me to quote the Board:  
11 "In De Beers' EA there are numerous  
12 references to De Beers acting as a  
13 catalyst, playing a significant role,  
14 working closely with communities. While  
15 these expressions provide a good sense of  
16 De Beers' intentions for supporting  
17 mitigation measures, they're lacking in  
18 specific details."  
19 I'm happy the Board recognizes these  
20 statements are not supported by any evidence. Unfortunately,  
21 the Board did not request De Beers analyze the community  
22 specific data provided to them by the NSMA and other  
23 Aboriginal communities prior to mitigation measures being  
24 developed.  
25 Allow me to give you an example. De Beers has

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1 not analyzed the community specific socio-economic data  
2 provided to them by Aboriginal communities such as the NSMA.  
3 As a result, the directly affected aboriginal  
4 communities have been lumped together in De Beers'  
5 socio-economic impact assessment which ignores their unique  
6 cultural and socio-economic situations.  
7 How can the Board come to the conclusion there  
8 would be no significant adverse effects if the mitigation  
9 measures proposed are not developed using data that  
10 accurately reflects the communities they are developed for.  
11 Moreover, if instances arise where data is not  
12 available to do an accurate assessment of community  
13 socio-economic and cultural environments, De Beers will  
14 facilitate and provide the resources for this data to be  
15 recorded and analyzed.  
16 I realize De Beers has not, in the past,  
17 researched traditional land use or cultural preservation, for  
18 example, but these areas must be studied further.  
19 If they are not, neither the Board, nor the  
20 parties, can draw accurate conclusions regarding the impacts  
21 of this project.

22                   We have all been given the opportunity through  
23 this EA to ensure development occurs without undue negative  
24 environmental and social consequences.

25                   If we do not fully utilize this opportunity

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1 there's no point in the EA process. We collectively need to  
2 work together to ensure baseline data exists, is analyzed,  
3 and monitoring plans are in place prior to development  
4 approval, to ensure we can assess whether or not there will  
5 be significant adverse environmental impacts, to ensure any  
6 impacts will be mitigated, and to ease public concerns.

7                   Despite flaws in the process, I applaud the  
8 Board for requesting De Beers submit information on hiring  
9 policies, employment opportunities, and income levels, to  
10 name a few.

11                   Although it remains to be seen how this  
12 additional information, submitted so late in the process,  
13 will address concerns brought forward by Aboriginal  
14 communities.

15                   These are some of the outstanding issues  
16 intervenors and parties directly effected by the Snap Lake  
17 Diamond Project have requested for quite some time.

18                   Without assessing this information, the Board  
19 did not have sufficient information to determine if there is  
20 significant adverse environmental impacts.

21                   Furthermore, we demand all the issues raised  
22 today by Aboriginal groups, and those the Aboriginal  
23 communities will be bringing forward during these Hearings,  
24 be substantively addressed before an approval for the project  
25 can be considered.

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1                   In particular, the outstanding issues the NSMA

2 want resolved fall under the headings, Wildlife, Water  
3 Quality, Fish and Aquatic Resources, Groundwater, Socio-  
4 Economic Issues. These issues were reviewed with an emphasis  
5 on issues in respect to which there was insufficient  
6 information to determine whether or not an impact will be  
7 significant and adverse.

8           Insufficient data was defined as lack of  
9 baseline data, inadequate analysis, inappropriate tools for  
10 data collection and analysis, omissions of data that could be  
11 made available and any combination of the above.

12           Allow me to give you an example of how  
13 insufficient data presents -- presented by De Beers is of  
14 grave concern to the NSMA. Moreover, how insufficient data  
15 poses a huge problem for the Board when they attempt to  
16 address the question of whether or not the Snap Lake Diamond  
17 Project will cause significant adverse environmental impacts.

18           The first example I will give you pertains to  
19 monitoring and management. How can the proponents state with  
20 certainty that monitoring and management plans will be  
21 developed at the regulatory stage, and in the same breath  
22 state, the Snap Lake Project does not pose a significant  
23 environmental impact?

24           Without monitoring and management plans in  
25 place, the Board cannot state with confidence that any issues

1 regarding monitoring and management can be adequately  
2 addressed in the regulatory stage.

3           It is the Board's obligation to determine  
4 whether the monitoring and management plans will  
5 satisfactorily mitigate impacts and address this significant  
6 public concern that has been increasingly apparent during  
7 this EA.

8           How can the Board conclude the concerns of  
9 Aboriginal people in the region are addressed if their  
10 community baseline information remains incomplete? How will  
11 the effects be monitored? How will the effects be managed?

12           The Board cannot avoid dealing with its  
13 mandate to decide the question of existence of significant

14 adverse impacts and adequate mitigation by deferring that  
15 determination to a regulatory stage where another decision  
16 maker is involved. This is not a duty the Board can  
17 delegate.

18                   Let me give you another example. The  
19 flourishing diamond industry attracts southerners north to  
20 work. The new arrivals settle in one (1) of the local  
21 communities, the local communities grow. This is great for  
22 business.

23                   But as the number of people grows, so do the  
24 pressures on traditional Aboriginal harvesting areas. The  
25 NSMA have already documented this happening in Prelude Lake,

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1 now a popular local recreation spot and a depleted  
2 traditional Aboriginal fishing area.

3                   This is of great concern to the NSMA and other  
4 Aboriginal people. How is this issue going to be monitored?  
5 How is this issue going to be managed? Without adequate  
6 information on these matters, the Board cannot say that there  
7 will be no significant environmental impacts nor can it  
8 assess what is required for adequate mitigation. Certainly,  
9 the Board cannot conclude there is no significant public  
10 concern.

11                   What are the cumulative effects of adding  
12 another mine? How can we say for certain the cumulative  
13 effects of this issue are going to be addressed at the  
14 regulatory stage?

15                   The impacts on traditional fishing areas are  
16 only an example of where this EA falls short for Aboriginal  
17 communities.

18                   The NSMA have documented other issues  
19 pertaining to the lack of community specific data necessary  
20 to make predictions at the community level, lack of  
21 traditional knowledge used in the Snap Lake EA, the analysis  
22 of cultural and heritage resources, the lack of data on the  
23 existing subsistence economic environment, the lack of  
24 community specific economic data and analysis, the lack of  
25 existing housing information in Aboriginal communities, the

1 lack of community existing infrastructure data, the lack of  
2 indigenous language data, lack of certainty in production  
3 rate and that's the mine life of the project, and improperly  
4 established zone of influence that fails to represent the  
5 impacts to traditional Aboriginal resources.

6 All of these unanswered questions and concerns  
7 do not instil confidence in the NSMA people that their  
8 traditional way of life and resources will be protected.

9 Despite the volumes of paper that have been  
10 produced in recent months, the NSMA still have no assurance  
11 that their people's Aboriginal rights, treaty rights and  
12 Aboriginal titles will not be adversely affected by the Snap  
13 Lake mine.

14 Indeed, as recently as the preliminary  
15 submissions, the developer has shown that it does not have a  
16 big understanding of the NSMA's rights in these areas.

17 If the NSMA's rights in community are not  
18 understood how can the developer hope to establish that it  
19 will not cause unacceptable adverse impact to the NSMA  
20 communities' rights and way of life.

21 There are so many unanswered questions about  
22 the impact of the mine on the environment and the North Slave  
23 Metis people the NSMA cannot possibly make an informed  
24 decision on whether to support the opening of another mine on  
25 their traditional lands.

1 Further, the Board cannot conclude that no  
2 significant environmental impact will result from the Snap  
3 Lake Diamond Project when they have not been provided with  
4 the information they need to assess the project generally  
5 and, in particular, in terms of impact on Aboriginal peoples.

6 Given the amount of uncertainty and unanswered

7 questions that have and will be identified by the parties in  
8 this process, the NSMA asks the Board to conclude that the  
9 developer has not established that there will not be  
10 significant adverse impacts from the project and certainly  
11 has not established that any such impact can be adequately  
12 mitigated.

13           Also, considering the nature of Aboriginal  
14 concerns regarding this project and the inadequate  
15 consultation and accommodation of Aboriginal concerns in this  
16 process, there is clearly significant public concern about  
17 the project.

18           The true impacts of this project require  
19 further study and must be -- there must be proper  
20 consultation and accommodation of Aboriginal concerns. The  
21 NSMA asks the Board to recommend further review of the  
22 project and direct the Government of Canada, GNWT and  
23 De Beers meet their obligations to consult with Aboriginal  
24 people and demonstrate how Aboriginal concerns have been  
25 accommodated in the project before any recommendation on

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1 whether to approve can be allowed. Thank you.

2           THE CHAIRPERSON: Thank you, Ms. Johnson.

3           Okay, the next name I have on my list for  
4 opening statements is Dogrib Treaty 11 and Ms. Teillet.  
5 Thank you.

6           MS. JEAN TEILLET: Good afternoon, Mr. Chair.  
7 My name is Jean Teillet. I am legal counsel for the Dogrib  
8 Treaty 11 Council. With me I have Dr. Steven Wilbur who is  
9 our technical expert who's been of assistance to us during  
10 the preparation for this Hearing and throughout.

11           Also, today, we have some Elders in  
12 attendance. Joe Migwi, Harry Simpson, Jimmy Rabesca and I'm  
13 not sure if Alexi Arrowmaker is here now but he was here  
14 earlier today.

15           Also, I would like to inform the Board that  
16 this Hearing is coincidental with a meeting of the Chiefs and  
17 so Grand Chief Joe Rabesca will be in and out of the meeting  
18 as he tries to accommodate both things going on.

19                   And for that reason we may need a little  
20 accommodation ourselves in terms of timing of when he comes  
21 in on Thursday to present but we can discuss that later.  
22                   The Dogribs are here today because they are  
23 very deeply concerned about the lands and waters and plants  
24 and animals that they rely on. Most of the people in this  
25 room are very aware of the fact that the Dogrib Treaty 11

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1 Council has been actively engaged in land claims negotiations  
2 for the past ten (10) years and those negotiations are, quite  
3 happily, drawing to a close.

4                   Most of you are also aware that as of March,  
5 2003 there is an initialled agreement. Now, it's known as  
6 the Tlicho Agreement and that agreement is in the  
7 ratification process by all three (3) parties: the GNWT,  
8 Canada and the Dogribs. The Dogribs anticipate that they  
9 will have a final signed agreement in August of this year.

10                  Now, the name that the Dogribs give to the  
11 lands and waters that they have traditionally relied on, what  
12 we usually call their traditional territory, and I have to  
13 apologize for my pronunciation of Dogrib in advance and  
14 anybody who is -- has a better way of saying it.

15                  I -- my understanding, it is the monwhi gogha  
16 de niitlee, and again, I hope that's not too badly butchered.  
17 The De Beers Snap Lake Project is completely within that  
18 Dogrib traditional territory, and I note for the Board's  
19 purposes, this is not a territory that is just asserted by  
20 the Dogrib, it is now agreed to by the GMWT, and the Canadian  
21 Government.

22                  Now, I know you're familiar with the concept  
23 of traditional territory, and you'll hear more evidence about  
24 this the Grand Chief, and probably from the Elders on  
25 Thursday night.

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1           Now the Tlicho Agreement is not yet in force  
2 and effect. Nevertheless, its implementation is what we in  
3 law call foreseeable. The key point we wish to emphasize for  
4 the Board is that the Dogribs will, in addition to the Sahtu  
5 and Gwich'in, become a named entity for the application and  
6 implementation of the MVRMA, and as such, the protection, the  
7 specific protection of the Tlicho First Nation's well-being,  
8 and way of life will become a responsibility of this Board  
9 insofar as environmental effects from developments and  
10 activities.

11           Now, we've drawn your attention to this fact,  
12 not because we say the Tlicho Agreement contains your mandate  
13 for this Hearing. We're not saying that. We know it's not  
14 in force and effect, but we're drawing your attention to the  
15 fact of the agreement because it is a mandate for the near  
16 future, and because of the concept of foreseeability.

17           And because it has been agreed to by GMWT and  
18 Canada, and it's applicable to the exact area we're speaking  
19 of. And because it's so close to completion, we say you're  
20 decision must be consistent with this future mandate, because  
21 of the foreseeability.

22           And that emphasises the need to protect the  
23 resources on which the Dogribs rely. We say that means that  
24 this Board has to have a very deep commitment to protect  
25 Dogrib lands now, because you hold their lands in your hands,

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1 temporarily, with full knowledge of their reliance, and your  
2 pending legal responsibility.

3           Now, the Dogribs have several specific  
4 concerns about the project. Many of their concerns flow  
5 around water, and the Dogribs' concerns about the Snap Lake  
6 project with respect to water come from their own bitter  
7 experience, mainly from the fact that there are already  
8 environmental problems on the lands from past mining  
9 operations.

10           Rae Rock is a very old symbol to the Dogrib of  
11 the dangers that can be left behind by mining companies.

12 Colomac is a newer symbol. The Dogribs are here today to do  
13 their best to ensure that such environmental messes as Rae  
14 Rock and Colomac will not happen again.

15 Now, the Dogribs are not here to accuse De  
16 Beers of creating a Colomac-type mess, or even of the  
17 intention to do it, but the Dogribs are here because they  
18 wish to be vigilant to care for the lands on which they rely.

19 Now the Dogribs do accept the bona fides and  
20 the goodwill of De Beers, but there are some outstanding  
21 problems that we believe De Beers have not yet solved.

22 Dogribs are not here to stop De Beers, but we  
23 are here to ensure that De Beers does its job right, and that  
24 means that this Board has to do its job right.

25 When the Dogribs look at the water issues in

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1 this Snap Lake Project, Colomac is unfortunately immediately  
2 what springs to their minds, and that's because Colomac is a  
3 prime example of what happens when water control gets  
4 drastically out of hand, and the Dogribs have grave concerns  
5 that De Beers have not adequately predicted the potential  
6 maximum flows from the mine workings, or demonstrated that  
7 the contingencies for water storage and treatment are  
8 adequate.

9 The issue of mine water discharge into Snap  
10 Lake is also of concern to the Dogribs, and we will speak  
11 more to that in the technical issues.

12 The other major concerns to the Dogribs, and  
13 it's a concern that this Board has heard before, and in fact,  
14 all of the regulatory agencies here from all the Aboriginal  
15 people have to deal with the caribou, and it will be no  
16 surprise to you to hear that the Dogribs will wish to seek an  
17 in-depth on the caribou.

18 From the first diamond environmental hearings,  
19 back in 1996, and many of us in this room were here at  
20 that -- at that hearing, concerns were way -- raised with  
21 respect of a long-term impacts to the caribou herds, to  
22 specifically from the Dogribs perspective to the Bathurst  
23 caribou herd, although we recently have come to understand

24 that the Beverley herd may also go into that territory.  
25 Nevertheless, the Dogribs' recollection is

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1 that in the 1995 Environmental Impact statement it was  
2 predicted that the BHP EKATI mine would have generally  
3 negligible impact -- effects on caribou. That was the  
4 prediction in 1995.

5 An environmental agreement was established  
6 with BHP, and it created the Independent Environmental  
7 Monitoring Agency, and we now have the benefit of some of  
8 those reports.

9 And one of those reports has said that the  
10 caribou -- their caribou aerial survey program is suggesting  
11 a pattern, and it's not statistically certain yet, but the  
12 pattern is that cows with calves are keeping their distance  
13 from the mining activity during summer foraging and fall  
14 migration.

15 Now, more recently we have a brand new study  
16 that's just come out of Alaska. I'm going to, for short,  
17 call it the Alaska report, but it is, in fact, something like  
18 the commutative effects of oil and gas development on the  
19 north slope in -- you get the drift.

20 It has only been out for the last three (3)  
21 weeks, in fact, it's not even published in hard cover yet.  
22 You have to do a really messy download off the Internet to  
23 get some of it, but the report has now made findings about  
24 the impacts of long term development on caribou.

25 And they had a very unique situation up there,

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1 where they had almost a control group of caribou that were  
2 not affected by -- not close to the development versus  
3 caribou herds that were right in the thick of the

4 development, and it adds some credence to the findings that  
5 they made.

6 Now, what is important for us, and what we  
7 want to draw the Board's attention to is that the findings  
8 from the Alaska report, a forty (40) year study, support the  
9 patterns that the Independent Environmental Monitoring Agency  
10 is showing.

11 And the Alaska report made findings that  
12 avoidance of expanding infrastructure triggered changes in  
13 distribution that progressed from localized adjustments to  
14 major shifts in the use of habitats.

15 They also made findings that adverse effects  
16 on caribou are likely to increase with both the density of  
17 infrastructure development, and the area over which it's  
18 spread.

19 Now, we're not suggesting that the Alaska  
20 Report is conclusive with respect to the Mackenzie Valley and  
21 diamond mining, we're not trying to say that.

22 We're not trying to say -- we know there's  
23 differences, that's in the calving ground, here we're  
24 different; we understand that.

25 What we're saying to you is that we can take

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1 something from that report. We don't -- what we say is, it's  
2 an impressive forty (40) year study of the commutative  
3 effects, and its findings support initial patterns detected by  
4 the monitoring agency and this provides this Board, we say,  
5 with evidence that a significant adverse commutative impact  
6 is likely on the caribou.

7 Now, we suggest that it's time for the Board  
8 to take action now. We can no longer say, as we have said  
9 with BHP and Diavik, that we don't know what's going to  
10 happen, statistically uncertain -- we don't know, so we're  
11 not going to do anything.

12 What we are saying to you, and the Dogrib's  
13 are urging on you, is that time for that's over. It's time  
14 for us now to sit down and say, we're going to take action on  
15 commutative effects.

16                   We have the pattern, and the Alaska report  
17 shows they're serious. And indeed, the Dogrib's emphasize  
18 that if major shifts in the use of habitat by the Bathurst  
19 caribou herd do happen as a result of commutative effects  
20 from the developments, and again, I should emphasize, we're  
21 not saying this is just De Beers, this is the wall of  
22 development that is coming from the road, from Diavik, from  
23 BHP, from Tahera, from Lupin, from all of these projects.

24                   If that results in a major shift of the use of  
25 habitat, that will be a significant adverse impact on the

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1 social cultural and economic well being of the Dogribs, but  
2 certainly of all of the aboriginal peoples in the Mackenzie  
3 Valley.

4                   Now, Dogribs are happy to hear that De Beers  
5 has made commitments to projects specific monitoring. We  
6 think it's appropriate, and we're happy to hear them say that  
7 this morning.

8                   However the Dogribs believe that robust  
9 commutative effects monitoring program, in addition to  
10 project specific monitoring, is what we are urging the Board  
11 to start to consider as you hear the evidence that comes out  
12 over this process of this week.

13                   We believe there's an increased need for this,  
14 and we're going to urge you to exercise your authority, which  
15 we believe you have, to start implementing that and to urge  
16 government and all parties to move on a commutative effects  
17 monitoring program, specifically with respect the Bathurst  
18 caribou herd.

19                   I'd like to make one (1) final -- actually,  
20 two (2) final point, but with respect to the issue of  
21 inspection and enforcement. Now, we're here at 2003, and  
22 somehow, to me, anyway, the innocence we all had in 1996  
23 seems just a long, long way away, from how we all approached  
24 the diamond industry back then.

25                   It's seven (7) years, later. The Dogribs were

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1 concerned back in 1996, and I know Mr. Wray specifically will  
2 remember those concerns. But the Dogribs were concerned then  
3 and we are increasingly worried now.

4           There's a tide of development that wasn't  
5 visible in 1996 but it's certainly visible now.

6           We say the development, the cumulative  
7 development, requires mature, well-seasoned experience and an  
8 enduring corporate memory on part of the inspection regime,  
9 for it to be effective.

10           Now, in 1996 the Dogrib's took it for granted,  
11 absolutely for granted, that there was a need for effective  
12 inspection and enforcement, and we also took it for granted  
13 that that would happen.

14           And indeed, we were assured that this would be  
15 the case. And now, we have seen differently. We have seen,  
16 since that time, we've existed for key periods of time with  
17 no inspection at all, nobody even hired to do inspections,  
18 sometimes.

19           We have seen trends in government to spend  
20 less and less money on environmental protection, even while  
21 development increases daily and the money they receive from  
22 that development increases daily, but their commitment, we  
23 are afraid, to environmental protection, seems to be  
24 dissipating under our fingers.

25           We have also seen that regulatory agencies

1 don't always follow up on their own licencing requirements.  
2 And so that is also of great concern. All of these things  
3 concern the Dogribs.

4           And it is not reassuring to them to know that  
5 inspection and enforcement, with respect to environment in  
6 the Mackenzie Valley, is not being taken seriously by  
7 decision makers in the relevant agencies.

8           Now, we heard this morning, and we've --

9 because we've been involved in these processes before, we  
10 have seen that the Board has indeed evolved and tightened up  
11 its procedural processes. And it's getting better, we're  
12 learning how to hold these Hearings and do environmental  
13 assessments better.

14 What we say now is that the Board has to take  
15 that same commitment and dedication to enforcement and  
16 inspection and follow up, that you have done to the  
17 procedures leading up to the environmental assessment. We  
18 now have to look at what happens after you close your books on  
19 this. Where does it go? What happens and how can we make  
20 sure that what we said we wanted to happen, actually does  
21 happen?

22 Now, I'd like to also draw your attention to a  
23 new principle of law in Canada, called the Precautionary  
24 Principle. Now, recently, the Supreme Court of Canada has,  
25 in the case of *Spraytech v. the Town of Hudson*, and I do have

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1 a copy of the case, if -- if you wish a copy of it, I can  
2 provide it for you.

3 But I'll read you the relevant paragraph that  
4 is now part of Canadian Environmental Law. And that's the  
5 point I want to make.

6 "In order to achieve sustainable  
7 development, policies must be based on the  
8 Precautionary Principle. Environmental  
9 measures must anticipate, prevent, and  
10 attack the causes of environmental  
11 degradation. Where there are threats of  
12 serious or irreversible damage, lack of  
13 full scientific certainty should not be  
14 used as a reason for postponing measures to  
15 prevent environmental degradation."

16 And what we say is, this Precautionary  
17 Principle is directly applicable to this Board, and to the  
18 decisions that you're going to make with respect to this  
19 Hearing. The way you interpret your duty must be within the  
20 legal context with your governing legislation, and how it's

21 enacted and read.

22                   And we say that includes three (3) specific  
23 principles, and I have listed -- gone -- just gone through  
24 them in my opening statement. But for short form, the first  
25 one (1) is, care for the foreseeable new regime with respect

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1 to the Tlicho Agreement.

2                   The second one (1) is, the need to emphasize  
3 your Mackenzie Valley Resource Management Act Authority under  
4 Cumulative Effects. And the third one (1) is, the  
5 Precautionary Principle. And we say that's your legal  
6 context with -- and with great respect, the Dogribs say that  
7 your decision should flow from those three (3) principles.

8                   Now, that's a -- I'm concluding on our opening  
9 remarks. Our final submissions will include recommendations,  
10 specific recommendations, to the Board and we will, of  
11 course, have more detail in our presentation and in the  
12 questions we have of people.

13                   Thank you.

14                   THE CHAIRPERSON: Thank you very much, Ms.  
15 Teillet.

16                   Okay, the next opening statement that I've  
17 been advised of, the Canadian Arctic Resources Committee.  
18 Mr. O'Reilly...?

19                   MR. KEVIN O'REILLY: Thanks, Mr. Wray. If we  
20 could just indulge you. We need to put up a couple of maps.  
21 I'm just going to put them up on the green doors there.

22                   We did provide forty (40) copies of a written  
23 opening statement to your staff and I want to ensure that  
24 each of the parties has a -- has a copy as we speak. And I  
25 don't know if the staff had a chance to distribute or -- I've

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1 got some extra copies if I could take a minute?

2 THE CHAIRPERSON: Sure. Go ahead,  
3 Mr. O'Reilly.

4 MR. KEVIN O'REILLY: Thank you.

5  
6 (BRIEF PAUSE)

7  
8 THE CHAIRPERSON: Okay, Mr. O'Reilly, thank  
9 you.

10 MR. KEVIN O'REILLY: Thanks very much for  
11 your indulgence. I do want to thank the Board for the  
12 opportunity to make an opening statement today on the  
13 Snap Lake project.

14 We did provide a written copy of our opening  
15 remarks. We're not going to read from it, we'd like to  
16 highlight from it for you.

17 I did want to say that we did not submit CV's  
18 but if you do wish CV's from the two (2) of us we would be  
19 happy to provide those to the Board before the end of the  
20 Hearing if you so wish.

21 Our presentation is structured along the  
22 following lines. There's some background about CARC, who we  
23 are and what we are. We briefly summarize our previous  
24 involvement in diamond mine environmental assessment and  
25 regulation.

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1 We provide an overview of our involvement in  
2 this particular environmental assessment and then we go on to  
3 discuss some issues and concerns with regard to the Snap Lake  
4 Environmental Assessment and the project itself.

5 And I -- I -- sorry, I've neglected to mention  
6 that I have a colleague here, Dr. Shelagh Montgomery, with  
7 me. And she's -- she will take over a certain part of the  
8 presentation as well.

9 Just a little bit of background about Canadian  
10 Arctic Resources Committee, CARC. It was set up in 1972 as a  
11 non-profit organization to represent the interests of those  
12 concerned about the North. We've always promoted long-term

13 sustainability; that is making sure that the policies and  
14 decisions of today do not take away from the ability of  
15 future generations to enjoy a healthy environment and to make  
16 economic choices.

17 Our advocacy work is supported by research and  
18 communications to promote public debate and better decisions.  
19 CARC is not your typical environmental organization. We  
20 don't see conservation of lands and resources as an end in  
21 itself, but part of a coordinated approach to sustainability.

22 We do not oppose resource development and we  
23 believe that it sh -- but we believe that it should be  
24 thoroughly and fairly assessed for its impacts on the  
25 environment and people.

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1 We have an office in Ottawa, and we have one  
2 (1) here in Yellowknife, and we've had one (1) here for the  
3 last seven (7) years. We have four (4) full-time staff. We  
4 raise our funds from individual donors and from charitable  
5 foundations for specific projects.

6 Some of the things that we've done over the  
7 last year include building communications capacity, work on  
8 persistent organic pollutants, work on cumulative effects  
9 program that my colleague will discuss later.

10 We drew up the set of principles on oil and  
11 gas development, and we've done work on mine site  
12 reclamation, and abandonment.

13 I just want to highlight our previous  
14 involvement in diamond mining. CARC coordinated a  
15 participation of the northern environmental coalition in the  
16 BHP environmental assessment before the panel, and it's  
17 interesting to note that eight (8) years later, many of the  
18 same issues that we raised in those proceedings are still on  
19 the table in front of us today.

20 We did bring forward independent technical  
21 experts in all fields to that particular environmental  
22 assessment. We continued on in the water licensing of that  
23 project. I was involved in the -- a resource person in the  
24 negotiation of the environmental agreement, and I also sat on

25 the Board of Directors for the independent environmental

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1 monitoring agency.

2 We were involved also in the environmental  
3 assessment of the Diavik Mine. We brought forth some  
4 technical experts, and we did make them available for -- to  
5 Aboriginal organizations again.

6 We are particularly concerned with that  
7 project, with regard to the cumulative effects, the  
8 alternative ways of carrying it out. In fact, we are so  
9 concerned with the decision by the Minister of the  
10 Environment to approve this study, the comprehensive study  
11 for that report, and the way that it referred many unresolved  
12 issues to other processes, that we sought judicial review,  
13 and that was only the third time in our over thirty (30) year  
14 history that CARC had ever been to Court.

15 But, much to, I guess, our satisfaction, we  
16 did reach an out of Court settlement with the Company that  
17 will see four hundred thousand dollars (\$400,000) going  
18 towards CARC for our own independent work on indicators,  
19 thresholds, limits of acceptable change, and modelling in the  
20 Slave geological Province, and my colleague will discuss some  
21 of that here.

22 Our involvement in the Snap Lake Environmental  
23 Assessment to date, we have not been funded in any way to  
24 participate in this environmental assessment, but we have  
25 submitted comments on a draft floor plan.

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1 We requested rulings on Intervenor funding,  
2 and on the potential scoping sessions. We participated in  
3 the pre-technical meeting conference, the socio-economic  
4 technical sessions, and in the pre-hearing conference, and of

5 course, we're here today, and hope to be here for a good part  
6 of the week.

7           The Board did accept CARC as an Intervenor in  
8 this environmental assessment, but we did have very limited  
9 capability to engage in this assessment, and we have not  
10 conducted any technical reviews beyond our general set of  
11 skills and knowledge around other diamond mining projects in  
12 Government policy management practices.

13           Our opening statement has largely based on  
14 this experience, and we bring forward a number of  
15 observations to date, and we actually make a few  
16 recommendations, and go out on a limb.

17           We do not take the position on this project,  
18 but we do outline some -- what we consider some unresolved  
19 issues, and we make some recommendations, as I mentioned, and  
20 we will probably be making further observations and  
21 recommendations in our closing statement.

22           On to our issues and concerns. The De Beers  
23 Snap Lake Project is a greenfield development, that is, it's  
24 a brand new mine and in a previously undisturbed area.  
25 There's the potential for five (5) operating mines in the

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1 Slave Geological Province, and -- in the range of the  
2 Bathurst Caribou Herd.

3           EKATI, Lupin, Diavik, Snap Lake, possibly  
4 Jericho and there's another one up at Doris in the Hope Bay  
5 gold belt that's in a regulatory process now as well.

6           We note that the project is in an area of  
7 unextinguished Aboriginal Title. There are no land use  
8 plans, and there's no legal requirements for land use  
9 planning in -- in -- particularly on Crown Lands, on the  
10 Northwest Territories' side of the boundary. There's no  
11 protected areas in the -- in the Slave Geological Province,  
12 other than the East Arm Land Withdrawal.

13           And, there's no legal requirements for things  
14 like environmental agreements, socio-economic agreements,  
15 that will impact and benefit agreements.

16           The first issue we want to address to the

17 Board is participant funding. We recognize that the focus of  
18 this Hearing is on the Snap Lake Project, its potential  
19 impacts and public concerns, but it also provides an  
20 opportunity for parties to comment on the process and how it  
21 might -- might have been improved.

22 The CARC did request participant funding from  
23 the Board, and that was denied in September of 2001. This  
24 has affected our ability to participate in the process, and  
25 other parties has raised similar issues.

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1 It's been our experience during the diamond  
2 mining environmental and regulatory process that the  
3 capability and commitment of governments has been -- has  
4 declined.

5 There's a growing need for independent  
6 technical expertise as part of environmental assessment, and  
7 we commend the Board for retaining experts, your own experts,  
8 in this proceeding.

9 Participant or Intervenor funding is an  
10 important tool in ensure public participation and  
11 environmental assessment.

12 The Canadian Environmental Assessment Act  
13 recognizes this, and has enshrined the right to participant  
14 funding for panel reviews and mediation.

15 And in fact, in amendments before the House of  
16 Commons to that Act, the right to participant funding will be  
17 extended to comprehensive studies, which is very -- very much  
18 equivalent to this proceeding, the environmental assessment  
19 conducted under the Mackenzie Valley Resource Management Act.

20 Unfortunately, under our legislation here,  
21 we're treated as second class citizens. Northwest  
22 Territories' residents are at distinct disadvantage compared  
23 to most other people across this country.

24 I want to make it clear that participant  
25 funding is not just for environmental organizations, it's for

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1 communities, business, and professional organizations,  
2 women's groups, aboriginal organizations and governments, and  
3 others.

4           The National Round Table recommended that your  
5 Board receive \$500,000 per year for Intervenor funding so  
6 that it can effectively carry out its mandate.  
7 Unfortunately, that report was never followed up on.

8           We note that your Board has recognized the  
9 issue of participant funding in potential upcoming proceeding  
10 on the Mackenzie Valley pipeline.

11           We -- we've continually raised this issue in  
12 other proceedings directly with the Minister of DIAND, and in  
13 December of 2001, he indicated to us, in writing, that it's  
14 really up to the Boards to request such funding.

15           Our hope is that your Board can demonstrate  
16 some leadership on this issue of participant funding, and  
17 thus ensure better public participation and future  
18 environmental assessments.

19           Our first recommendation is that the Mackenzie  
20 Valley Environmental Impact Review Board request supplemental  
21 funding for an arm's length participant funding program from  
22 the Department of Indian Affairs and Northern Development.

23           A participant funding program could be modeled  
24 after the current program, under the -- the Environmental  
25 Assessment Agency, with additional public consultation that

1 you may wish to carry out here.

2           In the event that your Board does not wish to  
3 pursue supplemental funding, we would ask that you recommend  
4 to the Minister of Indian Affairs Northern Development that  
5 he appoint a senior representative to report on options for  
6 participant funding within six (6) months of the release of  
7 your report on this environmental assessment, and that  
8 opportunities for cost recovery, including participant  
9 funding, from proponents be examined.

10 I'm going to turn the next section over to my  
11 colleague, Dr. Shelagh Montgomery.

12 MS. SHELAGH MONTGOMERY: Thank you, Kevin.  
13 I'd now like to continue CARC's opening statements with some  
14 of the concerns we have about cumulative effects and  
15 integrated resource management.

16 Cumulative effects still appear to be an  
17 outstanding issue, as we've just heard in the two (2)  
18 previous presentations. Outstanding issues amongst  
19 Government, De Beers, and the independent experts retained by  
20 the Board on biophysical and socio-economic issues.

21 Cumulated effects assessment and management  
22 framework for the NWT, and an action plan for the Slave  
23 Geologic Province where terms and conditions for the approval  
24 of the Diavik comprehensive study report by the Federal  
25 Minister of the Environment in November of 1999.

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1 This framework and action plan were supposed  
2 to be implemented by April 1st, 2001. We are also concerned  
3 about the failure of government to meet this deadline and how  
4 this makes proper assessment and management of projects, such  
5 as Snap Lake, much more difficult.

6 We further note that the cumulative impact  
7 monitoring program pursuant to Part 6, of the MVRMA is five  
8 (5) years behind schedule.

9 To echo the concerns just raised by Dogrib  
10 Treaty 11, and the North Slave Metis Alliance, in the absence  
11 of these two (2) initiatives it is difficult to understand  
12 just how the issue of cumulative effects associated with the  
13 Snap Lake project can be properly assessed, mitigated or  
14 managed.

15 Furthermore, we highlight some of the -- three  
16 (3) relevant public registry documents where DIAND, Ellis  
17 Consulting and GNWT have also raised concerns about  
18 cumulative effects.

19 So our recommendation Number 2, at this time,  
20 is that the MacKenzie Valley Environmental Impact Review  
21 Board strongly urge the Federal Government to re-commit to a

22 timely and effective implementation of both the cumulative  
23 impact monitoring program and cumulative effects assessment,  
24 and management framework, through dedicated, multi-year  
25 funding.

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1                   And again, in the absence of these being in  
2 place, CARC has initiated its own cumulative effects program  
3 planned for the land, a four (4) year study to assess the  
4 ecological, economic and social impacts of industrial  
5 development, to consider the enormous changes that are  
6 underway in the central Arctic, and to give people looking  
7 for a balance, the approach, the tools required, to -- to  
8 assess potential impacts of development.

9                   CARC's concern, as well as concerns earlier  
10 raised, that little is being done about the long-term  
11 cumulative effects that twenty (20) years of predictive  
12 development will have on the land, water, wildlife and the  
13 people of the region. We need to consider how much  
14 development is enough and how much is too much. So, we will  
15 be working towards identifying indicators and limits of  
16 acceptable change, and developing tools to help stakeholders  
17 make informed decisions.

18                   We need to -- in order to achieve a  
19 comprehensive regional cumulative effects assessment, it's  
20 necessary to devise techniques for modeling bio-physical and  
21 socio-economic data, together.

22                   And we have initiated some of this -- this  
23 modeling work through a cumulative effects mapping in the  
24 Slave Geological Province, particularly in the area where the  
25 Bathurst Inlet Port and Road is proposed. And I direct your

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1 attention to the two (2) maps that we put up.

2                   We apologize for not having copies at this  
3 time, to pass around to everybody, but before these  
4 proceedings, Hearings, are over, we will have copies in a  
5 smaller format, for -- for everyone, and a digital copy that  
6 will be available on the -- on the web site in the registry.

7                   So focussing on the -- the map on the -- the  
8 right, is a -- a map showing existing activities in most of  
9 the Slave Geological Province. And it highlights some of the  
10 former -- former mining activities and current activities,  
11 with -- along the winter road.

12                  It's important to note that while some of  
13 these points on the map look quite small and quite  
14 insignificant, when we move to the map on the left, where we  
15 have initiated a GLOBIO Cumulative Impact Analysis, we do  
16 begin to see, even with what seem to be insignificant point  
17 source, or points on the map, that there is overlap and,  
18 certainly, a -- certainly a -- a greater impact on the  
19 region.

20                  So, what -- from the GLOBIO analysis and what  
21 was raised earlier by the Dogrib Treaty 11 representative,  
22 regarding wildlife avoidance of certain areas, what appear to  
23 be isolated, insignificant features indicate overlap of  
24 buffer zones, where wildlife are likely to be affected.

25                  So the question that arises, then, is: When

1 will the nibbling effect of impacts be addressed? And this  
2 is obviously an important concern with -- with more  
3 development proposed in -- particularly in the Nunavut side  
4 of the border, but again, with the Snap Lake Project.

5                  So just to finish up on our cumulative  
6 effects, at the -- the end of our Plan for the Land Program,  
7 we expect to have a computer based modelling system that will  
8 assist northerners, and again, define limits of acceptable  
9 change, and a means to implement measures to prevent  
10 undesirable outcomes.

11                  We had hoped that this type of work would have  
12 been done by now, under the cumulative effects and management  
13 framework, or the Cumulative Impact Monitoring Program. It

14 certainly would have assisted the Board in its examination of  
15 the cumulative effects of the Snap Lake Project, combined  
16 with other activities in the Slave geological province.

17 I turn you back to Kevin.

18 MR. KEVIN O'REILLY: Thanks. I'll move on to  
19 the last, I think three (3), issues that we want to raise  
20 here today. The issue of a fair return to the Crown and fair  
21 distribution of revenues from this particular project and  
22 then, perhaps, non-renewal resource development in general.

23 Mining royalties and taxation or economic rent  
24 may be comparatively low for the Northwest Territories  
25 relative to many other jurisdictions in Canada and perhaps

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1 the world. I guess the issue here is, will the Government  
2 and public get a fair return for the extraction of these  
3 diamonds at Snap Lake?

4 There are equity issues around the  
5 distribution of the direct or economic rent from Northwest  
6 Territories Diamond Mining, particularly the revenues to the  
7 federal versus territorial and, I guess, aboriginal  
8 governments now as well.

9 Some of this may be the subject of ongoing  
10 negotiations amongst the inter-governmental forum, but they  
11 continue to be issues and I'm sure you're going to hear about  
12 these issues later in the week.

13 I guess what we're suggesting here is similar  
14 to the recommendation that your Board made in 1999 on the  
15 Ranger, et al, pipeline where you suggested that the Federal  
16 Government review royalties from frontier gas developments in  
17 the Northwest Territories. We would urge you to make a  
18 similar recommendation with regard to the adequacy of our  
19 mining revenue collection system here in the Northwest  
20 Territories.

21 And I -- our third recommendation is that  
22 Mackenzie Valley Environmental Impact Review Board recommend  
23 a public review of the mineral royalty and taxation regime  
24 for its equity and fairness.

25 Although CARC may differ on the preferred

1 governance and structure of the De Beers Canada Fund, we do  
2 wish to commend the company for committing to set that up.  
3 We believe that it's going to be an important tool in helping  
4 to diversify and build more sustainable economies in northern  
5 communities.

6                   Unfortunately, there hasn't been a similar  
7 commitment from either the Federal or Territorial Government  
8 to directly target some of the revenues from Snap Lake or,  
9 indeed, non-renewal resource development in general, to  
10 promote sustainability.

11                   We've raised this issue of targeted use of  
12 non-renewal resource revenues in the BHP panel review during  
13 the Diavik comprehensive study and now, once again, on this  
14 particular project, Snap Lake.

15                   There are examples of such funds or targeted  
16 use of revenues from other jurisdictions including Alaska,  
17 Alberta, Norway and the Shetland Islands. The point that  
18 we're trying to make here is that we have to find ways to  
19 make inherently unsustainable activities, like diamond  
20 mining, contribute towards more sustainable economic  
21 development.

22                   And what we're also concerned is that there's  
23 a very limited capacity to truly gain the benefits from  
24 Snap Lake project given the small labour pools and the level  
25 of training in many of our northern communities.

1                   Our fourth recommendation is that Mackenzie  
2 Valley Environmental Impact Review Board recommend that a  
3 portion of government revenues from non-renewal resource  
4 developments, including the Snap Lake Project, be set aside  
5 for economic diversification and to promote more sustainable  
6 development.

7 I want to address the issue of socio-economic,  
8 environmental and impact and benefit agreements. CARC is of  
9 the view that proper mitigation and monitoring requires  
10 legally binding agreements. DIAND seems to agree with this  
11 in terms of their -- they've indicated that an environmental  
12 agreement will be required for this project.

13 GNWT says that there should be a socio-  
14 economic agreement and we believe De Beers has actually  
15 committed to all of these agreements including impact and  
16 benefit agreements as well, but for these commitments to  
17 actually have any effect and to ensure that they are  
18 followed, your Board must first find that there's the  
19 potential for significant adverse environmental impacts.

20 And that you must then say, of course, that  
21 there are measures that can be taken to prevent some of these  
22 significant adverse impacts. That's the only way that your  
23 recommendations can then become binding on First Nations,  
24 local governments, regulatory authorities or departments and  
25 agencies of the Federal and Territorial governments and, of

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1 course, only if those recommendations are actually accepted  
2 by the responsible ministers

3 So with these requirements in mind, the  
4 legislation, CARC is of the view that the Board should make  
5 determinations that environmental, socio-economic and impact  
6 and benefit agreements are necessary as mitigation measures.  
7 In fact, the Board may wish to offer some advice on the  
8 content of some of these arrangements as well.

9 The last outstanding issue with regards to  
10 these agreements is their timing, and we don't believe  
11 anybody's actually spoken to this issue. We know that the  
12 DIAND Minister required the negotiation of an environmental  
13 agreement, and significant progress on impact and benefit  
14 agreements for the issuance of the water license for the BHP  
15 EKATI Mine.

16 Similarly, the Diavik comprehensive study  
17 report stated that all project approvals, including the  
18 environmental agreement, had to be in place before

19 construction was to begin. CARC is of the view that the  
20 Board should make a similar finding for the Snap Lake  
21 Project.

22 Our last recommendation is that the Mackenzie  
23 Valley Environmental Impact Review Board find pursuant to  
24 Section 128.1(b)(ii) of the Mackenzie Valley Resource  
25 Management Act, that the Snap Lake Project is likely to have

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1 a significant adverse impact on the environment, subject to  
2 mitigation measures.

3 One (1) such measure should be the completion  
4 of environmental, socio-economic, the impact and benefit  
5 agreements before construction starts.

6 We'd like to thank you for your patience  
7 today, and the opportunity to appear before you, and to make  
8 this opening statement. We respectfully reserve the right to  
9 question other parties, and to make a closing statement, and  
10 we look forward to the remainder of these public Hearings.  
11 Thank you.

12 THE CHAIRPERSON: Thank you, Mr. O'Reilly.  
13 That was twenty-three (23) minutes, Kevin.

14 MR. KEVIN O'REILLY: Patience.

15 THE CHAIRPERSON: Okay. Next on the order of  
16 opening statements is the Government of the Northwest  
17 Territories, Mr. Doug Doan, I believe?

18 MR. DOUG DOAN: Thank you very much, Mr.  
19 Chairman, and good afternoon. My name is Doug Doan, and I'm  
20 here today as the acting Deputy Minister for the Department  
21 of Resources, Wildlife, and Economic Development.

22 I'm pleased to represent the Government of the  
23 Northwest Territories, at these very important public  
24 Hearings. With me here at the table are Mr. Paul Bachand,  
25 who is our director, legal division, with the GNWT Department

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1 of Justice, and, I also have with me Mr. Gavin More, who's  
2 our Senior Environmental Analyst for the Department of RWED.  
3 THE CHAIRPERSON: Are you going to have a  
4 PowerPoint as part of this? Okay, then if Board Members  
5 would like to take our alternate seats down here.

6  
7 (BRIEF PAUSE)

8  
9 THE CHAIRPERSON: Okay, Mr. Doan, if you  
10 want, proceed.

11 MR. DOUG DOAN: Okay. The Government of the  
12 Northwest Territories has an important role to play in these  
13 public Hearings, and in the overall economic development of  
14 the Northwest Territories.

15 It is our responsibility to balance competing  
16 priorities and interests in order to safeguard the public  
17 interests.

18 The GNWT's mission is to promote the economic,  
19 self-sufficiency of the Northwest Territories through the  
20 sustainable development of our natural resources.

21 At the same time, we are responsible for  
22 preserving and protecting our natural environment for  
23 generations to come.

24 Our Government is also committed to preserving  
25 and promoting the social fabric of the NWT and our unique

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1 northern heritage.

2 Today my task is to provide an overview of the  
3 GNWT position on the De Beers proposed Snap Lake Diamond Mine  
4 proposal.

5 In this overview, I will highlight the issues  
6 and concerns that the GNWT has, at the present time,  
7 regarding the proposal.

8 In the interest of clarity, I've grouped these  
9 issues and concerns under two (2) major headings: Those  
10 pertaining to the development of the socio-economic agreement  
11 between De Beers and the GNWT that need to be addressed if

12 the project is to go forward, and those associated with the  
13 environmental issues and concerns surrounding the project,  
14 which also must be addressed, mitigated, or resolved.

15 Many of the issues and concerns are not only  
16 important, but complex, and as such, they will be addressed  
17 by the GNWT in dedicated presentations throughout the  
18 hearing.

19 The GNWT is responsible for protecting the  
20 interests and well being of all residents of the Northwest  
21 Territories.

22 In the context of these Hearings, the  
23 Mackenzie Valley Resource Management Act stipulates a  
24 requirement for the protection of the social, cultural, and  
25 economic well being of residents and communities in the

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1 Mackenzie Valley.

2 As the elected government of the people, it is  
3 the GNWT's responsibility to fulfill that mandate.  
4 Throughout these hearings it will be evidence that our  
5 actions have been guided by our commitment to this goal.

6 To make this even more clear, we have  
7 structured this overview to reflect that mandate. That's why  
8 I will use the Act's own headings to examine the merits of  
9 the De Beers' proposal. In other words, how the project will  
10 effect the social, and economic well being of the residents  
11 and communities in the Mackenzie Valley.

12 In addition, we will examine whether the De  
13 Beers' proposal has made sufficient provisions to mitigate  
14 the project's potential impacts on the natural environment.

15 Let me start with a review of a list of  
16 priorities that we call the Territorial Interests. The  
17 Government of the Northwest Territories aims to maximize  
18 territorial employment and spin-off, maximize territorial  
19 business opportunities, establish a plant forum for  
20 sustainable development through secondary industry.

21 Protect the environment, and monitor and  
22 mitigate cultural effects of development, while promoting the  
23 positive social development of the Northwest Territories.

24 It's from this perspective that we will examine De Beers'  
25 proposed Snap Lake Diamond Mine proposal.

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1           The Government of the Northwest Territories is  
2 committed to the promotion of economic self-sufficiency in  
3 the Northwest Territories through the sustainable development  
4 of our natural resources.

5           To achieve this goal, we pursue a policy of  
6 economic development that maximizes opportunity for all of  
7 our residents.

8           By building and expanding capacity in our  
9 communities, we can ensure that new economic opportunities  
10 for NWT residents are created.

11          To build this capacity we seek and require the  
12 cooperation of natural resources development companies, such  
13 as De Beers.

14          For their proposed project to confer the  
15 economic benefits we expect, De Beers must work with the GNWT  
16 to set appropriate employment targets, procurement targets,  
17 and training targets for NWT residents.

18          In our discussion to date, De Beers has made a  
19 general commitment to hiring as many aboriginal and  
20 northerners as possible as a first priority. So, we agree in  
21 principle.

22          De Beers has also stated that they will employ  
23 as many qualified aboriginal people as possible in all phases  
24 of the project. And again, this is encouraging, but they  
25 have also said that the target is not qualitative.

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1           Unfortunately, if it's not qualitative --  
2 quantitative, it's not a target. Without a target it's not  
3 possible to measure our progress towards that target, or to

4 identify the need for additional initiatives and measures  
5 necessary to meet the targets for northern employment.

6 Existing socio-economic agreements between the  
7 NWT and other diamond mining companies have, for the most  
8 part, been successful in creating jobs and economic  
9 opportunities for residents. A major reason for their  
10 success is that they have established quantifiable targets.

11 Based on this experience, and a detailed GNWT  
12 study of the potential labour pool that can be drawn upon,  
13 the GNWT believes that De Beers can establish and meet  
14 achievable hiring targets in the various phases of the  
15 proposed Snap Lake project.

16 We urge De Beers, along with its contractors  
17 and sub-contractors, to set quantitative hiring targets for  
18 hiring northerners.

19 In addition to hiring targets, specific  
20 employment and training initiatives must be undertaken to  
21 create economic opportunities for residents of the NWT.

22 That's why the GNWT recommends that De Beers  
23 operate apprentice programs for trades people. We also  
24 recommend that De Beers establish a primary hiring office for  
25 Snap Lake here in the NWT, and that northern newspapers, and

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1 northern media, be the first point of advertising for jobs at  
2 Snap Lake.

3 In addition, we recommend that all pre-  
4 employment programs, which are conducted in cooperation with  
5 the GNWT, are geared toward mining trades and technology.

6 The GNWT is responsible for protecting the  
7 social health and wellness of residents and communities in  
8 the NWT.

9 De Beers has agreed that there will be  
10 negative social impacts as a result of their Snap Lake  
11 development, and has proposed a number of measures to offset  
12 these anticipated negative impacts; through partnerships with  
13 Governments and communities.

14 De Beers has not, however, described these  
15 proposed partnerships in any detail, or how they would link

16 with existing community programming. Until it does, the  
17 Government of the Northwest Territories cannot evaluate the  
18 viability of the De Beers' proposal.

19 To address this issue, De Beers must provide  
20 specifics on its proposed partnerships in developing employee  
21 and family support programs in the impacted communities.

22 The GNWT believes that our diamond mining  
23 industry is more than just finding and extracting precious  
24 gems from kimberlite ore.

25 We believe that a sustainable industry will

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1 also include secondary activities that create wealth, jobs,  
2 and economic opportunity.

3 We are currently fighting hard to ensure that  
4 all federal agencies adopt the definition of a Canadian  
5 diamond, as one that is mined, cut, and polished in Canada.

6 We also believe that each of those activities  
7 can, and should be undertaken here in the Northwest  
8 Territories.

9 To accomplish this goal, we recommend that De  
10 Beers enter into a written agreement with one (1), or more,  
11 NWT based firms to supply rough diamonds from Snap Lake for  
12 polishing and cutting.

13 In our discussions to date, De Beers agrees  
14 with the GNWT position in principle. We continue to work  
15 with them to finalize an agreement that will cover such  
16 specific areas as the quantity and quality of the gems to be  
17 supplied, the client firms to be selected, and an appropriate  
18 method to monitor the process.

19 We are confident that an agreement can be  
20 reached, and when it is we intend to formalize it through the  
21 drafting and signing of a Memorandum of Understanding between  
22 the parties involved.

23 In addition to the economic development  
24 generated by its own primary and secondary activity, the NWT  
25 mining industry benefits other sectors of the economy as

1 well.

2 Suppliers of goods and services, including  
3 retailers, hotels, restaurants, auto dealers, banks, and  
4 insurance brokers, to name a few, all prosper from the wealth  
5 and employment created by the mining industry. However, such  
6 activity also produces some negative economic consequences as  
7 well including housing shortages.

8 The Government of the Northwest Territories  
9 strongly recommends that De Beers support the permanent  
10 settlement of its staff in the NWT. Permanent settlement is  
11 seen as a way to stimulate local and regional housing  
12 industry as well as service industries throughout the area.

13 To fully capture all the economic benefits of  
14 our growing mining industry, the GNWT believes that the  
15 Northwest Territories must have a sufficiently developed  
16 infrastructure in place. We believe that NWT businesses have  
17 the potential to handle all of De Beers supply requirements.

18 By working with other mining companies  
19 currently operating in the NWT, De Beers can help our  
20 existing mine resupply and service industry develop further.  
21 When coupled with incentive programs and other initiatives to  
22 promote NWT industry, the benefit to the overall economy  
23 would be substantial.

24 To focus these efforts and make them  
25 measurable, we expect De Beers to work towards a target of

1 supplying 90 percent of its mine supply and service purchases  
2 from NWT based companies.

3 The Northwest Territories is both a major  
4 producer and a major consumer of energy, that's why an  
5 effective strategy to ensure the wise production and use of  
6 energy is a major priority for our government. We are  
7 committed to a policy that ensures that the energy needed to  
8 service our residents and power our economy will be produced

9 efficiently and in a way that is environmentally sound.

10 That's a quick overview from the Government of  
11 the Northwest Territories' perspective of the social and  
12 economic concerns surrounding De Beers' proposed mining  
13 project at Snap Lake. A comprehensive approach is needed to  
14 ensure that each issue is dealt with in a thorough and  
15 satisfactory manner.

16 Resolving these issues satisfactorily will  
17 require that the GNWT and De Beers work in close cooperation  
18 with each other. The end result of this dialogue and  
19 cooperation must be a binding agreement that clearly spells  
20 out the expectations and obligations of each party.

21 The formal name for such an understanding is a  
22 socio-economic agreement. The GNWT looks forward to working  
23 with De Beers to conclude the socio-economic agreement for  
24 the proposed Snap Lake Project in the near future.

25 The environmental assessment process has, to

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1 date, achieved the minimum required level of assessment of  
2 potential impact to the ecosystem. However, not all of the  
3 wildlife or habitat impact can be adequately stated at this  
4 time.

5 In some cases, the environmental assessment  
6 has relied on qualitative rather than quantitative methods to  
7 determine environmental impacts. As a result, a number of  
8 issues must be explored further to provide a suitable level  
9 of confidence in the impact predictions.

10 Long-term data is needed to understand Caribou  
11 impacts. Two (2) years of baseline data is not considered  
12 sufficient. A more detailed technical presentation on  
13 baseline data and predicted residual impacts to Caribou will  
14 be made later this week.

15 A quantitative analysis of mortality and  
16 residual impacts to regional grizzly bear and wolverine  
17 populations is still needed. Monitoring will also be  
18 required to test impact predictions about wildlife species  
19 including both grizzly bears and wolverines.

20 In order to ensure that carnivore mortality is

21 minimized, a comprehensive waste management plan is needed.  
22 A cooperative approach to research and  
23 monitoring is also needed to improve our ecological  
24 understanding of grizzly bears and wolverines and the impact  
25 of diamond mining on these species.

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1 The proposed reclamation and closure plans  
2 presented by De Beers do not provide a complete assessment of  
3 the site closure criteria for the Snap Lake Project. The  
4 necessary reclamation and re-vegetation activities to restore  
5 wildlife habitat will require long-term research and  
6 monitoring.

7 The GNWT has three (3) main areas of concern  
8 with respect to environmental protection. They are: solid  
9 waste management, treatment of hydro contaminated soil, and  
10 the tracking of air quality and emissions over time, to  
11 verify the accuracy of computer models.

12 To manage the North Pile with an integrated  
13 landfill and land farm facilities would be logistically  
14 difficult, and cumbersome, especially if the locations are  
15 continuously mobile. Therefore, we recommend adopting a  
16 single landfill site located in an existing quarry, and that  
17 will be designed specifically to mini -- minimize potential  
18 ecological risks.

19 Present performance of land farms at BHP  
20 Billiton's Diamond Mines have been only marginally successful  
21 for remediating or treating hydrocarbon contaminated soils.  
22 We recommend further examination of other methods of  
23 bioremediation.

24 Another option we recommend is the exploration  
25 of an agreement to transport contaminated soils to an off-

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1 site storage facility.

2 To produce valid results, emissions and fuel  
3 use must be tracked over the life of the mine. Real data, in  
4 addition to computer models, must be studied to gain an  
5 accurate measure of emissions and usage levels. Dispersion  
6 modeling alone is not an adequate way to monitor air quality.

7 The Government of the Northwest Territories  
8 believes that environmental agreements greatly facilitate  
9 cooperative and creative solutions to environmental concerns  
10 that are raised during the life of long-term mining projects.  
11 Environmental monitoring programs are integral part of the  
12 environmental assessment, and environmental management  
13 processes of the life of the mine.

14 It is essential that effective monitoring  
15 programs be developed, and implemented to address both  
16 project specific impacts, and regional cumulative impacts.

17 Many of the issues identified require long  
18 term monitoring over a larger area, particularly as the  
19 effects of several mines will have cumulative impact.

20 The experience of BHP Billiton, and Diavik in  
21 conducting environmental effects monitoring demonstrates that  
22 there is considerable knowledge that can be gained from these  
23 diamond mines.

24 In closing, Mr. Chairman, the Government of  
25 the Northwest Territories is generally supportive of the

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1 project. We acknowledge the progress that has been made, but  
2 there do remain issues that are outstanding.

3 The Board will receive further elaboration on  
4 specific issues throughout the Hearing. The Government of  
5 the Northwest Territories is committed to working with the  
6 parties to address the outstanding issues thorough timely  
7 completion of socio-economic and environmental agreements for  
8 the life of the mine.

9 Thank you very much.

10 THE CHAIRPERSON: Thank you very much, Mr.  
11 Doan.

12

13 (BRIEF PAUSE)

14

15 THE CHAIRPERSON: I'd just like to say on  
16 behalf of myself, and fellow Board Members, that we are  
17 extremely pleased to see the Government of the Northwest  
18 Territories participating in these Hearings.

19 We have one (1) final opening statement, and  
20 then, we will take a coffee break, and that is from the  
21 Lutsel K'e Dene First Nation, and I believe, once I can see,  
22 Chief Catholique, are you going to make the statement? Okay.  
23 Continue, sir.

24 MR. CHARLIE CATHOLIQUE: Thank you, Mr.  
25 Chairman. My name is Archie Catholique. I'm the Chief from

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1 Lutsel K'e. What I'm going to do here is, this afternoon,  
2 I'm going to speak in English, half of my presentation, and  
3 the other half I'm going to speak in my own language.

4 Lutsel K'e is -- is a community of  
5 approximately seven hundred (700) people. We're located in  
6 the -- the East Arm. When you go out by boat, when you go  
7 east, you can -- it's about a hundred and fifty (150)  
8 kilometres. There's no roads, you can only get there by  
9 airplanes, there's daily scheds.

10 One (1) of the things I also want to  
11 acknowledge is that I have my Elders here with me, this  
12 afternoon. I'm just going to name them out. I have J.B.  
13 Rabesca, I have Liza Enzoë, I have August Enzoë and Albert  
14 Boucher.

15 I also have youth that are here this  
16 afternoon. I have Pat Catholique, Josh Nataway, Biscaye and  
17 Kyle Enzoë. Kyle is eighteen (18) years old, he's been  
18 brought up by his grandfather and his grandmother. He lives  
19 off the land. He provides for his grandparents.

20 When you take him out, maybe ask him, you  
21 know, where you want to get a moose, then he'll definitely  
22 take you there. And he's a young man that's -- that's been  
23 living off the land for quite some time and I'm sure that  
24 he's going to be doing that for the future.

1 me, this -- this afternoon. And also there's going to be  
2 another individual that's going to help us out, throughout  
3 the week. Her name is Brenda Parlee. I'm sure some of you  
4 remember her.

5 I'd like to begin by reading out -- I have  
6 something that I've put together, here. And then after that  
7 I'm going to do it in my language.

8 Today, as the Chief of Lutsel K'e Dene people,  
9 I want to bring some information to this Hearing on our  
10 responsibility for the lands, waters and territory of our  
11 ancestors and our future generations.

12 When the Creator placed our people on this  
13 lands, we were entrusted to care for them, not for this  
14 generation but for the future generations. Our ancestors  
15 have been caring for our territory. When we travel on the  
16 land, we can see their love for us. We look at the land in  
17 the same way. We want to pass this land and its valuable  
18 resources to our future generations.

19 According to the World Bank, the most valuable  
20 commodity on the face of the Earth, in 2050, is going to be  
21 the fresh drinking water. Our territory is full of drinking  
22 water. When a mine wants to come into our territory, they  
23 must undertake to keep the water and land clean. As a Chief,  
24 I have a responsibility to my membership and a future, to  
25 ensure that any project on the land is respectful to the

1 lands and waters. All living things are dependent on each  
2 other. It is interconnected and cannot be separated.

3 So, we have a responsibility. This  
4 responsibility does not belong to the Dene alone. In 1900,

5 our ancestors made a Treaty with the Crown. In the Treaty  
6 process Dene agreed to share some lands with the non-Dene, to  
7 co-exist with each other. It was not a land surrender  
8 Treaty. We are still the owners of the lands. Any  
9 development on our lands requires our consent. This must be  
10 fully informed consent.

11 We need to know everything that is being  
12 planned in our territory. This is our territory. We have  
13 the information and the maps which show our trails. We know  
14 the land. We know who used the land and for which purposes.  
15 We hunt, fish, trap, gather all over our territory. This  
16 must be continued to be respected by the non-Dene. We have  
17 our Elders, our citizens and our young people, who need to  
18 know what is going to happen.

19 It is not sufficient for the Government to  
20 give permits and licences without our consent. This is part  
21 of our treaty rights. This is part of our Dene laws to  
22 protect our lands for the future generations.

23 With that, Mr. Chairman, I'm going to also  
24 raise some concerns and I'm going to do that in my own  
25 language.

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1 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

2  
3 To speak in my own language and I'm really  
4 happy to be here this afternoon to express the concerns that  
5 I have and I would like to thank everybody that's here and  
6 also the De Beers. I would like to thank them and one of  
7 them had attended, his name is John McConnell, I had a talk  
8 with him. He came and visit us in the community.

9 And at that time too, I told him when he said  
10 -- especially the Elders, I always consult with the Elders,  
11 before he came, I consulted with the Elders. So I said that  
12 there's going to be a lot of people in our land. There's  
13 going to be mining companies that's coming into our land and  
14 what the Elders are saying at that time, they said it was  
15 okay if they're going to be working on our land.

16 But they have to have respect and they have to

17 consult with us and they have to give us information of how  
18 -- what they're going to be doing on our land. And as we're  
19 going to have to help them out and we'll have to agree  
20 together on any kind of projects or any kind of work that  
21 they're going to be doing on our land.

22 And we're not talking about this land,  
23 especially the aboriginal people and where the caribou is,  
24 around that area, around the north, it's -- we have our own  
25 language it's called Katthinene in our own language. So,

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1 where you guys are going to develop that mine at that Snap  
2 Lake area, in our own language we have a name for it, it's  
3 called Na Yaghe Kue.

4 The reason why it's called that it's because  
5 it's in the rocky bouldery country so that's why it's called  
6 Na Yaghe Kue. And Katthinene and Na Yaghe Kue, those are the  
7 lands, it's Na Yaghe Kue territory.

8 And also there is surrounding communities,  
9 there is Kache and Yellowknives and also Deninukue, Fort  
10 Resolution, so there's the communities that surround closest  
11 to that Snap Lake Project.

12 In the past, how it used to work on the mines  
13 and also the BHP, the Diavik, how they started up their  
14 development and we're not talking about the mine, they have  
15 to consult with the people in the communities of how they're  
16 going to be doing their work, but I don't think that was  
17 done. So because of this, there's a lot of concerns and  
18 there's a lot of disagreements.

19 I don't know why it wasn't consulted with. So  
20 anything that you're going to be starting, especially when  
21 you're going to be working on our land, you have to consult  
22 with the Dene First Nations, especially the community --  
23 surrounding communities.

24 We, the Dene people, hunt and trap around  
25 there on a big area in the north and where we're -- right in

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1 our trapline and our hunting area, that's where they're  
2 developing that Snap Lake. So how is the De Beers going to  
3 help us? How are we going to benefit and how are we going to  
4 be working with them? So those are the kind of negotiations  
5 we're going to have to make with them.

6 And how they can have respect for the land,  
7 the caribou and also the workers, how they're going to be  
8 hiring the aboriginal people and train them and even our own  
9 aboriginal people, if they go out on a job, they're having  
10 problems, especially when they're two (2) weeks in and two  
11 (2) weeks out because it's a long way to be -- long time to  
12 be away from their families.

13 And also they have social problems because of  
14 this. So those are the kind of help we need and also  
15 shortage of housing in Lutsel K'e and it's not only Kutsel  
16 K'e, it's all in the communities.

17 So those are the concerns that we have and how  
18 they can help us and today I want you guys to consider what  
19 I'm saying here and where there's another concern that -- our  
20 major concern is the Caribou, because we live off the  
21 caribou, and where the caribou -- where the caribou migrate,  
22 around that area, there's a lot of mine development.

23 So, they -- and also, what they -- what the  
24 caribou will feed on the food too, we're concerned about  
25 their food, and also, we're also concerned about all that

1 energy, what they're using, especially when the diesel,  
2 they're burning diesel, and all that smoke, and because of  
3 that smoke, it falls on the vegetation, the caribou's food,  
4 so it spoils the caribou food.

5 So, this is why the Elders have a concern,  
6 even I. So, somehow, we'll have to help you, and consult in  
7 the -- and watch the assessment of the environment, and also  
8 how we're going to be working with the air.

9 And, we also talked hydro electricity, so

10 we're -- we're getting into business with hydro electric, so  
11 maybe that we have to talk about it, how we can sell energy  
12 to the minings companies

13 So, I think at that -- if we have hydro  
14 electric, that's a clean air. It doesn't spoil the  
15 environment. So, that's the kind of things that we're  
16 talking about, and those are the main issues we're talking  
17 about in Lutsel K'e.

18 And when we're talkin -- it's not only me that  
19 we're talking, it's not only us that we have concerns in  
20 regards to environment, but then all the recommendations  
21 that's been put forward in -- even us too, like, we are still  
22 working on our land claims and we still negotiating with  
23 Government of Canada in regards to the land settlement.

24 And also, we had a dispute overlapping the  
25 dispute with Treaty 11, and that's resolved, and where --

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1 when they just -- Treaty 11 just open up their -- opening  
2 remarks it -- it seems like the way they said it, that they  
3 owned that piece of land, but that's not what it is.

4 So, we want this to be straight, so who owns  
5 the land, and are -- we can say -- we can -- we can tell who  
6 owns which land, but even though it's not settled yet. Like  
7 I said, this is Lutsel K'e's land and we considered as -- as  
8 it within Akiatcho land. So, we want everybody to have  
9 respect to our lands and our wildlife within Akiatcho  
10 territory. So, those are the concerns that we're hear --  
11 you'll be hearing from Akiatcho.

12 And this week, there's going to be all kinds  
13 of other hearing, public, and so we're going to be -- there's  
14 going to be all kinds of people talking, we're going to have  
15 our Elders talking also, and also, the youth, and what  
16 they're going to be covering, what they're going to be  
17 talking about.

18 And, there's another concern that we have.  
19 This -- about development. I have respect for people, and I  
20 want people to respect my land, so, those are the kind of  
21 recommendations they'll be saying.

22                   Especially this Mackenzie Valley Board, you  
23 guys, we -- we -- how many times have we -- I've stressed it.  
24 We should have inter-measures agreements. We should make  
25 our own agreement. How -- what -- what we want done, and

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1 license, we want a license to go on through the Aboriginal  
2 leaders.

3                   So, we want to negotiate those things, what's  
4 happens in our land. So this is what I'm saying to let  
5 everybody know, and I want to remind everybody about this.

6                   And also, how the funding, all the royalties,  
7 resources and royalties that's coming off our land, we want -  
8 - we want a say in it. So, we have to get some royalties  
9 coming to the Aboriginal people, so we got to get something  
10 out of there, because they are taking the royalties and the  
11 monies out of our land.

12                  So, you have to negotiate those ideas with us.  
13 So, thank you for listening, and for my opening remarks, and  
14 I would like to thank everybody, marci cho.

15                  THE CHAIRPERSON: Thank you. With that,  
16 we'll take a fifteen (15) minute coffee break, and right  
17 after coffee, we'll go into the exciting geotechnical and  
18 geochemistry topic.

19  
20  
21 --- Upon Recessing at 3:30 p.m.

22 --- Upon Resuming at 3:40 p.m.

23  
24                  THE CHAIRPERSON: That's all of the opening  
25 remarks that we're advised of. We will now go into the

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1 Geotechnical/Geochemistry section of the Hearing. We've been

2 advised that there are five (5) presentations: De Beers,  
3 Yellowknives Dene, Indian and Northern Affairs, Natural  
4 Resources Canada and Lutsel K'e Dene Nation.

5 We now begin the question and answer phase of  
6 the Hearings. And after each presentation, as I outlined  
7 this morning in my opening comments, I will allow questions  
8 from the floor to the proponent. Questions, I would remind  
9 all participants, are the purposes of clarification.

10 The Board will be spending most of its time,  
11 now, down on the main floor, simply because of the placement  
12 of the screen. It's very difficult to -- to see it from  
13 where we sit. So there'll be a little bit of -- a couple of  
14 minutes between each presentation, for the Board to come back  
15 and resume their seats for the question phase.

16 However, I'll now call upon De Beers Canada  
17 Mining Inc. to do their presentation on the Geotechnical and  
18 Geochemistry.

19  
20 (BRIEF PAUSE)

21  
22 MR. JOHN McCONNELL: Thank you, Mr. Chairman.  
23 It's John McConnell with De Beers. Our first speaker this  
24 afternoon will be Terry Eldridge. Terry is a Professional  
25 Engineer, a Civil Engineer, and a principle with Golder

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1 Associates.

2 He has twenty (20) years experience in  
3 investigation, design, construction and operations of  
4 tailings management facilities. His experience on mining  
5 projects located in cold climates and permafrost regions,  
6 include the NWT, Nunavut, Yukon, Alaska, Russia, Kyrgystan,  
7 Kazakhstan and Chile.

8 Terry has led the process kimberlite disposal  
9 and permafrost component of the Snap Lake Project. Over to  
10 you, Terry.

11 MR. TERRY ELDRIDGE: Mr. Chairman and Members  
12 of the Board, I'll be discussing geotechnical aspects of the  
13 Snap Lake Diamond Project. These are the aspects of the

14 project that relate to the soil and the rock at the site.

15           Experts for De Beers, and the Intervenors,  
16 have reviewed the design of the facilities. The broad  
17 geotechnical issues have been resolved and only a few issues  
18 remain, all of which are related to the North Pile.

19           Some of the issues that have been resolved are  
20 the distribution of permafrost at the site, the formation of  
21 taliks, the integrity of the water management pond dams and  
22 the impact of the infrastructure on ground temperature.

23           We'll also briefly touch on geochemistry as it  
24 relates to the North Pile, to help in the understanding of  
25 the performance of the North Pile.

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1           This image shows the location of the North  
2 Pile relative to the north arm of Snap Lake and the air  
3 strip. It also shows the small, temporary water collection  
4 pond on the surface of the North Pile.

5           The North Pile will be the permanent storage  
6 for the process kimberlite, which we call PK. De Beers will  
7 be developing an underground mine at Snap Lake, and about  
8 half of the PK will be placed underground as backfill.

9           The material that will not fit underground  
10 will be placed in an area we have called the North Pile. The  
11 PK itself consists of three (3) fractions: gravel, or coarse  
12 fraction; sand, or grits fraction; and silt or fines  
13 fraction. Each of these is about one-third of the PK and  
14 they can be mixed together or handled separately.

15           When you look at the North Pile, you will see  
16 wide embankments constructed of rockfill and the gravel and  
17 sand PK. These embankments surround a paste made from mixing  
18 a three (3) PK fractions: the gravel, the sand, and the silt.

19           There may be a small temporary water pond, but  
20 there will not be a large pond on the North Pile. The  
21 seepage and runoff collection system will be a series of  
22 ditches around the North Pile that join to sumps, and small  
23 ponds outside the pile.

24           Water will be pumped from these to the water  
25 treatment plant. The North Pile will be constructed in three

1 (3) stages, or cells. The first cell will be located as far  
2 from Snap Lake as possible, near the airstrip.

3 This starter cell will provide an opportunity  
4 for us to closely monitor the performance of the pile for two  
5 (2) years before construction begins on the east cell.

6 The information collected during those two (2)  
7 years were used to confirm our model predictions about the  
8 performance of the North Pile during this time, and to allow  
9 us to increase the accuracy over a longer term predictions.

10 The surface of the North Pile will be  
11 progressively reclaimed by covering it with granite rockfill,  
12 which forms a cap over the surface. So, this represents the  
13 area that will be capped during operations.

14 This starts in about the third year. So,  
15 we'll have -- be able to monitor performance of the cap for  
16 nearly two (2) decades, while the mine is operating.

17 This is a photograph of a tailings facility  
18 that uses slurry deposition. This type of system has been  
19 used throughout the north, for example, at Colomac, where you  
20 can see the large permanent ponds that are part of the  
21 operation.

22 When we started the design work for Snap Lake,  
23 we decided that we did not want a large pond, and the  
24 associated problems, and the use of paste allowed us to  
25 eliminate the pond.

1 So, when you go to Snap Lake, you will not see  
2 a facility with a large pond like the one (1) shown on this  
3 photograph.

4 Paste is not a specific material. It is the  
5 consistency of a material with a low water content. Typical  
6 paste is shown in the right photos, and the photo on the left

7 shows a drier material, which we call a cake, which has also  
8 been pumped. A slurry would be much wetter than the material  
9 shown in these photographs.

10 Material is moved by pipeline in many  
11 industries. Probably the best example of this comes from the  
12 construction industry where wet concrete, which is a paste,  
13 is moved by pump and pipeline. This technology is used  
14 world-wide, and is well understood.

15 Paste is now used in many underground mine  
16 backfill systems. Paste has also been used on surface for  
17 tailings disposal at the Julietta Mine in Northern Russia,  
18 and a drier material is being used at Greens Creek in Alaska.

19 The Bulyanhulu mine in Africa is using a paste  
20 pump system to move its tailings to a -- a surface storage  
21 facility, as is the combined process tailings operation,  
22 owned by De Beers at Kimberly, South Africa. Many other  
23 mines throughout the world are at various stages of design  
24 for paste systems.

25 Thickened tailings are very similar to paste,

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1 although -- although they're a little wetter. Constructing a  
2 pile using thickened tailings has been done at the Kidd Creek  
3 Mine in Timmins, Ontario for over twenty (20) years.

4 Timmins has very cold winters, with  
5 temperatures of minus forty (40) degrees C. The Cluff Lake  
6 Mine in northern Saskatchewan also uses a thickened tailings  
7 pile, and they've had no problems operating during the  
8 winter. So, we have seen how these systems -- types of  
9 systems work, and what the problems are in cold conditions.

10 This photograph shows how paste tailings flow.  
11 You can see that at the leading edge, there is no water being  
12 released. Compare this to what you have seen at mines using  
13 conventional slurry disposal methods, and you see how this  
14 system reduces the amount of water that must be handled and  
15 contained.

16 We understand that the material will not flow  
17 as far during the winter, because it will freeze, and have  
18 made allowances in the design by having two (2) pipelines,

19 and multiple points for discharge.

20 This system may require more effort to  
21 operate, but this effort is worthwhile because it allow us to  
22 eliminate a large pond on the surface of the North Pile.

23 After paste has been on the surface for a  
24 period of time, anywhere from a few days to a few weeks, if  
25 it does not freeze it will consolidate.

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1 In either case, whether frozen or  
2 consolidated, equipment will be able to work on the surface.  
3 This will allow the cap to be place a short time after an  
4 area is completed.

5 For Snap Lake, mine systems design carried out  
6 extensive test work on making and pumping the PK as paste.  
7 As you can see in these photographs, PK from Snap Lake can be  
8 mixed to paste consistency and moved by pipeline.

9 Now that we have seen what the North Pile  
10 looks like, we can take a step back to see where the design  
11 work fits in the overall assessment process.

12 Most of the issues with the North Pile relate  
13 to water and the impact on the aquatic life in Snap Lake.  
14 The diagram follows the flow of water from sources on the  
15 site through the water treatment plant to Snap Lake.

16 In this drawing, which you will see throughout  
17 the presentations, water from the North Pile is an input to  
18 the waste stream. This discussion today falls at the start  
19 of the assessment process.

20 Experts, both for De Beers and the  
21 Intervenors, review the design for the North Pile. Most of  
22 the issues related to this design were resolved, but a few  
23 remain for discussion.

24 These all relate to the rate at which the PK  
25 will freeze in the North Pile; specifically, the issues are

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1 the prediction of the rate of freezing in the temperature  
2 model that was use, how the rate of freezing could impact  
3 cryoconcentration, and how this could affect the quantity and  
4 quality of the seepage release from the North Pile.

5 As part of the design process, we need to  
6 understand the rang of behavior that we can expect. And this  
7 is what we can do with our models.

8 Modeling helps us to identify the critical  
9 considerations for design in the site features, such as the  
10 climate, topography, geology, the PK paste and rock  
11 characteristics, and the operating construction methods that  
12 will be used.

13 Models allow us to ask, what if, questions, to  
14 test the behavior of the system before it is constructed.  
15 And the models help us to identify what we should monitor to  
16 determine performance in the field, where we can best  
17 monitor, and when action should be taken.

18 For most projects, we model or analyze for  
19 stability, seepage, and geo-chemical performance. At cold  
20 climate, or arctic projects, where freezing is important, we  
21 also do temperature modeling, called geothermal modeling to  
22 determine what will freeze, and how fast or slow this  
23 freezing will occur.

24 For Snap Lake, the assessment of stability  
25 shows the North Pile will be stable for all the expected

1 conditions, including earthquakes.

2 Seepage modeling was carried out to determine  
3 how much water would be handled, and where this water would  
4 flow.

5 We used thawed conditions, which produced the  
6 largest estimate of seepage when we were looking at how large  
7 to make the seepage collection ditches.

8 A geo-chemical model was run to understand  
9 what chemicals would be in the water, and what the range of  
10 concentrations would be.

11 A temperature model was used to provide the

12 temperature profile for the geo-chemical model, so that  
13 chemical reaction rates could be reduced if the temperature  
14 decreased and freezing occurred.

15           As mentioned earlier, a temperature model is  
16 an unresolved issue, and will now be discussed. A  
17 temperature model was set up using a laboratory measured  
18 characteristics of the paste PK and the actual site weather  
19 data.

20           The model was calibrated to the actual  
21 temperatures measured in boreholes located at the North Pile,  
22 and this calibration showed that the model gave reasonable  
23 results for the conditions we see at the site now.

24           We then ran the model with what we thought  
25 would be the most likely conditions during operation and post

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1 closure.

2           We did various runs, changing the surface  
3 temperature, looking at the impact of a warmer winter, the  
4 impact of a colder winter, looking at deeper snow cover, and  
5 changing the water content of the paste to see what changes  
6 these would have -- what impact these changes would have on  
7 the temperature of the North Pile.

8           We think that the largest uncertainty left  
9 with the model is the prediction of the weather conditions  
10 year by year. There is general agreement on patterns and  
11 ranges of behaviour and contingency measures.

12           The temperature model shows that there would  
13 be frozen and unfrozen zones in the pile since the pile  
14 freezes very slowly. We're not certain about the exact  
15 distribution of the unfrozen areas in the pile, because this  
16 will depend on both the exact pattern of PK placement and the  
17 weather at the time of placement and also the operating  
18 methods that are used to accommodate the conditions.

19           The temperature model shows that the paste  
20 will be below zero degrees C within about two (2) years of  
21 being placed in the pile and the temperature will be about  
22 minus 0.2 degrees C and it will continue to cool with time.

23           So this is just a very rough schematic which

24 would be summertime showing a thawed lawyer at the surface of  
25 the pile. Previous summer, thawed layer and then just

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1 continuous layers of unfrozen material from earlier  
2 depositions.

3                   Although there are still some unresolved  
4 issues with the temperature model, experts for INAC agree  
5 that the model gives a reasonable indication of how the pile  
6 will perform and that there will be a low risk of adverse  
7 impact.

8                   As previously mentioned, the North Pile will  
9 be developed in cells and we will be monitoring the  
10 temperature of the paste as it was placed in the starter cell  
11 so that we can refine our predictions during the mine life.

12                   Now, I'll move into the second of three (3)  
13 concerns relating to the North Pile which is cryo-  
14 concentration. It can also be called freezing concentration  
15 and it occurs during freezing.

16                   As ice forms, materials in the water are  
17 expelled from the ice and remain in the water. Again, on a  
18 graphic piece of water within the North Pile with this  
19 certain concentration of chemicals in it, when it freezes the  
20 materials in the water stay within the water itself and the  
21 ice forms around the outside, so, we have increasing  
22 concentration in the water.

23                   Cryo-concentration is important because it  
24 will lead to a higher dissolved solids concentration in the  
25 water that comes from the paste in the North Pile. We must

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1 also remember that the freezing process will reduce the  
2 amount of water that can come from the North Pile since more  
3 water will remain in the North Pile as ice.

4                   The result will be a smaller amount of water  
5 with higher concentration of dissolved solids but the total  
6 load of dissolved solids will be about the same. So, you can  
7 see that cryo-concentration relates to the quality of the  
8 water seeping from the paste and this leads us to the third  
9 issue which is the seepage from the pile.

10                  Since the North Pile is located close to the  
11 north arm of Snap Lake, there are two (2) potential pathways  
12 between the North Pile and Snap Lake. Water may run off the  
13 surface of the pile and this runoff may reach the lake.  
14 Seepage is the movement of water in the ground and this is  
15 another pathway between the North Pile and the aquatic life  
16 in Snap Lake.

17                  The experts that reviewed the design, that was  
18 submitted with the EA, identified a number of concerns with  
19 how we proposed to collect the seepage from the North Pile.  
20 The main concerns were related to flow and ice wedges beneath  
21 the ditch.

22                  We took these concerns under consideration and  
23 adjusted the design to improve the ditch performance. We're  
24 confident that we now have a good method for breaking a  
25 pathway between the North Pile and Snap Lake.

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1                   The issue was that water could seep from a  
2 ditch into the lake. To resolve the issue, we have reversed  
3 the direction of that flow so that it is now from the lake to  
4 the ditch. This was done by putting the bottom of the ditch  
5 slightly lower than the lake level, along as much of the  
6 ditch as possible.

7                   This also means that the ditch bottom will be  
8 in granite bedrock. As an additional control for seepage, we  
9 will build an embankment between the ditch and the lake to  
10 rise the permafrost level above the ditch bottom. This  
11 creates a barrier to flow which is shown on the next slide.

12                  Digging the ditch to a depth below the lake,  
13 will increase the overall size of the ditch. We've estimated  
14 the seepage that will flow from the lake into the ditch to be  
15 one (1) to two (2) cubic metres per day.

16                   There will be about two hundred (200) cubic  
17 metres per day of seepage from the North Pile flowing into  
18 the ditch. In addition, during the spring, there could be  
19 about six thousand (6,000) cubic metres of water from snow  
20 melt.

21                   The ditch itself will have a capacity much  
22 larger than this, so there is more than enough capacity to  
23 handle small ice accumulations or snow drifting into the  
24 ditch. The embankment that will be placed along the ditch  
25 will also provide a year round access road for ditch

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1 surveillance and maintenance. Any blockages will be removed  
2 as they occur.

3                   The reviewers were also concerned about ice  
4 wedges and fracture rock beneath the ditch. Ice wedges occur  
5 in vertical cracks in the soil and rock. If they were to  
6 melt beneath the ditch, the resulting hole would act like a  
7 pipe, allowing water to reach the lake.

8                   We designed the construction program so that  
9 any ice would be naturally melted during the summer. We will  
10 dig the ditch in the first year, and then leave it for a  
11 year. By removing the soil cover, the ground will thaw much  
12 deeper than before, and ice deeper in the ground will melt.

13                   We will finish the ditch in the second year,  
14 digging the bottom into the bedrock so that we'll be able to  
15 see and fix any fracture zones. We'll then monitor the  
16 performance of the ditch for one (1) more year, before it  
17 will begin to collect seepage from the paste.

18                   So with these modifications, we are confident  
19 we have broken the pathway between North Pile and Snap Lake.  
20 As the experts for INAC have concluded, these enhancements  
21 are critical to the design, and it's reasonable to conclude  
22 that seepage is unlikely to be significant.

23                   Surface water runoff and seepage from the  
24 North Pile are only two (2) of the sources of water at Snap  
25 Lake. In terms of aquatic impacts, other inputs are surface

1 water from the site and mine water. All of these inputs are  
2 sent to the water treatment plant before they're discharged  
3 to Snap Lake.

4 In terms of the total quantity of water  
5 managed at the site in about year ten (10), when all the  
6 north foot -- North Pile footprint has been developed, there  
7 will be about 8 million cubic metres of water pumped from the  
8 mine to the treatment plant. This is the yellow bar shown on  
9 the graph.

10 There will be about 110,000 cubic metres of  
11 runoff from the general site. This is the blue bar on the  
12 graph. From the North Pile, there will be about 160,000  
13 cubic metres of runoff that will be sent to the water  
14 treatment plant, and this is shown by the red bar.

15 We have also estimated that there will be  
16 about 70,000 cubic metres of seepage from the paste that will  
17 be collected in the ditch and sent to the treatment plant.  
18 This is the green line on the top of the graph.

19 So in the context of the overall project, the  
20 water that we are collecting from the North Pile is a very  
21 small component of the water being managed on the site.

22 This slide shows the distribution of total  
23 dissolved solids, or TDS, that reports to the water treatment  
24 system and is later discharged to Snap Lake. The TDS load is  
25 just a measure of the mass of everything dissolved in the

1 water.

2 The figure shows the potential additional  
3 seepage that will be collected in the ditch, and additional  
4 chemical mass resulting from using the Intervenor's worst-  
5 case scenarios in the geochemical model. Even when we add  
6 these together on the bar graph, we still have values for TDS  
7 load that are lower than those used in the EA. The TDS load  
8 used in the EA is shown by the dotted line.

9                   At closure, only a small fraction of the TDS  
10 load, less than 10 percent of the total load during  
11 operations, will be discharged to the lake. And this load  
12 will decrease over time, as the pile freezes.

13                   So, in summary, we have listened to the  
14 concerns of the reviewers, and adjusted the design of the  
15 water collection system around the North Pile. We will be  
16 constructing the ditch so there will be a small flow from the  
17 lake into the ditch, and we are confident that this breaks  
18 the pathway between the North Pile and Snap Lake.

19                   We will also be monitoring the performance of  
20 the North Pile, both the way the pile will be freezing, the  
21 way the cap will be performing, and we'll be monitoring both  
22 the quantity and quality of the water collected from the  
23 North Pile.

24                   This information will allow us to refine the  
25 predictions of long-term performance, and adjust the

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1 operation in accordance with De Beers' Adaptive Management  
2 plan.

3                   Thank you for your time.

4                   THE CHAIRPERSON: Thank you, sir.

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6                   (BRIEF PAUSE)

7  
8                   THE CHAIRPERSON: Thank you, Mr. Eldridge.  
9                   We will now -- I will go through the list I  
10 have in front of me in order and ascertain if there are  
11 questions of the proponent.

12                   Are there any questions from the Yellowknives  
13 Dene First Nation?

14                   Okay. Are there any questions from Indian and  
15 Northern Affairs Canada? Mr. Bohnet...?

16                   MR. SEVN BOHNET: Yes. Thank you, Mr.  
17 Chairman. We do have a couple of questions, and I'll turn  
18 the mike over to Chris Burn to start, please.

19                   MR. CHRIS BURN: Mr. Chairman, my name is  
20 Chris Burn. I'm representing Indian and Northern Affairs

21 Canada with respect to permafrost issues, and I think your  
22 instructions were that the questions at this period should be  
23 questions of clarification.

24 And, I have four (4) questions of  
25 clarification, which I would like to pose to the proponent.

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1 THE CHAIRPERSON: Can we do them one at a  
2 time, and allow an answer after each question? Or would you  
3 prefer to do all four (4), and then...?

4 MR. CHRIS BURN: My preference would be one  
5 at a time.

6 THE CHAIRPERSON: Okay.

7 MR. CHRIS BURN: And perhaps that would be  
8 also your's and the proponent's preference?

9 THE CHAIRPERSON: Yes. It's just easier for  
10 the translators, that's all. Thank you.

11 MR. CHRIS BURN: I appreciate that. The  
12 first question I have for the proponent is whether De Beers,  
13 or any of their close associates, have experience with  
14 operation of a paste pile disposal mechanism under arctic  
15 conditions?

16 THE CHAIRPERSON: Thank you. Mr.  
17 Eldridge...?

18 MR. TERRY ELDRIDGE: I'm not aware of any  
19 paste pile -- pumped paste pile in arctic conditions, so I  
20 have no experience.

21 THE CHAIRPERSON: Thank you. Mr. Burn...?

22 MR. CHRIS BURN: Thank you, Mr. Chairman.

23 My second question relates to a comment that  
24 was made with respect to slide number 14 today. The comment  
25 is regarding the temperature modelling, and the comment that

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1 was made today is similar to the remark in the modest summary  
2 that we received last week, regarding the comments on the  
3 thermal model that would be presented at this meeting, at  
4 which it was stated that the temperature model was set up  
5 using the laboratory measured characteristics of the paste PK  
6 and the actual weather site data.

7 That was stated today, or summarized today,  
8 and was in the notes that we received last week. In the  
9 report of February the 14th that was submitted under the hand  
10 of Robin Johnstone, De Beers Canada Mining, on page 5, the  
11 report states that the unfrozen water content curve for the  
12 PK paste used in the model is the one (1) used in the 2001  
13 model, because the laboratory testing was completed on  
14 February the 6th, which did not leave time for incorporating  
15 the curve.

16 And, my question of clarification is whether  
17 the model was run with the data as presented today, which is  
18 that the laboratory data were used in the calibration, or  
19 whether it was, as stated, earlier in the information we  
20 received before February 28th, which indicates it was not  
21 using that model?

22 THE CHAIRPERSON: Thank you. Mr.  
23 Eldridge...?

24 MR. TERRY ELDRIDGE: Terry Eldridge  
25 representing De Beers. We ran both models. Most of the work

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1 was done with the 2000 model, but we also ran the laboratory  
2 measured paste PK properties in the thermal model.

3 THE CHAIRPERSON: Thank you. Mr. Burn...?

4 MR. CHRIS BURN: Thank you. My third  
5 question for clarification, again relates to slide number 14,  
6 which is actually -- we're looking at slide 17 right now.

7 Well, the slide number 14 states that the  
8 paste temperature would fall below zero Celsius in about two  
9 (2) years.

10 Slide 15, presents the bulk of the paste as  
11 frozen.

12 My question for clarification is: What does

13 the temperature being below zero mean in terms of the state  
14 of the water in the pile?

15 THE CHAIRPERSON: Thank you, sir. Mr.  
16 Eldridge...?

17 MR. TERRY ELDRIDGE: Mr. Chairman, zero  
18 degrees is the point at which freezing begins. And over some  
19 range of temperature, the water freezes, the light and heat  
20 is exchanged and it becomes solid.

21 So, zero degrees is the point at which the  
22 phase change begins.

23 THE CHAIRPERSON: Mr. Burn...?

24 MR. CHRIS BURN: May I ask a question of  
25 further clarification on that point? Is it fair to say that

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1 at zero degrees the pile is frozen?

2 THE CHAIRPERSON: Mr. Eldridge...?

3 MR. TERRY ELDRIDGE: Mr. Chairman, at zero  
4 degrees the pile is at the point of beginning freezing, so it  
5 is not frozen.

6 MR. CHRIS BURN: Mr. Chairman, if I may ask my  
7 fourth question then. The next slide presented a schematic  
8 of the pile that was dominantly assessed in the frozen state.

9 This the slide which begins, "North Pile  
10 temperature model results." My question to the Company is:  
11 How long after the pile is deposited does this schematic  
12 represent conditions?

13 In other words, what is the time involved  
14 between deposition of the pile and the pile evolving to the  
15 state which is portrayed as frozen in this schematic?

16 THE CHAIRPERSON: Thank you, Mr. Burn. Mr.  
17 Eldridge...?

18  
19 (BRIEF PAUSE)

20  
21  
22 MR. TERRY ELDRIDGE: Mr. Chairman, the graphic  
23 on slide 15 was to be a schematic just showing what the  
24 frozen and thawed zones within the pile.

1 pattern will be. There will be variations in the temperature  
2 during deposition, and the exact deposition plan.

3 We're trying to set up procedures which will  
4 accommodate both frozen and thawed conditions. We recognize  
5 that both will be in the pile, and are working towards  
6 accommodating those.

7 We're not relying on permafrost for stability  
8 of the pile. We recognize that freezing will be over a  
9 certain range of temperature.

10 Our modeling shows that the pile is about  
11 minus .2 degrees C within a few years, so, a large quantity  
12 of the water within the pile itself would be frozen.

13 Thank you.

14 THE CHAIRPERSON: Thank you, sir. Mr.  
15 Burn...?

16 MR. CHRIS BURN: Mr. Chairman, the preceding  
17 slide stated that the paste continues to cool for decades  
18 and, I guess, I didn't receive an answer from the proponent  
19 as to when this paste will be frozen.

20 And I have -- don't wish to pursue this matter  
21 at this point, but just to draw this to the attention of the  
22 Board, that the freezing of the pile is portrayed in the  
23 schematic as being moderately complete at some unspecified  
24 time. And I will return to these in the remarks that we will  
25 address to the Board later in the Hearing. Thank you very

1 much.

2 THE CHAIRPERSON: Thank you, sir.

3 Mr. Bohnet...?

4 MR. SEVN BURNETT: Yes, Mr. Chair. We have

5 one (1) more question and I'll turn you over to Mr. Gene  
6 Yaremko.

7 MR. EUGENE YAREMKO: My name's Gene Yaremko  
8 and I'm representing Indian and Northern Affairs Canada.

9 My -- I have one (1) single question and I'm  
10 just wondering, when -- your design of your peripheral  
11 ditches, your collection ditches, have you considered the  
12 possibility that these ditches will fill up with ice from  
13 seepage during the winter period and that when the spring  
14 runoff period comes that you'll have reduced your capacity of  
15 those ditches?

16 THE CHAIRPERSON: Thank you.  
17 Mr. Eldridge...?

18 MR. TERRY ELDRIDGE: Mr. Chairman, yes, we  
19 have considered there will be ice accumulations in the winter  
20 and they'll have procedures for ongoing maintenance and ice  
21 removal to provide the capacity required. There's an  
22 embankment directly beside the ditch to provide year-round  
23 access.

24 MR. SEVN BOHNET: No further questions,  
25 Mr. Chairman.

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1 THE CHAIRPERSON: Thank you, Mr. Bohnet.

2 Any questions from -- well, obviously no NWT  
3 Nunavut Chamber of Mines so.

4 Northwest Territories Metis Nation, any  
5 questions at this time? No.

6 North Slave Metis Alliance? No.

7 Fisheries and Oceans Canada, any questions of  
8 the proponent?

9 Okay. Dogrib Treaty 11...? Thank you, Ms.  
10 Teillet.

11 MR. STEVE WILBUR: This is Steve Wilbur for  
12 the Dogrib. I have four (4) questions related to the ditch,  
13 specifically, and some of these are follow-ups to some other  
14 questions just for some clarification.

15 There was a slide that showed the ditch being  
16 dug into permafrost and it -- I just essentially wanted to

17 know if that, in essence, was -- was the plan?  
18 Was the ditch -- right there, on that slide  
19 right there, shows that the ditch is going down to  
20 permafrost, is there any intent to go into the permafrost and  
21 then the follow up to that is, what's going to happen to the  
22 permafrost in that environment?  
23 THE CHAIRPERSON: Thank you, Mr. Wilbur.  
24 I'll let Mr. Eldridge answer but my schematic  
25 in front of me shows the ditch actually only going to the

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1 bedrock and not penetrating the permafrost but, Mr.  
2 Eldridge...?  
3 MR. TERRY ELDRIDGE: Mr. Chairman, that's  
4 correct. The ditch will be excavated to bedrock and we'll  
5 construct a berm or an embankment on the side of the ditch to  
6 raise the permafrost above the ditch bottom.  
7 THE CHAIRPERSON: Thank you. Mr. Wilbur...?  
8 MR. STEVE WILBUR: It's Steve Wilbur again.  
9 Just to follow up on that, the permafrost boundary there  
10 shows an awful strange shape and I was curious how that was  
11 derived then?  
12 THE CHAIRPERSON: Perhaps -- is this an  
13 actual crosscut of a section out there or is this just a  
14 representation of what you think will be out there?  
15 MR. TERRY ELDRIDGE: Schematic.  
16 THE CHAIRPERSON: It's a representation, a  
17 schematic representation, okay.  
18 MR. STEVE WILBUR: Just to follow up on --  
19 this is Steve Wilbur again --  
20 THE CHAIRPERSON: Yeah, just -- I think  
21 Mr. Eldridge just wanted to add a comment to that last  
22 question.  
23 MR. TERRY ELDRIDGE: Thank you. Just to  
24 clarify, what we're proposing to do is on the east cell,  
25 we'll excavate the ditch down into the rock. The active

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1 layer is quite deep here, so, we'll construct this embankment  
2 beside the ditch and the permafrost we'll at grade.

3 And we'll raise the permafrost above the ditch  
4 level. So, that will take some time.

5 THE CHAIRPERSON: Thank you, Mr. Eldridge.  
6 Mr. Wilbur...?

7  
8 (BRIEF PAUSE)

9  
10 MR. STEVE WILBUR: Steve Wilbur, for the  
11 Dogrib. Then the proposed hydraulic gradient between Snap  
12 Lake and the ditch will effectively be cut off at some future  
13 time and that doesn't -- does that consider any changes in  
14 the Snap Lake water level?

15 THE CHAIRPERSON: Thank you. Mr.  
16 Eldridge...?

17 MR. TERRY ELDRIDGE: We haven't done the  
18 detailed design on that. But when we looked at laying out  
19 the ditch, specifically for the east cell, which gets  
20 constructed first, we can put the ditch bottom at about 443,  
21 which is below the lowest water level recorded in the --  
22 since 1978 in Snap Lake.

23 THE CHAIRPERSON: Thank you, sir.

24 MR. STEVE WILBUR: I have one (1) final  
25 question. Just a follow up on Gene's question.

1 I was curious when they talked about the  
2 contingencies or measures in the -- the springtime to remove  
3 the ice. I was -- just wanted to know what procedures that  
4 actually will implement to remove ice in the ditch?

5 THE CHAIRPERSON: Thank you. Mr.  
6 Eldridge...?

7 MR. TERRY ELDRIDGE: They would just remove  
8 it with the equipment, if there was a large ice blockage.  
9 Take a backhoe in and excavate it. If you have snow, you

10 just plough it out.

11 MR. STEVE WILBUR: One final follow-up. So I  
12 -- I guess they don't expect a lot of water to accumulate?  
13 Experience with ditches in other mines, have -- have shown  
14 that spring breakup, water in these ditches can be a problem.  
15 I'm speaking specifically of BHP.

16 So, I guess, this is a collection ditch,  
17 they're not expecting there to be a large -- large volume of  
18 water in -- in these ditches, and so ice removal will be  
19 minimal.

20 THE CHAIRPERSON: Thank you. Mr.  
21 Eldridge...? Although I do note that you estimated there  
22 could be as much as 6,000 cubic metres of water a day from  
23 snow melt?

24 MR. TERRY ELDRIDGE: That would be the total  
25 quantity of water in -- in the full length of the ditch,

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1 between the different numbers of sumps.

2 The, just in terms of capacity, there's  
3 hundreds of thousands of cubic metres of capacity in the  
4 ditch, just given the depth that we're taking it to. So  
5 there's much more than we need.

6 THE CHAIRPERSON: Thank you, sir. Thank you,  
7 Mr. Wilbur.

8 Canadian Arctic Resources Committee, Mr.  
9 O'Reilly, do you have questions?

10 MR. KEVIN O'REILLY: Sorry, more of a  
11 comment, Mr. Chair.

12 THE CHAIRPERSON: We, actually, are trying to  
13 keep this to questions.

14 MR. KEVIN O'REILLY: I understand, but I find  
15 it very difficult to follow the proceedings when I don't have  
16 a copy of -- of the overhead.

17 Is there some way that the presenters can  
18 ensure that each of the parties to the proceeding have a copy  
19 of the written presentations or the overheads, please?

20 THE CHAIRPERSON: I can certainly ask the  
21 proponent to do that. I don't know if some of the other

22 presenters have brought enough copies, but we'll try to  
23 accommodate your request, Mr. O'Reilly.  
24 MR. KEVIN O'REILLY: It's not just for me.  
25 MR. CHAIRPERSON: I know it's not just for

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1 you, Mr. O'Reilly, thank you.  
2 Natural Resources Canada? No questions, okay.  
3 Government of the Northwest Territories?  
4 MR. GAVIN MORE: No questions, Mr. Chair.  
5 THE CHAIRPERSON: Thank you.  
6 And Environment Canada? Okay, thank you.  
7 Lutsel Ke' Dene First Nation? Thank you very  
8 much.  
9 Sorry, we will now move to presentation by  
10 Yellowknives Dene First Nation. And do you have enough  
11 copies to hand out, Tim?  
12  
13 (BRIEF PAUSE)  
14  
15 MR. TIM BYERS: My apologies, Mr. Chair. I  
16 did not make any copies of that presentation. There will not  
17 be any audio visuals at all, it will just be me speaking.  
18 THE CHAIRPERSON: Okay. And you can --  
19 MR. TIM BYERS: I'll be --  
20 THE CHAIRPERSON: -- you can make your  
21 presentation from your table. Don't -- don't bother getting  
22 up and coming to the front, you can make your presentation  
23 from there, sir.  
24 MR. TIM BYERS: Okay. I can make copies  
25 available tomorrow --

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1 THE CHAIRPERSON: Thank you.

2 MR. TIM BYERS: -- for anyone else.  
3 THE CHAIRPERSON: I appreciate that.  
4 MR. TIM BYERS: Would you like to introduce  
5 MS. RACHEL CARPEAU: Yes, Tim, I'll introduce  
6 you.  
7 THE CHAIRPERSON: Ms. Carpeau...?  
8 MS. RACHEL CARPEAU: Tim Byers, he works with  
9 our Land and Environment Committee. We've -- we've worked  
10 with him in the past, regarding fish and fish quality, water  
11 and water quality. And he's going to make the presentation  
12 right now.  
13 THE CHAIRPERSON: Thank you. I would ask if  
14 people do have written presentations, while we've got some, I  
15 did notice from this morning that there was substantial  
16 changes to some of the presentations.  
17 At the very least, while the Board will get  
18 them, it would be nice to have a copy for the translators,  
19 because it makes it a lot easier for them follow along if  
20 they have a copy in front of them. Thank you.  
21 MR. TIM BYERS: Thank you, Mr. Chair.  
22 On behalf of the Yellowknives Dene First  
23 Nations Land Environment Committee, I've got a couple of  
24 concerns to address, and they both cons -- they both relate  
25 to what we've just heard from the presentation, which is the

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1 collection ditch between Snap Lake and the North Pile.  
2 As De Beers states, one (1) of the two (2)  
3 methods that they are proposing to control the North Pile  
4 seepage in collection ditches from running into Snap Lake is  
5 to construct the ditch bottom so that it lies 10 centimetres  
6 below the level of Snap Lake, according to their -- one (1)  
7 of their technical memos, February 27, 2003.  
8 Now, 10 centimetres, that's less than half a  
9 foot for the bottom of the ditch to be below the level -- the  
10 water level of -- of Snap Lake and, so that's kind of  
11 confusing me as how -- as to how that will be an adequate  
12 environmental protection measure when the lake itself  
13 fluctuates -- fluctuates by about thirty-four (34)

14 centimetres, according to Table 9.3-26 of their EAR.

15           There's nothing mentioned in their technical  
16 memo about lake water level fluctuations, and how that would  
17 affect with the flow gradient between Snap Lake and the North  
18 Pile.

19           So, if the -- if the Snap Lake water level  
20 fluctuates below this 10 centimetre difference, I'm wondering  
21 if that will reverse the gradient so that you will then have  
22 water flowing from the North Pile into Snap Lake, which  
23 nobody wants to see.

24           So, I -- I'd like to get some kind of  
25 clarification on -- on this 10 centimetre -- 10 centimetre

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1 level below the Snap Lake water level for the ditch.

2           And, the only other thing I wanted to mention  
3 was the 50 metre buffer between the North Pile and Snap Lake.  
4 It seems to me that other diamond mine companies have been  
5 using one hundred (100) metre buffers between -- between non-  
6 receiving lakes and their north -- and their waste rock  
7 piles.

8           So it seems to me, comparatively, that De  
9 Beers is not using the best method to protect the  
10 environmental integrity, the water quality, of Snap Lake if  
11 they're using a much narrower buffer zone.

12           So, those are my two (2) concerns that I have  
13 at the moment. And I would also like to mention that  
14 because I'm only bringing these concerns up for the -- for  
15 the North Pile collection ditch, does not mean that we don't  
16 have concerns about all other aspects of geotechnical issues.

17           We are following the arguments between DIAND  
18 and the Company, and -- and NRCan's experts and the Company  
19 very closely, and we -- we look forward to a resolution of  
20 some of these outstanding issues. Thank you.

21           THE CHAIRPERSON: Thank you, Mr. Byers.

22           Rather than go through the list again, are  
23 there any questions for the Yellowknives Dene First Nation?  
24 Okay.

25           We will now move on to the presentation of

1 Indian and Northern Affairs Canada. Are you -- do you have  
2 visual aids on this one, Mr. Brodie?

3 MR. JOHN BRODIE: Yes, sir.

4 THE CHAIRPERSON: Okay. The Board will...

5  
6 (BRIEF PAUSE)

7  
8 MR. SEVN BOHNET: Thank you, Mr. Chairman.  
9 It's Sevn Bohnet with DIAND.

10 Unfortunately, we didn't bring any extra  
11 copies of our presentation today, but I'll make sure we have  
12 them made available as soon as we can, and we'll also make  
13 sure we bring copies for our other presentations prior to  
14 presenting them.

15 At this time, I'd like to introduce our -- our  
16 team for the geotechnical portion, it's Mr. John Brodie, Dr.  
17 Chris Burn, and Peri Mehling. We'll start off with John  
18 Brodie.

19 MR. JOHN BRODIE: Good afternoon, Mr. Chairman  
20 and Members of the Board. I'm going to lead off our  
21 presentation on the geotechnical, geothermal, and geochemical  
22 issues relating to the North Pile.

23 These issues are being address jointly because  
24 they are highly interrelated in the proposed design. This  
25 means that the issues and uncertainties in the geotechnical

1 elements of the design directly effect the geothermal  
2 predictions of the design.

3 And these, in turn, directly effect the  
4 geochemical assessment and the prediction of any potentially  
5 adverse impacts.

6 I think you'll find it helpful to understand

7 the significance of these issues as we go through out  
8 presentation.

9 It's our opinion that the aggregate effect of  
10 the geochemical -- geotechnical, geothermal, and geochemical  
11 issues associated with the North Pile will be the discharge  
12 of total dissolved solid levels to Snap Lake, and levels  
13 which are 5 to 10 percent greater than that which has been  
14 predicted by the proponent.

15 The manufacturer or production of tailings  
16 paste is not a new technology. Paste has been produced for a  
17 variety of tailings at a number of mines around the world.

18 Most of these have focused on underground  
19 backfill production, although surface paste disposal  
20 utilizing trucks has been conducted at a few sites in  
21 temperate regions.

22 However, there is no directly applicable  
23 precedent for the proposed tailings disposal. World-wide  
24 experience with kimberlite tailings paste is limited to a  
25 recently started operation by De Beers in South Africa.

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1 There are only two (2) mines where a paste is  
2 being pumped to a surface disposal site. One (1) is the  
3 Bulyanhulu mine in Tanzania, and the other is the Cluff Lake  
4 mine in Saskatchewan.

5 Most importantly, however, is that there is no  
6 previous experience world wide with surface paste disposal in  
7 an arctic environment.

8 Despite these limitations and the resultant  
9 uncertainties, which we shall go into, it is our opinion that  
10 proposed surface paste disposal is probably a better  
11 alternative to conventional tailings disposal, which would  
12 otherwise involve a large pond and extensive dams, or  
13 possibly the in-filling of waste.

14 At this stage, we believe that the  
15 uncertainties in the design will result in a greater volume  
16 of water being sent to the North Pile than has been  
17 anticipated and this may arise due to the need to mitigate  
18 the high pumping pressures, the abrasiveness of the paste

19 material itself and possibly the need to flush the discharge  
20 lines at the multiple spigot points. In addition, the  
21 proponent has acknowledged that winter operation is  
22 anticipated to be problematic.

23 In recognition of these problems, the  
24 proponent has identified some management strategies, the most  
25 important of this -- of -- of these is the starter cell which

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1 allows monitoring and the potential to modify operations.

2 However, should there be some problems  
3 encountered, the only suggested modification is the use of  
4 elevated discharge points during winter operations and this  
5 would result in much thicker deposited layers of paste.

6 If there is both more water and thicker layers  
7 of paste deposited in the North Pile, these will both impede  
8 the freezing of the North Pile and neither of these issues  
9 has been addressed in their modelling.

10 The Company's simplified thermal model is a  
11 crude representation of the proposed operations. It does not  
12 address the potential for the additional water, the greater  
13 thickness of the paste layers and the model considers the  
14 pile to be a very uniform structure which is not likely to  
15 occur in field conditions.

16 And I'd now like to turn our presentation over  
17 to Chris Burn who will address the thermal issues.

18 MR. CHRIS BURN: Mr. Chairman and Members of  
19 the Board. My name is Chris Burn and I represent DIAND at  
20 this Hearing on matters pertaining to permafrost and ground  
21 freezing.

22 I will make a general comment regarding these  
23 issues and then I'll make some specific points. I intend to  
24 address the thermal modelling which the proponent has used to  
25 predict the behaviour of the North Pile during and after

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1 mining operations.

2 I'd like to point out to the Board that the  
3 proponent has made considerable progress on the issues that  
4 were brought to their attention at the technical Hearing in  
5 December. We received information by or shortly after  
6 February the 28th reacting to the points that we raised in  
7 December.

8 We regard these reports as contributing  
9 towards resolution of the issues we identified. There are  
10 two (2) sets of issues: First, the quality of the thermal  
11 model and specification of the conditions applied to the  
12 outside of the pile.

13 And, second, determination of the composition  
14 of the pile and its behaviour as it freezes. The fact that  
15 De Beers responded in a substantive way to all of the issues  
16 we raised demonstrates their agreement with the significance  
17 of these matters.

18 I suspect that the progress they reported to  
19 us was limited, in part, by the time available to them  
20 between the December Hearings and the February 28th deadline.  
21 I am sure that the issues I will now discuss can be resolved  
22 with thought and application of appropriate procedures.

23 Our first concern is regarding the thermal  
24 properties of the freezing paste. This diagram is figure 1  
25 from De Beers' report of February 14. It shows the freezing

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1 behaviour of the paste. The vertical axis indicates the  
2 unfrozen water content. So as these values decrease, the  
3 amount of ice in the paste increases.

4 The horizontal axis is temperature. The solid  
5 line represents a laboratory determination of this  
6 characteristic. And the dashed line represents the value  
7 used in the thermal model.

8 Please note that we have only one (1) test  
9 conducted for this property, and this property is essential  
10 for characterizing the freezing of the paste. We are forced  
11 to generalize our appreciation of the property, from a sample

12 of one (1).

13                   While we respect that this represents progress  
14 from the absence of such data, as was the case in December,  
15 we do not accept that scientific or engineering proof can be  
16 based upon one (1) trial. We require replication of these  
17 results in order to validate them.

18                   Second, we note that the thermal model  
19 predicts a large portion of the pile will be of a temperature  
20 of minus .2. There are no data from the testing in this  
21 region. Data are provided for zero (0) and data are provided  
22 for minus .4. And in between, there is a guess, which is a  
23 straight line at the form of this relation.

24                   This is critical for our third point, which is  
25 that the test was not conducted with the high TDS process

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1 water anticipated in the field. We suspect that as a result  
2 the amount of freezing at temperatures near zero (0) has been  
3 over estimated.

4                   Fourth, the information has only briefly  
5 presented a description of the test procedures. We do not  
6 know if the data were obtained during thawing of the paste  
7 sample, bringing it from a temperature below zero (0), up to  
8 zero (0), or whether it was obtained during freezing of the  
9 paste sample, cooling it from zero (0) downwards.

10                   The thawing or freezing issue is extremely  
11 important at temperatures close to zero (0), as anticipated  
12 for this pile. Here, we show the curves for freezing of a  
13 silty material from Takhini Valley near Whitehorse.

14                   Again, the vertical axis shows water content  
15 and the horizontal axis shows temperature. Please note two  
16 (2) points on this slide. First, that during cooling  
17 freezing begins at some temperature below zero (0). And this  
18 is directly due to the influence of dissolved salts, as we  
19 would expect, in the process water.

20                   Second, note that the water content is higher  
21 at any temperature during a freezing run than it is during a  
22 thawing test. In other words, during freezing, there is less  
23 ice at any temperature than there is during thawing.

24                   The amount of ice that forms has a large  
25 effect on the temperature of the pile because the heat is

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1 taken out in -- that is taken out in freezing water is not  
2 used to cool the pile, it is used to form ice.

3                   This uncertainty then influences predictions  
4 for the length of time required to freeze the pile.

5                   The figure on this slide is number 17 from De  
6 Beers' report of February 14th, and it displays the rate of  
7 freezing of the pile. The vertical axis shows the height of  
8 the pile and, again, the horizontal axis shows temperature.

9                   The lines show the temperature in the pile at  
10 various times. Note, that according to De Beers' prediction,  
11 at ten (10) years, after the end of mine operations, only  
12 about a quarter (1/4) of the pile will be frozen, and fifty  
13 (50) years after operations, about two-thirds (2/3) of the  
14 pile will be frozen.

15                   The remainder, in here, may take many more  
16 decades to freeze, and this prediction is with the data we  
17 have to comment on. It's ex -- it's possible, in fact, it's  
18 probable - to use the terms that we were urged to use this  
19 morning - that the effect of process water will lengthen the  
20 freezing period to several more decades, possibly, several  
21 centuries.

22                   In other words, the unfrozen pile will be a  
23 concern, and to quote Mr. McConnell, it will be a residual  
24 concern after mining has ceased.

25                   The reason we draw the freezing rates and

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1 thawing and freezing process to your attention is that they  
2 influence the movement and destination of dissolved salts  
3 within the pile by a process which is known as

4 cryoconcentration.

5                   The next diagram is the unfrozen water content  
6 curve from the Takhini Valley that you saw earlier. This is  
7 for a frost susceptible material, one (1) which heaves as it  
8 freezes.

9                   The effects of frost heave are known to all  
10 Northerners, and most Canadians. To this slide, I have added  
11 data from the paste test, and you will notice that these  
12 curves are quite distinct.

13                   The paste test results are characteristic of a  
14 non-frost susceptible soil like a sand, but I reiterate, that  
15 we have only one (1) freezing test on the paste.

16                   In addition, De Beers has shown us in another  
17 February report that the paste is a freely-draining material,  
18 which retains only about 10 percent of its water upon  
19 draining, again, like a sand, and from these data, we  
20 conclude that the past freezes like a sand.

21                   Now, when sands freeze, they expel water and  
22 salt, because the water within the sand expands when it turns  
23 to ice. As a result, we expect considerable salts to be  
24 expelled from the pile.

25                   In the frost heave test report that we

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1 received, the proponent adopts the position that is at  
2 variance with this conventional interpretation.

3                   This slide shows a diagram taken from De  
4 Beers' report of February the 26th. The Company has  
5 conducted one (1) frost heave test to characterize the  
6 behaviour of the paste and, again, did not use process water,  
7 as far as we're aware.

8                   As indicated on the slide, the proponent froze  
9 its sample from the bottom up, not from the top down. This  
10 is important for two (2) reasons: First, the field situation  
11 will be dominantly top-down freezing.

12                   Secondly, conventional frost heave tests are  
13 conducted with freezing from the top down, so that water is  
14 drawn into the frozen ground, and does not drop down, as in  
15 this case.

16                   Clearly, whether we test with or against  
17 gravity, there will be -- the result of the tests will be  
18 different, especially in the material that drains  
19 efficiently.

20                   In this case, the bottom-up freezing prevented  
21 drainage of the sample. As a result, we acknowledge some  
22 progress on these matters since December, but we await  
23 completion of this file.

24                   The freezing behavior is critical for our  
25 understanding of the geotechnical, and geochemical impacts of

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1 the North Pile, particularly if the freezing continues for  
2 decades or even centuries after closure.

3                   I'm now going to hand over to my colleague  
4 Peri Mehling, who will consider the geochemical aspects of  
5 our presentation.

6                   MS. PERI MEHLING: My name is Peri Mehling,  
7 speaking on behalf of Indian and Northern Affairs Canada.  
8 Continuing with our analysis of the North Pile and  
9 implications for water quality that may emanate from that  
10 pile.

11                   Touched on uncertainties in superior  
12 technology which is the pumping of paste to the surface;  
13 touched on a thermal model, that was -- is -- appears to be a  
14 simplification of potentially the actual disposal, which --  
15 and which may over estimate the rate of freezing. And some  
16 uncertainties with the thermal properties that have been  
17 covered by Dr. Burn.

18                   And overall, our feeling was that this may  
19 underestimate the potential for release of salts and metals  
20 from the North Pile. That's from a couple of points.

21                   One (1) of the potential issues is a potential  
22 for greater drainage of process water. And the recent  
23 information indicated that this was a free-draining material,  
24 but the geochemical assumptions assumed that only 14 percent  
25 of the process water could be expelled through consolidation.

1           If -- if the material is to be more free  
2 draining, then there is a potential for a greater of amount  
3 of process water to be drained from the pile than was  
4 estimated in the assessment.

5           We've got also uncertainties as to whether the  
6 salts would be retained within the pile on freezing. And De  
7 Beers' assumptions there were that, salts would be retained,  
8 the process water would be retained on freezing rather than  
9 being expelled through the process of freezing.

10          I think Dr. Burn has indicated that -- that  
11 there's a large portion of the -- the pile that will be very  
12 close to zero (0) degrees centigrade, or just -- just  
13 slightly below, and that longer times will be taken to reach  
14 the temperatures below zero (0).

15          And De Beers' assumptions have been that  
16 anything that reaches zero degrees centigrade would be,  
17 basically, unreactive.

18          And while this seemed to be a relatively  
19 reasonable assumption initially, when you're talking  
20 temperatures that are marginally below zero (0), in the range  
21 of minus .1 or .2, you're really not down to unreactive  
22 temperatures.

23          In the DIAND technical submission, there's  
24 some references to weathering rates that occur below zero (0)  
25 degrees. We know of sulphide tailings that -- that oxidize

1 down to minus 10 degrees centigrade; although, as temperature  
2 decreases these rates are, obviously, slower.

3          De Beers assumed that the active material that  
4 would produce -- potentially produce salts would be the  
5 active two (2) meter layer that would be on the surface skin  
6 of the pile, at any point in time.

7          And the thermal analysis that we -- that Dr.  
8 Burn looked at, suggests that there's a greater mass of this

9 material that is unfrozen, or just marginally frozen, that  
10 may provide a source, or is likely to provide a source of  
11 weathering.

12           Having identified a larger mass of material  
13 that could potentially provide material, we can see that --  
14 that the summary of this kind of analysis is that there's a  
15 potential for greater seepage release over a longer time  
16 frame. We've got a larger mass of material freezing at a  
17 much slower rate.

18           In DIAND's February 7th technical submission,  
19 we attempted to get a -- do some scoping calculations to try  
20 to put what a larger mass would mean in terms of the amount  
21 of material that might be -- or salts that might be released  
22 and it was a scoping calculation conducted to support the  
23 need for further analysis by De Beers of this larger mass of  
24 near -- near freezing but -- but not -- or near zero (0)  
25 degrees material.

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1           The analysis suggested, using total dissolved  
2 solids as an example, that the additional and frozen or  
3 marginally frozen material could produce in the order of  
4 180 tons per year of total dissolved solids, in addition to  
5 what De Beers had suggested.

6           We had suggested that this kind of analysis be  
7 conducted by De Beers for other parameters and since this was  
8 a scoping calculation, had suggested that they do a more  
9 thorough assessment to identify bounds and put this in better  
10 perspective.

11           De Beers responded by -- by putting the TDS  
12 values that were estimated in the context of the total mine  
13 operations, which was very useful, and indicated that the  
14 volumes of this greater mass would be relatively small in  
15 terms of the total dissolved solids that would be discharged  
16 during operations in the range of 5 percent.

17           And with some of the other uncertainties, you  
18 can, sort of, look at it and say, okay, it might increase by  
19 5 to 10 percent during operations. And, as their  
20 presentation earlier suggested, this is a small -- small

21 increase in the total dissolved solids for the total site  
22 during operations.  
23               Since they hadn't conducted analysis on other  
24 parameters, did a similar analysis for some metals and the  
25 results are that cadmium could increase the total mine load -

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1 - the total mine load of cadmium during operations might  
2 increase by 65 percent; meaning that cadmium is a small  
3 volume that leaves the mine but the North Pile may act as a  
4 fairly significant source in -- in the amount that might be  
5 released.  
6               So that long term the North Pile may be a  
7 source for a longer period of time of a -- an amount of  
8 cadmium.  
9               Chromium that might be released over and above  
10 what might come from the rest of the operation might increase  
11 by about 8 percent.  
12              The reason why these numbers are a little bit  
13 higher is that TDS is significant from the mine discharge and  
14 the North Pile isn't a major source. When you start looking  
15 at metals, the balance is a little bit different. There's --  
16 there's not the same levels of metals that might come from  
17 the mine water. The North Pile becomes slightly more  
18 significant, but they are low numbers.  
19              One (1) of the issues why we wanted this  
20 analysis to be done is that the potential is for continued  
21 release of -- of these materials from the North Pile after  
22 closure when containment of the ditches may not be there.  
23 And also the fact that metals and TDS cannot be reduced or  
24 are not designed -- the water treatment plant has not been  
25 designed to reduce these parameters.

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1                   We expect that as De Beers has proposed  
2 monitoring, it will be conducted to check all these  
3 predictions but since TDS and metals are not dealt with by  
4 the treatment plant, it's not quite clear what effective  
5 mitigation measures might be, if these values were to be in  
6 the order of the numbers that we're looking at.

7                   I want to reiterate that these were scoping  
8 calculations and not done to the level that -- that one with  
9 De Beers information might be able to do. There were  
10 certainly some shortcuts and they may over-estimate. But it  
11 was to scope and show that there are -- there is a potential  
12 here for a larger mass of material to provide some salt to  
13 the environment.

14                  In summary, DIAND's assessment of the North  
15 Pile, the technology, the paste pH of -- the paste PK and --  
16 and some of the uncertainties with it, some of the  
17 uncertainties with the thermal models and the properties  
18 used, suggests that there may be a underestimated release of  
19 salts from the North Pile.

20                  And that this release would -- will occur,  
21 over a longer period of time, decades after closure, with a  
22 result of delaying the recovery of Snap Lake. And that kind  
23 of -- the assessment of those potential impacts will be dealt  
24 with by Peter Chapman at a later time.

25                  The increase isn't large, but it's -- and it's

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1   been scoped fairly well by De Beers, but we wanted to point  
2   out that there is a potential for more coming from that pile,  
3   probable.

4  
5                               (BRIEF PAUSE)

6  
7                   MR. SEVN BOHNET: That concludes our  
8 presentation, Mr. Chairman.

9                   THE CHAIRPERSON: Thank you. Are there any  
10 questions of INAC by the proponent? Mr. Johnstone...?

11                  MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
12 Johnstone.

13                   Is INAC aware that the aquatic's assessment  
 14 assumed that seepage would be ongoing into Snap Lake, after  
 15 closure?  
 16                   THE CHAIRPERSON:   Thank you.   Mr. Bohnet...?  
 17                   MR. SVEN BOHNET:    Sven Bohnet with DIAND.  
 18 Yes, we were aware of that.  
 19                   THE CHAIRPERSON:   Thank you.   Mr.  
 20 Johnstone...?  
 21  
 22                   (BRIEF PAUSE)  
 23  
 24                   THE CHAIRPERSON:   Okay.   I was negligent on  
 25 the last presentation, I forgot to ask the Board Members if

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1 they had any questions.   I apologize.   I won't forget you  
 2 this time.  
 3                   Are there any questions of INAC, by  
 4 Yellowknife Dene?  
 5                   NWT and Nunavut Chamber, not here.  
 6                   NWT Metis Nation?  
 7                   North Slave Metis?  
 8                   DFO?   No.  
 9                   Dogrib Treaty 11?   Mr. Wilbur...?  
 10                   MR. STEVE WILBUR:   Steve Wilbur, Dogrib.  
 11 This question is for Chris Burn.  
 12                   Chris, I heard your explanation about the time  
 13 it might take for the pile to freeze.   And I guess I wonder  
 14 if you could put that in perspective of what we know will  
 15 happen with climate -- climate warming; in effect, that will  
 16 delay the freezing even more.   And I just wanted your  
 17 thoughts on that, for clarification.  
 18                   THE CHAIRPERSON:   Thank you.   Dr. Burn...?  
 19                   MR. CHRIS BURN:    Thank you, Mr. Chairman.  
 20                   I think it would be inappropriate of me to  
 21 specify particular dates and times, either at which climate  
 22 warming will occur, or at which this pile may freeze.  
 23                   I consider that there are -- the -- the issue  
 24 of when the pile is to be frozen is -- is unspecified at the

25 moment, as the Company responded in my previous questions.

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1 When I asked: When will the pile be frozen, as illustrated  
2 on the schematic diagram, the thermal modelling  
3 representatives were unable to provide a date.

4 They are able to state that this is on the  
5 order of some decades after the -- the termination of mining  
6 activities. And my conservative view is that if the total  
7 dissolved solids of the test water had represented the total  
8 dissolved solids of the process water, then that might have  
9 been extended further, on the order of centuries, one (1) or  
10 two (2) centuries.

11 Certainly, my considered opinion is that we  
12 must, at least, anticipate the possibility of climate change  
13 over the next two hundred (200) years. However, most of the  
14 climate models which address projections for the next  
15 hundred (100) years still will predict for the Snap Lake  
16 environment a region of largely continuous permafrost.

17 The permafrost in the region, at the moment,  
18 is up to two hundred and fifty (250) metres thick, and it  
19 will take many, many years for that permafrost to thaw. The  
20 freezing regime at the surface will be, for the foreseeable  
21 future, a regime which is dominated by winter conditions with  
22 temperatures below zero (0) than being dominated by summer  
23 conditions, with temperatures above zero (0).

24 For that reason, I consider that permafrost  
25 will be established in the pile in the decades and, possibly,

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1 first or second century, following deposition of the pile,  
2 irrespective of climate warming.

3 I would state that in a climate warming  
4 scenario, naturally, the length of time will be extended, but

5 my question is, extended from what, and at this point, I  
6 don't know where to begin that extension.

7 For that reason, in my view, the climate  
8 change issue is a serious issue, but I regret to say that it  
9 will be an issue not for my grandchildren - and I hope I have  
10 some - but it will be probably an issue for my great, great,  
11 great grandchildren, in two hundred and fifty (250) years  
12 time, in terms of the stability, and the thawing out of this  
13 particular file -- of this particular pile.

14 But, and I hope, Mr. Chairman, I have  
15 indicated my view that the magnitude of the uncertainty with  
16 the freezing of the present pile is greater than the  
17 magnitude of the uncertainty introduced by the climate  
18 warming scenarios that are discussed.

19 THE CHAIRPERSON: Thank you, sir.

20 Okay, is that your question?

21 Natural Resources -- no, CARC, sorry is CARC  
22 still here? No.

23 Okay, Natural Resources Canada, any questions  
24 of INAC? No.

25 GNWT...?

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1 MR. GAVIN MORE: No questions.

2 THE CHAIRPERSON: Okay. Environment Canada?  
3 Lutsel K'e, any questions of INAC?

4 MS. FLORENCE CATHOLIQUE: We did have a  
5 question, but it's been asked by my neighbour here.

6 THE CHAIRPERSON: Thank you very much. My  
7 fellow Board Members, any questions? I have a couple. I  
8 guess the first one for Mr. Brodie.

9 Inasmuch that you state in your presentation  
10 that paste production is unproven technology, et cetera, et  
11 cetera, you're not in any way suggesting that it shouldn't be  
12 used, you're just merely stating that it's unproven and,  
13 therefore, is something that has to be watched or looked at  
14 very carefully?

15 MR. JOHN BRODIE: It's John Brodie speaking  
16 on behalf of DIAND. Yes. At this stage, I think that the

17 paste technology should be used. I think it's a good  
18 selection for this project.

19 Having said that, there are some uncertainties  
20 in their design that they cannot look to precedent to resolve  
21 at this time.

22 So, these uncertainties will be carried  
23 forward as the project evolves and, hopefully, they can be  
24 resolved in the starter cell phase of this project.

25 THE CHAIRPERSON: Thank you, sir, and my

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1 second question would be for either Mr. Bohnet, or Dr. Burn.

2 In your slides, you characterize DCMI's  
3 thermal model as a crude representation, and in a following  
4 slide on thermal properties, only single test completed for  
5 unfrozen water content, results not used in modelling.

6 I take it from the comments that you've made,  
7 that you've made, that you don't particularly have a lot of  
8 confidence in the predictions that -- the proponent is  
9 making.

10 What would it take to satisfy you that the  
11 predictions or the -- that they're making are coming close to  
12 what you think will happen?

13 What has to happen for you to have more  
14 confidence, or INAC, I should say, to have more confidence?

15 MR. CHRIS BURN: Mr. Chairman, the thermal  
16 model, and I -- Mr. Chairman, I -- you may -- I need  
17 assistance from you on this point.

18 We were under instruction from our masters,  
19 they are masters not mistresses, but we were under  
20 instruction from our masters not to talk in technical terms.

21 And therefore, what I'm going to say to you  
22 now is under that advisement, but I -- I regret that I must  
23 introduce one (1) technical idea, and that is that the -- the  
24 model -- the thermal model, which the proponent has used, is  
25 a model which assumes that all of the heat flow in the pile

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1 will be by conduction.

2 Now, conduction, is what happens when two (2)  
3 things that are at different temperatures touch each other.  
4 So, if you -- if you pick up a piece of ice, the piece of ice  
5 feels cold because heat is flowing, by conduction, from your  
6 hand into the ice.

7 There are other ways for heat to flow. The  
8 most significant that we encounter on the surface of the  
9 earth is by convection.

10 Convection is the way heat moves when a kettle  
11 is boiled. The element at the bottom of the kettle heats up,  
12 and that water then rises through the rest of the water in  
13 the kettle and disperses the heat in that way; not by  
14 touching it, but by mixing it within the body.

15 The model which De Beers uses only considers  
16 heat flow by convection -- sorry, only by conduction.  
17 However, the slides which you have seen from De Beers earlier  
18 today indicate that the slurry is not a solid, it is a  
19 slurry. It has a mixture of water and solid materials, and  
20 that water then moves through the pile.

21 So, as the water moves through the pile, it  
22 carries heat with it, and that heat is carried by convection.  
23 Now, the model does not consider that aspect of heat flow at  
24 all.

25 For that reason, we use the term, crude

1 representation, because there is a chunk of the heat flow  
2 which is not accounted for in the model, but, we consider  
3 that for the purposes of an assessment, a generalized  
4 indication of what is going to happen to the pile, the  
5 conduction approach may be an -- an estimate.

6 The -- the second element, and I would  
7 reiterate what we have indicated on our second -- on our -- I  
8 think it's our -- our fifth slide, is that the model has the  
9 paste applied to the pile in layers, just like slices of

10 bread, or layers on a cake.

11                   Each of those layers of the cake are of the  
12 same thickness, they're all of the same water content,  
13 they're all of the same paste content.

14                   In the field this stuff will be coming out of  
15 spigots, it will be forming cones, some of it will be flowing  
16 one way, some of it will be flowing the other way, the pile  
17 will not grow like a cake from a reputable bakery.

18                   And as a result it doesn't represent the field  
19 condition and, indeed, the freezing process which, in the  
20 model, proceeds again from a flat surface, will not freeze  
21 from a -- will not proceed from flat surface, it will freeze  
22 -- proceed from an irregular surface.

23                   So, again, this is a model. It is a  
24 representation and we describe it as a crude representation  
25 for those reasons.

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1                   The most important one, in my view, is the  
2 representation of heat flow, but the other two (2) are  
3 significant departures from field conditions in what is  
4 represented.

5                   Now, we have indicated in the December  
6 Hearings other elements about the model which the Company has  
7 addressed to our satisfaction, and they concern conditions  
8 regarding the amount of heat that was coming from the centre  
9 of the earth and we reconciled that issue without further  
10 ado.

11                   However, we do have concern -- we ought -- I  
12 should backtrack. We also requested the lab tests on the  
13 unfrozen water content characteristic; that is the figure --  
14 I think it's figure 1 on the slides that we showed, which  
15 indicates how much water freezes at which temperatures.

16                   We have three (3) primary concerns with those  
17 -- with that figure. The first is, to our knowledge the  
18 testing was not conducted with the process water.

19                   The second is that we don't know if this was a  
20 freezing or a thawing test and the results will be different.  
21 And that is the reason that we've -- that I spent some time

22 in the presentation trying to explain that to the Board.  
23 The third item is that the... oh yeah.  
24 Mr. Chairman, I apologize for that intermission. If you'd  
25 like to return to your seat, I will now proceed.

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1 The third item is really one of procedure and  
2 the procedure is that we have one (1) test result here. And  
3 that test result doesn't include data in the critical region  
4 of interest which is this temperature minus .2.

5 Now, if I were to ask my friend, Mr.  
6 Johnstone, who is an ornithologist, how many eggs are laid in  
7 a peregrine falcon's nest, he would be able to tell me. But  
8 he wouldn't be able to tell me from just observing one (1)  
9 nest. He would have to observe many nests to be able to tell  
10 me how many eggs are laid in the nest.

11 In the same way, if I want to know what the  
12 nature of this soil behaviour is, one (1) test is informative  
13 but I need to know that that test was not a strange result.  
14 I need to know that other tests converge on the same  
15 conclusion.

16 I can't specify to you whether I need two (2)  
17 tests, three (3) tests or four (4) tests. But there are  
18 engineers in De Beers' team who regularly work with this --  
19 these kind of questions under design considerations and they  
20 will know how many tests they need to conduct to be sure of  
21 the result.

22 I would be surprised if they were happy with  
23 just one (1). That -- that summarises our concerns regarding  
24 the unfrozen water content and the replication issue is also  
25 there for the frost heave test. But for the frost heave

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1 tests we also have concern regarding the upside-down nature

2 of the frost heave test.

3 And characteristically, the test is conducted  
4 in the other direction and -- but, again, the TDS of the --  
5 of the pour water in that test is also of concern to us in  
6 the frost heave test.

7 I don't know if that rather rambling response  
8 has addressed your concerns, Mr. Chairman.

9 THE CHAIRPERSON: It has, sir. Thank you  
10 very much. If it didn't I wasn't going to tell you anyway.  
11 Anyway, continuing on.

12 The next presentation is by Natural Resource  
13 Canada, Sharon Smith and do you have some visual aids with  
14 this one (1), as well?

15 MS. SHARON SMITH: Yes, we do.

16 THE CHAIRPERSON: Okay, so Board Members can  
17 just remain at the -- the table.

18 MR. JOHN RAMSEY: Yes, John Ramsey of Natural  
19 Resources Canada, Mr. Chair. I just wish to -- to note that  
20 we don't have additional copies for distribution today, but  
21 we hope to have those copies available tomorrow, with the  
22 assistance of the Review Board's copying facilities.

23 It now gives me great pleasure to introduce  
24 Sharon Smith, a permafrost research scientist with the  
25 Geological Survey of Canada.

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1 MS. SHARON SMITH: Thank you very much. Good  
2 afternoon, Mr. Chairman and Members of the Board. My name is  
3 Dr. Sharon Smith, and as John said, I work with the  
4 Geological Survey of Canada. And what I would like to do  
5 this afternoon is just discuss a bit some of the issues that  
6 NRCan has with the Snap Lake Diamond Project, with respect to  
7 the geotechnical issues.

8 Our main issues have to do with the thermal  
9 condition of the North Pile, and the associated seepage  
10 collection system. I would like to mention, though, that we  
11 raised a number of issues back last fall, at the technical  
12 sessions and many of our issues were resolved, and through  
13 subsequent submissions by the proponent in the form of

14 technical memorandum.

15                   We'd like to acknowledge that many  
16 improvements have been made to the thermal model for the  
17 North Pile. There are still a couple of unresolved issues  
18 that we have regarding the upper boundary conditions; one  
19 (1) has to do with the incorporation of snow cover in the  
20 model and the second one (1) is the lack of consideration of  
21 climate warming.

22                   We also would like to acknowledge that the  
23 proponent has made substantial modifications to the design of  
24 the collection ditches, and has also added some embankments.  
25 However, we don't have much detail on the design of these

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1 embankments yet, or whether any thermal modelling will be  
2 done to determine if the design is adequate to maintain the  
3 permafrost above the ditch bottom. So, we have some  
4 suggestions to make about that.

5                   So let's talk about the -- the thermal  
6 condition and the thermal model for the North Pile first.  
7 And I want to talk a little bit about why this is important.  
8 As we've already seen from our friends from DIAND, there --  
9 the quantity and quality of seepage water is related to the  
10 thermal condition of the -- of the pile.

11                   The amount of unfrozen water depends very much  
12 on the temperature of the pile. And we would like to suggest  
13 that the pile may take longer to freeze than the proponent  
14 has predicted and that the active layer, or the -- the  
15 seasonally -- the summer thaw layer may be thicker and the  
16 pile temperatures may be higher at closure and beyond than De  
17 Beers has predicted.

18                   And prediction of the thermal condition of the  
19 pile is required to facilitate the identification of  
20 potential problems related to pile stability, seepage and  
21 water quality, and also to help to determine what mitigation  
22 measures may be required.

23                   THE CHAIRPERSON: Ms. Smith, could you just  
24 slow down a little bit?

25                   MS. SHARON SMITH: Oh, yes.

1 THE CHAIRPERSON: The Interpreters are having  
2 a tough time keeping up.

3 MS. SHARON SMITH: I want to go to dinner  
4 soon, I guess. Sorry about that.

5 Now, with respect to snow cover, it's unclear  
6 from the submissions that the proponent made in, I believe,  
7 the end of February beginning of March, whether they have  
8 used the deeper snow covers that would be more representative  
9 of site conditions. And this is important, after the pile  
10 has been constructed, to consider what the snow cover will be  
11 that will be built up on the pile.

12 And De Beers has predicted that snow depths  
13 will be up to forty-five (45) centimetres in the Snap Lake  
14 area. And we would suggest that a more conservative  
15 approach, in their model, would be to use these deeper snow  
16 depths, because the winter ground surface temperature will  
17 probably be much closer to zero (0) degrees than the lowest  
18 snow depth -- than if they used the lower snow depths that  
19 they had used in their model.

20 With regards to climate warming, and we've  
21 already had a bit of discussion about that this afternoon.  
22 In the thermal model, the same surface temperature function  
23 has been used for each year in the model. So there has been  
24 no allowance for climate warming and variability.

25 And inclusion of a warming trend would be

1 required to adequately determine what the active layer  
2 thickness and the thermal condition of the pile will be  
3 throughout the life of the project, and also, following  
4 closure.

5 And there are many different climate warming  
6 scenarios, and many different climate models that can be

7 used, but in the Snap Lake area, and this is just a -- a  
8 result from one (1) of the Canadian climate models that's  
9 shown here, there's about a three and a half (3 1/2) degree  
10 increase in mean annual air temperature that's projected to  
11 occur over the next fifty (50) years in this region.

12 And, while we haven't done any mo -- modelling  
13 for the -- the North Pile to see what effect this has, I  
14 mean, there are examples of other studies where warming  
15 scenarios have been applied, and this is just one (1) example  
16 from an area near Norman Wells, where we're looking at the  
17 response of the ground thermal regime to a four (4) degree  
18 increase in mean annual air temperature over a fifty (50)  
19 year period.

20 And, what these graphs show is the change in  
21 active layer over time in response to climate warming, and  
22 there's just a different ways that you can -- you can get  
23 that four (4) degree increase; either a linear increase over  
24 time, or an exponential increase, and the other thing that  
25 you may have at the same time, is an increase in snow cover.

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1 So, that's what that line that says, linear  
2 plus 10 percent, just means an increase in snow cover, and if  
3 you do have an increase in snow cover, your increase of an  
4 active layer will be much more.

5 As well as increasing the active layer, you  
6 will also get increases in ground temperature, and for this  
7 particular case here, I think we -- we found that four (4) to  
8 six (6) metres depth, even over twenty (20) years, you could  
9 get increases in ground temperature that were approaching one  
10 (1) degree.

11 Now, we'll -- I do want to clarify that this  
12 is -- these are from undisturbed sites. There's a vegetation  
13 cover, so this is somewhat different than what you would have  
14 at Snap Lake with the North Pile. In fact, with the North  
15 Pile you're dealing with a bare surface cover, so you'd have  
16 less buffering from changes in climate.

17 Okay, so as I've already said, increases in  
18 thaw depth and ground temperature may occur in response to

19 climate warming, and it's important to consider what these  
20 changes might be since, as we're already seen from the  
21 previous presentation from DIAND, the temperatures in the  
22 pile predic -- predicted already to be very close to zero (0)  
23 degrees.

24                   And, mos -- and -- and there's a large portion  
25 of the water that remains unfrozen. So, with this additional

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1 effect of climate warming, there will be a delay in the  
2 freezing of the pile, and this will be particularly important  
3 in the assessment of the post-closure performance of the  
4 pile.

5                   It will have some effect on how long these  
6 contaminants and salts and so forth may be released from the  
7 pile, and as well as a quantity and quality of the -- the  
8 post closure seepage water.

9                   And I'd just like to now make a few comments  
10 about the design of the seepage collection ditch, and the  
11 embankments, and the importance of that.

12                   The whole idea behind the construction of  
13 these embankments is to raise the permafrost table above the  
14 ditch bottom, so that you can provide a barrier to flow  
15 between the ditch and Snap Lake.

16                   The thing, so that you have to remember, is  
17 that the summer thaw depth may vary in response to climate  
18 variability and change, so, from year to year, it may -- may  
19 also vary.

20                   Natural Resources Canada generally supports  
21 the proposed -- the proposal for improvements to the ditch  
22 design, and also, the addition of these embankments. We  
23 don't have much information on how these on -- on the exact  
24 design of these embankments yet, but we feel that it would be  
25 important to do thermal modelling that takes into account the

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1 potential climate -- climatic conditions that will exist at  
2 the site, over the length of the project and beyond, so that  
3 we can determine if the permafrost will be maintained above  
4 the ditch bottom over the length of the project and post  
5 closure.

6               Okay, and just for those that -- like, if you  
7 recall from the -- the first presentation by De Beers, we  
8 have an active layer of about eight (8) metres.

9               So, the permafrost table has to be raised by  
10 five (5) to six (6) metres. In the foundation materials, the  
11 granite -- you're dealing with fairly high thermal  
12 conductivity materials, so they are fairly responsible -- or  
13 responsive to variations in climate, so you can have a fair  
14 amount of inter-annual variability and thaw depth.

15              So, that has to be considered in designing  
16 these ditches. So, what could be done is to take an approach  
17 that is similar to the one that was used at EKATI for design  
18 of the tailings dams, where you pick a critical depth, and in  
19 this case it would a depth above the ditch bottom, and  
20 determine, with your models, whether or not that remains  
21 below zero (0) degrees, for the length of the time that the -  
22 - those ditches and those embankments must be operating.

23              In the absence of doing this thermal modeling,  
24 the monitoring program, which the proponent has proposed,  
25 will be key to identifying any unexpected changes in the

1 thermal regime and performance of the seepage collection  
2 system.

3              So, a few concluding remarks and  
4 recommendations then that we have. What we recommend to  
5 resolve the outstanding issues that we have is that a more  
6 conservative approach regarding the upper boundary condition  
7 for the thermal modeling of the North Pile be used.

8              And that it takes into account the deeper snow  
9 cover of forty (40) to fifty (50) centimeters, which is more  
10 representative of the site conditions, okay, following the  
11 construction of the pile. And that they also consider a

12 warming trend in the thermal model.

13 Our other recommendation is that thermal  
14 modeling be conducted that takes into account the potential  
15 climate conditions at the site to determine if the design of  
16 the embankments is adequate to maintain the permafrost table  
17 above the ditch bottom.

18 Now, De Beers has proposed a monitoring  
19 program for the North Pile, and the seepage collection  
20 system. We recommend that that monitoring program be  
21 conducted, as it is required to identify any unexpected  
22 changes in the thermal regime and performance of both the  
23 North Pile and the seepage collection system, which includes  
24 the embankments and the foundation material itself.

25 This program must be adequately designed to

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1 assess the performance of the PK disposal management  
2 technology in an Arctic environment. And as I -- as we've  
3 already heard earlier, there is no previous experience for  
4 this type of disposal technology in an Arctic environment.

5 The program has to be designed to provide  
6 early detection of problems and to also help to determine  
7 what the appropriate mitigation measures may be.

8 Now, it's been proposed that thermistors be  
9 installed in both the North Pile and the embankments, and we  
10 feel it should also be included in the foundation material  
11 beneath the embankments. We'd recommend that these be fairly  
12 precise thermistors, okay, maybe of a hundred -- hundredths  
13 of a degree precision.

14 And this will help to ensure accurate  
15 estimates of the unfrozen water content in the pile. And it  
16 will also be sufficient to identify unexpected changes in the  
17 thermal regime of the pile and the embankments that may be  
18 related to climate warming and variability.

19 And I think, Mr. Chairman, that's all I -- I  
20 have to say, for the time being. Thank you for your  
21 attention, and I hope we -- I slowed down enough there for --  
22 for the interpreters to catch up.

23 THE CHAIRPERSON: Thank you, Ms. Smith.

24 Any questions by the proponent of NRCan? No.  
25 From the rest of the Intervenor, any

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1 questions for NRCan?  
2 Public, no.  
3 Board Members...?  
4 Okay. Well, thank you very much.  
5 We have one (1) final presentation, that of  
6 the Lutsel K'e Dene First Nation. And you -- have you got  
7 visual aids, Florence, or it's just a statement you have?  
8 MS. FLORENCE CATHOLIQUE: I just want to say  
9 that Lutsel K'e Dene First Nation, when we -- we looked at  
10 the topics to be discussed, we classified the areas that we  
11 wanted to make presentations in a different way than what is  
12 scheduled here.  
13 And so, in regards to the geochemistry and the  
14 geotechnical issues, our presentation was going to be  
15 addressing the -- the land and the water.  
16 And so, I think that might be more appropriate  
17 to have -- to do that tomorrow under the hydrogeology part.  
18 THE CHAIRPERSON: Sure, that's fine. And what  
19 I'll do then is I'll add you to the hydrogeology list  
20 tomorrow.  
21 We have two (2) presentations, one (1) from De  
22 Beers, one (1) from Indian and Northern Affairs, so I'll just  
23 -- I'll move your presentation over there then, if that's  
24 okay with you?  
25 Okay. Well, with that then, we will bring an

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1 end to today's proceedings. I thank you all for what is a  
2 very good first day. A few hiccups, but nothing that we  
3 can't deal with.

4                   And we will see everybody here at nine o'clock  
5 tomorrow morning. And we will start off with Air, Waste,  
6 Abandonment and Reclamation.

7                   Thank you very much. Good Afternoon.

8

9 --- Upon Recessing 5:35 p.m.

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12 Certified Correct,

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17 \_\_\_\_\_  
Wendy Warnock, Ms.

18 Court Reporter

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MACKENZIE VALLEY ENVIRONMENTAL  
IMPACT REVIEW BOARD

HELD BEFORE:

Board Chairperson	Gordon Wray
Board Member	Danny Bayha
Board Member	Frank Pope
Board Member	John Stevenson
Board Member	Charlie Snowshoe

HELD AT:

Northern United Place  
Yellowknife, NT

April 29th, 2003  
Volume 2

APPEARANCES

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John McConnell	)	Ltd.
Eric Groody	)	
Yvonne MacNeil	)	Department of Justice

9 (GNWT)

10

11 Chief Archie Catholique ) Lutsel K'e Dene First

12 Florence Catholique ) Nation

13

14 Kris Johnson ) North Slave Metis

15 Robert Turner ) Alliance

16

17 David Livingstone ) Indian and Northern

18 Sevn Bohnet ) Affairs Canada (INAC)

19

20 Gavin More ) Government of Northwest

21 Doug Doan ) Territories (GNWT)

22

23 John Ramsey ) Natural Resources

24 Canada

25

---

1 APPEARANCES (Cont'd)

2

3 Julie Dahl ) Fisheries and Oceans

4 Canada

5

6 Mark Dahl ) Environmental Canada

7

8 Rachel Crapeau ) Yellowknives Dene First

9 Tim Byers ) Nation

10

11 Jean Teillet ) Dogrib Treaty 11

12 Council

13

14 Kevin O'Reilly ) Canadian Arctic

15 Resources Committee

16

17 Mike Vaydik ) NWT and Nunavut Chamber

18 of Mines

19

20 Jason Lepine ) Northwest Territory

21  
22  
23  
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25

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5

1 --- Upon commencing at 9:05 a.m.

2

3 THE CHAIRPERSON: Good morning, ladies and  
4 gentlemen. Welcome to the second day of Hearings.

5 This morning we will start off with Air,  
6 Waste, Abandonment & Reclamation. I have Notice of two (2)  
7 presentations, one (1) by the North Slave Metis Alliance and  
8 the second one (1) by Lutsel K'e Dene First Nation.

9 The proponent has a short opening statement  
10 that they would like to make, prior to us continuing on with  
11 the presentation by North Slave Metis Alliance.

12 As I said yesterday, we have Dogrib on Channel  
13 6, Chip on Channel 4 and English on Channel 1. And just a  
14 reminder to put your cell phones on vibrate or turn them off.

15 Anyway, Mr. Johnstone?

16 MR. ROBIN JOHNSTONE: Good morning, Mr.  
17 Chairman and Members of the Board. De Beers would like to  
18 make a brief statement regarding Air, Waste and Closure and  
19 Reclamation.

20 De Beers is, as -- as stated yesterday, is  
21 committed to an air quality monitoring program that confirms  
22 the predictions of the environmental assessment. De Beers  
23 air quality monitoring program will consist of both emissions  
24 tracking and ambient air monitoring.

25 Fuel use emissions and other environmental

1 performance parameters will be tracked and reported through  
2 the Environmental Management System. In response to concerns  
3 raised by Intervenor, De Beers' existing ambient air  
4 monitoring will be enhanced by adding particulate monitoring,  
5 known as PM10 and PM2.5 The final design of the air quality  
6 monitoring program will be developed with input from  
7 communities and regulators.

8 De Beers would also like to take this  
9 opportunity to provide some clarification regarding closure  
10 and reclamation that may address some of the points raised by  
11 the Government of the Northwest Territories during their  
12 opening remarks.

13 Current plans for the landfill and land farm  
14 includes operating each within the North Pile. The purpose  
15 of this is to reduce the size of the project footprint at any  
16 one (1) time. The landfill and the land -- land farm will  
17 initially be placed in the eastern section of the North Pile.

18 Once the eastern section of the North Pile  
19 nears completion, that landfill will be kept and closed. The  
20 land farm will be gifted and decommissioned. Any soils still  
21 exceeding GNWT guidelines will be transferred to the second  
22 land farm, or taken off-site for disposal or treatment.

23 The landfill and land farm will be then be re-  
24 established in the area of the West cell, with the landfill  
25 being located in the former quarry, and managed through to

1 closure. Land farms are a proven technology for remediating  
2 hydrocarbon contaminated soils in the North. Research  
3 supports the effectiveness of land farming in cold climates.

4 Land farming has also been used by --  
5 successfully, by government departments and private industry  
6 within the Northwest Territories. Based on these  
7 demonstrated successes, De Beers has selected land farming as  
8 the best method for treating contaminated soils on site.

9 However, we also recognize that comprehensive  
10 management and monitoring plans are key to effective land  
11 farming. To this end, De Beers is committed to monitoring  
12 the land farm to ensure effective performance and would  
13 consider alternatives to land farming should management  
14 techniques prove to be ineffective in treating the soils.

15 In their guidelines for construction,  
16 operation and de-commission -- de-commissioning of land  
17 treatment facilities, the Government of the Yukon states  
18 that:

19 "Petroleum hydrocarbon contaminated soils  
20 can be effectively and efficiently  
21 remediated through the use of land farming  
22 techniques."

23 Now, with respect to closure and reclamation.  
24 The preliminary closure and reclamation plan was developed by

25 De Beers in February 2003, to support the establishment of

---

8

1 reclamation bonding requirements. In response to Intervenor  
2 concerns, this document was submitted in advance of the  
3 Public Hearings.

4 The plan was developed as a live document to  
5 which changes will be made during the regulatory and  
6 operations phases based on Intervenor input, operating  
7 experience, and research results.

8 The re-vegetation and surface materials  
9 handling plan appended to this document states that De Beers  
10 will establish a reclamation monitoring program to assist the  
11 suitability and success of various reclamation activities.

12 In addition, De Beers also submitted a  
13 technical memorandum outlining project milestones including  
14 De Beers' approach to the development of monitoring and  
15 management programs and proposed windows for Intervenor  
16 involvement. De Beers recognises the importance of long-term  
17 monitoring for reclamation, re-vegetation and restoration of  
18 wildlife habitat.

19 Thank you very much, Mr. Chairman.

20 THE CHAIRPERSON: Thank you, Mr. Johnstone.  
21 Anybody have any questions for the proponent on their opening  
22 statement.

23 Okay. If not, we have scheduled now the North  
24 Slave Metis Alliance. Ms. Johnson, do you visual aids or is  
25 it just a case of the Board should move down to its...

---

9

1  
2 (BRIEF PAUSE)

3  
4 MS. KRIS JOHNSON: Good morning. My name is

5 Kris Johnson. I'll be presenting the air, waste, abandonment  
6 and reclamation issues for the North Slave Metis Alliance. I  
7 have extra copies of the presentation if anybody would like  
8 one.

9           The issues the North Slave have with air,  
10 waste, abandonment and reclamation mostly surround any waste  
11 that's left on site, the final abandonment and reclamation  
12 plans.

13           The current plan for decommissioning the mine  
14 facilities are vague. Materials buried on site or disposed  
15 of in underground workings will have unforeseen environmental  
16 consequences. These are all in answer to the question of  
17 whether or not there will be adverse environmental impacts  
18 resulting from the mine.

19           The site will not be brought back to a pre-  
20 development state. Traditional knowledge has not been  
21 incorporated into the reclamation and abandonment plan.  
22 Aboriginal groups will not be consulted during the  
23 abandonment approval process. Habitat loss compensation has  
24 not been proposed.

25           What can be done in a further review to remove

---

1 the uncertainty surrounding the Snap Lake diamond project in  
2 relation to reclamation and abandonment? Plans for  
3 decommissioning the mine facilities must be developed prior  
4 to approval.

5           Traditional knowledge must be used in the  
6 development of the decommissioning plans. This is very  
7 important for Aboriginal communities, as traditional  
8 knowledge is supposed to have equal weight to Western  
9 Science.

10           The impacts of burying materials in the mine  
11 workings on the site landfill must be described, and assessed  
12 prior to approval.

13           De Beers must commit to bringing the site back  
14 to pre-development state. Traditional knowledge must be the  
15 foremost contributing factor to the creation of monitoring  
16 and mitigation programs to ensure the lack of baseline data

17 does not prevent Snap Lake development project site from  
18 being returned to the pre-development state.

19           Aboriginal groups must be a part of the  
20 abandonment approval process, and any loss of habitat must be  
21 compensated.

22           And in conclusion, if it is uncertain,  
23 however, where the project is likely to cause a significant  
24 adverse environmental effect, or that the project will cause  
25 significant adverse environmental effects that may be

---

11

1 justified in circumstances, the project must be referred to a  
2 mediator or a review panel.

3           And this is from an interim guide adopted by  
4 Mackenzie Valley Environmental Impact Review Board. Thank  
5 you.

6           THE CHAIRPERSON: Thank you very much, Ms.  
7 Johnson. Just give us a few seconds.

8  
9                           (BRIEF PAUSE)

10  
11           THE CHAIRPERSON: Are there any questions by  
12 the proponent of the -- Mr. McConnell...?

13           MR. JOHN MCCONNELL: John McConnell, De Beers  
14 Canada. Just a couple of questions. I guess the first one  
15 (1) is you -- in your slide on page 3, I guess it was, you  
16 suggest that the decommissioning plans are vague.

17           I just wonder if those comments reflect the  
18 draft abandonment reclamation plan that was submitted in  
19 February?

20           THE CHAIRPERSON: Thank you. Ms. Johnson?

21           MS. KRIS JOHNSON: Kris Johnson, from the  
22 North Slave Metis. As far as the North Slave are concerned,  
23 they have not had adequate funding in order to have experts  
24 review this material.

25           We request that any questions be submitted to

---

1 the North Slave in writing, and should funding become  
2 available, we will give action on that.

3 THE CHAIRPERSON: I take it, then, that  
4 you're not prepared to answer any questions during the course  
5 of these Hearings?

6 MS. KRIS JOHNSON: I can try my best, but as  
7 far as technical issues, I am not at liberty to comment.

8 THE CHAIRPERSON: Okay. Mr. McConnell...?

9 MR. JOHN McCONNELL: Sure, just one (1) more  
10 question. You suggest the materials buried on site could  
11 have an unforeseen environmental consequences. I guess I'd  
12 like a little more clarification about what materials you  
13 were concerned about, because this is quite a, you know, this  
14 process of burying inert materials on the site is certainly  
15 in the plans for Diavik, BHP, and as well, is being carried  
16 out at the Polaris Mine, and accepted that this is the best  
17 way of disposing of inert materials.

18 THE CHAIRPERSON: Are you able to answer  
19 that, Ms. Johnson?

20 MS. KRIS JOHNSON: I believe the North Slave  
21 Metis' position on leaving anything on site is that the site  
22 was relatively pristine before Snap Lake developed, and we'd  
23 like to see that when it's reclaimed and abandoned.

24 THE CHAIRPERSON: Thank you. Mr.  
25 McConnell...? Any questions from the other Intervenors, or

---

1 public for North Slave Metis? Okay. Thanks very much, Ms.  
2 Johnson.

3 The next notification I have is a presentation  
4 by the Lutsel K'e Dene Nation. Can the Board stay where they  
5 are, Mr. Catholique? Or -- you've got -- okay, thank you.

6

7 (BRIEF PAUSE)

8

9 MS. FLORENCE CATHOLIQUE: Good morning

10 everybody. For those that don't know me, my name is Florence  
11 Catholique. I see John McConnell smiling at me.

12 I just want to introduce the format that  
13 Lutsel K'e has taken in regards to the presentation. We  
14 normally do our presentations where we involve our Elders,  
15 and also our youth.

16 And so in this presentation the Elders will  
17 speak in their language, which means that you will have to  
18 use your translation equipment.

19 And when they're finished then the youth will  
20 do the recommendation in English. We're not open to any  
21 questions, mainly because any technical information that  
22 may have flown from industry or some -- any of the  
23 organizations that were involved, we did not have people to  
24 review them because of our funding and the high cost to hire  
25 professional people.

---

14

1 We also went through a process within this  
2 Hearing preparation time where we lost three (3) CEO's in the  
3 department that was responsible for -- for this work.

4 And so, Lutsel K'e, within the last week,  
5 has -- has done a very rush job in preparing this. You will  
6 notice that some of the overheads may not correspond to what  
7 has been -- been said because we didn't prep them -- we  
8 prepped them as much as we could, but this is the best that  
9 we could do.

10 I see, so I will now introduce Elder Eliza  
11 Enzoe, Albert Boucher, youth Pat Catholique, and Frank Basil.

12 MR. ALBERT BOUCHER: Thank you. My name is  
13 Albert from Lutsel K'e. I'm going to talk my language now.

14  
15 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

16  
17 We're living in Lutsel K'e, and there's a lot  
18 of mining development around our community. So, we have a  
19 lot of concerns in regards to our land and our wildlife.  
20 So, that's what we're going to be talking about.

21 There's a lot of mining companies, industries,

22 that's coming onto our land, so that's what we're talk --  
23 that's what I'm going to be talking about.  
24 The first thing that I'll be talking about,  
25 why we want our -- why we want our land to be taken care of.

---

15

1 We used to hunt and trap, and our grandparents used to hunt  
2 and trap around that area where the mining's are developing.

3 So we don't want any damages done to our land  
4 and our wildlife and our water. And especially for the  
5 animals that are living out in the Tundra and also on the  
6 Eskers who -- we have to watch out for the animal dens.

7 In the -- in the -- we used to go out trapping  
8 and whenever we go out trapping out into the barren lands, we  
9 go out to the Eskers because we know what -- that's where all  
10 the animals are. So we used to go out there to get our money  
11 so that's how we feed our children.

12 So we know when those animals, those martens  
13 and white foxes, we know when they migrate and when their  
14 plentiful for us to go trapping, so that's when we go over  
15 there, so this is why we want them to watch the wildlife out  
16 there and have respect and monitor the wildlife.

17 And we know when there's going to be an  
18 airport built, especially on the Eskers, over there, because  
19 it's sort of flat land. And if they're going to be doing  
20 some -- any development on the Eskers, they're going to have  
21 to look out for the dens for small animals, fur bearing  
22 animals.

23 And if there are going to be any damages done  
24 to any dens on whatever Eskers they're going to be developing  
25 on, they're going to have to compensate, they're going to

---

16

1 have to do something.

2                   And also, they're also going to be using all  
3 kinds of -- they're going to be using gravel, I know, to make  
4 the roads from the Eskers, they'll be using the gravels in  
5 the Eskers. So those things, they're going to have to watch.

6                   I know, in the future, we're going to have a  
7 lot -- lots of other mining companies will be coming onto our  
8 land. So we have to do something now, we have to put some  
9 kind of recommendation or have to say something that -- that  
10 we won't have so many impacts of the mining companies for the  
11 future of our children.

12                  This land is very important to us, we live off  
13 it, we eat off it, and also the water is very important. So  
14 we want -- we wanted to -- we wanted the mining  
15 development -- mining people, to watch out for the  
16 environment, monitoring, and also to monitor the caribou, the  
17 movement.

18                  And also the vegetation around that mine  
19 footprint because the animals have their own food which they  
20 eat, lichen -- caribou -- especially caribou, lichen, shrubs.  
21 They eat that so we want -- we want those food -- won't be  
22 contaminated.

23  
24                   (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)  
25

17

1                   MS. ELIZA ENZOE: Good morning. We're here  
2 again this morning. I sat here in the meeting all day  
3 yesterday and today and I've been listening what's being  
4 said.

5                   If we're going to be working or developing  
6 something on the land, there's a lot of things that is  
7 destroyed, even little things. And if we're working on  
8 developing on the land, that's right in their home community.  
9 We live off that land, we feed ourselves off that land.

10                  I never heard -- I never heard anybody said  
11 anything about my great -- how my great grandparents had  
12 lived and my grandmother had lived a long time ago. They  
13 used to get medicine off that land, we used to -- every time

14 we get sick, we use all kinds of medicine off the land to  
15 cure ourselves. And we also pay the land.

16 So the Aboriginal people have survived off  
17 that land using the land as their medicine and their food and  
18 also the rocks, we use that rocks too. It's -- right now,  
19 the rocks out in the Barren Lands are very important to us  
20 because it's, sort of, like medicine for us. And now you  
21 guys are drilling all that -- our land and destroying our  
22 medicine.

23 And if you're going to develop on somebody's  
24 land, you have to consult with the people who -- who it  
25 belongs to and you don't go over the people and, you know,

---

18

1 just go on the land and do anything but you have to do  
2 consulting first before you do anything on the land.

3 And the Aboriginal people don't do that. We  
4 have a boundary, as you know, and anything that's in that  
5 boundary belongs to us. And where the Parry Falls is, where  
6 that -- the Parry Falls is, that's very sacred to us.

7 And we also have to watch for the flooding and  
8 if there's a lot of flooding we're going to lose a lot of  
9 berries, like, especially that we have all kinds of berries,  
10 blueberries, cranberries, and northberries are our fruits.  
11 And so that's like destroying our fruits from us.

12 And also those dry shrubs too -- those dry old  
13 bushes, those are food and we -- when we go out into the  
14 Barren Lands we use those dry twigs to make a fire. And here  
15 you can see all kinds of artifacts that are found around that  
16 area where people used to live.

17 So even by that evidence that we lived on  
18 there, I've been there myself and I've seen those evidence.  
19 I used to live out there too. And where that -- where the --  
20 Snap Lake where they're going to develop that mine, I was at  
21 that site too. I looked at that land -- that land very good.  
22 I seen how beautiful it was and now I'm thinking about it.

23 How our ancestors and my grandparents used to  
24 live around that area. And how long we've been living --  
25 thousands of years we've been living here. Aboriginal people

1 have been living out on the land. We never destroyed our  
2 land. Look how beautiful it looks out today.

3 And all the vegetation that grows out and  
4 inland -- if there is a minerals or there's rocks or anything  
5 that's good it seems like you guys are taking it all from --  
6 all out of -- just to make mining, but us, we don't do that  
7 to our land. We don't tear our land to make money.

8 I just heard the woman talking, Kris, about  
9 how they have no TK knowledge into the -- within there for  
10 the traditional people of the land and this is the way the  
11 mining industry has been doing to us since time memorial.  
12 There was a lot of mining in our area which we didn't know  
13 about.

14 MR. PAT CATHOLIQUE: Recommendations  
15 regarding mining. De Beers Canada Ltd. has said that their  
16 project will have an insignificant impact on the land and  
17 vegetation in the Na Yaghe Kue region. However, we do not  
18 feel that these predictions can be guaranteed.

19 We, therefore, recommend that ongoing  
20 monitoring based on traditional ecological knowledge of  
21 the -- of the project and its effect on the land and  
22 vegetation be carried out. Monitoring should focus on key  
23 landscapes.

24 Thank you.  
25

1  
2 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)  
3

4 MR. FRANK BASIL: This meeting, I would like  
5 our land monitored by also including the Dettah people,  
6 because we know a lot about the land, and we know what goes

7 on on our land, and how the animals feed on some certain  
8 area, what kind of foods, like berries, moss, lichen, and  
9 there's all kinds of different -- different berries.

10 So we have to protect our land, because it's  
11 our livelihood. The Dettah people have lived off the land,  
12 and have lived a very good life. It had settled our  
13 forefathers, and also we're getting our food source, and our  
14 berries all from the land.

15 This is why I -- I would -- I'd like to thank  
16 the people that are Intervenors into this, but we need Te K'e  
17 knowledge, and they're also included. Thank you.

18  
19 (BRIEF PAUSE)

20  
21 MS. FLORENCE CATHOLIQUE: This was not  
22 translated, that I thought would be worth mentioning, was  
23 Liza had suggested that a lot of the medicinal plants and --  
24 and berries that are being destroyed the -- she recommended  
25 that some kind of fund be established that would take care of

---

21

1 that loss, that would -- that would have in -- in the sense  
2 of a medicinal fund.

3 That wasn't translated.

4 THE CHAIRPERSON: Okay. Thank you very much.

5  
6 (BRIEF PAUSE)

7  
8 THE CHAIRPERSON: Thank you. Given the --  
9 given the problems that Lutsel K'e have had with changeover  
10 in staff, I'll waive the -- the questions, but if there are,  
11 sort of, a follow-up, Ms. Catholique, perhaps if people could  
12 approach you in writing, or later on, if they need a  
13 clarification.

14 Okay. That was the only notice we had of --  
15 of presentations for air, waste, abandonment and reclamation,  
16 and then we're scheduled to take a coffee break. However,  
17 our -- Mr. McConnell, are you ready to make your presentation  
18 on hydrogeology?

19 MR. JOHN McCONNELL: I just have to move a  
 20 few seats around here, but yes, we're ready to go.  
 21 THE CHAIRPERSON: Okay, well, perhaps what  
 22 we'll do is we'll do the opening presentation by De Beers,  
 23 and hydrogeology, and -- oh, I'm sorry. Mr. -- go on.  
 24 MR. KEVIN O'REILLY: Thank you, Mr. -- Mr.  
 25 Wray. I'm wondering, is it possible to ask a question of one

22

1 (1) of the other parties on an air issue, even if they  
 2 haven't made a presentation? Where's is the -- is there an  
 3 opportunity to do that?  
 4 THE CHAIRPERSON: Which party would you like  
 5 to ask a question of?  
 6 MR. KEVIN O'REILLY: I'd like to ask a  
 7 questions of whoever's representing the Federal Government,  
 8 and the Territorial Government.  
 9 THE CHAIRPERSON: Do --  
 10 MR. KEVIN O'REILLY: If you -- if -- if --  
 11 may I -- may I just let you know what the question is about,  
 12 and then you can decide whether it's appropriate or not?  
 13 THE CHAIRPERSON: Yes, it's just that I  
 14 may -- they may not -- if -- they may not have somebody that  
 15 can answer the question is part of the problem, but you --  
 16 let's hear your question, and then we'll give them the option  
 17 of whether they choose to answer it or not, okay?  
 18 MR. KEVIN O'REILLY: Thank you, and I  
 19 appreciate your patience here. During the course of this  
 20 environmental assessment, the Federal Government has ratified  
 21 the Kyoto protocol, and I'd like to know if there was any  
 22 effort, or how this project was evaluated with regard to  
 23 Canada's commitments on the Kyoto protocol, if indeed, that --  
 24 -- that evaluation took place, and how it was done.  
 25 And I guess I'd like to know from the Federal

23

1 Government and the Territorial Government if that kind of  
2 evaluation was done. Thank you.

3 THE CHAIRPERSON: Perhaps I'll start with Mr.  
4 Livingstone. Have you got somebody that can answer that  
5 here?

6 MR. DAVID LIVINGSTONE: Yeah. David  
7 Livingstone, DIAND. I'll do my best to answer it.

8 The -- the answer is fairly simple. We didn't  
9 look at the -- the implications of the Kyoto protocol as it  
10 applies to this project.

11 Having said that though, I note the -- the  
12 interest expressed by the GNWT, and some other parties, about  
13 using hydro-electric power to substitute for some diesel.

14 THE CHAIRPERSON: Thank you. GNWT, can you  
15 answer?

16 MR. GAVIN MORE: Gavin More, GNWT.  
17 Unfortunately our -- our climate change specialist isn't here  
18 this morning, but in a nutshell, we are -- we didn't really  
19 know and fully understand the implications of the Kyoto  
20 Accord as it was coming along in relation to this project.

21 As you can tell though, we certainly are  
22 interested in -- in making sure that we try to meet some of  
23 the commitments, and that's one of the reasons why we're  
24 trying to introduce some of the ideas related to alternative  
25 energy.

---

24

1 So, -- but we certainly haven't evaluated the  
2 project in -- in the sense of having done a comparison -- we  
3 haven't done, and that's partly because of a lack of  
4 information, to some extent, on the Kyoto and what it's going  
5 to mean to us over time.

6 THE CHAIRPERSON: Thank you, sir. Okay then,  
7 we'll just take a minute, and if you ready to go, Mr.  
8 McConnell, and then we'll take a coffee break after the De  
9 Beers presentation.

10 I take it you are going to be using the  
11 screen.

12 MR. MARK DAHL: Mr. Wray, Environment Canada,  
13 sorry.

14 THE CHAIRPERSON: I'm sorry.

15 MR. MARK DAHL: Air issues is one of the  
16 things that we were looking at, and no, we did not look into  
17 the Kyoto Accord.

18 We, as was stated by GNWT, we didn't really  
19 know its impacts on this project.

20 THE CHAIRPERSON: Thank you. I'm sorry, sir,  
21 I should have remembered Environment Canada relies on the air  
22 specialists for the tests. Sorry.

23 MR. MARK DAHL: Mark Dahl, for Environment  
24 Canada.

25

25

1 (BRIEF PAUSE)

2  
3 THE CHAIRPERSON: Okay. Are we ready to go?

4  
5 (BRIEF PAUSE)

6  
7 THE CHAIRPERSON: Okay, if we can -- if we're  
8 ready to proceed? Mr. Johnstone?

9 MR. ROBIN JOHNSTONE: Mr. Chairman and  
10 Members of the Board, I'd like to introduce Ken DeVos to you.  
11 Ken is a Hydrogeochemist with Golder Associates, and he'll be  
12 providing this presentation. Over to you, Ken.

13 MR. KEN DeVos: Thank you, Robin. Mr.  
14 Chairman, Members of the Board, my presentation today will  
15 address the hydrogeology of the Snap Lake Diamond Project, in  
16 particular, the hydrogeology of the mine.

17 Simply put, hydrogeology is the term used to  
18 describe the behaviour of water beneath the ground. This  
19 also includes aspects of geochemistry, which is the study or  
20 science of the chemistry of the Earth.

21 I'm a hydrogeochemist with Golder Associates.  
22 My area of specialization is the science of groundwater flow  
23 and chemistry. In particular, I specialize in groundwater

24 flow and chemistry related to mining.

25 If we look at the hydrogeology issues raised,

---

26

1 the Board Consultants indicated that there were seventy-five  
2 (75) issues in total, many of which overlap.

3 The common issues were grouped together to  
4 come up with twenty-one (21) hydrogeology issues listed in  
5 the Issue Summary and most of these twenty-one (21) issues  
6 are considered either resolved or are no longer issues. The  
7 remaining issues were grouped by the Board Consultants into  
8 two (2) generic issues.

9 These two (2) key hydrogeology issues are  
10 prediction of discharge quantity, or how much water; and  
11 prediction of mine water discharge quality, or what kind of  
12 water. For some Intervenor, these two (2) issues have been  
13 resolved.

14 The prediction of mine water quality and  
15 quantity has progressed through several steps or stages. The  
16 first step, being collection of site specific data, followed  
17 by mine water predictions for the environmental assessment.

18 The predictions were developed using standard  
19 hydrogeology and geochemistry principles and modelling, as  
20 will be discussed a little bit later in the presentation.

21 Following submission of the EA, there were  
22 several rounds of Information Requests and Responses, where  
23 additional information was -- related to several specific  
24 hydrogeology issues was provided.

25 Following this, again, were the technical

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27

1 sessions and specific technical sessions on hydrogeology.  
2 These technical sessions were followed by a conference call  
3 with the Intervenor in which very specific aspects of the

4 water quality modelling were discussed, in which a range of  
5 variability runs was suggested by the Intervenor.

6 In a variability run, one (1) or more of the  
7 model inputs are adjusted to investigate the possible  
8 resulting changes in the system. In this case, the water  
9 quality. The comments from the Intervenor were incorporated  
10 and discussed in technical memorandum in March, and from  
11 which follow up Intervenor technical reports were received.

12 So some of the operational conditions that are  
13 important in understanding the key hydrogeology issues  
14 include the expected distribution and flow and the chemical  
15 mass loading.

16 Chemical mass flow, it is also called mass  
17 load, or load, and it is simply the amount of a given  
18 chemical, for instance, salt, calcium, sodium, et cetera.  
19 For example, if you put one (1) teaspoon full of sugar in  
20 your coffee, you can't see that sugar any more but the sugar  
21 still weighs the same. It's just dissolved in your coffee.

22 So the chemical load of sugar in your coffee  
23 would be the weight or mass of one (1) teaspoonful of sugar.  
24 If you put that same teaspoonful in a smaller cup of coffee  
25 the mass load is the same but the concentration of sugar is

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1 greater.

2 If you put it in a larger cup of coffee,  
3 again, the chemical load is the same but the concentration is  
4 less. So if we look at a rough distribution of flow and  
5 chemical load on-site, mine water represents more than  
6 95 percent of the total amount of water going through the  
7 treatment plant and represents more than 90 percent of the  
8 chemical mass going through treatment.

9 Other important site conditions include the  
10 location of the mine, which is below the lake, and the depth  
11 of the mine, which is shallow. This diagram provides an  
12 indication of the distribution of water flowing from Snap  
13 Lake site to the water treatment plant and then discharged  
14 from Snap Lake.

15 As indicated in the previous slide, most of

16 the water and mass load comes from the mine, here, with only  
17 a small amount coming from run-off in the North Pile, less  
18 than 10 percent.

19 This slide shows a plan view of the mine area.  
20 The mine is shallow. The average depth of the mine that will  
21 contribute to flow, weighted by area, is calculated at  
22 208 metres. That means that half of the area of the mine is  
23 above 208 metres and half is below 208 metres.

24 The maximum depth of the mine is about  
25 420 metres. Given that 70 percent of the area contributing

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29

1 to the mine inflow is located beneath Snap Lake, the lake  
2 will be the main influence on water quantity and water  
3 quality.

4 Now, that we have some background on the mine,  
5 we can look at where the mine water evaluation fits in with  
6 the overall assessment process. The discussion today falls  
7 at the start of the assessment process since mine water is an  
8 input to the waste stream.

9 Now, let's step back and consider the two (2)  
10 key issues, water quantity, how much; and water quality, what  
11 kind of water. How did we answer these questions?

12 We followed a systematic approach by first  
13 identifying the conditions currently on site, determining  
14 what could result in changes to water quality and quantity  
15 and determining -- then determining what the possible changes  
16 to the quantity and quality might be under different site  
17 conditions.

18 We will now focus on what the probably changes  
19 to the discharge conditions might be under different  
20 assumptions that reflect both what was observed on site and  
21 what could reasonably and realistically be expected based on  
22 similar Canadian Shield ground water conditions.

23 This figure illustrates the baseline flow  
24 conditions and shows the elevation of Snap Lake, here, in  
25 relation to the surrounding lakes. In looking at this

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1 diagram, ground water flows from a large lake with the water  
2 level at higher elevation to lakes with water levels at lower  
3 elevation.

4 Snap Lake is at an elevation of about  
5 444 metres. North Lake is 439 metres and the Northeast Lake  
6 is about 433 metres. Snap Lake is a headwater lake. All of  
7 the other large lakes all around Snap Lake have lower water  
8 level elevations, therefore, flow is radially away from Snap  
9 Lake so all the water flows away from Snap Lake during pre-  
10 development and post-closure.

11 The mine is located here in the northeast  
12 portion of the Lake. Ground water modelling indicates that  
13 the water from this area will flow to the north, in the  
14 direction of the Northeast Lake.

15 This schematic cross-section represents the  
16 vertical slice through the lake, and illustrates the baseline  
17 flow directions from Snap Lake, with water flowing downward  
18 and outward, away from Snap Lake.

19 The direction of flow was determined from  
20 boreholes installed below Snap Lake, and it was found to be  
21 downward, which confirms that Snap Lake supplies, or  
22 recharges the flow system.

23 This is also indicated by the regional lake  
24 water levels observed. The boreholes close to, or under Snap  
25 Lake will be most representative of pre-mining groundwater.

1 When mining under a lake, much of the water  
2 comes directly down from the lake through small fractures in  
3 the rock to the mine, but that smaller amount of water is  
4 expected to come from the existing groundwater.

5 During mining, groundwater entering the mine  
6 will be pumped from the mine to the treatment plant, then  
7 discharged back to Snap Lake.

8 To determine how much water will enter the

9 mine, where it will enter the mine, and where it came from,  
10 we used measured data on flow and rock properties. Then we  
11 applied standard hydrogeology principles to develop a  
12 numerical model of the system.

13 The numerical model is the conversion of the  
14 scientific understanding of how a system behaves, in this  
15 case we're looking at groundwater flow, into mathematical  
16 equations that can be used to estimate and predict values.

17 We then use the model to evaluate assumptions,  
18 and uncertainties about the system, and determine a possible  
19 range of behaviour, or a range of inflow.

20 The final step in the process is a critical  
21 evaluation of the model results, assumptions, and  
22 uncertainties, in order to select the most appropriate values  
23 for use in follow-up work.

24 This process gives us the expected inflow  
25 values, along with the possible range of values. In the case

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1 of the Snap Lake Mine, we expect the inflow to increase to  
2 relatively steady inflow value of about twenty-four thousand  
3 (24,000) metres cubed per day, after year ten (10) of  
4 operation.

5 Under expected conditions, the primary input  
6 will originate from the lake, with 70 percent of the water,  
7 with a smaller amount originating from the original pre-  
8 mining groundwater, about 30 percent.

9 The variability ranges from a low value of  
10 sixteen thousand (16,000) metres cubed per day, to a high  
11 value of thirty-two thousand (32,000) metres cubed per day,  
12 and this is the plus or minus one (1) standard deviation  
13 range.

14 Note that values above twenty-four thousand  
15 (24,000) metres cubed per day would primary orig -- originate  
16 from the lake. The expected value, or twenty-four thousand  
17 (24,000) metres cubed per day, was used in the prediction of  
18 mine water quality as it re -- represents a conservative case  
19 for use in water quality prediction.

20 The higher inflow values would essentially

21 dilute the pre-mining groundwater, as these values, again,  
22 are expected to originate from the lake.  
23 Higher values will, however, be used for  
24 sizing of equipment and pumps to add an extra margin of  
25 safety.

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33

1 This slide presents a summary and conclusions  
2 related to water quantity. Do we have enough information?  
3 The answer is, yes.

4 The data is better than is usually available  
5 at this stage of a project, because it was from the  
6 underground workings during advance exploration.

7 So, data -- so it was collected under  
8 conditions representative of mine development, and not just  
9 from a few boreholes or pin-pricks on surface.

10 The data was used to investigate a range of  
11 inflow conditions and select the most appropriate values to  
12 carry forward in the assessment. Monitoring of the inflows  
13 during the advanced exploration project confirmed the model  
14 predictions.

15 Are we certain? The answer again is yes.  
16 Based on the available data and the evaluation completed, we  
17 are confident that the water quantity values used for  
18 assessment of chemical loading in the EA, and sizing of the  
19 water management systems. We are confident in these values.

20 During development and operations inflows will  
21 be monitored, and a model will be refined to reduce the  
22 current range of variability. Mitigation is available, if  
23 required. And this issue has been resolved with many of the  
24 Intervenor.

25 Now, we will -- we will discuss the water

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34

1 quality. What is the real issue? The real issue is the  
2 water quality in Snap Lake.

3 Primarily, we were talking about the total  
4 dissolved solids, or TDS, where TDS is the sum of all the  
5 dissolved chemicals in the water. The important components  
6 of this are chloride, sodium, and potassium; so really, the  
7 salts.

8 It's important to note here that the chemical  
9 mass load to Snap Lake determines the overall water quality  
10 in Snap Lake. So, how many teaspoons of sugar are you  
11 putting in your coffee, really?

12 What we will focus on -- we will focus on the  
13 mine water, since this makes up most of the load to Snap  
14 Lake.

15 If we look at what will effect the overall  
16 chemical load and concentration of the mine discharge, the  
17 key factors are; the water quantity estimates, and what  
18 proportion of lake water versus pre-mining ground water will  
19 report to the mine, as was previously discussed.

20 And, second factor is the concentration of the  
21 connate water. For the purposed of our discussion we will  
22 call the pre-mining groundwater, connate water. The connate  
23 water values are based on measured site specific data, and  
24 follow up assessment also included adjusting the values to  
25 reflect behavior of similar systems.

1 The potential factors that influence the mine  
2 water quality include; processed kimberlite placed  
3 underground as backfill, explosive residues, grout  
4 residues -- underground grout residues, sorry.

5 So, grout, being the cement that is used to  
6 seal the fractures and limit mine water inflow. So, an  
7 analogy to this would be the grout used in the tiles in your  
8 showers.

9 Of note is that variability of these other  
10 values and these other factors is minor compared to the lake  
11 water and the connate water.

12 This figure illustrates how the pre-mining

13 groundwater concentrations were determined. In the mine  
14 openings of the advanced exploration project, the drill holes  
15 were advanced into the bedrock and the fractures in the  
16 bedrock.

17               Some drill holes were angled sideways,  
18 upwards, or downwards, along the dip of the mine, so, along  
19 the slope of the mine.

20               Each sample, from each of the boreholes,  
21 represents a discrete interval that was tested. A total of  
22 thirty one (31) samples were collected and analyzed.

23               Boreholes were sampled within days of  
24 advancement of the drill hole, using standard development and  
25 sampling procedures.

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1               Calculations of travel times between the lake  
2 and the boreholes indicate that it would take six (6) to  
3 eight (8) weeks for lake water to enter the boreholes.

4               So, we're confident that the samples collected  
5 represent the pre-mining groundwater that is not influenced  
6 by the lake water. These are reliable and representative  
7 data.

8               An assessment of the data show that the depth  
9 from surface, and the distance along the test hole, did not  
10 have much influence on the observed values.

11               Based on the data assessment, and an  
12 assessment of the possible factors that could influence  
13 measured values, we are confident that the values measured  
14 are representative of the pre-mining groundwater.

15               The data collected from the Advanced  
16 Exploration Program were used in conjunction with current  
17 scientific understanding of flow and chemistry in crystalline  
18 rocks, or Canadian Shield environments. The current  
19 scientific understanding of flow and chemistry in crystalline  
20 rock environments is summarized in this figure.

21               Very high TDS values for dissolved  
22 concentrations occur at depth in the bedrock. These  
23 concentrations typically occur in very low flow, very low  
24 storage environments. That is, there's not much of it

25 available and it doesn't move very fast.

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1 Migration or movement of TDS from these deep  
2 environments occurs by diffusion, which is the very slow  
3 process of movement from zones of high concentrations to  
4 zones of low concentrations.

5 The upper bedrock is characterized by higher  
6 flow conditions. In re-charge environments, the very slow  
7 upward diffusion of TDS is overwhelmed by the downward flow  
8 of surface water. As a result, the upper bedrock, typically  
9 above five hundred (500) metres, is characterized by variable  
10 TDS concentrations influenced by surface water flow.

11 Specific to Snap Lake, the average mine depth  
12 is about two hundred and eight (208) metres with a maximum  
13 expected depth of about four hundred and twenty (420) metres,  
14 and a measured downward flow direction. This is a shallow  
15 mine located in the upper -- lower TDS portion of the  
16 bedrock.

17 As discussed on the previous slide,  
18 concentration increases with depth. However, the ability for  
19 water to flow, or the hydraulic conductivity, decreases with  
20 depth. This slide shows the range of data observed in the  
21 Canadian Shield for concentration, the graph on the right,  
22 and for flow, the graph on the left, for hydraulic  
23 conductivity.

24 If we look first at the graph on the left.  
25 Let me clarify, the concentrations are actually on the left

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38

1 and the connate water flow conditions are on the right.

2 If we look first at the graph on the left, the  
3 TDS concentration is shown across the top axis, here and the  
4 depth is shown along the side, here.

5                   The Snap Lake concentration profile used is  
6 overlaying on the range of Canadian Shield data. So here's  
7 the Snap Lake and this green shaded area is the range of  
8 Canadian Shield data.

9                   As can be seen, the profile used for Snap Lake  
10 falls between the lower and upper boundary of these  
11 measurements. And in fact, the low TDS range, so this area  
12 of the graph, includes most of the data measured in Canadian  
13 Shield environments at these depths -- at these depth ranges.

14                  I should also point out, here, that the  
15 concentrations observed at Diavik are not included in the  
16 range provided. The measured Diavik concentrations are lower  
17 than this range and are represented by the pink line, here, to  
18 the left of the range.

19                  Now, since the mine plan calls for mine panels  
20 to be open in the upper zones of the mine, at the same time  
21 as the lower zones of the mine, the concentration at the  
22 average depth of the mine, or at two hundred and eight (208)  
23 metres, was used in the assessment -- or, sorry, in the  
24 follow up assessment that was completed, based on the  
25 Intervenor comments.

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1                   If we shift our attention to the graph on the  
2 right, shown here is the typical hydraulic conductivity  
3 profile for Canadian Shield rocks, in the blue.

4                   The projected profile used to calculate mine  
5 water inflow at depth at Snap Lake is higher than those used  
6 -- those of the Canadian Shield rocks.

7                   Depending on site specific conditions, the  
8 ability of these Canadian Shield ground waters to flow is  
9 about 50 to 1,000 times lower than the values assumed for  
10 connate water inflow at Snap Lake.

11                  So we assume that there would be more connate  
12 water flowing into the mine than the data from other  
13 locations would suggest is possible. So mass load of the  
14 connate water to the mine is calculated as the flow times the  
15 concentration. However, as just discussed, in the Canadian  
16 shield flow decreases with depth and concentration increases

17 with depth.

18                   This diagram conceptually illustrates these  
19 relationships between concentration flow and loading. Since  
20 high concentrations are associated with low flows, the  
21 resulting load from a high concentration low flow water will  
22 be the same or lower than that of a low concentration, high  
23 flow water.

24                   So, from what we know about these systems, if  
25 the concentration were to increase, the flow would decrease

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1 and the load would stay about the same or decrease. You will  
2 recall the load is the factor that influences the Snap Lake  
3 water quality.

4                   In this slide, we compare the potential  
5 loading from connate water that would result on the Snap Lake  
6 system under different Canadian Shield concentrations and  
7 inflow conditions.

8                   If we used the highest value in the TDS range  
9 that was presented a few slides back, so that's five thousand  
10 (5,000) milligrams per litre at four hundred and twenty (420)  
11 metres depth and if we used the hydraulic conductivities or  
12 low flow conditions that are typical of Canadian Shield  
13 environments where these high values would form, then,  
14 keeping all other things equal, the low flow conditions  
15 result in significantly lower loading, one-half to one-  
16 twentieth than those calculated using the higher flows and  
17 more reasonable concentrations that were used in the  
18 environmental assessment.

19                   Since we have applied reasonable  
20 concentrations and a very high inflow rate relative to other  
21 sites in the Canadian shield, our calculated load is  
22 conservative. That means that the actual load that will  
23 likely -- that the actual load will likely be less than that  
24 used in the environmental assessment.

25                   Let's focus a bit more on what was done for

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1 the EA and the follow up to the EA. Mine water quality  
2 predictions for the EA were developed using standard  
3 hydrogeology and geochemistry principles and modelling.

4 Following these standard principles, a model  
5 was developed to calculate the quality of water that would  
6 report from the mine and from the discharge to Snap Lake.

7 Water quality values were predicted using the  
8 available water quality information from the advanced  
9 exploration project, adjusted where required, the results of  
10 the water quantity numerical flow model, baseline  
11 geochemistry information and the various surface site water  
12 flows and the various water quality inputs.

13 All of these factors were assessed in the  
14 water quality model. The geochemistry of the water was also  
15 assessed to determine limitations on chemical concentrations  
16 or solubility limits.

17 The model was used to estimate the mine water  
18 quality, mix the mine water with other site waters, account  
19 for treatment and estimate discharge water quality.

20 As in the water quantity estimates, the final  
21 step was to critically evaluate the results of the  
22 uncertainty analysis, and select realistic conservative  
23 values.

24 This critical evaluation involved selecting a  
25 conservative combination of flow and concentration to develop

1 the loading from connate water and site.

2 The results of the assessment are provided  
3 here. The assessed case, and what was used in the  
4 environmental assessment, is conservative relative to what we  
5 expect. And when the connate water concentrations are  
6 adjusted for depth, as was suggested by the Intervenor, the  
7 depth adjusted loading is consistent with the loading that  
8 was used in the environmental assessment.

9 These values were developed using reasonable

10 concentrations, and high inflow rates for connate water,  
11 relative to what we would expect in Canadian Shield settings,  
12 thus, all of the loadings presented in this slide are  
13 considered conservative.

14               Looking briefly at monitoring and mitigation.  
15 Water quality from the mine discharge and in the mine will be  
16 monitored. The water quality models will be maintained by De  
17 Beers and will be updated on an on-going basis. And grouting  
18 of inflows during the normal course of operations will reduce  
19 the mass flow to the mine. Grouting is also an available  
20 mitigation option.

21               So, this slide presents a summary, and  
22 conclusions related to water quality. Do we have enough  
23 information? The answer is yes.

24               The number of samples collected are comparable  
25 to what was collected at other locations, notably Diavik,

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1 samples are representative of pre-mining groundwater  
2 conditions.

3               They were collected in advance of the ramps  
4 and drifts, and were taken before the lake water could  
5 influence the result. The data is better than is usually  
6 available at this stage of a project.

7               Are we certain? Yes. We have used  
8 reasonable, conservative concentrations that reflect  
9 observations on-site. We have re-evaluated the assessment,  
10 adjusting for an average depth of mine, and this confirmed  
11 that the values used in the assessment are reasonable.

12               Based on the current understanding of  
13 concentration and flow in Canadian Shield environments, we  
14 are over-predicting the inflow from the connate water  
15 fracture.

16               Accounting for the high inflow rates currently  
17 applied for connate water inflows, we consider the total  
18 loading from connate water to be over-estimated.

19               During development and operations, inflows  
20 will be monitored, and the model will be refined to reduce  
21 the current range of variability, and mitigation is available

22 if required. This issue has been resolved with some of the  
23 Intervenors.

24 To summarize, the steps taken to address the  
25 two (2) key issues were to identify site conditions, and to

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1 focus on connate waters, since it has the highest potential  
2 variability.

3 We used both flow and quality data measured  
4 from the advanced exploration program and applicable baseline  
5 information for site condition identification.

6 Where it was necessary to extrapolate, based  
7 on the measured data, we must respect the scientific  
8 communities' best understanding of the issue.

9 For connate water, the high TDS water  
10 typically occurs in deep, low flow environments, shallow  
11 groundwater less than five hundred (500) metres, and recharge  
12 environments have variable to low concentrations, and data  
13 from Diavik, a similar shallow mine in a recharge  
14 environment, shows concentrations in the range of, or lower  
15 than, that those used for the Snap Lake Mine inflows.

16 We also know from the literature, that  
17 diffusion is the dominant control -- or the main control on  
18 deep saline -- or deep groundwater movement.

19 Having both high flow, and high chloride  
20 concentrations, or high TDS concentrations in a recharge  
21 environment, is contradictory. You can't have it both ways.

22 If the flow is high, then the water quality  
23 will reflect low concentrations of TDS, since most of the  
24 groundwater will come from the lake. Most of the water from  
25 the mine will come from the lake.

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45

1 If the concentrations are high, then the

2 amount and the ability of the water to flow is very limited  
3 since the water with the high TDS values typically originates  
4 in deep, stagnant groundwater, and diffuses upwards, where  
5 again, diffusion is this very slow process of migration, from  
6 high concentrations to low concentrations.

7               Since Snap Lake is recharging the flow system,  
8 and has a measured downward gradient, so water is flowing  
9 downward from the lake, we must conclude that the near  
10 surface, or less than five hundred (500) meter depth, will  
11 have low TDS values, similar to that expected at other sites  
12 where water is recharging the flow system.

13              So moving on with our summary. Possible  
14 changes to the system were investigated based on input from  
15 the Intervenor at several stages in the process.

16              The results of the variability runs that use  
17 the Intervenor input was then evaluated. Based on our review  
18 of the variability analyses, measured values at Snap Lake,  
19 and what is known about similar environments, we consider  
20 that the concentrations and the loadings used at -- in the EA  
21 are applicable and appropriate.

22              Further, we consider the total loading to Snap  
23 Lake to be very conservative. This is based on the reasons  
24 stated above, and in the presentation, and based on  
25 comparisons of Snap Lake site -- of the Snap Lake site with

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1 other Canadian Shield sites and data.

2              In conclusion, the data collected in  
3 evaluations -- the data collection and evaluation was  
4 completed at a level than is more than appropriate for an EA  
5 level assessment.

6              Considering all of the factors discussed in  
7 this presentation, using all the available data, reasonable  
8 assumptions, a robust model or a solid model, and standard  
9 variability analysis, it is highly unlikely that mine water  
10 inflow values will be higher than those used to size the  
11 water management equipment, from a water quantity  
12 perspective.

13              And is highly unlikely that the chemical mass

14 loading values, or impact to Snap Lake, will be higher than  
15 those used in the Environmental Assessment Impact Analysis.

16 Because we have use conservative, but  
17 realistic, values it is likely that the actual chemical  
18 loading will be lower -- the values used for this will be  
19 lower than those used in the Environmental Assessment.

20 Thank you for your time.

21 THE CHAIRPERSON: Thank you very much, Mr.  
22 DeVos. We will now adjourn for a ten (10), or fifteen (15)  
23 minute coffee break.

24 Thank you.

25

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1 --- Upon recessing at 10:23 a.m.

2 --- Upon resuming at 10:55 a.m.

3

4 THE CHAIRPERSON: Thank you, ladies and  
5 gentlemen. I apologise for that delay, however, there are a  
6 couple of issues that the -- the Board will have to deal  
7 with, and I will deal with those by way of a statement that I  
8 shall make after lunch.

9 Continuing on, we now open to questions of the  
10 proponent. And I will follow the -- the order that we've  
11 been following. Yellowknives Dene First Nation, do you have  
12 questions of the proponent? Mr. Byers...?

13 MR. TIM BYERS: Thank you, Mr. Chair. Just a  
14 point of clarification, for myself. You state, Mr. DeVos,  
15 that the -- in the test boreholes, the water takes six (6) to  
16 eight (8) weeks to reach the -- the underground workings. Is  
17 that right?

18 THE CHAIRPERSON: Mr. DeVos...?

19

20 (BRIEF PAUSE)

21

22 MR. DON CHORLEY: This is Don Chorley, Mr.  
23 Chairman. It takes eight (8) -- six (6) to eight (8) weeks  
24 to get from the lake to the borehole. So the borehole was  
25 sampled in a shorter period of time than that.

1 THE CHAIRPERSON: Mr. Byers...?  
2 MR. TIM BYERS: Thank you for that. Just so  
3 that I'm clear, does that mean that when you start mining and  
4 you punch a new shaft in, does that mean it'll take -- that  
5 shaft will be dry for six (6) to eight (8) weeks? Or is  
6 there already water in the -- in the fractures that will --  
7 will penetrate the -- the new shaft, immediately?  
8 THE CHAIRPERSON: Thank you, Mr. Byers. Mr.  
9 DeVos...?  
10 MR. KEN DeVos: Mr. Chairman, in response to  
11 that, there -- there will be water in the fractures that will  
12 drain into the mine and into the boreholes that we sampled.  
13 And what we're saying is, the water that we sampled is  
14 representative of that original groundwater.  
15 MR. ROBIN JOHNSTONE: If I can add a  
16 clarifying remark to that, Mr. Chairman? So what -- to -- to  
17 rephrase that, we will see water in the mine, but that  
18 initial water, as we open up a newer area of the mine, will  
19 be connate, correct, Ken?  
20 MR. KEN DeVos: Correct.  
21 MR. ROBIN JOHNSTONE: Thank you.  
22 MR. TIM BYERS: That's for that  
23 clarification.  
24 THE CHAIRPERSON: Thank you. Indian and  
25 Northern Affairs Canada? Mr. Bohnet...?

1 MR. SEVN BOHNET: Yes, thank you, Mr.  
2 Chairman. Sevn Bohnet with DIAND. We do have a few  
3 questions and I'll turn the mic over to Ken Raven to address  
4 them.  
5 MR. KEN RAVEN: Mr. Chairman, I have four (4)  
6 questions, possibly some follow ups, depending on the

7 answers. My first question relates to Slide 16, when you're  
8 talking about concentrations of connate groundwater.

9 You said that those concentrations were based  
10 on measured values and that they were then modified based on  
11 behaviour of similar systems. Could you clarify as to what  
12 similar systems you're referring to?

13 THE CHAIRPERSON: Mr. DeVos...?

14  
15 (BRIEF PAUSE)

16  
17 MR. KEN DeVos: Can you please repeat that  
18 question so I'm sure I have -- I have it correct.

19 MR. KEN RAVEN: On Slide 16 you said that  
20 concentrations of connate ground water were based on measured  
21 values and that they were then modified based on behaviour of  
22 similar systems. My question is: What similar systems are  
23 you referring to?

24 MR. KEN DeVos: It's Ken DeVos with Golder  
25 Associates for De Beers.

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1 The measured data were used in the  
2 environmental assessment. The adjustments to that data were  
3 made based on comments of Mr. Raven in follow up to the  
4 Environmental Assessment.

5 And those changes, adjustments were shown  
6 in -- both in the technical memorandum on the mine water  
7 variability assessment and also in slide 19.

8 MR. KEN RAVEN: Ken Raven. I don't know that  
9 that answers the question but I'll -- I'll take the answer.  
10 Thank you. My next question --

11 THE CHAIRPERSON: Well, before we move on, I  
12 don't know that it answers the question either. The question  
13 was:

14 "Based on the presentation follow up  
15 assessment also included adjusting the  
16 values to reflect the behaviour of similar  
17 systems"

18 The question is: What similar systems are we

19 talking about?

20 MR. KEN DeVos: If we can refer to slide 19,  
21 you'll notice that the -- the Snap Lake profile on that slide  
22 is adjusted for increase with depth. That is the adjustment  
23 that I'm referring to in the follow up.

24 And that data is based on data from the  
25 Canadian Shield and from Diavik, that adjustment.

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1 THE CHAIRPERSON: Mr. Raven...?

2 MR. KEN RAVEN: I take it then that the  
3 similar systems are other systems in the Canadian Shield?

4 THE CHAIRPERSON: Thank you. Mr. DeVos...?

5 MR. KEN DeVos: That's correct. We increased  
6 the values to make them more conservative than what was used  
7 in the Environmental Assessment based on data available from  
8 other systems in the Canadian Shield.

9 THE CHAIRPERSON: Thank you. Mr. Raven...?

10 MR. KEN RAVEN: My second question concerns  
11 the slides numbered 19, 20 and 21. The clarification  
12 question is: Could you indicate as -- as to where this  
13 information came from? I don't recall seeing it in the  
14 Environmental Assessment documentation.

15 In particular, slide 21 which has a comparison  
16 of connate water loading for several other sites in the  
17 shield compared to Snap Lake.

18 THE CHAIRPERSON: Thank you. Mr. DeVos...?

19 MR. KEN DeVos: Thank you, Mr. Chairman. That  
20 data is based on the hydraulic connate conductivity values  
21 that were presented on -- in figure 3 of the Snap Lake  
22 Diamond Project mine water assessment and variability  
23 submitted February 28th of 2003.

24 THE CHAIRPERSON: Thank you, sir.  
25 Mr. Raven...?

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52

1 MR. KEN RAVEN: If I could have a follow up.  
2 I'm most concerned, I guess, regarding figure 21. Is that  
3 figure 21 within that report that you've just referenced?

4 THE CHAIRPERSON: Mr. DeVos...?

5  
6 (BRIEF PAUSE)

7  
8 MR. KEN DeVos: The figure on slide 21 is a  
9 re-representation of the data that was presented in the mine  
10 water variability assessment.

11 THE CHAIRPERSON: Mr. Raven...?

12 MR. KEN RAVEN: I would just like to comment  
13 for the Board that we have not seen this sort of presentation  
14 before, and, you know, consider it to be new information.

15 I don't know the extent to which it will  
16 influence my subsequent presentation, but it is -- it is -- I  
17 don't recall seeing this before.

18 THE CHAIRPERSON: Thank you, sir. Your  
19 comments are noted for the record, and I will address  
20 somewhat, that issue after lunch.

21 MR. KEN RAVEN: Mr. Chairman, my third  
22 question concerns the -- the argument that's put forth on  
23 slides 19 and 20, and at other points within the presentation  
24 that says you can't have high concentrations in high flows of  
25 connate water.

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1 My particular question regarding slide 19 is:  
2 I am -- am wondering where the data for the North Lakes  
3 investigation would plot on these two (2) TDS and hydraulic  
4 conductivity plots?

5  
6 (BRIEF PAUSE)

7  
8 THE CHAIRPERSON: Mr. Johnstone...?

9 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
10 Johnstone. Mr. Chairman, I wonder if it would be an  
11 opportunity to provide a clarifying remark on the previous

12 statement regarding new information?  
13 THE CHAIRPERSON: Clarification by who?  
14 Your -- yourself?  
15 MR. ROBIN JOHNSTONE: By myself, correct, or  
16 would you prefer it to wait until after lunch time?  
17 THE CHAIRPERSON: Perhaps we could wait until  
18 after lunch?  
19 MR. ROBIN JOHNSTONE: Okay.  
20 THE CHAIRPERSON: Until I've made my  
21 statement?  
22 MR. ROBIN JOHNSTONE: Okay. Wouldn't want to  
23 ruin lunch either.  
24 Mr. Chairman, we have a handout which provides  
25 a plot with the -- or sorry, an overhead, which provides a

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1 plot, so we can show you exactly where the Snap Lake data  
2 would fall if it would be useful for the Board's  
3 clarification.  
4 MR. KEN RAVEN: Mr. Chairman, just as a  
5 follow-up, my interest is on the North Lakes' data, where it  
6 plots, not the Snap Lake data.  
7 MR. ROBIN JOHNSTONE: It's along the same  
8 graph, Mr. Chairman.  
9 THE CHAIRPERSON: Mr. Raven...?  
10 MR. KEN RAVEN: Can we put it up?  
11 THE CHAIRPERSON: Do you have it on overhead,  
12 or -- or PowerPoint?  
13 MR. ROBIN JOHNSTONE: On overhead. It's  
14 ready to go.  
15  
16 (BRIEF PAUSE)  
17  
18 MR. ROBIN JOHNSTONE: It'll take us just a  
19 minute here.  
20  
21 (BRIEF PAUSE)  
22  
23 THE CHAIRPERSON: Okay, Mr. Johnstone, if you

24 just want to point out the relevant information related to  
25 the question?

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1 MR. KEN DeVos: Ken DeVos for Golder -- or,  
2 with Golder Associates, for De Beers.  
3 This information was -- was presented at  
4 the -- at the North Lake's technical session, or the data was  
5 presented there.  
6 All of the Snap Lake data is plotted as a the  
7 squares in orange here. The borehole from the North Lakes  
8 Report, near Snap Lake, is plotted as the purple triangle  
9 here.  
10 And the data from the North Lake, or near the  
11 North Lake, is plotted as the larger diamond shape in purple,  
12 here.  
13 Now, the message, or what -- what this shows  
14 us, is that, you know, the maximum amount of increase is --  
15 is -- in fact, this data plots within the range of what was  
16 observed below Snap Lake.  
17 MR. KEN RAVEN: Thank you.  
18 THE CHAIRPERSON: Okay. Mr. Raven, do you  
19 need any more clarification from the proponent on this slide,  
20 or can we turn it off and take our seats?  
21 MR. KEN RAVEN: I'd just like to make a  
22 response, so if we can keep it up for the moment.  
23 THE CHAIRPERSON: Go ahead.  
24 MR. KEN RAVEN: The argument that was put  
25 forward in these slides is that you cannot have high TDS

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1 groundwater and high permeability.  
2 I think that the information for the North  
3 Lakes investigation shows that -- that combination is, in

4 fact, possible because the TDS numbers, which are about  
5 sixteen hundred (1600) for the depth sample of about two  
6 twenty (220), also has quite high permeability.

7 So, I just wondered whether there was -- I  
8 guess my question would be: Is that surprising to you,  
9 because it doesn't fit the -- the model that you have  
10 presented, which says that you can't have high TDS and high  
11 permeability at the same time?

12 THE CHAIRPERSON: Mr. DeVos?

13 MR. KEN DeVos: Thank you. We would like to  
14 point out that -- that the data is within the range that was  
15 observed at Snap Lake.

16 And that that point, the North Lake data, is  
17 in a discharge area. So, we have water coming up from the  
18 deeper locations.

19 Snap Lake is a recharge area, so we have lower  
20 concentrations of surface water going down into the system.

21 THE CHAIRPERSON: Mr. Raven...?

22 MR. KEN RAVEN: Mr. Chairman, I'm finished  
23 with this question.

24 THE CHAIRPERSON: Thank you.

25 MR. KEN RAVEN: My fourth question concerns

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1 Slide 26, where you've indicated that you are certain and  
2 confident that the advanced exploration program groundwater  
3 concentrations are not influenced by Snap Lake water inflows.

4 Primarily, I believe, because the samples were  
5 collected within days of the boreholes being drilled. My  
6 question is: Did you consider the draw-down and Snap Lake  
7 inflow effects created by the openings themselves, on the  
8 groundwater quality data?

9 This may be a concern because the openings are  
10 open for time frames that are similar to your calculated  
11 estimates of transit time of Snap Lake water to those  
12 openings.

13 THE CHAIRPERSON: Thank you.

14  
15 (BRIEF PAUSE)

16

17 MR. LEE ATKINSON: My name is Lee Atkinson,  
18 with Hydrologic Consultants, representing De Beers. Ken, the  
19 answer is these -- these samples were all from the AEP test  
20 holes underground.

21 It was a continuous process of coring and  
22 testing, in which we would core a certain interval, test it,  
23 if there was a significant amount of water coming in from one  
24 interval we would actually sometimes grout it off and move  
25 on.

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1 But a typical test was on the order of 30  
2 minutes, an hour, maybe the maximum, 90 minutes. So, there  
3 was never really an extended period of flow from any of those  
4 holes.

5 THE CHAIRPERSON: Thank you. Mr. Raven...?

6 MR. KEN RAVEN: If I could have a follow up?  
7 My question was more directed toward the inflow to the  
8 openings themselves, not the inflow to the boreholes.

9 And the -- the concern I have is that, we know  
10 that the openings are excavated prior to the holes being  
11 drilled, and therefore flow to those openings could have an  
12 influence on the water quality results that were collected  
13 from the boreholes themselves?

14 THE CHAIRPERSON: Thank you. Mr. DeVos...?

15

16 (BRIEF PAUSE)

17

18 MR. KEN DeVos: Ken DeVos, Golder Associates  
19 for De Beers.

20 The boreholes were drilled in advance of the  
21 mine workings, in different directions, off of the mine  
22 workings. The boreholes were also drilled as soon as  
23 feasible, after the mine workings were put into place. We  
24 don't expect there to be an influence from the mine workings  
25 on the samples from those boreholes.

1 THE CHAIRPERSON: Mr. Raven...?  
2  
3 (BRIEF PAUSE)  
4  
5 MR. KEN RAVEN: I think that answers the  
6 question. Thank you.  
7 THE CHAIRPERSON: Thank you, sir. Any  
8 further questions?  
9 Questions, NWT and Nunavut Chamber of Mines?  
10 No?  
11 Northwest Territories Metis Nation, any  
12 questions? No?  
13 North Slave Metis Alliance?  
14 DFO? Sorry, Ms. Dahl...?  
15 MS. JULIE DAHL: Yes, thank you. I've got a  
16 couple of questions, I was wondering if I could have a couple  
17 of points clarified on De Beers' presentation?  
18 The first one (1), we've referred to it just  
19 recently, Slide 20. There's the, sort of, a teeter totter  
20 diagram of the relationship between concentration flow and  
21 loads. I just want to make sure that I understand correctly  
22 what you're trying to depict here.  
23 This diagram implies that increased flows are  
24 associated with decreased concentrations, and I understand  
25 you're referring to connate water, here. Are you trying to

1 show that -- that that relationship will hold true regardless  
2 of the flow?  
3 And I guess my question is: If you are in a  
4 certain area of the mine and you're having a set flow rate at  
5 a set concentration, and you hit a high fracture zone where  
6 your flow has just suddenly doubled, presumably the  
7 concentration is not going to change. The concentration of  
8 that -- that twice the volume is still going to be the same,

9 and hence, your -- your load will increase.  
10 So I -- I'm just -- just trying to clarify  
11 how -- how far this -- this little diagram is applicable?  
12 Because I don't think it will be applicable in all cases. So  
13 that's -- that's my first question, if we clarify that one  
14 (1) first, please?

15 THE CHAIRPERSON: Thank you, Ms. Dahl. Mr.  
16 DeVos...?

17  
18 (BRIEF PAUSE)  
19

20 MR. KEN DeVos: You -- you would -- Ken  
21 DeVos, with Golder Associates, for De Beers.

22 Indeed, if we were to get a much -- hit a  
23 fracture and get a much higher inflow, we would indeed expect  
24 the concentrations to decrease, because most of that water,  
25 we expect, would be originating from the lake, itself. So

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1 the concentrations, in that instance, would decrease.  
2 That particular chart relates to connate --  
3 what -- what we expect in the connate water. Again, connate  
4 water, has a very high concentration, has very low storage,  
5 so there's not much of it. The data that we're using is  
6 consistent with the data elsewhere in the Canadian Shield.

7 THE CHAIRPERSON: Thank you. Ms. Dahl...?

8 MS. JULIE DAHL: Thank you. So you're saying  
9 that there will be, even in the shallow groundwater, there  
10 will be no fractures that could contain enough water to have  
11 an increased flow at -- at that same concentration? That  
12 there are no -- no even shallow ground water pockets that --  
13 that would have any sort of flow associated with them?

14 THE CHAIRPERSON: Thank you. Mr. DeVos...?

15  
16 (BRIEF PAUSE)  
17

18 MR. KEN DeVos: You could, on a very short  
19 timescale, have that situation occur. But this diagram  
20 illustrates and conceptualizes what's going to happen over

21 the course of mining. As I just pointed out, in Canadian  
22 Shield environment there's very low storage.

23 So if you have an increase in load because you  
24 hit a fracture, we wouldn't expect it to last for very long  
25 at all. Perhaps on the order of weeks, you know. The amount

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1 of time for the lake water to get to the mine, so six (6) to  
2 eight (8) weeks maybe. But over the long term, this is,  
3 conceptually, how that system behaves.

4 THE CHAIRPERSON: Thank you. Ms. Dahl...?

5 MS. JULIE DAHL: Thank you. The other  
6 question I had, I -- I wanted to seek some clarification on  
7 slide 24. The heading is monitoring mitigation. In this  
8 slide it -- it proposes grouting as mitigation for water  
9 quality. I'm assuming here that grouting will not act to  
10 improve water quality but rather it will mitigate flows hence  
11 it will mitigate loading; is that an accurate interpretation?

12 THE CHAIRPERSON: Mr. DeVos...?

13 MR. KEN DeVos: No. That's not an accurate  
14 interpretation. To explain a little bit further, when you  
15 grout in the mine you will reduce the flows. By reducing the  
16 flows you will reduce the total loading to the system. By  
17 reducing the total loading to the mine water system, you're  
18 reducing the total loading that gets to Snap Lake.

19 And the total load to Snap Lake is what will  
20 govern the overall water quality at Snap Lake.

21 THE CHAIRPERSON: Thank you. Ms. Dahl...?

22 MS. JULIE DAHL: Okay. So reference in this  
23 slide is to water -- is to ultimate water quality in Snap  
24 Lake, not referring to water quality of the mine water.

25 THE CHAIRPERSON: Thank you. Mr. DeVos...?

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1 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
2 Johnstone. Slide 24 relates to monitoring and mitigation and  
3 monitoring will be in place on both the mine water and -- and  
4 on a lake basis as well, Julie, so I don't know whether that  
5 resolves your quandary.

6 THE CHAIRPERSON: Ms. Dahl...?

7 MS. JULIE DAHL: Okay. I guess my -- my  
8 reading of this will still stand that grouting mitigates  
9 water flow and will adjust loading. Grouting itself does  
10 nothing for mitigating water quality in the mine where the  
11 grouting will occur.

12 But to move on, in slide 26, a couple later,  
13 it talks again about water quality and I'm assuming here  
14 we're -- we're talking about water quality of the mine water  
15 coming in and it says that:

16 "mitigation is available if required"

17 Is there any other mitigation other than  
18 grouting that you're proposing for water quality of the -- of  
19 the connate water entering the mine?

20 THE CHAIRPERSON: Thank you. Mr.  
21 Johnstone...?

22 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
23 Johnstone.

24 We need to re-state that we do see grouting as  
25 a mitigation. Now, you know, I know -- I'm aware of what Ken

1 has stated, but the purpose of -- the use of grouting that  
2 we're referring to here is really to -- if there are areas of  
3 what we see as high total dissolved solids inflow, then we  
4 would use grouting to, essentially, control that high inflow.

5 Grouting, basically, cannot go on forever, so  
6 we would be selective in where we would use it, but it would  
7 be used in those situations where there was high saline  
8 inflow. Does that provide clarification?

9 THE CHAIRPERSON: I think the other part of  
10 the question was, other than grouting, what other mitigation  
11 measures are you planning?

12 MR. ROBIN JOHNSTONE: Grouting would be the

13 primary mitigation method, Mr. Chairman.

14 THE CHAIRPERSON: So, there's no set in the  
15 mitigation measure?

16 MR. ROBIN JOHNSTONE: There's no secondary  
17 mitigation measure that -- and we do not identified one (1)  
18 at this stage that would be necessary, and we have --  
19 assessed the -- the impacts based on that, and the flow,  
20 without mitigation.

21 THE CHAIRPERSON: Thank you. Ms. Dahl...?

22 MS. JULIE DAHL: That's it. Thank you.

23 THE CHAIRPERSON: Thank you. Dogrib Treaty  
24 11, Mr. -- I'm sorry, Dr. Wilbur...?

25 MR. STEVE WILBUR: Steve Wilbur for the

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1 Dogrib.

2 I have a -- just a few follow-up questions  
3 from Ken's questions. I guess I was a little confused, in --  
4 from the dialogue back and forth regarding the explanations,  
5 and -- and this is -- has specifically to do with the samples  
6 collected in the -- the workings.

7 And so I'll just ask a series of questions,  
8 and -- that just leads to one (1) question. The -- they're  
9 all easy. Eventually, how long did it take to advance the  
10 workings to -- to a groundwater sample collection point?

11 THE CHAIRPERSON: Thank you.

12  
13 (BRIEF PAUSE)

14  
15 THE CHAIRPERSON: Obviously, it wasn't as  
16 simple --

17 MR. STEVE WILBUR: Yeah.

18 THE CHAIRPERSON: -- as you think it was, Dr.  
19 Wilbur. Just be -- bear with us.

20  
21 (BRIEF PAUSE)

22  
23 MR. JOHN McCONNELL: John McConnell with De  
24 Beers. Steve, could you just, I mean, I think what you're

25 saying is, you know, we started the development at a certain

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1 date, and you want to know how long the time frame was until  
2 we drilled the first hole to take a water sample?

3 THE CHAIRPERSON: Is that --

4 MR. STEVE WILBUR: Yeah, and you took a  
5 number of samples, so, you started the -- drilling down, and  
6 progress over time, and then, from the beginning of your  
7 advanced exploration program, to when you actually got down  
8 to your collecting water samples, collecting water samples  
9 over a period of time.

10 What are those time intervals between when you  
11 actually got to your water sample collection point, to the  
12 last water sample collection point?

13 So, how long did it take to get from A, B, and  
14 then finally, to C?

15 MR. JOHN McCONNELL: Okay.

16 THE CHAIRPERSON: Okay. Mr. Atkins, I  
17 believe -- Atkinson...?

18 MR. LEE ATKINSON: Lee Atkinson, with  
19 Hydrologic Consultants, on behalf of De Beers.

20 Steve, it's a -- it's a little bit --  
21 variable. It could be from a couple of weeks, to a maximum  
22 of about thirty (30) days from the time an area was reached,  
23 until the time a drill hole was -- was drilled, and the tests  
24 had been completed.

25 THE CHAIRPERSON: Dr. Wilbur...?

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1 MR. STEVE WILBUR: How long did it take to  
2 get to the last groundwater sample collection point from the  
3 beginning of your advanced exploration program?

4 THE CHAIRPERSON: Thank you. Mr.

5 Atkinson...?

6

7 (BRIEF PAUSE)

8

9 MR. LEE ATKINSON: Lee Atkinson, with  
10 Hydrologic Consultants, on behalf of De Beers. The earliest  
11 hole was completed in May of 2001. The latest hole, and  
12 actually, there two (2) of them completed very closely  
13 together, was in August of 2001, an elapsed time from May to  
14 August.

15 THE CHAIRPERSON: Thank you --

16 MR. STEVE WILBUR: The --

17 THE CHAIRPERSON: -- Dr. Wilbur...?

18 MR. STEVE WILBUR: This is Steve Wilbur. So,  
19 that's three (3) months, and, so that's twelve (12) weeks,  
20 approximately?

21 MR. ROBIN JOHNSTONE: Robin from De Beers, I  
22 can answer that question. That's correct, Steve.

23 One an ornithologist could answer, even.

24 Go ahead.

25 MR. STEVE WILBUR: It took us that long to get

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1 that -- that one little twelve (12) weeks out of him,  
2 but --

3 THE CHAIRPERSON: Dr. Wilbur...?

4 MR. STEVE WILBUR: Steve Wilbur, okay. So, my  
5 question then, is: Essentially while the flow -- while your  
6 workings are advanced, is the flow and regime affected by  
7 this exploration hole, such that you're getting water being  
8 discharged into the workings, and I guess, it -- to state it  
9 more simply, did you have to discharge water out of the --  
10 the advanced exploration hole at any time, or was everything  
11 fully grouted up so that you didn't get any water inflow into  
12 the hole?

13 THE CHAIRPERSON: Thank you. Mr.  
14 Johnstone...?

15 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
16 Johnstone. Steve, your -- your question is a good one, that

17 the key issue is -- is how do we, basically, get samples.  
18 And obviously, to get representative  
19 information, we want to use the best information available,  
20 and that meant going underground.

21 And as Ken stated, we are basically in --  
22 almost in a luxuriant position of having a lot more  
23 information than many projects would at an environmental  
24 assessment stage.

25 So, first of all, we had to develop, we had to

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1 go underground; the alternative was, limited information from  
2 the surface.

3 I will now pass on to Lee Atkinson, who may  
4 chose to elaborate on that.

5  
6 (BRIEF PAUSE)

7  
8 MR. ROBIN JOHNSTONE: Mr. Chairman, may we use  
9 the overhead again to illustrate this, or...

10 THE CHAIRPERSON: If it's going to help answer  
11 the question, yes.

12 MR. ROBIN JOHNSTONE: Great. Sorry to make  
13 you move.

14  
15 (BRIEF PAUSE)

16  
17 MR. LEE ATKINSON: Lee Atkinson, with  
18 Hydrologic Consultants, on behalf of De Beers.

19 What I'm going to do here is show two (2)  
20 slides. One (1) is -- the first one here is a schematic  
21 diagram of how we actually carried on this testing in an  
22 individual core hole, and then what I'd like to do is show  
23 you, in map view, exactly where it was done; and I actually  
24 have some timelines on there, that will explain, as the  
25 drifting progressed, where and when we did the testing.

1                   But very simply, what we did at a specific  
2 number of locations, six (6) locations throughout the mine,  
3 what we were trying to do was, test the hydraulic  
4 conductivity of the rock in various directions; is we  
5 installed a surface casing, then cored through the rock, and  
6 at frequent intervals, we would shut in, there's a valve on  
7 here, we would shut the core hole in, these -- water would  
8 flow to these core holes naturally, and we would shut it in,  
9 we would measure the pressure, which was important to our  
10 understanding of the system.

11                   And then, we would allow it to -- to flow, and  
12 we would then shut it in again, and measure the rate at which  
13 the pressure built, and that was a direct measure of the  
14 hydraulic conductivity.

15                   So we repeated this process more than eighty-  
16 four (84) times. I believe it shows up, starting at this  
17 point, and you can -- you can see the date on there is -- is  
18 in April, early April. This is the advance of what was  
19 called the AEP, came down here.

20                   We drilled a hole in advance of this part of  
21 the -- the leg, so that we could test that. When we got down  
22 into this area, we drilled a series of a hole to the east,  
23 one (1) to the north, one (1) to the southwest, and it really  
24 doesn't show up very well here, because of the inclination,  
25 but we drilled, essentially, a vertical hole right here.

1                   We also went up to the existing initial  
2 exploration drift. We drilled two (2) holes primarily to the  
3 north. The main purpose of those was to look at the snap and  
4 crackle faults, which had been geologically identified, to  
5 see if there was any special hydraulic properties associated  
6 with them.

7                   We also, from the end of that initial  
8 exploration drift, drilled one (1) hole out to the east.

9                   You can see the dates on here, April, June,

10 August, October. These are the dates at which those points  
11 of the drift were completed. And then, I know this is a real  
12 busy diagram, but you can see the completion date, then,  
13 of -- of the borehole.

14 So, from a time we got to an available  
15 location to drill, it was typically on the order of two (2)  
16 weeks to thirty (30) days, from the time we drilled the hole  
17 and completed the -- the drilling and testing.

18 THE CHAIRPERSON: Thank you. Dr. Wilbur,  
19 does that answer your question or do you have others, before  
20 we put the slide away?

21 MR. STEVE WILBUR: Steve Wilbur, Dogrib.  
22 That's a very fine diagram, I wish I could have -- is that  
23 presented somewhere in one (1) of the -- the -- in any of the  
24 previous submissions? In any case, that's a -- that's a side  
25 question.

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1 But I guess my -- my question wasn't really  
2 answered. I wanted Lee to just answer the -- the specific  
3 question and that was, was the flow to the boreholes, to --  
4 to the bore -- to the workings, affected at all by the -- the  
5 advanced exploration program?

6 THE CHAIRPERSON: Thank you. Mr.  
7 Atkinson...?

8 MR. LEE ATKINSON: Okay, there's -- there's  
9 two (2) answers to that. The first one (1) is, there really  
10 wasn't much flow to the underground openings. The only  
11 natural flow areas were up here, and in what was called bowl  
12 holes. None of the -- the drilling we did had any noticeable  
13 impact on those flows. So the answer is, no.

14 THE CHAIRPERSON: Thank you. And perhaps I  
15 could ask whereabouts in the technical documents this  
16 particular slide is?

17 MR. JOHN MCCONNELL: Mr. Chairman, John  
18 McConnell with De Beers. That particular diagram may not be  
19 in any of the documentation, but the same diagram was  
20 presented at the Technical sessions in the end of November  
21 and early December.

22 THE CHAIRPERSON: Thank you. Dr. Wilbur...?  
23 MR. STEVE WILBUR: This is -- Dr. -- Steve  
24 Wilbur, again. Thanks, Lee. That's actually very important.  
25 I was curious if there was flow into the -- into the workings

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1 that would be significant. But if you said there wasn't flow  
2 into the workings, then that -- that reduces my -- my concern  
3 about the influence of the -- of the collection of groundwater  
4 samples.

5 THE CHAIRPERSON: Thank you.  
6 MR. STEVE WILBUR: I do have some further  
7 questions.

8 THE CHAIRPERSON: Okay, if you could just  
9 give us thirty (30) seconds while the --

10 MR. STEVE WILBUR: Yes.

11 THE CHAIRPERSON: -- Board Members take their  
12 seats and put some light on the subject.

13  
14 (BRIEF PAUSE)

15  
16 THE CHAIRPERSON: Okay. Dr. Wilbur...?

17 MR. STEVE WILBUR: Steve Wilbur with the  
18 Dogrib. I guess I wanted to clarify that -- or get a  
19 clarification for that nice diagram that was the previous  
20 overhead that was up there regarding the -- all the samples  
21 that showed the Snap Lake groundwater samples TDS values in  
22 relation to the other areas.

23 And, in fact, there are no samples below a  
24 particular zone. The -- the actual extrapolation of -- of  
25 Snap Lake is -- is done. It's purely an extrapolation.

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1 There isn't anything below 160 metres; is that correct?

2 THE CHAIRPERSON: Mr. DeVos,  
3 Mr. Johnstone...?  
4 MR. KEN DeVos: Ken DeVos, Golder Associates  
5 for De Beers. That's correct. And the extrapolation that  
6 we've used is consistent with data elsewhere in the Canadian  
7 Shield.  
8 MR. STEVE WILBUR: Steve Wilbur, Dogrib. If  
9 I was to just look at the Snap Lake data set though, I would  
10 not get that nice linear trend that you demonstrate that --  
11 that could occur. Could you comment on -- on that, that we  
12 actually show a much more -- a fast -- a more rapid increase  
13 in concentration with depth with the Snap Lake water samples.  
14 THE CHAIRPERSON: Thank you.  
15  
16 (BRIEF PAUSE)  
17  
18 MR. KEN DeVos: Ken DeVos, Golder Associates  
19 for De Beers. The curve that was used for the rate of  
20 increase actually is not a linear curve but it's a  
21 logarithmic increase that was applied.  
22 THE CHAIRPERSON: Dr. Wilbur...?  
23 MR. STEVE WILBUR: Thanks. If I could have  
24 the diagram back up again and I just want to point to it and  
25 show what I'm talking about and maybe have Ken explain what

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1 I'm asking?  
2 THE CHAIRPERSON: Okay.  
3 MR. STEVE WILBUR: Sorry.  
4  
5 (BRIEF PAUSE)  
6  
7 THE CHAIRPERSON: Dr. Wilbur...?  
8 MR. STEVE WILBUR: Thank you. I guess the  
9 first thing that I see from this is a large degree of  
10 uncertainty associated with the particular sample at depth.  
11 And, in particular, if I just looked at the Snap Lake data  
12 starting from about -- let's take about 120 metres and I go  
13 down to about 160 metres, it looks like there's a -- a

14 decrease in concentration. From here to here is a line  
15 drawing like that.

16 And if I was to extrapolate I might get down  
17 here and I don't suppose that that's occurring but we do have  
18 points that are down here. And simply, we do not have any  
19 data for Snap Lake here, we just have data for Snap Lake  
20 here. And if I was just to use this database, I might  
21 extrapolate down into this zone.

22 And my point here is just to express that  
23 there is quite a bit uncertainty involved in any particular  
24 database with depth when we're talking about TDS. This is  
25 quite a large range and order of magnitude and that's --

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1 that's -- that's the clarification I -- maybe Ken could  
2 comment on -- on that particular rate of decrease I see.

3 THE CHAIRPERSON: Thank you. Mr. DeVos...?

4  
5 (BRIEF PAUSE)

6  
7 MR. KEN DeVos: Ken DeVos, Golder Associates  
8 for De Beers.

9 In fact, the data don't show a trend there.  
10 That's -- those -- those data are highly variable and what we  
11 expect to come into the mine will be the amalgamation or the  
12 centre point of that data.

13 And if -- if you recall the slide that  
14 Dr. Atkinson put up earlier, you'll note that -- that when  
15 inflows got high, we grouted and drilled through that grout  
16 area to -- to sample the next interval.

17 As Mr. Raven pointed out in -- in his  
18 assessment, a few of those samples ended up having high pH  
19 waters from the further intervals.

20 When we take that data off of that graph, we  
21 find a much more consistent relationship with depth with the  
22 Diavik data, than that graph shows.

23 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

24 MR. STEVE WILBUR: Thanks. So, Ken, I guess  
25 what you're saying is that this data here are influenced by

1 something, and more -- these are more in line with the -- the  
2 Diavik data here? Is that what you're saying?  
3 THE CHAIRPERSON: Mr. DeVos...?  
4 MR. KEN DeVos: Ken DeVos, Golder Associates,  
5 for De Beers. The only possible influence that we would see  
6 on those data would be from the -- that sampling process that  
7 I just described with the grout, and yes, if we take that  
8 grout off, then the data is more consistent with the Diavik  
9 data, so lower concentrations.  
10 MR. STEVE WILBUR: Okay, the -- the -- Steve  
11 Wilbur. It's -- I guess this data is valid, or is it not  
12 valid?  
13 THE CHAIRPERSON: Mr. DeVos...?  
14 MR. KEN DeVos: The data is valid, and it  
15 biases our analysis to the conservative side of the range.  
16 So, we've -- we've over-estimated the concentrations, based  
17 on that data.  
18 THE CHAIRPERSON: Thank you. Dr. Wilbur...?  
19 MR. STEVE WILBUR: Okay. No further  
20 questions on that particular aspect. I just -- just want the  
21 Board to recognize that there's some uncertainty involved in  
22 -- in the assessment.  
23 THE CHAIRPERSON: We have got the point, so.  
24 MR. STEVE WILBUR: Just another follow-up on  
25 Ken's earlier question regarding a -- I -- I don't have any

1 more use for that, so you can get it out of the way, but I'm  
2 not going to tell you to move it, because -- there you go.  
3 THE CHAIRPERSON: That's called contingency  
4 planning --  
5 MR. STEVE WILBUR: Yeah.  
6 THE CHAIRPERSON: -- to leave it there.

7 MR. STEVE WILBUR: A slide presented by Ken  
 8 showed a comparison of -- some Canadian Shield data, and he's  
 9 put on East Bull, and Whiteshell data, and I was just  
 10 curious, where are these two (2) stations, and why were these  
 11 sites chosen, and would these results be -- would the  
 12 comparison be drastically different if I was using --  
 13 comparing with some different sites?

14 THE CHAIRPERSON: Mr. DeVos...?

15 MR. KEN DeVos: Ken DeVos, Golder Associates  
 16 for De Beers. The data is representative what we'd expect in  
 17 the Canadian Shield Environment. If you need another site  
 18 for comparison, I would suggest looking at the Diavik data,  
 19 which would -- which would show much higher inflows, and much  
 20 lower concentrations.

21 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

22 MR. STEVE WILBUR: Thank you. Steve Wilbur.  
 23 My question is, where is Whiteshell, and where is East Bull?

24 MR. KEN DeVos: Sorry. The Whiteshell  
 25 research station is located in the Canadian Shield to the

1 north of Winnipeg. The East Bull research station is located  
 2 near Atikokan in Ontario, in the Canadian Shield, in the  
 3 crystalline bedrock.

4 MR. STEVE WILBUR: Steve Wilbur. Thank you.  
 5 So we have no data in similar rock types in the region that  
 6 we're talking about, except the Diavik?

7 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
 8 Johnstone.

9 The data represented on the graphs, Steve,  
 10 shows a -- a -- and I -- I think it is originally from a  
 11 paper, going out on the edge here, Frap and Fritz, and some  
 12 other --

13 MR. STEVE WILBUR: Right there?

14 MR. ROBIN JOHNSTONE: -- probably, you wanted  
 15 me to mention that name, and so, it provides a spread of  
 16 information over a broad range of geographical locations  
 17 within the Canadian Shield.

18 Bottom line on your -- in terms of your answer

19 is that the Diavik is the most representative data, and  
20 certainly, the most extensive, and location closest to Snap  
21 Lake.

22 So, it shows that we -- we have estimated  
23 concentrations way over Diavik, and so being more  
24 conservative. The answer to your question is Diavik.

25 THE CHAIRPERSON: Thank you. Steve...?

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1 MR. STEVE WILBUR: Okay. One -- just follow  
2 up then. If I was to use, Frape, and whatever the guy's name  
3 is, did we -- those two (2) locations, Whiteshell and East  
4 Bull, are noted in there, are there other locations in that  
5 same document that have higher concentrations?

6 It seems like on that plot that up here we had  
7 some data points that were -- had much high connate TDS  
8 concentrations, and why wouldn't we have used those data  
9 points, in this comparison?

10 THE CHAIRPERSON: Thank you. Mr.  
11 Johnstone...?

12 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
13 Johnstone. The -- the basic answer to that, Mr. Chairman, is  
14 that the Diavik data, and in fact, the Snap Lake data,  
15 wouldn't support the -- those much -- those outlying values  
16 right on the extreme of concentrations of TDS.

17 The two (2), it would suggest, that those  
18 would not be representative of conditions that we would be  
19 likely to anticipate at Snap Lake.

20 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

21 MR. STEVE WILBUR: No further questions.

22 THE CHAIRPERSON: Thank you. Canadian CARC,  
23 do have questions in this? No.

24 NRCan, any questions?

25 Government of the Northwest Territories,

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1 Environment Canada, Lutsel K'e? Ms. Catholique...?

2 MS. FLORENCE CATHOLIQUE: I was just noting  
3 the time, but I do have quite a few questions. It must bear  
4 in mind that some of these questions may have already been  
5 answered, but we didn't get a chance to look through the --  
6 the documents, and review whether they were and so, I'm just  
7 going to ask them.

8 In regards to the groundwater flow, what are  
9 the current patterns of groundwater flow?

10 I see in your -- in one of your presentations  
11 that you show the flow going from Snap Lake into the  
12 surrounding area.

13 And -- and my -- my query is in regards to:  
14 Where does the groundwater flow come from in -- into the Snap  
15 Lake -- into the Snap Lake?

16 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
17 Johnstone. Florence, the -- the water -- when scientist's  
18 describe Snap Lake as being a headwater lake, and that means  
19 that sits right at the very top of the watershed.

20 So, the water that we see in Snap Lake, comes  
21 from the very small lakes that sit around Snap Lake, and the  
22 snow, precipitation of all sorts.

23 So, it's -- there are some very small lakes,  
24 ponds, around Snap Lake that aren't connected to the deep  
25 groundwater system, but then the -- Snap Lake is really the

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1 dominate force, in terms of its water going elsewhere on a  
2 regional basis.

3 THE CHAIRPERSON: Thank you. Ms.  
4 Catholique...?

5 MS. FLORENCE CATHOLIQUE: Mr. Chairperson. I  
6 also see in the document that you show elevation of the land  
7 in that area where Snap Lake is in the higher, and everything  
8 else is in the lower.

9 So, that's why I asked the question, where is  
10 the water coming from into the Snap Lake, if everything is  
11 below that?

12 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
13 Johnstone. Florence, we didn't show the elevations of the  
14 very small ponds that lie immediately around Snap Lake.

15 We showed the elevations of the main lakes.  
16 So, you would see some of those small ponds are higher than  
17 that for 444.1 elevation, or whatever it was. And then the  
18 other influences would be rain and snow.

19 THE CHAIRPERSON: Thank you.

20

21 (BRIEF PAUSE)

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23 MS. FLORENCE CATHOLIQUE: Okay. The next  
24 question, then, would be, how would the proposed mining  
25 activity affect and be affected by these flows? I have seen,

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1 in -- in the chart, that you show that the waters and the  
2 groundwaters would flow away from -- from the mine and it  
3 would go into the North Lake, which would then be connected  
4 into the lake that would, in the watershed, that would effect  
5 Aylmer Lake, Artillery Lake and then come out into the East  
6 Arm, which is where we are.

7 And so the question is: The -- the effects of  
8 that?

9

10 (BRIEF PAUSE)

11

12 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
13 Johnstone. There are a couple of ways in which the mining  
14 activity will be affected by the flows.

15 One (1) area is, which was discussed  
16 extensively here, around the water flowing into the mine and  
17 then us having to deal with the water being in the mine.  
18 We're going to have to get it out and we're going to be  
19 placing it, after treatment, into Snap Lake.

20 The -- the other issue in your question,  
21 Florence, is: Do we anticipate that the mining activity at  
22 Snap Lake will effect the groundwater flow on a regional  
23 basis?

24                   There are two (2) parts to that. One (1) is  
25   that some of the regional flow will actually slow down during

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1   mining. When the mine is open, some of the water close to  
2   Snap Lake will flow back in to the mine rather than  
3   continuing out.

4                   One (1) area where we had extensive discussion  
5   a number of months back, following the submission of the  
6   Environmental Assessment, was that there was potential for  
7   water to -- once the mine was closed, for water to flow past  
8   the mine workings, to change the quality of the water, the  
9   groundwater, which could move to lakes north of Snap Lake.  
10   And we say north because that's where the flow would go,  
11   contacting the mine.

12                  Now, we -- we addressed -- we spent a lot of  
13   time and effort looking further into that. And there are a  
14   couple of things that we did to make sure that the impacts  
15   weren't going to be worse than we predicted.

16                  And in fact, the information that we gathered,  
17   subsequent suggested the impacts would be much lower than  
18   predicted and this was reflected in the technical sessions.  
19   Intervenors on the whole, agreed with that.

20                  There -- there will be flow from Snap Lake  
21   north. We do not -- the prediction is that there will not be  
22   an impact of that flow in terms of water quality, to  
23   surrounding lakes.

24                  The -- the flow to the Northeast lake, which  
25   is only a couple of kilometres, I believe, from Snap Lake, is

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1   estimated to take about three hundred (300) years. And the  
2   flow beyond the northeast lake, towards MacKay Lake, if it  
3   gets there, would take about twenty-four hundred (2,400)

4 years. So we are talking about flows that will move very  
5 slowly.

6 And the conclusion at the end of that  
7 assessment was that there would not be impacts resulting to  
8 other lakes in relation to that.

9 THE CHAIRPERSON: Thank you. Ms.  
10 Catholique...?

11 MS. FLORENCE CATHOLIQUE: The next question,  
12 my -- these questions, I want to just put on record, that we  
13 asked them and it was answered in a certain way. But I don't  
14 want to be leaving here where I didn't ask the question that  
15 I was told to ask.

16 How does De Beers Canada Limited ground truth  
17 the computer model that has been developed to understand the  
18 ground water flow? Has there been actually, you know -- are  
19 we just talking about models that were tried and not really  
20 field samples?

21  
22 (BRIEF PAUSE)

23  
24 THE CHAIRPERSON: Mr. Johnstone...?

25 MR. ROBIN JOHNSTONE: De Beers Canada, Robin

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1 Johnstone. There are several ways in which we get the  
2 picture of how -- how this is achieved, Florence. Modelling  
3 is one (1) way and we use -- you've discussed the issue of  
4 models and obviously we're going to spend a lot of time  
5 discussing some of the scientific models.

6 We need to back up a step and discuss some of  
7 the concepts too. That, you know, there are things that  
8 science has -- has learned before us that have provided a  
9 general understanding of how things like groundwater move.  
10 So, you know, first of all we don't expect anything in the  
11 Snap Lake region to obey -- disobey the laws of physics.

12 You know, water will move downhill, that sort  
13 of thing. So, our understanding is, in part, based on that  
14 scientific understanding. Then, wherever we can, rather than  
15 just rely on that, we use data to -- to confirm that.

16 Monitoring lake levels is one of it, so that  
17 we can -- we can look for changes in lake levels and that  
18 will give us an idea of regional flow.

19 So there is -- it's a two-stage process, if  
20 you like. It's concepts, it's computer models wherever,  
21 sometimes, possible and then it's data and monitoring to  
22 follow up on the predictions that have been made.

23 THE CHAIRPERSON: Thank you. Ms.  
24 Catholique...?

25 MS. FLORENCE CATHOLIQUE: There was two (2)

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1 other questions but I think -- I can't remember the -- the  
2 young chap in the blue shirt answered --

3 THE CHAIRPERSON: Mr. DeVos.

4 MS. FLORENCE CATHOLIQUE: -- in regards to  
5 the -- should there be too much water coming in that you  
6 would put an extra pump. You said that in your presentation.

7 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
8 Johnstone. Florence, yes, we would put another pump.  
9 Monitoring is going to be critical. We are going to need to  
10 monitor to make sure that we have the equipment in place to  
11 deal with groundwater flows.

12 We have stated in our environmental assessment  
13 that if -- if the quantity of mine water that we have to deal  
14 with exceeds our predictions and there is -- there was danger  
15 of the capacity of the water management system to be  
16 overwhelmed, that De Beers would stop production and allow  
17 the mine to flood.

18 So we obviously have a very big business case  
19 to make sure that all of the equipment that we have  
20 underground is sized appropriately. So monitoring will be  
21 used to confirm that we've oversized the pumps to begin with  
22 and there is capacity within that pumping from underground  
23 and within the water treatment system.

24 THE CHAIRPERSON: Thank you.  
25 Ms. Catholique...?

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1 MS. FLORENCE CATHOLIQUE: Mr. Chairperson,  
2 next question. What is the proposed process for testing and  
3 treating mine water, deep groundwater and water infiltration  
4 from the Lake for dissolved metals such as chromium?  
5 THE CHAIRPERSON: Thank you. Mr. -- no --  
6 MR. JOHN McCONNELL: We will get Mr. Tom  
7 Higgs from AMEC to provide that response.  
8 THE CHAIRPERSON: Thank you. Mr. Higgs...?  
9 MR. TOM HIGGS: Tom Higgs, AMEC, for De  
10 Beers. Just to clarify your question. There's -- the first  
11 question was about testing, and if I understand the second  
12 question was with respect to treatment. Is that correct?  
13 MS. FLORENCE CATHOLIQUE:: For dissolved  
14 metals such a chromium?  
15 THE CHAIRPERSON: Yes, that's correct.  
16 MR. TOM HIGGS: Tom Higgs, AMEC, for De  
17 Beers. The -- the first answer to testing is the water will  
18 be sampled, and assayed by a -- a commercial lab, both on-  
19 site and by a commercial lab to assay all the metals,  
20 including the physical parameters, and this is a fairly  
21 standard procedure in all operating mines, will be followed  
22 here.  
23 The -- the second question on treatment. The  
24 treatment system has been described in the EA, and it will  
25 consist at first, a -- a thickener on-site for removal of

1 solids from the mine, which is a major component of the mine  
2 water, to remove most of the solids.  
3 The second part of that treatment system  
4 consists of the addition of flocculents, and filtration  
5 through multi-media filters to remove the -- the bulk of the  
6 rest of this kind of solids prior to discharge.  
7 And, our prediction is that the treatment  
8 system will achieve a systemic solids level of five (5)

9 milligrams per litre from that system.

10 Okay, and also, as -- as stated in the  
11 environmental assessment report, is that at -- the modelling  
12 did not assume that the treatment system would remove  
13 dissolved metals, or the TDS, especially the chloride.

14 At the -- at this point, that's the  
15 prediction, because the actual dissolved metals in the mine  
16 water are very, very low, as they're at detection limits, and  
17 at solubility limits.

18 So, to meet a metal -- a particular metal  
19 level criteria, involves primarily removal of suspended  
20 solids.

21 THE CHAIRPERSON: Thank you, sir. Ms.  
22 Catholique...?

23 MS. FLORENCE CATHOLIQUE: My next question.  
24 What is the proposed process for testing and treating the  
25 water from the -- from inside the rocks, which we call

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1 connate water, for dissolved solids such as phosphorus?

2 THE CHAIRPERSON: Thank you. Mr. DeVos...?

3 MR. KEN DeVos: The procedures for testing  
4 and treatment of the -- the connate water, will be the same  
5 or very similar to -- to that for testing of the treated --  
6 treated water.

7 MR. ROBIN JOHNSTONE: They -- the -- the  
8 water -- the connate water that we're referring to, the water  
9 that -- and -- and the inflow to the mine, which comes out of  
10 the rock, Florence, and through fractures, will basically end  
11 up in sumps in the bottom of the mine, and all that water  
12 will be pumped up to the surface, and go through the  
13 treatment plant.

14 So, that's how that -- so the testing  
15 procedures for the water that comes in, there will be some  
16 tests that are done to determine areas of the high flow, tell  
17 the dissolved solids, which was discussed before, but then,  
18 the remainder of the testing and the treatment is all done in  
19 the one treatment plant at the top for all water, whether  
20 it's coming from the mine, or whether it's seepage, or runoff

21 from the North Pile.

22 THE CHAIRPERSON: Thank you, sir. Ms.

23 Catholique...? Could I just perhaps ask you to -- how many  
24 more questions you may have?

25 MS. FLORENCE CATHOLIQUE: Well, three (3)

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1 more. Sorry for the -- the timing, but I -- that's why I  
2 explained at the on-set why we had to ask these questions,  
3 since we didn't have --

4 THE CHAIRPERSON: Okay.

5 MS. FLORENCE CATHOLIQUE: -- time to review  
6 it, or the funds to do it.

7 THE CHAIRPERSON: No, I just -- just for  
8 lunch, I -- we'll finish your questioning --

9 MS. FLORENCE CATHOLIQUE: I've got three (3)  
10 questions, and that's it. I'm trying to be as fast as I can,  
11 Mr. Chairman.

12 THE CHAIRPERSON: That's okay, don't rush.

13 MS. FLORENCE CATHOLIQUE: How will ground  
14 water be managed and monitored upon -- upon closure?

15  
16 (BRIEF PAUSE)

17  
18 THE CHAIRPERSON: Thank you. Mr.  
19 Johnstone...?

20 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
21 Johnstone. Plans for monitoring groundwater, the commitments  
22 to monitoring of that groundwater have been outlined in the  
23 document proposed to the Intervenor and on the public  
24 record, as of February 28th.

25 And so, that provides an initial indication of

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1 how we're going to do all monitoring to the impacts that have  
2 been identified through the EA process.

3 And we have noted that we think the community  
4 input on monitoring priorities and details -- have to be --  
5 have to be discussed with input from communities and  
6 regulators. So, the detail on doing those plans will be  
7 developed in collaboration.

8 THE CHAIRPERSON: Thank you. Ms.  
9 Catholique...?

10 MS. FLORENCE CATHOLIQUE: I see. How will De  
11 Beers prevent dissolved chemicals from the backfilled pit  
12 from surfacing and contaminating the lake -- Snap Lake?

13  
14 (BRIEF PAUSE)

15  
16 MR. ROBIN JOHNSTONE: The -- I'm going to  
17 rephrase your question, Florence. The question I'm going to  
18 answer, and I'm not sure if it's the same one, is: How are  
19 we going to manage the dissolved chemicals that come from  
20 underground, whether it's from the -- the connate water that  
21 was discussed, or the inflow from the -- from the mine water,  
22 as well as from anything coming from the paste.

23 In the Environmental Assessment we have  
24 outlined that we're going to treat water. There are  
25 limitations to that treatment that Tom outlined, that we are

1 going to be able treat for particle, for the chemicals that  
2 are primarily attached to little bits of solids.

3 So, we're -- we're going to physically remove  
4 some of the metals. There are going to be some truly  
5 dissolved metals, and some truly dissolved total dissolved  
6 solids -- salts, that we cannot treat for.

7 And the environmental impact assessment has  
8 basically, has essentially, taken the -- the level of  
9 treatment that we are going to be able to implement and to  
10 meet and then it has evaluated the impacts on the -- the lake  
11 after all those mitigation options are evaluated.

12 So, the impacts that you're hearing --

13 discussing today around total dissolved solids, recognize the  
14 limitations in treatment, and reflect the treatment that we  
15 are going to be implementing at Snap Lake.

16 THE CHAIRPERSON: Ms. Catholique...?

17 MS. FLORENCE CATHOLIQUE: I see. I do  
18 understand how the water and the -- and the management plans  
19 that you have in regards to treating the water, so that the  
20 quality and quantity of the water in that area will not be  
21 affected.

22 But that was not what I want -- that's not  
23 what we want to hear in this question. We wanted to know, to  
24 be sure that the prevention -- there's going to be prevention  
25 of dissolved chemicals that will surface, and will -- will be

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1 discharged, I guess an assurance that -- that won't happen.  
2 Because although I had only one (1) question  
3 and this one (1), the water quality is also a question in  
4 regards to how the water is -- the waste water is going to be  
5 treated and put into -- back into the lake. And those --  
6 I -- those questions, you know, because of the time, probably  
7 will have to be carried on after lunch, just -- just to say  
8 that.

9 What is the last question, here, was, what  
10 is -- what is the potential impact of -- of sulphates, right?  
11 And dissolved phosphates? We don't understand exactly what  
12 the impacts of those are.

13 And just to say that they were going to be  
14 treated and be satisfactorily treated and put back in the  
15 water is -- is not something that we can accept because we  
16 see that as a -- a potential affect into the water, in  
17 regards to the fish.

18 That was my last question, but I do have  
19 questions on -- on the -- the waste water discharges, which I  
20 guess we'll have to carry on --

21 THE CHAIRPERSON: Okay. Well, if you have  
22 additional questions, then, I was actually trying to  
23 accommodate you prior to lunch, so we could start off  
24 lunch -- after lunch with Indian and Northern Affairs'

25 presentation. But if you have additional questions, then we

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1 might as well take the lunch break now.  
2 MS. FLORENCE CATHOLIQUE: Hmm hmm.  
3 THE CHAIRPERSON: And when we come back at  
4 1:30, Ms. Catholique, we'll continue on with you.  
5 MS. JEAN TEILLET: Mr. Chair? It's -- it's  
6 Jean Teillet on the Dogrib Treaty 11. Could I -- could I --  
7 I know I'm sort of out of order here, but I want to make a  
8 comment that I think might help with how this Hearing is  
9 proceeding. May I? Just briefly, just a minute.  
10 THE CHAIRPERSON: Go ahead.  
11 MS. JEAN TEILLET: I'm -- I'm a little  
12 concerned that -- and it's particularly arising out of  
13 Florence's questions, which I think are -- are very, very  
14 important questions, and it concerns me when the answers that  
15 come back from the proponent refer us back to the stacks of  
16 documents.  
17 Because many of the Intervenors have said they  
18 have not had the finances to examine those or get expert  
19 analysis of them. And so it -- it's not helpful to -- when,  
20 for example, a question is asked about monitoring to say,  
21 well, we set it out in the report.  
22 So -- and the other concern I have is that  
23 there are people here who don't read English in the -- in the  
24 Hearing, particularly the Elders. And it's impossible for  
25 them to access those documents and this is a public Hearing.

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1 And so I think -- and I -- I see,  
2 particularly, that Mr. Johnstone is trying very hard to try  
3 and not use very technical language, but if there could be,  
4 when a question comes like the monitoring question, even the

5 most brief statement in response, in non-technical language  
6 that doesn't refer us back to technical documents, I think  
7 that all of the people in the public here, who are hearing  
8 this, would be very grateful.

9                   And if I could ask that that would be done  
10 with every question in the future, I think that would help.  
11 Thank you.

12                   THE CHAIRPERSON:    Thank you, Ms. Teillet.  
13 Now, we'll break for lunch and we will reconvene at 1:30.  
14 Thank you.

15  
16 --- Upon recessing at 12:18 p.m.  
17 --- Upon resuming at 1:36 p.m.

18  
19                   THE CHAIRPERSON:    Thank you very much.  As I  
20 stated this morning, I would have a short statement to make  
21 at the opening of this afternoon.  There was some concern  
22 this morning about some of the material that was presented.

23                   So hopefully, to -- to clarify, the Review  
24 Board requested that PowerPoint and other Hearing  
25 presentations or materials be filed in advance.  These

1 materials were placed on the Review Board's website last  
2 weekend, however, not all of these presentations were filed.

3                   Some parties have, however, brought forward  
4 PowerPoint presentations or Hearing presentations this week.  
5 The Board is concerned about the possibility that new  
6 material may be filed in this way.

7                   Any new documents or PowerPoint presentations  
8 will be entered as exhibits, only with the permission of the  
9 Chair.  And they must be provided to the Review Board the  
10 night before you plan to introduce them.

11                   The Review Board expects the parties to  
12 exchange these documents in advance, to talk to each other  
13 and avoid problems.  No new technical material -- or, sorry,  
14 new technical material should not be coming forward, however,  
15 new approaches to explaining existing material are  
16 acceptable.  If the technical material is already on the

17 record, please advise of the report or filing date.

18                   We understand that questions raised and  
19 positions taken in the Hearing will generate answers that  
20 cannot be on the record of pre-filed evidence. The Review  
21 Board understands that the parties bring positions to these  
22 Hearings, and that it needs to respond to issues that come up  
23 during the Hearing.

24                   Such exchanges are important to clarifying  
25 information presented to the Board, and to our understanding

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1 of the position of De Beers and other parties to the Hearing.

2                   I have instructed Board staff to list the  
3 documents entered in this last day and a half as exhibits.  
4 The list will be made available at tomorrow's opening.

5                   We ask the parties to communicate with each  
6 other to the extent possible, to try and avoid any surprises.  
7 The Board intends to facilitate a surprise-free and  
8 constructive Hearing approach.

9                   To that end, over the course of lunch, there  
10 has been -- Ms. Catholique as -- as agreed, that while some  
11 of her questions were already filed, there is a little bit  
12 change in the -- in the document that she has and some  
13 spelling mistakes that have to be corrected. So she is going  
14 to provide the -- the Board with an updated paper from Lutsel  
15 K'e on the water quality issues.

16                   And as I understand it, De Beers has agreed  
17 that they will file a written response to Ms. Catholique's  
18 questions, and we will also place that in the Public Record.  
19 Is that correct? Mr. McConnell...?

20                   MR. JOHN MCCONNELL: McConnell. Thank you.  
21 I just -- I guess I have some concerns about filing written  
22 requests, or responses. You know, it is essentially creating  
23 a seventh round of Information Requests.

24                   I think, generally, people around the room  
25 would suggest that the Information Request approach did not

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1 really work. That the technical session approach, where we  
2 had one-on-one dialogue, you know, got to the bottom of the  
3 issues and concerns in a much more pro-active and  
4 consultative way.

5 Rather than us responding in writing, I would  
6 prefer that if, on a side, we could get together with  
7 Florence with two (2) or three (3) of our technical experts  
8 and discuss, outside of this arena, the answers to those and  
9 report back to the group at a later date.

10 THE CHAIRPERSON: No. That's not acceptable.  
11 We'll continue with the Hearing. Ms. Catholique, would you  
12 proceed with your questioning please?

13 MS. FLORENCE CATHOLIQUE: Let's see.  
14 Mr. Chairman, in regards to the -- the waste water, these are  
15 the questions that we want to ask and I will just go through  
16 the questions so that you can answer them -- so that we don't  
17 go one (1) by one (1) like we did this morning.

18 De Beers Canada Limited proposes to treat  
19 water from the mining operations and release it into the  
20 Na Yaghe Kue using a pipe that sprays the water out into the  
21 lake -- a diffuser.

22 This water is heavier and a different  
23 temperature than the rest of the lake so it may sink to the  
24 bottom of the lake in a cloud -- a plume. Also, this cloud  
25 of water will affect the fish.

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1 The questions are: How will ice conditions  
2 affect the plume? What alternative plans are there for  
3 discharging this treated water? What are the cumulative  
4 effects of the effluent that's discharging this treated water  
5 in Snap Lake over the life of the mining project?

6  
7 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

8  
9 How is it going to affect the fishes?

10

11 MS. FLORENCE CATHOLIQUE: And how  
12 will the effect of this treated water on the lake and  
13 watershed be monitored? How will the effects of the cloud of  
14 water, the plume being released into the lake be monitored?

15 The area around the diffuser where the water  
16 is being released into the lake may be important for fish,  
17 they may be feeding or laying their eggs in that area --  
18 spawning. It may be a safe area for very young fish, a  
19 rearing habitat.

20 What does De Beers Canada Limited know about  
21 how fish use the area around the diffuser? And those are the  
22 questions.

23 THE CHAIRPERSON: Thank you, Ms. Catholique.  
24 These questions relate, primarily to surface water and fish  
25 which we were planning on doing tomorrow.

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1 However, you did state yesterday that you had  
2 organized your presentation slightly different than what the  
3 agenda. However, in order to be fair, because I don't know  
4 if De Beers would have their -- their particular experts here  
5 at this point in time to answer those questions, I will give  
6 the proponent the decision, I guess, whether -- would you  
7 like to answer these questions now or would you prefer to  
8 hold off and answer these questions tomorrow when we're  
9 dealing with surface water and fish?

10 MR. JOHN MCCONNELL: John McConnell. I think  
11 it would be more appropriate to wait until tomorrow. I  
12 guess, it will also give us an opportunity to try and answer  
13 some of these questions in writing over the night tonight to  
14 maybe address some of Ms. Catholique's concern without taking  
15 up the time of the entire Hearing.

16 THE CHAIRPERSON: Thank you, sir. So, then  
17 tomorrow when we kick off, perhaps as part of your  
18 presentation, you may include the answers to -- to these  
19 questions.

20 Ms. Catholique, is that satisfactory? Thank  
21 you. Okay, then moving on, the next presentation is by

22 Indian Affairs Canada, and I believe you have a PowerPoint?  
23 Okay.  
24 MR. SEVN BOHNET: Yes, thank you, Mr.  
25 Chairman, it's Sevn Bohnet. We do have a PowerPoint

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1 presentation, and just for the information on the Board, and  
2 -- and people here, we have made all of -- copies of all of  
3 our presentations available on the front desk out front,  
4 including yesterday's, today's, and the ones we will have  
5 tomorrow. At this time, then we'll just get this set up, and  
6 I'll turn over to Ken Raven to make the presentation.  
7 Thanks.

8 THE CHAIRPERSON: Thank you, sir.

9  
10 (BRIEF PAUSE)

11  
12 MR. KEN RAVEN: Good afternoon, Mr. Chairman,  
13 and members of the Board. My name is Ken Raven, and I'll be  
14 making the presentation on behalf of Indian and Northern  
15 Affairs Canada this afternoon on hydrogeological issues  
16 associated with De Beers Snap Lake Diamond Project.

17 Just by way of a background and introduction,  
18 I'm a professional engineer, and a hydrogeologist with  
19 twenty-eight (28) years experience. A lot of this experience  
20 has been related to the characterization and investigation of  
21 mine sites in the Canadian Shield.

22 I just wanted to state at the beginning that  
23 many of the hydrogeological issues have been resolved to our  
24 satisfaction. Issues that we had early on related to volumes  
25 of groundwater pumped for example, these are quantity issues,

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1 have been resolved.

2 Similarly, issues related to discharge to the  
3 North Lakes under a post-closure situation have been resolved  
4 as well. I would like to note that we recognize that a lot  
5 of supplementary analyses were performed by the proponent to  
6 address issues, for example, up-welling issues.

7 Also, the work that was done in the mine,  
8 water assessment and bear-ability report were very helpful,  
9 and instructive.

10 That notwithstanding, what I would like to  
11 talk about today is what I consider to be an unresolved  
12 hydrogeological issue, and it relates to groundwater quality.  
13 This is, I suppose, very timely, relevant to the -- to the  
14 discussion that we had this morning.

15 The presentation that I will give this  
16 afternoon is structured as indicated here on this slide. I  
17 want to talk about primarily, one (1) key unresolved issue.

18 We recognize that there are uncertainties. I  
19 mean, hydrogeology is -- is, for the most part, a -- a  
20 discipline that operates with an uncertainty on a regular  
21 basis, but what I would like to focus on today, is what I  
22 consider to be the major key unresolved hydrogeological  
23 issue.

24 I want to provide some information from our  
25 perspective about why we think it's important. I want to try

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1 and summarize De Beers conclusion with regards to this issue,  
2 and then state INAC's conclusion.

3 The bulk of the presentation will focus on the  
4 rationale and evidence for our position, and our conclusion,  
5 and then I'd just like to quickly summarize at the end.

6 The unresolved hydrogeological issue that I  
7 would like to discuss today relates to the concentrations of  
8 connate groundwater.

9 We believe that there is enough information  
10 and evidence to indicate that concentrations of connate  
11 groundwater will likely be significantly greater than assumed  
12 in the EA, and the consequence of that is that there will  
13 likely be significantly greater impacts within Snap Lake,

14 than have been predicted within the EA.

15               So, just a follow on -- on the words that we  
16 heard this morning. We do not consider that the  
17 concentrations of connate groundwater that have been assumed  
18 by De Beers are conservative and that they overestimate  
19 impacts. We consider that they have been underestimated.

20               Before I get into the meat of this, I wanted  
21 just to discuss a couple of terms. Connate groundwater, just  
22 so that everybody understands it, it's the groundwater in the  
23 bedrock surrounding the mine prior to mine development.

24               There's a need to separate that connate  
25 groundwater from Snap Lake inflows because over the duration

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1 of the mine operations we know that Snap Lake will migrate  
2 into the sub-surface and mix with the connate groundwater.

3               TDS and chloride are the chemicals that I  
4 would like to focus this presentation on. TDS, is short for  
5 Total Dissolved Solids, and it's the total concentration of  
6 dissolved minerals and salts in water, and it's usually  
7 measured in milligrams per liter.

8               Just a couple of reference points, here. Snap  
9 Lake, the current TDS levels are about 15 milligrams per  
10 liter. Groundwater samples that have been collected in and  
11 around the Snap Lake project, to date, have shown TDS  
12 concentrations of two hundred (200) to two thousand (2000)  
13 milligrams per liter.

14               And the other concentration that I would like  
15 to refer you to is, some of the concentrations that were  
16 shown on the overhead this morning by De Beers, and it  
17 relates to the concentration of deep groundwater within the  
18 Shield.

19               It is a well documented and a common  
20 occurrence that as you go deeper in the Canada Shield, that  
21 the concentrations of salts in the groundwater increase  
22 dramatically.

23               And it's not uncommon to have concentrations  
24 of ten thousand (10,000) to a hundred thousand (100,000)  
25 milligrams per liter, at depths in the Shield that would be

1 equivalent to about a thousand (1000) to fifteen hundred  
2 (1500) meters below ground surface.

3           So, clearly we don't have that kind of  
4 information for Snap Lake, but the expectation is that if you  
5 went down to that depth, we would collect samples with that  
6 level of concentration.

7           The other chemical that I want to talk a  
8 little bit about today is chloride, and it's the major  
9 negatively charged ion in groundwater, and for these kinds of  
10 ground waters, it normally will be about 30 to 40 percent of  
11 the total dissolved solids concentration.

12           I've presented this schematic just so that  
13 everybody has an appreciation for the flows that are  
14 occurring at the mine.

15           This is schematic, it's not to scale. All I  
16 really wanted to show is that we have Snap Lake here, we have  
17 the mine at some depth, which is variable, and that the water  
18 that initially sits around the mine we're calling connate  
19 groundwater.

20           And that water is pumped as mine discharge to  
21 treatment, and then is discharged into Snap Lake, but Snap  
22 Lake will also recharge the mine.

23           I think it's important to ask why we consider  
24 this issue to be important. And I've listed here some  
25 reasons why I consider it to be important.

1           I think that there is a common recognition  
2 that the connate groundwater is a major component of the mine  
3 water, and that mine water comprises about 98 percent of the  
4 water that's discharged to Snap Lake.

5           If you just look at the concentrations that  
6 are in connate groundwater, we calculate that somewhere

7 between 65 and 75 percent of the loading of TDS to Snap Lake  
8 is going to derive from connate groundwater.

9 If you do the same kind of calculations for  
10 chloride, it's an even higher percentage; somewhere between  
11 85 and 90 percent of the chloride loading to Snap Lake is  
12 derived from connate groundwater.

13 Another couple of reasons why this is an  
14 important issue is that the proposed water treatment system,  
15 which is essentially filtration and sedimentation, really  
16 will not effectively reduce TDS and chloride concentrations.  
17 It will have a marginal influence on TDS but really not very  
18 much influence at all on chloride.

19 The last reason why we consider this to be  
20 important is that the results of De Beers' variability  
21 analysis show that there's a near 1:1 relationship between  
22 changes in the quality of connate groundwater, the quality of  
23 mine water discharge and the quality of water within Snap  
24 Lake.

25 And what I mean by that is that, if you

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1 increase the concentration of connate water by 50 percent,  
2 you will increase the concentration of TDS and chloride in  
3 mine water discharge and you -- by 50 percent, and you will  
4 increase the concentration within Snap Lake water by about 50  
5 percent. And that relationship exists because connate  
6 groundwater is the major source of those chemical loads.

7 I'd like to now summarize De Beers'  
8 conclusions concerning connate groundwater quality.

9 De Beers has taken the position that the  
10 groundwater samples collected from the granite boreholes  
11 during the advanced exploration program are a good  
12 representation of the kind of connate groundwater inflows  
13 that will occur during mining operations.

14 And they are assuming the value of about nine  
15 hundred (900) milligrams per litre for TDS, and about three  
16 hundred and thirty (330) milligrams per litre for chloride.

17 This results -- and these are -- these are  
18 numbers that are out of De Beers documentation, this results

19 in median mine water discharge quality of about six hundred  
20 (600) milligrams per litre for TDS, two hundred and forty  
21 (240) milligrams per litre for chloride.

22 And then if you carry the analysis further,  
23 into Snap Lake, it will result in maximum Snap Lake water  
24 quality of about three hundred and fifty (350) milligrams per  
25 litre for TDS and about a hundred and thirty-seven (137)

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1 milligrams per litre for chloride. These concentrations  
2 are -- are in Snap Lake and they're calculated outside of the  
3 zone of influence of the diffuser.

4 Our conclusions, after having looked at the  
5 information, is that we believe that the concentrations of  
6 TDS and chloride in the connate groundwater will likely be  
7 two (2) to three (3) times higher than has been assumed in  
8 the EA.

9 The follow on or associated conclusion that we  
10 would draw would be that the concentrations of TDS and  
11 chloride in mine water discharge to Snap Lake, and the water  
12 within Snap Lake, will also, therefore, be two (2) to three  
13 (3) times higher than assumed in the Environmental Assessment  
14 Report.

15 I would like, now, to discuss the lines of  
16 evidence that we think exist to support our conclusion. I  
17 have five (5) lines of evidence that I'd like to present.  
18 I'll go through them briefly and then come back to them and  
19 go through them in more detail.

20 We think that there is information and  
21 evidence to suggest that the AEP connate groundwater samples  
22 have been diluted by Snap Lake water inflow. We think that  
23 the concentrations have also been underestimated because the  
24 AEP connate groundwater samples are only collected from the  
25 upper one third of the proposed mine depth, and if we accept

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1 the fact that TDS is going to increase with depth, we would  
2 fully expect that as you go deeper and the mine gets deeper,  
3 that these concentrations should increase.

4 There is data available from the North Lakes  
5 investigation which we consider to be more reliable, not  
6 having been subject to potential Snap Lake water dilution  
7 effects, but these data have not been used.

8 One (1) of the issues that has been assessed  
9 with the Environmental Assessment Report is the issue of up-  
10 welling of the deeper, higher TDS groundwater that we know  
11 will exist at depth below the mine.

12 De Beers' analysis of this problem has  
13 indicated that it's a reasonable expectation that the  
14 concentrations of connate groundwater in the vicinity of the  
15 openings, considering this effect, could be higher by about  
16 50 percent.

17 Last but not least, is -- is the issue of  
18 incomplete mixing within Snap Lake due to the flow of dense  
19 mine water discharge to the lake bottom and we believe that  
20 that's a process that will probably occur and it will result  
21 in increases in concentrations in Snap Lake water.

22 I now want to go through each one of these,  
23 present a little more information, each one of these lines of  
24 evidence. This schematic illustrates the potential lake  
25 inflow effects on AEP groundwater concentrations.

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1 And we believe that most of the AEP granite  
2 ground water samples show dilution effects due to Snap Lake  
3 inflow. We think that this is evident in the TDS data when  
4 it is grouped by distance from the AEP openings and sampling  
5 date.

6 And what I've shown here is three (3)  
7 representative or schematic representations of boreholes and  
8 TDS values associated with those boreholes. What we see when  
9 we look at this data is that samples collected closest to the  
10 drifts show the lowest concentrations.

11 Samples collected farthest from the drifts

12 show the highest concentrations. And samples collected later  
13 in the AEP program show lower concentrations for all  
14 distances.

15                   We think that this patten of TDS indicates --  
16 is indicative of Snap Lake inflow effects and this effect, in  
17 our judgment, is not unexpected as the water travel time from  
18 Snap Lake to AEP openings is only a few weeks, as we heard  
19 this morning. And that these openings were open for at least  
20 that length of time prior to groundwater sampling.

21                   Mine and AEP sample depths. The maximum  
22 proposed depth, we heard four twenty (420) this morning, four  
23 sixty (460) is the number that I pulled out of the most  
24 recent documentation. The AEP ground water samples were only  
25 collected from depths of eighty-two (82) to a hundred and

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1 sixty-four (164) metres.

2                   If we look at some of those depths versus TDS  
3 plots that were presented this morning, we fully would expect  
4 that TDS and chloride would increase ten-fold for about every  
5 five hundred and fifty (550) metres of depth.

6                   So, as you go from a hundred and sixty-four  
7 (164) metres to four hundred and sixty (460) metres, we will  
8 fully expect to see higher concentrations of TDS and chloride  
9 in the connate ground water inflow.

10                   I want to talk a little bit about North Lakes  
11 ground water quality data. These are ground water samples  
12 that were collected form monitoring wells that were installed  
13 to investigate the potential loading to the North Lakes.

14                   And I want to refer you to two (2) sets of  
15 water quality results. These are holes drilled on land so  
16 they're not influenced by lake inflow. And one (1) set of  
17 results is from monitoring at about a hundred and ten (110)  
18 to a hundred and thirty (130) metres and these are the  
19 average TDS and chloride values reported. In both instances  
20 greater than the values that De Beers has assumed for the  
21 entire mine.

22                   And then there is a deeper sample at around  
23 two hundred (200) metres which, again, has higher

24 concentrations as we would expect. And this is, of course,  
25 even greater than the values that have been assumed by

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1 De Beers.

2           This line of evidence is the up-welling of  
3 deep pipe TDS groundwater. De Beers own analysis of it was  
4 thorough, in our judgment, and the results indicate that we  
5 expect it will be some flow upward from depth to the mine and  
6 that we know that down here that there will be higher TDS  
7 groundwater.

8           And De Beers' conclusion was that increasing -  
9 - that up-welling increases connate ground water TDS and  
10 chloride, probably by about 50 percent. So that up-welling  
11 effect, if you take the concentration of data that would  
12 exist here as connate groundwater, with up-welling you could  
13 increase that by 50 percent.

14           The last line of evidence that I'd like to  
15 discuss is the line of evidence that relates to the water  
16 that's pumped from the mine and then discharged into Snap  
17 Lake.

18           We know that ice cover will exist over the  
19 Lake for seven (7) or eight (8) months of the year, and that  
20 the current modeling that has been done by De Beers, assumes  
21 that -- that water will be fully mixed. In other words, it  
22 will be one (1) concentration over depth.

23           We would expect to see that some of that water  
24 that's pumped into the lake is going to flow down to the  
25 bottom and accumulate within the lower reaches of the Lake,

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1 the holes within the Lake.

2           This is a hydrogeological issue because we  
3 also know that Snap Lake water will recharge the mine. And

4 so, we would have a situation with this stratification of  
5 having higher TDS water recharge the mine.

6 This is a fairly complicated process, it's not  
7 one that we can be quantitative about. And what I have shown  
8 here is just a very simple qualitative representation, where  
9 this years of mine operation versus the Lake concentration.

10 And this line here represents complete mixing,  
11 and this would be a line that would represent incomplete  
12 mixing.

13 So, what we're saying is -- is that the  
14 concentrations will rise faster within Snap Lake if we have  
15 incomplete mixing.

16 What I wanted to show in a graphical sense, on  
17 the next two (2) slides, was values of TDS and chloride at  
18 this particular depth.

19 And I think De Beers said this morning, that  
20 the -- that the average mine depth is about two hundred and  
21 eight (208), I've listed it here as two hundred and ten  
22 (210), but this is the average depth of the mine, from the  
23 standpoint of groundwater inflow.

24 The values for TDS that De Beers have assumed  
25 in the EA, are nine hundred (900) milligrams per liter. I've

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1 indicated here the data for the North Lakes, it's more like  
2 sixteen hundred (1600) milligrams per liter.

3 I've provided, in this column, the information  
4 that was generated as part of the Diavik Project, and it was  
5 a summary of TDS -- TDS versus Depth Profile.

6 And if we take that -- that profile and look  
7 at what the value would be about two hundred and ten (210)  
8 meters, it's about two thousand (2000).

9 And in the last two (2) columns, here, the  
10 last two (2) bars represent what the concentrations of the  
11 North Lakes and the Canadian Shield data would be with up-  
12 welling.

13 So, we get concentrations, potentially, for  
14 connate groundwater of twenty four hundred (2400) and all the  
15 way up to three thousand (3000).

16                   This is the same sort of plot, same kind of  
17 data, that relates to chloride, at an average mine depth of  
18 two hundred and ten (210) meters. De Beers has assumed three  
19 thirty (330). The North Lakes data shows, six ten (610).  
20 The compilation that was done for Diavik shows, eight thirty  
21 (830). And then if you add up-welling onto that, you end up  
22 with these, again, much higher numbers.

23                   So, in summary, it's our opinion that the data  
24 that De Beers has used, which is the advanced exploration  
25 program groundwater data, that are used to estimate connate

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1 groundwater quality, are diluted by Snap Lake inflows, and  
2 thus, in our opinion, are unrealistically low.

3                   It's our opinion, from looking at the other  
4 data that's available from -- from the North Lakes, from  
5 other areas in the Shield, and considering up-welling  
6 effects, that the quality of connate groundwater flows during  
7 mining operations have probably been underestimated.

8                   And we're saying, based on those previous two  
9 (2) bar charts that I've shown you, that we think it may have  
10 been underestimated by factors of two (2) to three (3).

11                   Because of the one (1) to -- the near 1:1  
12 relationship that exists between changes in connate  
13 groundwater quality and the predicted quality within Snap  
14 Lake, we believe that the concentrations of TDS, chloride,  
15 and other major ions, for example, calcium, in Snap Lake,  
16 similarly have been underestimated by factors of two (2) to  
17 three (3) times.

18                   And I guess the -- the implications of this  
19 are that the impacts of Snap Lake will also be significantly  
20 greater than have been predicted in the EA.

21                   The details of this discussion about impacts  
22 within Snap Lake will be addressed by Peter Chapman's  
23 presentation tomorrow.

24                   That's the end of my presentation. I'd like  
25 to thank the Board for the opportunity to present this

1 information.

2 THE CHAIRPERSON: Thank you, sir.

3

4 (BRIEF PAUSE)

5

6 THE CHAIRPERSON: Thank you, Mr. Raven. I  
7 assume that the proponent will have questions on this  
8 particular presentation?

9 MR. JOHN McCONNELL: John McConnell, Mr.  
10 Chairman. Obviously this is very critical in terms of the  
11 assessment, and I just wondered if the Board could indulge us  
12 with a ten (10) minute break, so that we could just  
13 coordinate our questions for Mr. Raven?

14 THE CHAIRPERSON: Certainly, sir. We'll take  
15 a ten (10) minute break.

16 MR. JOHN McCONNELL: Thank you.

17

18 --- Upon recessing at 2:21 p.m.

19 --- Upon resuming at 2:27 p.m.

20

21 THE CHAIRPERSON: Thank you. The proponent  
22 wishes to use INAC's slide presentation to reference their  
23 questions. So the Board won't move back there, we have  
24 the -- the handout of the -- of the PowerPoint presentation.  
25 But when you are referencing a slide, if you could just

1 mention the slide and the page number on DIAND's handout, so  
2 we can follow along here?

3 MR. ROBIN JOHNSTONE: Thank you, Mr.

4 Chairman. We have several questions and -- from a couple of  
5 people, here. So what we'd like to do is just to be able to  
6 refer to the slide that -- that we have the question on.

7 So to begin with, if we could just touch on  
8 Slide 4, please, entitled Important Terms. Over to you, Ken.

9 MR. KEN DeVos: The question is: In the TDS  
10 total dissolved solids for groundwater, you mentioned in your  
11 discussion that the range for Snap Lake was two hundred (200)  
12 to two thousand (2,000). We did not see any sample that had  
13 a TDS concentration of two thousand (2,000). Can you explain  
14 where that number came from, please?

15 MR. KEN RAVEN: Ken Raven, speaking on behalf  
16 of INAC. The groundwater concentration of two thousand  
17 (2,000) is probably reference to the North Lake's report.  
18 But I'll admit that that number is a little bit on the high  
19 side.

20 THE CHAIRPERSON: Thank you. Mr.  
21 Johnstone...?

22 MR. ROBIN JOHNSTONE: Thank you. And now  
23 Slide 7.

24  
25 (BRIEF PAUSE)

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1 MR. KEN DeVos: Just to follow up, we  
2 actually did not see any North Lakes' data that was two  
3 thousand (2,000) milligrams per litre.

4 With respect to -- actually, I'm going to save  
5 that.

6 We did not find a 1:1 relationship between  
7 changes in the quality of connate water, mine water and Snap  
8 Lake water. Can you explain how you arrived at this  
9 relationship?

10 THE CHAIRPERSON: Thank you. Mr. Raven...?

11 MR. KEN RAVEN: Ken Raven speaking, on behalf  
12 of INAC. The 1:1 relationship was derived from the mine  
13 water assessment and variability report information.

14 And I can pull the table out, but it is from  
15 your summary tables. And I don't mean to imply that a  
16 hundred (100) -- a concentration change of, for example 100  
17 milligrams per litre will translate into a mine water  
18 discharge and Snap Lake concentration of 100 milligrams per  
19 litre.

20 I think what I said was that increases in

21 concentration would show a near 1:1 relationship. So -- and  
22 I think I cited a 50 percent. So, I think if you look at  
23 those tables they do show that near 1:1 relationship.

24 THE CHAIRPERSON: Thank you.

25 MR. KEN DeVos: If I could just follow up on

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1 that one. In fact, the load stated in slide 6 says that 65  
2 to 75 percent of the TDS comes from the connate water. Our  
3 calculations show that that's closer to 50 percent.

4 But when we're talking about a 1:1  
5 relationship here, if we think back to my analogy about the  
6 coffee and the sugar, if we have our coffee cup and we have  
7 in one (1) hand our spoonful of connate sugar, in the other  
8 hand our spoonful of sugar or loading from the rest of the  
9 site, if we put both of those in the same cup they we have  
10 two (2) parts in our cup.

11 If we then take our connate spoon, take  
12 another scoop of sugar put that in the cup, we only have  
13 three (3) parts, we have not doubled our relationship. We do  
14 not have a 1:1 relationship.

15 THE CHAIRPERSON: I didn't find a question  
16 there, but you're explaining the answers. Thank you.  
17 Mr. Raven, do you have a rebuttal to that analogy?

18 MR. KEN RAVEN: I do have a response. I  
19 think everyone accepts that connate ground water is probably  
20 the major source of dissolved chemical load for chloride to  
21 Snap Lake and is a major source of TDS load to Snap Lake.

22 So, I would say the way to look at this is if  
23 you increase the load by 50 percent then you will result in  
24 an increase in the concentration in the lake by 50 percent  
25 over the values that -- that were baseline.

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1 THE CHAIRPERSON: Thank you, sir.  
2 Mr. DeVos...?  
3 MR. KEN DeVos: In fact, now you're talking  
4 about loadings. In your whole presentation you were talking  
5 about concentration. Have you accounted for the flows in  
6 your assessment?  
7 THE CHAIRPERSON: Mr. Raven...?  
8 MR. KEN RAVEN: I've not specifically  
9 accounted for flows. We have taken the position that  
10 De Beers' estimates of flows were reasonable and accurate.  
11 THE CHAIRPERSON: Thank you.  
12 Mr. Johnstone...?  
13 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
14 Johnstone. So, what would be the estimate being -- what  
15 would be the impact then of accounting for those flows in  
16 terms of your estimates?  
17 THE CHAIRPERSON: Thank you. Mr. Raven...?  
18 MR. KEN RAVEN: That's a difficult question  
19 for me to answer. I think that the question would have to be  
20 more specific for me to answer. I mean, as I said earlier,  
21 our focus has been on the issue of ground water quality.  
22 I'm not in a position at this moment to  
23 provide comment because I don't have that information to  
24 hand.  
25 THE CHAIRPERSON: Thank you. Mr. DeVos...?

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1 MR. KEN DeVos: All that information is  
2 available in the mine water variability assessment. Did you  
3 take those loadings into account in your assessment?  
4 THE CHAIRPERSON: Mr. Raven...?  
5 MR. KEN RAVEN: Could you repeat the question  
6 please?  
7 THE CHAIRPERSON: Mr. DeVos...?  
8 MR. KEN DeVos: The loading information that  
9 you've referred to is all available in the mine water  
10 variability assessment and I was just wondering if you had  
11 accounted for that loading information that was available to  
12 you in that assessment?

13 THE CHAIRPERSON: Mr. Raven...?  
 14 MR. KEN RAVEN: I presume that we're still  
 15 talking about a 1:1 relationship issue. The answer to your  
 16 question is yes.  
 17 THE CHAIRPERSON: Thank you.  
 18 MR. ROBIN JOHNSTONE: De Beers Canada. I'd  
 19 just like to see slide 11 please, if we may?  
 20 And, Greg Oryall from AMEC will be asking a  
 21 question.  
 22 MR. GREG ORYALL: Greg Oryall, AMEC, on  
 23 behalf of De Beers. Excuse me, Ken, I'm not a  
 24 hydrogeologist, so I'm just kind of going from a much more a  
 25 simpler understanding of life, but on Slide 11, you note in

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1 your first bullet that up-welling a deep, high TDS  
 2 groundwater increases the connate groundwater TDS, and to my  
 3 mind, one (1) of the things that sets this system at Snap  
 4 Lake apart from, perhaps, other systems in the region, is the  
 5 fact that there's a strong downward flow gradient from Snap  
 6 Lake, because it is a recharged lake, just because of the  
 7 general topography of the region.  
 8 Can you provide any examples of a similarly  
 9 high up-welling, where there's this strong downward flow  
 10 regime that's driven by topography?  
 11 THE CHAIRPERSON: Thank you. Mr. Raven...?  
 12 MR. KEN RAVEN: I think the situa -- I -- I'm  
 13 referring to up-welling during the operational period in the  
 14 mine, and I think that during that period, I mean, there's  
 15 essentially a zero (0) pressure condition that operates  
 16 within the mine, and that zero (0) pressure condition would  
 17 overwhelm any sort of natural downward gradients that would  
 18 occur.  
 19 And so the gradients would be orders of  
 20 magnitude higher, directing flow to the opening from below.  
 21 Does that answer your question?  
 22 MR. GREG ORYALL: I don't know, but I'll have  
 23 to accept it, because it's -- it is more than I understand.  
 24 THE CHAIRPERSON: Thank you. Perhaps I can

25 ask a question, because it's part of your presentation that

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1 bothered -- it didn't bother me, but confused me was that you  
2 talked about high D -- high TDS at one thousand (1,000) to  
3 fifteen hundred (1500) metres.

4 Now, the deepest that, as far as you know, the  
5 mine will go is four hundred and fifty (450) metres, which  
6 means that this water has to move probably one thousand  
7 (1,000) metres up, but at the same point, there's water  
8 coming out the mine, because it sits high.

9 And I guess my question was the same. How  
10 does that water get there? Are you saying that the pressure  
11 in the mine will suck the water up and that's what will give  
12 you your high TDS level?

13 MR. KEN RAVEN: Short answer, yes. This  
14 problem has been looked at by De Beers, with some fairly  
15 sophisticated models, and some of those results are presented  
16 in the mine water assessment variability report that was  
17 prepared at the end of February, and those results show,  
18 indeed, that the up-welling will occur.

19 THE CHAIRPERSON: Thank you. Perhaps I have  
20 a question for Mr. DeVos. Do you agree -- you have my  
21 question, you have the answer, do you agree with the answer?

22 MR. KEN DeVos: I disagree with his answer,  
23 and I'll explain why.

24 THE CHAIRPERSON: Could you, and then we'll  
25 move on, because --

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1 MR. KEN DeVos: Yes.

2 THE CHAIRPERSON: -- then we'll have heard  
3 both sides, and --

4 MR. KEN DeVos: The mine up-welling that we

5 assessed, and the variability was based on inputs and  
6 suggestions from Mr. Raven. We don't agree with those  
7 assumptions.

8 We feel that Mr. Raven has not accounted for  
9 the change in flow that occur with depth that we see at -- at  
10 other Canadian Shield environments, and we did not include  
11 that in our assessment of the up-welling, or for that matter,  
12 the inflow of the connate water specifically.

13 THE CHAIRPERSON: Thank you, if we -- sorry  
14 to jump in, but if we could move on to your next point,  
15 please?

16 MR. ROBIN JOHNSTONE: Slide 16, please?

17 MR. MARK DIGEL: Mark Digel with Golder  
18 Associates, representing De Beers. I similarly am not a  
19 hydrogeologist, but I was responsible for the Surface Water  
20 Quality Assessment for the project, so my question relates to  
21 that.

22 As I heard it, Mr. Raven's presentation  
23 indicated that the environmental assessment did not account  
24 for an incomplete mixing in Snap Lake. I think the -- the  
25 statement was, the EA assumes one (1) concentration over

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1 depth.

2 Just as an initial question, is that  
3 characterized correctly, what you said?

4 MR. CHAIRPERSON: Thank you. Mr. Raven...?

5 MR. KEN RAVEN: Yes.

6 MR. MARK DIGEL: Mark Digel again. Your  
7 slide that's up there number 16, titled Incomplete Mixing in  
8 Snap Lake, shows the 10 percent of the Lake volume that was  
9 used in the site water model to predict concentrations in  
10 lake recharge to the mine.

11 Reducing the mixing volume from 100 percent to  
12 the 10 percent was selected by us in the Environmental  
13 Assessment specifically to account for incomplete mixing in  
14 Snap Lake. It ensured that the site water model did not  
15 underestimate concentrations in the lake recharge to the mine  
16 due to incomplete mixing.

17                   Furthermore, if you were to look in the  
18 Environmental Assessment, on page 9-219, you would see we  
19 have a discussion similar to yours, how after initial mixing,  
20 the discharge does settle back into the -- the bottom. And  
21 so that was accounted for in the assessment and in the -- the  
22 Lake recharge concentrations, as you've indicated here.

23                   And I'm just wondering, did you factor that  
24 into your analysis?

25                   THE CHAIRPERSON:     Okay, Mr. Raven...?

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1                   MR. KEN RAVEN:     My understanding of how the  
2 concentrations of -- and I'm interested in this from a  
3 hydrogeological perspective. My understanding of how the  
4 concentrations of recharge water to the mine from Snap Lake  
5 are calculated is that they're calculated using the Goldsim  
6 model, assuming that the volume of water within the effective  
7 Lake volume is fully mixed.

8                   So I guess my counter question is: Is that an  
9 incorrect -- am I incorrect in that?

10                  THE CHAIRPERSON:     If you are, I'm sure you're  
11 about to be told.

12                  MR. MARK DIGEL:     Mr. Chairman, Mark Digel.  
13 I -- I would have to answer that without asking a question,  
14 is that acceptable?

15                  THE CHAIRPERSON:     Okay.

16                  MR. MARK DIGEL:     Okay. In effect, that --  
17 that's not correct. The -- the -- it -- it's true, there is  
18 a feedback loop from the Lake back into the groundwater, that  
19 needed to be accounted for in Goldsim.

20                  It was also modelled by the hydrodynamic model  
21 for the Lake, as well as the -- the core mix model which we  
22 used to predict the sinking of plume during the winter.

23                  Because it would have been very complex to  
24 incorporate that level of detail into the model, what we in  
25 fact did was, we took a simpler approach that did the same

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1 thing.

2 We said, okay, it's not going to mix in the  
3 whole lake, let's reduce that mixing volume until we get  
4 concentrations that are predicted by Goldsim, in the recharge  
5 to the mine that are equal to what you would get in the  
6 winter, after initial mixing and then that sinking down to  
7 the bottom.

8 So that's where we arrived at that 10 percent.  
9 So it's -- it's a simplified way of doing it, but it does the  
10 same thing.

11 THE CHAIRPERSON: Thank you. Mr. Raven...?

12 MR. KEN RAVEN: I guess the point that I  
13 would like to make is -- is that, there is an assumption  
14 of -- of a complete mixing with that Lake volume, to  
15 calculate recharge. And -- and the only point that I wanted  
16 to make was that -- that, there is a strong possibility,  
17 probability, that we will see some density separation. And I  
18 didn't see that accounted for within the documentation.

19 MR. MARK DIGEL: Mark Digel with Golder  
20 Associates. Just to clarify, it was -- it was accounted for,  
21 and that 10 percent does give you concentrations that are  
22 similar to what we got with -- or higher than we got with the  
23 water quality modelling, the core mix modelling, that said  
24 what that higher concentration that -- after initial mixing  
25 would be when it settled back down to the bottom.

1 So, yes, it was a different way of -- of doing  
2 it, but it does come to the same concentration. So we  
3 ensured that the concentrations predicted by the Goldsim  
4 model for lake recharge to the mine, were not underestimated.  
5 And they did account for that incomplete mixing.

6 THE CHAIRPERSON: Okay, thank you. Could we  
7 perhaps move onto the -- the next question, please?

8 MR. MARK DIGEL: Okay, Mark Digel with Golder  
9 Associates. My next question is just a further clarification

10 on the next slide, Slide 17.

11 This slide shows two (2) lines, one (1)  
12 representing incomplete mixing that's at higher  
13 concentration, the other representing complete mixing at a  
14 lower concentration.

15 And as -- as I mentioned previously, the  
16 Environmental Assessment did account for the incomplete  
17 mixing and so in fact, what was assessed in the Environmental  
18 Assessment is the higher line within -- with incomplete  
19 mixing and I just wanted to be clear, and, I guess, my  
20 question is: Did you understand that and if you didn't, do  
21 you understand that now?

22 MR. KEN RAVEN: It's a good question. I  
23 would probably say that I still think that this figure is  
24 a -- is a fair representation because, as I understand --  
25 maybe I do not understand it fully. But -- and maybe the way

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1 that this could be clarified is if I ask you a counter-  
2 question.

3 If -- if there is density stratification  
4 within the effective Lake volume, would there be higher --  
5 within that 10 percent volume, would there be higher  
6 concentrations at the bottom of the lake or not?

7 THE CHAIRPERSON: Okay. I'll allow the  
8 question to be answered because it, hopefully, will clarify.

9 MR. MARK DIGEL: Mark Digel with Golder. I'm  
10 going to have to ask you to -- to restate the question, not  
11 rephrase it. I understood it but I just want to make sure  
12 that I followed your logic completely.

13 MR. KEN RAVEN: As I understand your answer  
14 -- our discussion here --

15 THE CHAIRPERSON: Sorry. Mr. Raven, please  
16 can you just say your name when you --

17 MR. KEN RAVEN: I'm sorry.

18 THE CHAIRPERSON: -- when you speak into the  
19 microphone.

20 MR. KEN RAVEN: Ken Raven on behalf of INAC.  
21 As I understand the discussion, you're saying that the

22 effective Lake volume, the selection of that 10 percent was  
23 intended to account for incomplete mixing.

24 And my question is: Is -- within that 10  
25 percent Lake volume, is there any potential for

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1 stratification to actually occur?

2 THE CHAIRPERSON: Thank you, Mr. Raven.

3 MR. MARK DIGEL: Mark Digel representing  
4 De Beers. The short answer is, yes, we do expect density  
5 separation to occur within the lake. Not depending on the  
6 rate of discharge in particular. You're not restricted to  
7 that 10 percent area.

8 That 10 percent was only a -- sort of an  
9 artifact used to make sure the Lake model predicted -- the  
10 Goldsim model predicted high enough concentrations but, yes,  
11 we would predict, and we did predict, density separation.

12 And the concentrations that were predicted by  
13 Goldsim are the same or, in fact, a little bit higher for  
14 most of the time, than the concentrations that we predicted  
15 in that denser water that would sink down to the bottom of  
16 Snap Lake.

17 THE CHAIRPERSON: Thank you.

18 MR. MARK DIGEL: Does that clear it up?

19 MR. KEN RAVEN: Ken Raven. Yes.

20 THE CHAIRPERSON: Thank you. Next question.

21 MR. ROBIN JOHNSTONE: Slide 18.

22 MR. KEN DeVos: Ken DeVos of Golder  
23 Associates for De Beers. I just have a point of  
24 clarification and then a question. The centre bar labelled  
25 Canadian Shield here, in your discussion you pointed out that

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1 that was Diavik data.

2 I would like to point out that, in fact, that  
3 is not Diavik data but that is data that was available to the  
4 -- the people who were doing the Diavik assessment. So that  
5 is from other locations in the Canadian Shield. That is the  
6 same data that I put up earlier today.

7 I would like to know whether you considered  
8 the actual Diavik data in your assessment?

9 THE CHAIRPERSON: Thank you. Mr. Raven...?

10 MR. KEN RAVEN: Ken Raven. Just a point of  
11 clarification, I did -- I did know that that information  
12 that's portrayed as Canadian Shield was from the Blowes and  
13 Logsdon memo of 1997.

14 I don't think I portrayed it as from the  
15 Diavik project. I portrayed it as a profile that was  
16 generated for the Diavik project.

17 THE CHAIRPERSON: Okay. The record is there.  
18 It's not really important. The important point is the second  
19 part of the question, Mr. Raven.

20 MR. KEN RAVEN: I didn't consider Diavik data  
21 on this plot.

22 THE CHAIRPERSON: Thank you. Next question.

23 MR. KEN RAVEN: And the reason why I didn't  
24 consider it was I know nothing about how the information was  
25 collected.

1 THE CHAIRPERSON: Thank you, sir. Next  
2 question.

3 MR. KEN DeVos: Did you try to obtain that  
4 information and if so, did you, at least, think about the  
5 Diavik data and try to consider it in your -- in your  
6 assessment?

7 THE CHAIRPERSON: Mr. Raven...?

8 MR. KEN RAVEN: Ken Raven. I did not try to  
9 acquire it, and I did not consider it in this assessment.

10 THE CHAIRPERSON: Thank you, sir. Next  
11 question?

12 MR. KEN DeVos: Our assessment, or our -- our  
13 understanding is that that Diavik -- that data is the -- the

14 nearest closest data that -- that mostly -- most likely  
15 resembles what we're going to see at Snap Lake.

16 We've shown that data in our previous slide,  
17 and we would like to know why that was -- that -- that you  
18 didn't try and obtain that information, and why you didn't  
19 include it in your assessment?

20 THE CHAIRPERSON: Thank you. Mr. Raven...?

21 MR. KEN RAVEN: I didn't try to acquire that  
22 information, and I didn't use it, because, one (1), as I said  
23 earlier, I -- the documentation of how the data was collected  
24 is not clear to me.

25 I don't know that it would be clear in the

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1 information that would be acquired. I just thought that, for  
2 example, that the North Lakes' data, which is closer to the  
3 site than Diavik, was probably more representative.

4 THE CHAIRPERSON: Thank you, sir. Next  
5 question?

6  
7 (BRIEF PAUSE)

8  
9 MR. KEN DeVos: The North Lakes' data was  
10 actually collected away from Snap Lake in a discharge  
11 environment. Do you consider data from discharge  
12 environments applicable to Snap Lake?

13 THE CHAIRPERSON: Thank you. Mr. Raven...?

14 MR. KEN RAVEN: Ken Raven. I know that it is  
15 De Beer's position that the North Lakes data are in a  
16 discharge environment.

17 My interpretation and reading of the  
18 documentation in the North Lakes report certainly doesn't  
19 convince me that it is in a discharge location.

20 The way I look at that data is, you have two  
21 (2) sets of data; one (1) from about one hundred (100)  
22 metres, the other from about two hundred (200) metres depth,  
23 and they show increases in TDS.

24 And quite frankly, it would be consistent with  
25 what we see at other locations in the Shield, so I -- I

1 didn't consider the -- the information to convince me that --  
2 that deeper sample was, in fact, in a groundwater discharge  
3 location.

4 I think the head data is ambiguous, at best,  
5 for the -- for those holes.

6 THE CHAIRPERSON: Thank you, sir. Next  
7 question?

8 MR. ROBIN JOHNSTONE: Robin Johnstone, De  
9 Beers Canada. Thank you, Mr. Chair. We note that INAC  
10 thinks that -- that they have probably -- the estimates of  
11 concentrations of TDS have probably been underestimated.

12 We note that there has been no comment around  
13 what that probability is, but moreover, there's really little  
14 justification for the estimates that concentrations in Snap  
15 Lake may be two (2) to three (3) times higher than predicted  
16 in the environmental assessment.

17 We considered that it would be valuable to  
18 have some of the information underlying that methodology in  
19 leading to those conclusions. So, I -- I think it would help  
20 if the Board would -- would basically let us have a few  
21 minutes of their time to really skip through some of these  
22 questions, to take us through the logic of that two (2) to  
23 three (3) times.

24 THE CHAIRPERSON: Perhaps we can ask INAC how  
25 they arrived at -- at that figure of two (2) to three (3)

1 times, and let them answer?

2 MR. ROBIN JOHNSTONE: Well, perhaps the  
3 underlying assumptions, and information wherever possible.

4 MR. CHAIRPERSON: Mr. Raven...?

5 MR. KEN RAVEN: The short answer to the two  
6 (2) to three (3) times is, that it is -- it's derived from

7 the sort of slides that are presented here. I thought the  
8 presentation was fairly clear on the rationale and the basis  
9 for selecting those numbers.

10 If we look at this slide, which shows TDS at  
11 average mine depth, De Beers are assuming nine hundred (900),  
12 the North Lakes data for about the same depth, says about  
13 sixteen hundred (1,600). The Blowes and Lodgson memo  
14 suggests two thousand (2,000).

15 And I think if you look at those two (2) sets  
16 of data, that would suggest a factor of about two (2). And  
17 then if you add up-welling effects, which by De Beers own  
18 calculations suggests an increase of about 50 percent, you  
19 would get from two (2) to three (3).

20 You can go through the same logic and  
21 calculation for the chloride numbers.

22 THE CHAIRPERSON: Thank you. And -- and, I  
23 mean, we have listened to the previous questions, which have  
24 followed this trail through. So, I mean, we understand it  
25 and Mr. Raven didn't use North Lake data, you did.

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1 So I don't think rehashing the methodology is  
2 going to help us any, here. But we understand there's a  
3 difference of approach here, and we have our own consultants  
4 which will help us through this problem. Thank you.

5 Next question, please?

6  
7 (BRIEF PAUSE)

8  
9 MR. KEN DeVos: I'd just like to -- to  
10 Clarify the reference for the Diavik data. It's not blows  
11 and -- it is -- it is actually Blowes and Logsdon, L-O-G-S-D-  
12 O-N.

13 The profile that he's quoting as Blowes and  
14 Logsdon is actually based on data from Frape and Fritz. And  
15 the Diavik profile also quoted by Blowes and Logsdon was  
16 provided in my previous slide as the pink line.

17 The number for that value at two ten (210), is  
18 approximately four hundred (400) milligrams per litre TDS.

19 THE CHAIRPERSON: Thank you. Do you have any  
20 additional questions?  
21 MR. ROBIN JOHNSTONE: No.  
22 THE CHAIRPERSON. Okay. The Yellowknives  
23 Dene, do you have any questions of INAC? Mr. Byers...?  
24 MR. TIM BYERS: No, we don't have any  
25 questions, thank you.

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1 THE CHAIRPERSON: I don't see anyone from the  
2 Chamber here.  
3 NWT Metis Nation? Any questions? No.  
4 North Slave Metis Alliance?  
5 DFO? Ms. Dahl...?  
6 MS. ELAINE BLAIS: Hi, my name is Elaine  
7 Blais with DFO. I've a question for Mr. Raven. This refers  
8 to Slide 16 in the presentation and it has to do with the  
9 dense high TDS water.  
10 We would like to know whether that was assumed  
11 or, I don't know, quantified, to be nine twenty-nine (929)  
12 milligrams per litre, which was -- which is the estimated, or  
13 the predicted maximum concentration coming from the  
14 discharge.  
15 And -- and I guess, part of my confusion,  
16 perhaps, is, what we hear from De Beers is that the maximum  
17 concentration of that under-ice -- of the TDS plume will be  
18 three hundred and fifty (350) milligrams per litre. So we --  
19 we wanted to know whether the -- the dense high TDS water,  
20 whether you were assuming that was nine twenty-nine (929) or  
21 three fifty (350)?  
22 THE CHAIRPERSON: Thank you. Mr. Raven...?  
23 MR. KEN RAVEN: Ken Raven, INAC. We -- we  
24 chose specifically not to be quantitative about this kind of  
25 figure because the process is sufficiently complicated. That

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1 we -- we didn't feel comfortable assigning numerical values.  
2 The slide was presented to schematically  
3 represent, in a qualitative sense, a process that we thought  
4 was important.  
5 So to answer your question, we -- we couldn't  
6 be quantitative and I made no assumptions about particular  
7 concentrations.  
8 THE CHAIRPERSON: Thank you, sir. Follow up?  
9 No? Okay. Dogrib Treaty 11...?  
10 MR. STEVE WILBUR: Steve Wilbur, Dogrib.  
11 This is just a few questions of clarification on this thing  
12 that went on here.  
13 THE CHAIRPERSON: You mean the exchange  
14 between --  
15 MR. STEVE WILBUR: There -- there you go. I  
16 guess a point of clarification. I'm not sure who should  
17 answer this, Ken or Ken. So --  
18 THE CHAIRPERSON: Well, your questions for  
19 this should be directed at INAC.  
20 MR. STEVE WILBUR: Okay, so for Ken, then --  
21 Ken Raven, the -- on slide 4, the important terms, you  
22 mentioned that the -- or you showed that the ground water  
23 concentration was two hundred (200) to two thousand (2000)  
24 and Ken -- Ken DeVos came back and said we don't have  
25 anything in North Lakes that was that high.

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1 So my question is: What were the -- what was  
2 the maximum concentration at North Lakes that -- that allowed  
3 you to arrive at this range? Was it nineteen hundred and  
4 twenty (1920) or are you just rounding or what was the value?  
5 THE CHAIRPERSON: Mr. Raven...?  
6 MR. KEN RAVEN: Ken Raven, INAC. The two  
7 thousand (2000) should probably be sixteen hundred (1600)  
8 because I think something around sixteen hundred (1600) was  
9 the maximum value reported from the North Lakes  
10 investigation.  
11 THE CHAIRPERSON: You were just rounding off

12 in this slide; correct?

13 MR. KEN RAVEN: Order of magnitude  
14 presentation.

15 MR. STEVE WILBUR: Okay. The next question  
16 also for Ken is, I guess it's back to this 1:1 relationship  
17 and I just want to be sure that I understand exactly what  
18 he's talking about and that the response was -- was correct  
19 in my mind.

20 I guess, if we're assuming the same flow from  
21 the mine and we increase our -- the mine water that has a  
22 concentration -- if we increase the quality -- if we increase  
23 the concentration by 50 percent and the flow is the same then  
24 the resultant change in Snap Lake will also be a 50 percent  
25 increase; is that what you were saying?

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1 THE CHAIRPERSON: Mr. Raven...?

2 MR. KEN RAVEN: Ken Raven. Yes. That's what  
3 I'm saying.

4 THE CHAIRPERSON: Thank you.

5 MR. STEVE WILBUR: One -- one more question  
6 and this is about the Diavik data. And I guess, Ken, just  
7 for clarification, I guess, would you agree then that the  
8 Diavik data which Ken has asked you about and then we had a  
9 plot earlier today that it did not plot the same as the Snap  
10 Lake data and that's, perhaps, the reason why you didn't  
11 think it was representative?

12 THE CHAIRPERSON: Thank you. Mr. Raven...?

13 MR. KEN RAVEN: Ken Raven. Yes. It is -- it  
14 is certainly not within the range of expected concentrations  
15 from these other compilations. And so that's one of the  
16 reasons why I didn't choose to use it.

17 I also, quite frankly, would have concerns  
18 about Lake water effects and so, without the detailed  
19 information on how that data was generated, I'd be very  
20 cautious about using it.

21 THE CHAIRPERSON: Thank you.

22 MR. STEVE WILBUR: No further questions.  
23 Thank you.

24 THE CHAIRPERSON: Okay. Government of the  
25 Northwest Territories?

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1 Environment Canada?  
2 Lutsel K'e? Okay.  
3 We have with us also Mr. Rob Dickin with  
4 Gartner Lee who's a hydrogeologist working for the Board who  
5 has a few questions of INAC. Mr. Dickin...?  
6 MR. ROB DICKIN: Rob Dickin, Mackenzie Valley  
7 Environmental Impact Review Board. Mr. Raven, you discussed  
8 up-welling and the fact that that may increase salinity in  
9 the mine waters later on, but would it also have affected the  
10 advanced exploration program during the period that the mine  
11 was open then and would that have affected the salinity of  
12 the -- the water quality samples that were taken at that  
13 time?

14 THE CHAIRPERSON: Thank you. Mr. Raven...?  
15 MR. KEN RAVEN: I think that that -- because  
16 the AEP excavations are relatively shallow, I would assume  
17 that -- that the up-welling would be less of a concern for  
18 those openings than it would be for, for example, deeper mine  
19 workings.  
20 So, the answer to your question is, yes, there  
21 probably is some element of up-welling and that would  
22 probably result in some increase in concentrations.

23 But, the fact of the matter is, most of these  
24 samples show some decreases in concentration over sampling  
25 date, and so, that would suggest to me that the Snap Lake

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1 inflow dilution effect is more dominant.

2 THE CHAIRPERSON: Thank you. Mr. Dickin...?

3 MR. ROB DICKIN: Okay, on -- along the same

4 vein, and -- and sort of, responding to the hypothesis that  
5 De Beers put forward this morning, suggesting that the -- the  
6 deep connate groundwater is -- is very old and sluggish, and  
7 low flows, and that the -- that the -- the loadings will not  
8 be effected, even it's more saline, we'll get lower flow  
9 rates.

10 One (1), I'd like you to -- to comment on that  
11 hypothesis, and also, with respect to the advanced  
12 exploration program, because presumably, the same thing was  
13 happening.

14 You've just indicated that -- that there may  
15 have been up-welling, but that it was basically, much -- much  
16 smaller impact over that time period, than -- than the  
17 movement of -- of Lake water down to diluted.

18 And, I guess my question is: Isn't that what  
19 we would expect during the operational life of the mine as  
20 well? That up-welling may occur, but the -- the bigger  
21 effect will be the -- the movement downward from the lake?

22 THE CHAIRPERSON: Thank you. Mr. Raven...?

23 MR. KEN RAVEN: Ken Raven. I -- I think  
24 there were two (2) questions there. I'll answer the latter  
25 first. Yes, we expect that inflow from the lake will

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1 probably be dominant, but that -- that effect is already  
2 incorporated into De Beers' models.

3 So, I -- I think that the predictions that  
4 have been generated already take that into effect. Now, I've  
5 forgotten your first question. I'm sorry.

6 THE CHAIRPERSON: Mr. Dickin, would you just  
7 like to quickly ask the first part of the question again,  
8 please?

9 MR. ROB DICKIN: Okay. Basically, I wanted  
10 you to comment on -- on this hypothesis that even if things  
11 are more saline, that the -- the flow rates will probably be  
12 very low, and therefore, the loadings will be more or less as  
13 predicted.

14 THE CHAIRPERSON: Thank you. Mr. Raven...?

15 MR. KEN RAVEN: Ken Raven, INAC. I think

16 that that hypothesis has some merit. I would say that we do  
17 generally expect that the hydraulic conductivity of the  
18 bedrock will decrease with depth, and that the salinity will  
19 increase the depth.

20 I accept that as a fairly reasonable  
21 hypothesis. The question that I have, is whether it's  
22 applicable at this particular site, and I'm particularly  
23 concerned about the North Lakes data, which show relatively  
24 high TDS, sixteen hundred (1600) milligrams per litre at a  
25 depth of two hundred (200) metres, and also shows relatively

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1 high permeability, in a range of ten (1) to minus six (6)  
2 metres per second.

3 So, I think that that data raises some flags  
4 for me.

5 THE CHAIRPERSON: Thank you. Okay, it's five  
6 (5) after 3:00. We have still presentations from North Slave  
7 Metis Alliance, Dogrib Treaty 11, Natural Resources Canada, I  
8 believe has a presentation on this, and I believe Lutsel K'e,  
9 you have done yours, Ms. Catholique, correct?

10 You were -- you incorporated yours this  
11 morning?

12 MS. FLORENCE CATHOLIQUE: No, we will have a  
13 presentation.

14 THE CHAIRPERSON: You have a presentation?  
15 Okay then, we'll take a -- a short ten (10) minute coffee  
16 break, and we're reconvene.

17  
18 --- Upon recessing at 3:10 p.m.  
19 --- Upon resuming at 3:27 p.m.

20  
21 THE CHAIRPERSON: Thank you very much. I  
22 forgot my usual admonition at the beginning, to turn off cell  
23 phones or put them on vibrate and if you wish to talk on a  
24 cell phone, I'd appreciate if you went outside. Thank you.

25 Our next presentation is North Slave Metis,

1 Ms. Johnson?

2 MS. KRIS JOHNSON: Thank you. Good  
3 afternoon, my name is Kris Johnson. I'm here to represent  
4 the North Slave Metis Alliance, and the outstanding  
5 hydrological issues that they have. Hopefully, these will  
6 clarify some of the core issues that still surround this.  
7 We'll be examining hydro-geology in relation  
8 to the three (3) questions the Board will have to answer, that  
9 being, as the development -- is the development likely to  
10 have a significant adverse impact on the environment? Can  
11 the impacts be mitigated? Does the development pose  
12 significant public concern?

13 The issues we'll be looking at are limited  
14 groundwater data and limited lake water level data. So is  
15 the development likely to have significant adverse impact on  
16 the environment?

17 De Beers has not provided adequate information  
18 and documentation to determine the potential adverse impacts  
19 of the Snap Lake Development Project, nor is there sufficient  
20 information to determine the magnitude and extent of adverse  
21 impacts.

22 Lake level fluctuations will affect fish and  
23 fish habitats. The North and north east lakes will  
24 potentially be effected by a post culture seepage of  
25 groundwater through the mine workings. It is possible that

1 other lakes, such as Campbell to the west or Capot Blanc to  
2 the east will also be affected if faults and fracture zones  
3 exert control on groundwater flow.

4 There is very limited understanding of the  
5 hydro-geological conditions in the area of Snap Lake.  
6 Limited data were available for hydraulic conductivity  
7 seepage volumes and groundwater quality. Virtually no data  
8 were available to characterize the hydraulic behaviour of

9 fracture zones and faults.

10           There's a great deal of uncertainty in the  
11 estimated values of groundwater velocity. There is a need to  
12 obtain groundwater data to validate the conceptual  
13 groundwater flow model and improve the understanding of the  
14 hydro-geology of the area of Snap Lake.

15           No ground water data were available except for  
16 two (2) monitoring wells and no consideration was given to  
17 potential control that fracture zones may have on ground --  
18 on the groundwater regime.

19           Impact cannot be properly assessed without  
20 adequate baseline data to compare. Finally, the Board cannot  
21 delegate the assessment of monitoring and mitigation measures  
22 to the Mackenzie Land and Water Board without seriously  
23 jeopardizing the objectives of the Environmental Assessment.

24           To answer the question, can impact be  
25 mitigated? De Beers has not provided adequate information

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1 and documentation to determine the potential mitigation  
2 measures.

3           Available ground water data is not sufficient  
4 to provide the confidence that predicted impacts will be  
5 manageable. Without adequate baseline data and conceptual  
6 understanding of the groundwater flow regime at Snap Lake and  
7 the surrounding area, monitoring and adaptive management  
8 cannot accurately be developed.

9           And this is just another quote from the guide  
10 that was adopted by Mackenzie Valley Environmental Impact  
11 Assessment Board.

12           "It is only when a development's effects  
13 are known and understood is it possible to  
14 determine and implement effective  
15 mitigation measures and to make an informed  
16 decision about supporting development"

17           So, to answer the question, is there  
18 significant public concern, the following organizations have  
19 documented outstanding hydro-geological issues with the Snap  
20 Lake Diamond Project. The North Slave Metis Alliance, Dogrib

21 Treaty 11 Council, Yellowknife's Dene First Nation, Natural  
22 Resources Canada and Indian and Northern Affairs Canada.  
23 What can be done in the further review to  
24 remove the uncertainties surrounding the Snap Lake project?  
25 Water levels must be surveyed in all lakes at the same time

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1 to determine possible impact on Snap Lake and adjacent lakes.  
2 Three (3) new deep monitoring wells must be  
3 installed and ground water baseline data collected prior to  
4 approval, construction or operation. These wells should be  
5 between Snap Lake and Lac Capot Blanc between Snap Lane and  
6 Campbell Lake and near the shore of Northwest Lake.  
7 Based on the water level data, De Beers must  
8 review the adequacy of the conceptual deep groundwater flow  
9 model. Groundwater data must be collected to provide the  
10 confidence that predicted impacts will be manageable.  
11 In a further review, De Beers will have time  
12 to validate the regional groundwater flow regime with proper  
13 consideration for faults and fracture zones. This will also  
14 allow a proper assessment and post-closure impact on the  
15 adjacent lakes.  
16 De Beers will have time to use environmental  
17 geo-chemistry to determine the probable bounds for horizontal  
18 groundwater velocity. De Beers will have time to conduct  
19 periodic assessments -- sorry, De Beers must conduct periodic  
20 assessments of seepage volumes and groundwater quality.  
21 They must agree to provide annual reports to  
22 MacKenzie Valley Environmental Impact Review Board,  
23 discussing the locations, volumes, and quality of groundwater  
24 inflows to mine workings, and measures taken to reduce  
25 inflows.

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1                   The annual report must also include a section  
2 on the effects of the mine on groundwater levels.

3                   The Board cannot approve the Snap Lake Diamond  
4 Project, because the Board has provided -- De Beers has not  
5 provided the Board with adequate information to assess if  
6 there is likely to be a significant adverse impact on the  
7 groundwater flow regime, and thus, if these impacts can be  
8 mitigated.

9                   The conceptual groundwater flow models  
10 proposed by De Beers has not been adequately validated, thus  
11 the model does not provide the necessary information needed  
12 to assess the impacts of the Snap Lake Diamond Project on the  
13 environment.

14                  Given the absence of adequate baseline data,  
15 monitoring programs cannot be developed to accurately, and  
16 adaptively mitigate impacts from the Snap Lake Diamond  
17 Project. Modern programs must be developed, and implemented  
18 before approval, and ideally, before any development occurs,  
19 to ensure accurate baseline information exists.

20                  There remains considerable public concern.  
21 So, once again, to quote the interim guide:

22                         "If it is uncertain, however, whether the  
23 project is likely to cause a significant  
24 adverse environmental effect, or that the  
25 project will cause significant adverse

1                   environmental effects, it may be justified  
2 in the circumstances, the project must be  
3 referred to a mediator, or a review panel."

4                   Is the development likely to have a  
5 significant impact on the Environment? Yes. Can the impact  
6 be mitigated? No, insufficient data to mitigate impact.  
7 Does the development pose significant public concern? Yes.  
8 Sorry, that says surface water, but in error.

9                   So finally, where there's no sufficient  
10 information to determine the impact of a project on the  
11 environment, the precautionary principle must be applied.  
12 Thank you.

13 THE CHAIRPERSON: Thank you, Ms. Johnson.  
14 Now, I take it from the comments yesterday that you are  
15 merely presenting this. You don't have the technical  
16 expertise to answer any particular questions on it?  
17 MS. KRIS JOHNSON: That's right.  
18 THE CHAIRPERSON: But, you have available to  
19 answer questions of a general nature?  
20 MS. KRIS JOHNSON: Yes.  
21 THE CHAIRPERSON: Thank you. Does the  
22 Proponent have any questions?  
23 Are there any questions from the floor for the  
24 North Slave Metis?  
25 Okay, thank you very much, Ms. Johnson.

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1 The next presentation is by Dogrib Treaty 11,  
2 who had a very nice PowerPoint presentation all ready,  
3 however, they've had a computer crash, and unfortunately, not  
4 able to proceed with it at this time, but they are going to  
5 read their statement for our benefit, and they will provide  
6 copies of their presentation once they have resolved their  
7 technical problems.

8 MR. STEVE WILBUR: Thank you. Just for  
9 clarification, I -- I didn't have a PowerPoint presentation,  
10 but I had a presentation, so.

11 So, I'm going to read from this computer that  
12 Jean has loaned me, and I typed on last night, having never  
13 used a Mac computer before, so it was a -- a little  
14 challenging, but we're here to go.

15 I'll -- I'll preface my presentation with a  
16 few comments on yesterday's presentation. Here we go,  
17 already I'm goofing up.

18  
19 (BRIEF PAUSE)  
20

21 MR. STEVE WILBUR: It's the Board's mandate  
22 to determine whether there will be a -- will there -- will  
23 likely be a significant adverse impact. The key word here  
24 is, likely.

1 uncertainty, an outstanding, or unresolved issues. In this  
2 case, we are concerned about the uncertainties associated  
3 with groundwater, and the estimates of potential mine water  
4 discharge in effluent water quality.

5 De Beers suggested that we all make decisions  
6 both facing uncertainty and natural variability, so it's  
7 normal and okay to do this. I don't disagree but I'm  
8 reminded that individual's decisions are not the same as  
9 social or group decisions.

10 We can take bigger risks when we're on our  
11 own, but we should be more cautious or conservative as a  
12 whole, to protect, in this case, from causing significant  
13 adverse environmental impacts.

14 Yesterday, De Beers offered measures to  
15 "...increase the certainty of our  
16 understanding of outstanding issues by  
17 applying a weight of evidence approach".

18 I'm being a little smug here, but I might ask  
19 De Beers how much more certain they can be after they've  
20 established certainty already?

21 Once we are certain we have no doubt about  
22 something, or the issue or condition is definitely known, so  
23 Ken's statement about certainty, we are certain, yes. I -- I  
24 guess I -- I have a little bit of issue with that.

25 So we cannot increase certainty, in other

1 words, we can, in this case -- in the case of hydro-geology  
2 and groundwater quality, we're not dealing with certainty,  
3 but we're dealing with levels of uncertainty.

4 This is important, as levels of uncertainty

5 increase our ability to assess the likelihood or probability  
6 of an event or a condition, decreases simply because the  
7 margins of potential, and likely variability, have increased.  
8           So for the Board, it is more difficult to  
9 determine or express that something is likely when we have a  
10 high degree of uncertainty. And this is the focus of my --  
11 of my talk, here.

12           The volume of mine water inflow may present  
13 challenges for water management at the site, including water  
14 treatment before discharging into Snap Lake. De Beers is  
15 convinced that it has constantly predicted, or bracketed,  
16 potential maximum flows and potential water quality  
17 variability from the mine workings and it's demonstrated that  
18 the contingencies for water storage and treatment are  
19 adequate.

20           There are a number of uncertainties associated  
21 with De Beers predictions of water volumes and water quality  
22 from the mine. We recognize that the De Beers has attempted  
23 to address these issues in a series of Information Requests,  
24 technical sessions and further analyses. And as a result, we  
25 now have a better understanding of the potential range of

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1 conditions.

2           But the question here is, have we reduced  
3 uncertainty enough to support probability assessments? Or,  
4 determination of the likelihood of an impact?

5           For the Board's benefit, I will briefly  
6 describe the uncertainties in De Beers analyses. These  
7 uncertainties fall under three (3) main topics, hydro-  
8 geologic characterization, groundwater quality  
9 characterization and in their measures of contingency  
10 planning.

11           First, I'm going to list these hydro -- with  
12 respect to hydro-geologic characterization and list what I  
13 consider measures of uncertainty. For example, there are no  
14 deep wells below basically a hundred and fifty-five (155), a  
15 hundred and sixty (160) metres in the mine area.

16           Most of the exploration boreholes are in

17 kimberlite, so there's very little information about country  
18 rock or the rock where much of the groundwater inflow will  
19 come from. There's no head data outside of the exploration  
20 workings so we cannot establish the hydrostatic conditions of  
21 the groundwater environment outside of this zone.

22                   The nature and degree of inner-connectedness  
23 of the fracture density and the effect of porosity, with  
24 overlying Snap Lake, to the mine workings, is not known. And  
25 we do not know how this condition will change as a result of

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1 mining. That is, will mining increase, decrease or have no  
2 effect on these flow conditions?

3                   Snap Lake is assumed to be a recharge area and  
4 not have any up-welling conditions. Yet there's no head  
5 data, data on the pressure due to groundwater, to verify this  
6 case. In fact, it should be noted that local zones of up-  
7 welling can occur in larger areas of recharge due to local  
8 heterogeneities in rock characteristics, hydraulic  
9 conductivity, transmissivities effective porosity, and  
10 fracture of porosity.

11                   THE CHAIRPERSON: I think the translator just  
12 blew a fuse.

13  
14                   (BRIEF PAUSE)

15  
16                   THE CHAIRPERSON: As your colleague reminded  
17 us, I believe it was yesterday, to try and keep it simple,  
18 sir?

19                   MR. STEVE WILBUR: She's been over here  
20 telling me to slow down the whole time, so. Okay.

21                   As a surrogate for the lack of -- okay. As an  
22 example for the lack of head data, De Beers assumes a  
23 relationship between the elevation of surface water bodies,  
24 and deeper groundwater. But there are no field data to  
25 support this hypothesis; that is, we do not know how well the

1 surface water in the lakes is connected to the deeper ground  
2 water zones.

3           There are only two (2) estimates of the local  
4 hydraulic gradients outside the workings and they differ by  
5 an order of magnitude. The role of fractures in ground water  
6 flow has not been quantified.

7           Model calibration is suspect because we only  
8 have a few data points to calibrate to. We have mostly  
9 assumptions and no long-term data for calibrations. So there  
10 has been no real model validation.

11           This probably won't mean anything to anyone  
12 except modellers but, in essence, what this means is that we  
13 are forced to accept models assumptions as benchmarks -- as a  
14 benchmark to do sensitivity analyses. Or, in De Beers terms,  
15 what they call variability modelling.

16           Now, De Beers conducted variability modelling  
17 and I appreciate the effort. But we need to be aware that  
18 the basis for the premises for the modelling may be flawed  
19 because the model calibrations may not be valid.

20           With respect to groundwater quality, De Beers  
21 indicates that mine effluent discharge will be primarily made  
22 up of mine inflow water thus knowing the water chemistry of  
23 the mine inflow is very important. But we have a fine  
24 uncertainty associated with this water.

25           Connate water or the old fossil water that has

1 been in the ground a long time concentrations of this connate  
2 water and the profiles are not known. And simply because  
3 there are no water quality samples from wells below the mine  
4 workings. I think as I recall they -- the samples were from  
5 eighty-five (85) to a hundred and sixty (160) metres or  
6 something like that. So we have no samples from a hundred  
7 and sixty (160) down to the depth of four hundred and twenty  
8 (420).

9           There's no local knowledge of the connate

10 water concentrations with deeper zones to the maximum depths  
11 of the mine. In the variability modelling TDS values were  
12 assumed to increase with depth.

13 I'm just scrolling through this ignoring what  
14 I wrote here. Although TDS is expected to increase with  
15 depth, the variability modelling suggested a 7 to 53 percent  
16 increase in TDS concentrations over what they'd originally  
17 done.

18 The assumed concentrations of metals like  
19 silver, aluminum, cobalt, chromium and so forth were not  
20 expected to increase with depth. But, De Beers has provided  
21 no rationale for this assumption and so the variability  
22 modelling results can't reflect any change in these values.

23 Mine inflow was increased one standard  
24 deviation or, effectively, increased by a factor of 1.33 in  
25 the variability modelling but assumes the same connate water

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1 chemistry concentrations.

2 De Beers argued that concentrations would  
3 actually be less if water inflow due to Snap Lake recharge  
4 increase. However this assumes that we know what the actual  
5 inflows or concentrations will be.

6 And since we don't know either one (1),  
7 increasing one (1) does not necessarily justify decreasing  
8 the other. That is, there are uncertainties in both of these  
9 estimates. In essence, there's a lot of guessing this  
10 constituent concentrations. They used a lot of terms like,  
11 if, then and expected without any real basis.

12 With respect to contingencies for higher than  
13 expected mine inflows, I think I've heard three (3) different  
14 contingencies although they've only talked about one (1)  
15 today. And one (1) earlier one was expand -- they could  
16 potentially expand the water management pond from a ten (10)  
17 day to a twenty (20) day pond based on the available  
18 footprint and the mine.

19 I guess, I would argue that this only delays  
20 the inevitable unless a much longer-term storage would be  
21 developed, if we had problems with high water volumes. The

22 second one was grouting of high inflow zones such as seeps  
23 with high TDS in the ramps or drifts.

24 And this accounts for about one-third of the  
25 inflow according to De Beers.

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1 So, my question -- my -- my statements about  
2 grouting activities, evidently, they can result in short-term  
3 spikes in TDS, due to cement use, that is, if this is limited  
4 in frequency.

5 However, if grouting frequency is higher due  
6 to increased fracture density, then TDS spikes may be more  
7 frequent, and more problematic.

8 The contingency for flooding the mine I don't  
9 believe is realistic. I don't -- I -- I think it's hard to  
10 believe that De Beers would actually consider this, with the  
11 amount of economic investment that they have.

12 So, what does that leave us with? That the  
13 mine inflows are somewhat greater than water treatment  
14 capacity.

15 Perhaps we could have potential periodic  
16 discharges of an -- an untreated water to Snap Lake, or  
17 conversely, we have reduced mine production rates to  
18 encounter less water per day, and economic loss to De Beers.

19 I -- I guess I would say that they haven't --  
20 I haven't heard of -- of major discussion on -- on these  
21 contingencies.

22 In summary, the uncertainty is greatest in the  
23 evaluation of groundwater quality, in my opinion, and  
24 somewhat less so, with the evaluation of groundwater quality,  
25 but the point is, that there is a lot more uncertainty than

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1 suggested by De Beers.

2                   Contingencies need to be better developed, and  
3 they should be developed as part -- perhaps as part of the  
4 water license, and I -- I went into these recommendations in  
5 an earlier submission, but that -- as it stands now, the  
6 Board is -- is forced to determining the livelihood, of  
7 perhaps a higher level of uncertainty than is comfortable.  
8 Thank you.

9                   THE CHAIRPERSON:    Thank you, and I appreciate  
10 the difficult that the computer has caused. Any questions by  
11 the Proponent for Dogrib Treaty 11?

12  
13                                   (BRIEF PAUSE)

14  
15                   MR. ROBIN JOHNSTONE:   De Beers Canada. We  
16 were actually going to ask you if you could just repeat this  
17 more slowly, Steve. No. Thank you very much.

18                   THE CHAIRPERSON:    Thank you. Are there any  
19 questions from the floor for Dogrib Treaty 11? Okay, the  
20 next presentation is Natural Resources Canada.

21  
22                                   (BRIEF PAUSE)

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24                   MR. ALEXANDRE JEAN DESBARATS:    Just a couple  
25 of minutes.

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2                                   (BRIEF PAUSE)

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4                   THE CHAIRPERSON:    Sorry, the -- the Chair's  
5 the only one (1) without the presentation. I left mine on  
6 the table, and it disappeared. Do you have another there?  
7 I have one (1). Right. Thank you.

8  
9                                   (BRIEF PAUSE)

10  
11                   MR. ALEXANDRE JEAN DESBARATS:    Good  
12 afternoon, Mr. Chairman, members of the Board, and ladies and  
13 gentlemen. On behalf of Natural Resources Canada, I'd like

14 to give a presentation on hydro-geological aspects of the  
15 proposed De Beers Snap Lake Diamond Mine Project.

16 My name is Alexandre Desbarats, and I'm with  
17 the geological survey of Canada, which is part of Natural  
18 Resources Canada.

19 Before getting into my presentation, I'd like  
20 to situation NRCan's concerns for the Board. On day three  
21 (3) of the public technical sessions, which took place last  
22 November, there was considerable uncertainty surrounding the  
23 proponent's conceptual model for post closure deep water  
24 groundwater flow regime.

25 In particular, there was a considerable

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1 uncertainty regarding the flow paths that solutes would take  
2 from the flooded mine to the northeast lakes. And this  
3 uncertainty was due to the almost total lack of head  
4 measurements.

5 In its report to -- in its technical report to  
6 the Board, NRCan recommended that the proponent could either  
7 reduce the uncertainty in its post closure groundwater flow  
8 model by presenting data that would better support its  
9 conjectured flow direction. Or it could document  
10 alternate -- it could document the significant -- the  
11 significance of alternate post closure flow scenarios.

12 And one (1) of these flow scenarios, which is  
13 of concern to NRCan, is that of upward diffusion of solutes  
14 from the flooded mine through the crown pillar to Snap Lake.  
15 In essence, while the proponent is focussed on the transport  
16 of solutes from the flooded mine to northeast lake, which is  
17 several kilometres away, NRCan believes it might be prudent  
18 to examine the possible escape of solutes out the back door,  
19 straight up to Snap Lake.

20 Now, why is this issue important? Upward  
21 diffusion of solutes could have a potential negative impact  
22 on water quality in Snap Lake during the extended post  
23 closure period.

24 What is diffusion? Diffusion is the movement  
25 of dissolved species, such as chloride or chromium, in

1 groundwater, from areas where they are highly concentrated,  
2 such as the flooded mine, to areas where they are less  
3 concentrated, such as Snap Lake.

4 It must be said that diffusion is a very slow  
5 transport process, but the travel path through the crown  
6 pillar, is quite short. However, diffusion can be a  
7 significant process only under hydrostatic or no-flow  
8 groundwater conditions.

9 The question, therefore, is, are there natural  
10 hydrostatic conditions beneath Snap Lake? And based on  
11 evidence contained in the EA report, NRCan believes there are  
12 at least grounds for concern, and I'll review some of the  
13 evidence here.

14 There's only one (1) observation well in the  
15 vicinity of Snap Lake, and it shows -- and of several  
16 measurements that were taken in that well, only one (1) shows  
17 a very small downward head gradient of eight (8) centimetres  
18 over a vertical distance of a hundred and twenty (120)  
19 metres. Other observations in the same well showed no  
20 downward gradient at all.

21 On page 9-30 of the EA report, it is stated  
22 that,

23 "Hydraulic heads measured in underground  
24 boreholes are virtually identical to the  
25 water level elevation in Snap Lake. In

1 essence, the report is saying that there  
2 are hydrostatic conditions beneath Snap  
3 Lake."

4 Now, most recently, in April, after  
5 discussions with the proponent, we obtained datum corrected  
6 borehole head measurements from the advanced exploration

7 program. And these head measurements do indicate a downward  
8 head gradient beneath Snap Lake.

9           However, it -- the question then becomes, are  
10 these downward head gradients natural or are they caused by  
11 the active mine de-watering that was going on at the time?

12           A first cut analysis by NRCan, as soon as we  
13 obtained these data, suggested that the downward head  
14 gradients, or the head draw-downs that were observed, could  
15 be explained just simply on the basis of mine de-watering.  
16 So we undertook to do a much more thorough analysis to  
17 investigate this matter.

18           So, this was conducted during the last two (2)  
19 weeks. The purpose of our analysis was to check if the heads  
20 presented to us from the underground exploration campaign  
21 could be explained solely on the basis of mine de-watering or  
22 if they revealed the presence of a downward head gradient due  
23 to natural conditions.

24           So, NRCan developed a simple two-dimensional  
25 analytical model for steady state hydrostatic conditions

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1 beneath Snap Lake and I'd just like to point out a few  
2 features here.

3           The surface of Snap Lake or more correctly the  
4 bottom of Snap Lake are viewed as constant head boundaries.  
5 The mine drift here is also a constant head boundary at  
6 atmospheric pressure. And the centre of the drift is a  
7 distant  $H$  below the surface of Snap Lake.

8           And drilled off the mine drift we have test  
9 bore holes of the Advanced Exploration Campaign where, as  
10 we've seen, numerous head measurements have been taken in  
11 intervals along the hole. The holes inclined at an angle we  
12 call  $\theta$ .

13           So, according to our model, the draw-down and  
14 draw-down we've defined here as the difference between the  
15 lake level and the head or water level in the bore hole test  
16 interval is given by the following expression.

17           Where  $Q$  is the ground water influx to the  
18 drift because water is being produced from the mine according

19 to the report at a rate, at the end of the AEP, the inflow  
20 rate was approximately nine hundred (900) cubic metres per  
21 day.

22 K here is the hydraulic conductivity of the  
23 rock and LN is the natural logarithm and G here is a term  
24 that characterizes the distance of the pressure of head  
25 measurement point from the drift. And it's given by this

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1 expression here as a ration of H, the distance of the draft  
2 below Snap Lake, and D, the distance of the test interval  
3 along the bore hole.

4 And I'd like to point out some features of  
5 this equation here. What we see is that the draw-down should  
6 be a log linear -- should plot in a log linear manner against  
7 the term G. So, on semi-log plots we should get a straight  
8 line.

9 Now, when D is very large these terms will  
10 become small and G will turn 10:1 and the logarithm of one  
11 (1) is zero. So, at large distances under hydrostatic  
12 conditions we will expect a zero draw-down. And please keep  
13 that in mind.

14 So, what I did was plot the draw-downs that  
15 were measured in each test interval for four (4) different  
16 bore holes against the distance term here, G. And, so,  
17 bearing in mind that the largest values of G are for test  
18 intervals closest to the drift, we see we have a very high  
19 draw-down near the drift and because of lower hydraulic  
20 conductivity in this area associated with mining and a  
21 different rock type, these are volcanics here and we move  
22 into granite.

23 But we do see this log linear decline of the  
24 draw-down as we get further away from the drift. And for G  
25 equals one (1), essentially at infinity, we see that we do

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1 not have a zero draw-down as we would have expected under  
2 purely hydrostatic conditions.

3           So this is very important this little  
4 intercept here; this distance. It means that essentially the  
5 proponent was right in its conjecture -- in their conjecture  
6 that there is a downward regional head gradient and from this  
7 plot and from other we -- we've -- we can attempt to get a  
8 fairly firm figure for it.

9           We've conducted similar draw-down analyses for  
10 boreholes 84 and 175 and they also indicate the presence of a  
11 natural or background downward head gradient beneath Snap  
12 Lake once the effects of de-watering have been removed using  
13 these plots.

14           Our draw-down analysis for borehole UG83 is  
15 inconclusive. It could go either way. We didn't analyse the  
16 other boreholes, because they're configuration could not be  
17 represented by the simple 2D model that we used.

18           However, on balance, NRCan concludes that  
19 there is a natural downward head gradient of about point oh,  
20 oh five (0.005) metres per metre beneath Snap Lake.

21           Which -- now, returning to our original  
22 outstanding issue, the analysis conducted by NRCan of head  
23 measurements from boreholes of the 2001 advanced exploration  
24 campaign has identified a natural downward head gradient  
25 beneath Snap Lake, on the order of point oh, oh five (.005)

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1 metres per metre.

2           The existence of this downward gradient, and  
3 the corresponding groundwater flux rules out the possibility  
4 of upward solute diffusion in the post closure period.

5           So, it is not a -- a possible scenario. We  
6 ruled out that scenario and, therefore, NRCan considers its  
7 outstanding issue on upward diffusion as resolved.

8           However, before concluding, I'd like to add  
9 that the analysis that NRCan has conducted has also provided  
10 increased certainty in the proponents post-closure model for  
11 the deep ground water flow regime.

12                   We now have, with data that the proponent had  
13 acquired, but not fully interpreted, of a sound figure for a  
14 downward head gradient beneath Snap Lake, which was a key  
15 part of their conceptual model. Thank you.

16                   THE CHAIRPERSON: Thank you, sir. Any  
17 question of -- of NRCan by the Proponent? Questions of the  
18 general nature? Ms. Crapeau...?

19                   MS. RACHEL CRAPEAU: Rachel Crapeau for the  
20 Yellowknife's Dene. If the mine is flooded now, then the  
21 diffusion has occurred, this -- the information that you gave  
22 makes me think that since their flooded mine has happened  
23 now, could there be potential later impact on the water  
24 quality now in Snap Lake?

25                   THE CHAIRPERSON: Thank you. Mr.

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1 Desbarats...?

2                   MR. ALEXANDRE JEAN DESBARATS: Rachel, the  
3 plot that I showed, shows that there is currently, and as  
4 long as the mine is flooded, there will be a downward flow  
5 head gradient, and that prevents an upward diffusion of  
6 solutes from the mine.

7                   So, that would not be a concern right now.  
8 The -- the downward flow is strong enough to prevent an  
9 upward migration of -- so, Rachel, the downward flux of water  
10 from Snap Lake is strong enough to counteract the upward  
11 movement of solutes by diffusion from the flooded mine.

12                   THE CHAIRPERSON: Thank you.

13                   MR. ALEXANDRE JEAN DESBARATS: And, that  
14 holds currently, and would hold probably in -- in my  
15 assessment, in the post-closure period also.

16                   THE CHAIRPERSON: Rachel...?

17                   MS. RACHEL CRAPEAU: Then, my next question  
18 is that you don't believe that anything that was already at  
19 the bottom and under the ground of -- of their tunnel,  
20 itself, in the ground, that nothing seeped upwards?

21                   THE CHAIRPERSON: Thank you. Mr.

22 Desbarats...?

23                   MR. ALEXANDRE JEAN DESBARATS: If I

24 understand correctly, no, I don't believe there's been any  
25 upward seepage of -- of any -- of anything right now.

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1 THE CHAIRPERSON: Thank you. Ms. Crapeau...?  
2 MS. RACHEL CRAPEAU: So, there was just no  
3 mixing of anything after they flooded the -- the mine?  
4 MR. ALEXANDRE JEAN DESBARATS: I'm not sure I  
5 understand your question?  
6 MS. RACHEL CRAPEAU: No base backfill or  
7 anything like that, that will cause a solution to -- to mix,  
8 after they flooded the mine?  
9 MR. ALEXANDRE JEAN DESBARATS: Do you mean,  
10 right now, at this time? Or after the mine is closed?  
11 MS. RACHEL CRAPEAU: Right now.  
12 MR. ALEXANDRE JEAN DESBARATS: It's my  
13 understanding that there is no paste backfill or -- in the  
14 mine at this time.  
15 MS. RACHEL CRAPEAU: I wasn't concerned about  
16 backfill, or anything, I was just concerned about, in the  
17 ground, itself, if there was some kind of solution, mixing  
18 with the -- the waters that was allowed to -- to flood the --  
19 the inside, and the groundwater from right under the lake  
20 itself.  
21 If there was anything that was -- could have  
22 happened where something from the underground water flow  
23 upwards might have affect the Snap Lake, itself?  
24 MR. ALEXANDRE JEAN DESBARATS: Okay.  
25 MS. RACHEL CRAPEAU: Thank you.

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1 MR. ALEXANDRE JEAN DESBARATS: I think I  
2 under -- I have a better idea of where you're coming from.  
3 The water that has flooded the mine is water that is coming

4 from the surrounding rock. And essentially, this comes  
5 straight down from Snap Lake. So it is relatively clean  
6 water that is flooded into the mine, by in large.

7 THE CHAIRPERSON: Thank you. Mr. Byers...?

8 MR. TIM BYERS: Just a point of  
9 clarification, for me, as to what that mine looks like right  
10 now. The -- the shafts or drifts, as you call them, that are  
11 flooded now, is the entire diameter of a tunnel full of  
12 water, or is it half full, or a quarter, or how would we  
13 categorize the volume of water that's in there, now?

14 MR. ALEXANDRE JEAN DESBARATS: My  
15 understanding, I'm not the proponent, I'm a representative of  
16 NRCan, is that the mine is totally flooded. That there's no  
17 air space in the mine. But I -- I'd re-direct the question  
18 to -- to De Beers.

19 THE CHAIRPERSON: Actually, I'm the one (1)  
20 that does the re-directing.

21 MR. ALEXANDRE JEAN DESBARATS: Oh, sorry.

22 THE CHAIRPERSON: However, as Mr. Byers was  
23 asking the question, I was looking at the proponent and the  
24 mine is completely flooded. There is no -- it's completely  
25 flooded.

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1 MR. TIM BYERS: Sorry, just to clarify.  
2 There is no air spaces at all in the tunnels, it's completely  
3 water?

4 THE CHAIRPERSON: I believe that's what they  
5 were nodding. Mr. McConnell, go ahead.

6 MR. JOHN MCCONNELL: John McConnell. I  
7 haven't been down there lately, but, you know, it's filled  
8 from water seeping into the tunnels. So I would assume  
9 it's -- it's filled up and stabilized with lake level.

10 THE CHAIRPERSON: Thank you. Mr. Byers...?

11 MR. TIM BYERS: That's fine, thank you.

12 THE CHAIRPERSON: Thank you. I see Mr.  
13 Bohnet, you have a question for Mr. Desbarats?

14 MR. KEN RAVEN: Ken Raven for NRCan -- INAC.

15 THE CHAIRPERSON: Aha, now we're getting the

16 true story.

17 MR. KEN RAVEN: Did I say that? I have a  
18 question for Alex and that is: Does your analysis of the  
19 head information from the advanced exploration program drill  
20 holes, give you any indication of how far the de-watering  
21 effect of the opening extends into the rock mass?

22 THE CHAIRPERSON: Thank you. Mr.  
23 Desbarats...?

24 MR. ALEXANDRE JEAN DESBARATS: Perhaps you  
25 were referring to this plot, here. The furthest point on

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1 this graph represent distance of about three hundred (300)  
2 metres, from the drift. So -- and even at that distance,  
3 there is some evidence of -- of the de-watering. There is  
4 some draw-down, here, that is due to de-watering.

5 THE CHAIRPERSON: Thank you. Mr. Raven...?

6 MR. KEN RAVEN: Ken Raven, follow-up. So  
7 does that suggest that the de-watering effect is extending as  
8 far as the measurements are available?

9 MR. ALEXANDRE JEAN DESBARATS: It -- that  
10 would depend on the specific borehole. There are eight (8)  
11 of them. In this particular one (1) I would say, yes.

12 MR. KEN RAVEN: Thank you.

13 THE CHAIRPERSON: Thank you. Additional  
14 questions for Mr. Desbarats? If not, thank you very much,  
15 sir, for your presentation.

16 MR. ALEXANDRE JEAN DESBARATS: Thank you.

17 THE CHAIRPERSON: Hold on.

18  
19 (BRIEF PAUSE)

20  
21 MR. STEVE WILBUR: I have about five (5)  
22 questions for Alex. The boreholes that you mentioned that  
23 you did this analysis on, UG45, 84 and UG175, were they --  
24 what rock types were then in? Is that the same rock type as  
25 below -- that will be under the entire mines -- under the

1 entire lake and the mine area?

2 MR. ALEXANDRE JEAN DESBARATS: This  
3 particular borehole, the drift itself and probably up to  
4 around here is in volcanics and it moves on to granites at  
5 this end. These, I'm not too sure. They -- both these holes  
6 cross the Snap and Crackle Faults. This borehole, I believe,  
7 is entirely in granite and I would ask Chairman Wray to  
8 direct that question to the proponent to confirm the geology.

9 THE CHAIRPERSON: Thank you.  
10 Mr. Atkinson...?

11 MR. LEE ATKINSON: Lee Atkinson on behalf of  
12 De Beers. That is a correct statement by Dr. Desbarats in  
13 terms of the characterization of the geology where the holes  
14 were.

15 THE CHAIRPERSON: Thank you.

16 MR. STEVE WILBUR: Steve Wilbur, Dogrib. So,  
17 in essence, these are composite gradients of -- they're  
18 crossing several zones of various hydro-geology  
19 characteristics?

20 MR. ALEXANDRE JEAN DESBARATS: In this  
21 particular plot, from around this point on it's not a  
22 composite it's all in uniform granite roughly speaking. But  
23 there is a change in hydraulic conductivity probably, as I  
24 indicated, in the area surrounding the drift and that's why  
25 you get a much higher drawdown here.

1 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

2 MR. STEVE WILBUR: Steve Wilbur. Leaving  
3 that plot up then, if I'm just looking at that one (1)  
4 outlier then, it's rather strange the way it plots way up  
5 there, would it suggest a different gradient if I was to have  
6 that rock type throughout that plot?

7 MR. ALEXANDRE JEAN DESBARATS: That's  
8 correct. There would -- there is a much steeper gradient in

9 the vicinity of the drift. But that -- that is not the  
10 natural gradient I was seeking to identify. The gradient  
11 here is -- is overwhelmingly dominated by mine de-watering.  
12 THE CHAIRPERSON: Thank you. Dr. Wilbur...?  
13 MR. STEVE WILBUR: You mentioned a value of  
14 .005 metres per litre and I was just curious, I guess you  
15 arrived at that as an average of three (3) or four (4)  
16 values, three (3) or four (4) wells. How did you actually  
17 get to that point zero, zero, five (0.005) metres per litre?  
18 MR. ALEXANDRE JEAN DESBARATS: Okay. I can  
19 explain that. The intercept here is about point five (0.5)  
20 metres and the depth of the test intervals along here is  
21 approximately one hundred (100) metres below Snap Lake. So  
22 you have a draw-down, a head difference of about fifty (50)  
23 centimetres over a hundred (100) metres.  
24 MR. STEVE WILBUR: Steve Wilbur, Dogrib. So  
25 that was calculated for this particular one but did you get

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1 the same --  
2 MR. ALEXANDRE JEAN DESBARATS: Okay. It --  
3 MR. STEVE WILBUR: -- value --  
4 MR. ALEXANDRE JEAN DESBARATS: -- it's also  
5 confirmed pretty much by UG175 which was drilled from a drift  
6 that was somewhat deeper so you get a slightly higher  
7 intercept which confirmed the -- the gradient estimate of  
8 about point oh, oh, five (0.005). But I wouldn't swear on  
9 the fourth decimal.  
10 MR. STEVE WILBUR: Okay. Just -- this is  
11 Steve Wilbur. Just as a further clarification. Is there a  
12 range in gradients that you would want to postulate based on  
13 the three (3) boreholes?  
14 MR. ALEXANDRE JEAN DESBARATS: I would say,  
15 my -- my best professional judgment would be somewhere  
16 between point oh, oh, three (0.003) and point oh, oh, six  
17 (0.006). And I think that's pretty narrow.  
18 THE CHAIRPERSON: Thank you. Does that  
19 conclude your questions, Dr. Wilbur?  
20 MR. STEVE WILBUR: I've one (1) -- a couple

21 more.

22 THE CHAIRPERSON: Okay.

23 MR. STEVE WILBUR: Would you -- these are  
24 obviously just -- there's just three (3) points. You  
25 mentioned one (1) that was inconclusive, I imagine it's

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1 because the data plotted strangely and -- or -- or it  
2 actually showed a gradient with -- or it showed no gradient,  
3 what does that mean?

4 MR. ALEXANDRE JEAN DESBARATS: I don't have a  
5 PowerPoint plot for that hole, UG83, but I do have an old  
6 fashioned piece of graph paper with it on, which I'd be happy  
7 to -- to submit to the Board, but it's not very clean.

8 MR. STEVE WILBUR: It -- my -- my question is  
9 just, you mentioned inconclusive. I don't know the -- the  
10 meaning of inconclusive is.

11 MR. ALEXANDRE JEAN DESBARATS: It -- it means  
12 that you could possibly draw a straight line through zero  
13 here, depending on how -- how creative you were with your --  
14 the square of interpolation.

15 MR. STEVE WILBUR: Okay. Steve Wilbur. So,  
16 my -- my point is that we have one (1) data point out of four  
17 (4), and we have something inconclusive, where we can draw  
18 something, and -- and then come up with no gradient, and you  
19 have three (3) that comes up with a gradient, and I just  
20 wanted to suggest that maybe four (4) data points does not  
21 conclusively -- especially if one (1) is inconclusive.

22 And, I -- follows up to my -- my next question  
23 is, how much -- this is just three (3) points, how much would  
24 you expect this to vary with depth going down to say, three  
25 hundred (300) metres, or horizontally, in an area where the

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1 -- the mine will -- will go?

2 MR. ALEXANDRE JEAN DESBARATS: I -- I'd like  
3 to point out, I -- I -- and I think this is a way of  
4 answering your question, that any geological environment,  
5 particularly mining environment, is highly heterogenous.  
6 There are different rock types. This is a  
7 fractured environment, so there's fracture flow. In big  
8 fractures, there's a flowthrough, a network of smaller  
9 fractures, and the arrangement of the drifts is not conformed  
10 to the simple cross-sectional model that I -- that I drew  
11 here, all the time.  
12 This is an -- a, you know, an idealization.  
13 So, you won't get exactly a perfect situation for your  
14 interpretation all the time. So, you have to -- you have to,  
15 you know, interpret with -- taking that into account.  
16 THE CHAIRPERSON: Thank you. Dr. Wilbur...?  
17 MR. STEVE WILBUR: Steve Wilbur. One (1)  
18 last question.  
19 MR. ALEXANDRE JEAN DESBARATS: Oh, and -- and  
20 I'd like to add that UG83 is a particular case where, in  
21 effect, this model really is -- is a little bit stretching  
22 it, in terms of representing the -- the geometry.  
23 UG83 was drilled straight off the end of the  
24 drift, not perpendicular to the drift.  
25 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

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1 MR. STEVE WILBUR: Thank you for that  
2 explanation. I want -- I appreciate this analysis was --  
3 this is -- this is good. I wish I had read this analysis  
4 before, but it does still leave me with some bit of un --  
5 uncertainty, with respect to full characterization, and I  
6 just wanted to -- to make that point.  
7 But, I going to ask Alex one (1) more  
8 question, and it had to do with, if I assume this point zero,  
9 zero five (0.005) metres per metre gradient, what downward  
10 velocity, or travel time would I expect to get from Snap Lake  
11 to the mine shaft?  
12 MR. ALEXANDRE JEAN DESBARATS: Good question.

13 I was working that out at the break. If you have a downward  
14 head gradient of point oh, oh, five (0.005), and you assume  
15 that your porosity is point oh, oh, five (0.005) also, which  
16 is a best value that the proponent is used, and hydraulic  
17 conductivity of say, one (1) times ten (10) to the minus two  
18 (2) metres per day, which I -- I believe is -- is in the --  
19 in the ballpark of what they've considered, then the travel  
20 time from the surface down to about this level, about one  
21 hundred (100) metres below, would be in the order of twenty  
22 (20) years, under a natural gradient condition, not under the  
23 -- the watering conditions.

24 That's my ballpark estimate, but I don't have  
25 my calculator with me.

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1 THE CHAIRPERSON: Thank you.

2 MR. STEVE WILBUR: I -- I just wanted to  
3 point out that that's quite a bit different than the six (6)  
4 to eight (8) weeks we heard earlier today, so --

5 MR. ALEXANDRE JEAN DESBARATS: I -- but I  
6 already specified that was under natural hydraulic  
7 conditions.

8 MR. STEVE WILBUR: And, my question then  
9 is --

10 THE CHAIRPERSON: Is this your last, last  
11 question or?

12 MR. STEVE WILBUR: Yes, sorry. My last, last  
13 question. It seems to be that I heard -- I thought I heard  
14 today that we didn't look at the watering conditions when  
15 they were doing the groundwater sampling, and the six (6) to  
16 eight (8) week travel time, so I -- I don't know -- because  
17 it seems like -- it seems to be, that's a conflict, the six  
18 (6) to eight (8) weeks was -- did not assume dewatering  
19 conditions, and the -- this -- he's saying twenty (20) years,  
20 and it's -- if it is not assuming. So I guess that's the  
21 confusion that I have. If somebody could clarify it.

22 THE CHAIRPERSON: Mr. Desbarats...?

23 MR. ALEXANDRE JEAN DESBARATS:: I -- I think  
24 that you have to -- you have to consider that, when they were

25 taking the groundwater samples, the oldest possible water

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1 that they could have sampled would -- would be the water of  
2 about twenty (20) years, that would have made it down to that  
3 depth.

4 Other water -- some of the other water  
5 probably would have travelled more rapidly, due to the  
6 artificial gradient of the -- the pumping. And that's what  
7 has been referred to this morning, the -- the much shorter  
8 travel time, under de-watering conditions.

9 THE CHAIRPERSON: Okay, sir, thank you very  
10 much. I think that was an interesting exchange. It  
11 obviously is one (1) that we'll have to take a close look at,  
12 in -- in the -- I can't even remember the name of the -- the  
13 transcripts.

14 Anyway, any other questions for Dr. Desbarats?  
15 If not, thank you very much, sir. I appreciate that.

16 Okay, we have presentation by Lutsel K'e Dene  
17 First Nation?

18  
19 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

20  
21 MS. LIZA ENZOE: When we're talking about the  
22 water -- my name is Liza Enzoë, I'm from Lutsel K'e and I'm  
23 happy to have an opportunity to talk about water. I went  
24 over to that mine, Snap Lake mine area -- on that mine site  
25 and heard they were going to be de-watering from the mine

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183

1 shaft.

2 It was a small water -- they said they were  
3 going to have some -- they're going to take the water out of,  
4 from a small lake. And the way I heard energy development,

5 you've got to really watch -- we've got to watch the  
6 environment, everybody has to be -- all the public has to be  
7 involved in regards, especially on the -- and all the  
8 communities, all the stakeholders.

9           This water is very important. It's a holy  
10 water, without that, they ruin their lives. So they have to  
11 have respect for our water and watch, we're going to pollute  
12 our water, especially the water underground.

13           I went over to Snap Lake's mine. I see  
14 there's a lot of water in the shaft. We went down into the  
15 mine, underground, and we see there's lots -- it's -- and  
16 where -- where the mining shaft, like, get a little bit  
17 further down and there was just dams so that water was  
18 dripping from the mine shaft. That's where they're taking  
19 all the rocks, the diamonds out.

20           When they're talking about water, I wonder if  
21 that water is going to stay there forever, just like you guys  
22 are talking about the water is not going to move, but it's  
23 not like that, it's different. This land, the water is just  
24 going to seep through the land and even though the water is  
25 contaminated, it's still going to be mixing in with loam if

1 it's not monitored and treated.

2           And what's going to happen to the fish if it  
3 gets into the Snap Lake, the untreated water from the mine?  
4 And what's going to happen with the fish? And around this  
5 time of the year, to especially when it starts melting in the  
6 springtime, there's all kinds of water that melts and it all  
7 seeps down into the main lake.

8           You can't really control every little seepage.  
9 And it's because of this, sometimes there's really lots of  
10 snow and that, and ice, and it creates a little river, little  
11 streams, that heads into the main lake.

12           And also that Snap Lake is situated really  
13 close to Lutsel K'e and there's a lot of little streams  
14 surrounding that area. And that's all connected, it comes  
15 from one (1) body of water.

16           We, the Elders, have talked this -- we were

17 talking for our future generation. We -- we do a lot of  
18 things with water. We clean the house and look after our  
19 children. We all need clean water and this is the way we  
20 have to respect our waters.

21 Since the mining has started people have died  
22 with cancer even in my community because they never -- the  
23 water wasn't tested and nobody has respect for the waters.

24 Now, I look at the TV and I see a lot of -- a  
25 lot of people that are getting sick due to the source of

---

185

1 water -- intake of water that they get from -- from -- so now  
2 it sounds like you -- just salt water to treat those rocks  
3 and that the -- and then there is a lot of -- there is a lot  
4 of -- you have to tell the people the truth of what kind of  
5 chemicals you are using to burn those -- to wash and clean  
6 all the diamonds because we want to know the truth.

7 So this is what we are always talking about.  
8 We are very glad to issue licences but we have to know these  
9 facts and we have to monitor everything that goes on, on our  
10 lands.

11 In some cases, the water is deep in some place  
12 it's shallow water. I seen the water source because I went  
13 around that lake with a chopper. The water is very, very  
14 good in that area and this water here is good now, but in a  
15 future time will it be polluted and spoiled?

16 There is a lot of animals that live off the  
17 water. There's ducks, water fowl and all -- all sorts of  
18 animals that live on that water -- drink.

19 Since I have seen that mine, it's over two (2)  
20 years, so this now -- this time if I go back will I see the  
21 difference that I've seen in last two (2) years. Will the  
22 water be different? Will the land be different?

23 And now that De Beers are saying that they are  
24 going to -- willing to work with the people and if they're  
25 telling us the truth this -- this -- how they would monitor

---

1 our -- our land and our waters, protect it from pollution,  
2 and we are -- we have some of our youth here with us for this  
3 meeting.

4 In Winter there is a lot of snow out there in  
5 the tundra and in the Spring time it melts. And those --  
6 there's blasting done -- blasting done in some areas and it's  
7 hard on our water -- on -- on the snow then it melts and then  
8 these water run off into the lakes and the fish live in those  
9 lakes.

10 And the fish will get contaminated somehow.  
11 And some -- some years we get a lot of rain out there and  
12 there is a lot of water that are moving around all -- at all  
13 times. And even -- even there when there is -- there was one  
14 (1) washroom where you clean water from and this water are  
15 coming from the groundwater.

16 This is what I have seen when I was there and  
17 it went out -- it goes out -- it's seepage out into the  
18 lakes. Where do you think it goes? It doesn't stay in one  
19 (1) place, it's always moving the water. Even that it looks  
20 different now.

21 Like, and there's sorts of grass and shrubs  
22 that go on the tundra -- the -- there was some there that  
23 were -- weren't growing any more because there was  
24 contaminated water on that.

25 Even now we have a lot of problems talking

1 about these things but when we -- we put our heads together  
2 and try to do our best and do a good job everything would be  
3 all right for even the mining industry and for the Dene  
4 people that live off that land.

5 I have been here all day so I don't to say  
6 anything longer. I'm an Elder and I'm very tired sitting  
7 here all day. This is what I don't have it written on paper,  
8 but I know what the fact that -- I know from experience and  
9 it's why I'm talking to you now.

10 THE CHAIRPERSON: Thank you very much. Does  
11 that conclude your presentations?  
12 MS. FLORENCE CATHOLIQUE: Yes, sir. Yes,  
13 that's the end of it. We don't have any written presentation  
14 or anything.  
15 THE CHAIRPERSON: That's fine. Okay. We're  
16 at the end of today's session then. So we'll adjourn until  
17 nine o'clock tomorrow morning when we will begin with surface  
18 water and fish and included in that will be De Beers response  
19 to the questions posed by Ms. Catholique today. Thank you.  
20  
21 --- Upon adjourning at 4:36 p.m.  
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3 Certified Correct  
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8 Wendy Warnock  
9 Court Reporter  
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MACKENZIE VALLEY ENVIRONMENTAL  
IMPACT REVIEW BOARD

HELD BEFORE:

Board Chairperson	Gordon Wray
Board Member	Danny Bayha
Board Member	Frank Pope
Board Member	John Stevenson
Board Member	Charlie Snowshoe

HELD AT:

Northern United Place  
Yellowknife, NT

April 30th, 2003  
Volume 3

APPEARANCES

John Donihee	)	Board Counsel
Robin Johnstone	)	De Beers Canada Mining
John McConnell	)	Ltd.
Eric Groody	)	
Yvonne MacNeil	)	Department of Justice

9 (GNWT)  
 10  
 11 Chief Archie Catholique ) Lutsel K'e Dene First  
 12 Florence Catholique ) Nation  
 13  
 14 Kris Johnson ) North Slave Metis  
 15 Robert Turner ) Alliance  
 16  
 17 David Livingstone ) Indian and Northern  
 18 Sevn Bohnet ) Affairs Canada (INAC)  
 19  
 20 Gavin More ) Government of Northwest  
 21 Doug Doan ) Territories (GNWT)  
 22  
 23 John Ramsey ) Natural Resources  
 24 Canada  
 25

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3

1 APPEARANCES (Cont'd)  
 2  
 3 Julie Dahl ) Fisheries and Oceans  
 4 Canada  
 5  
 6 Mark Dahl ) Environmental Canada  
 7  
 8 Rachel Crapeau ) Yellowknives Dene First  
 9 Tim Byers ) Nation  
 10  
 11 Jean Teillet ) Dogrib Treaty 11  
 12 Council  
 13  
 14 Kevin O'Reilly ) Canadian Arctic  
 15 Resources Committee  
 16  
 17 Mike Vaydik ) NWT and Nunavut Chamber  
 18 of Mines  
 19  
 20 Jason Lepine ) Northwest Territory

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5

1 --- Upon commencing at 9:06 a.m.

2

3 THE CHAIRPERSON: Good morning, ladies and  
4 gentlemen. We'll open these proceedings today. Today, the  
5 agenda provides for discussions on surface water and fish.

6 Just a couple of housekeeping, my usual  
7 admonition about cell phones. Please switch them off, put  
8 them on vibrate, and if you have to talk to somebody, if you  
9 could do it outside. Also, transcripts are now available and  
10 I'll read the -- the website, [www.tscript.com](http://www.tscript.com).

11 And we will start off, and I believe that De  
12 Beers has two (2) presentations, one (1) right after the  
13 other. And is it Mr. Digel?

14 MR. MARK DIGEL: Digel.

15 THE CHAIRPERSON: Digel. He will start. And  
16 are there overheads, Mr. Johnstone, on this one (1)? Not  
17 overheads, PowerPoint?

18 MR. ROBIN JOHNSTONE: Yes.

19 THE CHAIRPERSON: Okay, thank you. Okay, we  
20 can proceed. The Board's just going to move down to this  
21 table.

22

23 (BRIEF PAUSE)

24

25 MR. ROBIN JOHNSTONE: Mr. Chairman and

1 Members of the Board, I'd just like to take a moment to  
2 introduce the main people that will be speaking today. On my  
3 immediate right, in the blue shirt, is -- it's beginning to  
4 sound like a boxing match, in the corner.

5 On my immediate right is Dr. Rick Schryer.  
6 Dr. Schryer is a Senior Aquatic Scientist and associate of  
7 Golder Associates. He has fifteen (15) years experience in  
8 fisheries biology and environmental assessment.

9 He is responsible for studies related to fish  
10 populations, fish habitat and water quality issues. Rick is  
11 currently the technical co-ordinator for the Snap Lake  
12 Project. He has participated in several mining projects in

13 the NWT, including being the discipline leader for the  
14 fisheries component of the EA completed for Diavik Diamond  
15 Mines Incorporated.

16 To Rick's right is Dr. Stella Swanson. Dr.  
17 Swanson is a Senior Aquatic Scientist with Golder Associates.  
18 She has twenty-one (21) years of experience as an aquatic  
19 biologist and aquatic toxicologist. She has broad experience  
20 in the effects of human activities on ecosystems ranging from  
21 industry to municipalities to agriculture.

22 Stella's current activities focus on large  
23 scale ecological and human health risk assessments,  
24 environmental impact assessments and multi-disciplinary  
25 environmental effects monitoring programs. She is directing

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7

1 an international team of scientists that are reviewing the  
2 state-of-the-art and investigating the effect of multiple  
3 stresses in aquatic ecosystems.

4 Stella is overseeing the environmental health  
5 component of the Snap Lake Diamond Project. Stella will be  
6 presenting this morning.

7 Also presenting to my far right is Mark Digel.  
8 Mark is a senior water quality scientist with Golder  
9 Associates and he is an associate of the company. Mark has  
10 over twelve (12) years of experience in the design,  
11 implementation, and management of water quality monitoring  
12 and assessment projects.

13 His experience includes a wide range of water  
14 quality modelling including contaminant fate models,  
15 eutrophication and dissolved oxygen models, metal speciation  
16 (phonetic) models, mixing zone models and food chain models.

17 Mark has worked on a number of mining projects  
18 in Northern Canada and Mark has led the water quality  
19 component of the Snap Lake Project.

20 And Mark, if you'd like to start your  
21 presentation.

22 MR. MARK DIGEL: Thank you, Robin.  
23 Mr. Chairman and Members of the Board, my name is Mark Digel.  
24 I will be presenting an overview of the key issues related to

25 the assessment of water quality in Snap Lake.

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8

1                   What do we mean by water quality? Water  
2 quality is a measure of the concentrations of substances in  
3 water related to a particular use. In Snap Lake the primary  
4 water quality consideration is for the protection of aquatic  
5 life.

6                   There are four (4) main substances of  
7 potential concern to aquatic life in Snap Lake, total  
8 dissolved solids, nutrients, dissolved oxygen and metals. A  
9 fifth substance, total suspended solids, is discussed because  
10 it is important to the treatment -- the water treatment  
11 process.

12                   Total dissolved solids, or TDS for short, is a  
13 measure of dissolved solids that occur in all natural waters.  
14 Common salts include calcium, magnesium, sodium and chloride.  
15 There is a large natural range of TDS concentrations in  
16 lakes. Baseline or natural concentrations in Snap Lake fall  
17 within the lower end of the TDS range.

18                   Nutrients include nitrogen, phosphorus and  
19 carbon. These nutrients are required to support the growth  
20 of microscopic plants in Snap Lake called algae. Phosphorus  
21 is a nutrient that is available in the most limited supply.  
22 As such, it controls the growth of algae in Snap Lake.

23                   Increasing the supply of phosphorus could  
24 stimulate the growth of algae and increase the overall  
25 productivity of Snap Lake. Dissolved oxygen is present in

---

9

1 low concentration in natural waters. Aquatic life utilizes  
2 oxygen dissolved in water much in the same way that we  
3 utilize oxygen in air.

4                   Metals are present in low concentrations in

5 most natural waters. At higher concentrations some metals  
6 can have an adverse effect on growth, reproduction or  
7 survival of sensitive forms of aquatic life. Most metals in  
8 natural waters are not dissolved in the water but are in --  
9 are instead attached to suspended particles.

10 Total suspended solids, or TSS for short, is a  
11 measure of the concentration of particles suspended in water.  
12 The particles can be made up of very small rock fragments or  
13 organic debris. TSS can reduce water clarity and at high  
14 concentrations can negatively affect sensitive aquatic  
15 organisms.

16 Concentrations of TSS tend to be low in lakes,  
17 including Snap Lake. In this presentation, I will discuss  
18 the key issues related to predicted changes in concentrations  
19 of TDS nutrients, dissolved oxygen, and metal in Snap Lake.  
20 I will also discuss the removal of total suspended solids in  
21 the water treatment process.

22 There were three (3) steps involved in  
23 predicting changes to water quality in Snap Lake. The first  
24 step was to predict the -- the quality and quantity of water  
25 that will be generated on site.

---

10

1 The second step was to take the raw water  
2 quality and assess water treatments options. Water treatment  
3 will reduce the concentrations of suspended solids, metals,  
4 and other substances in the water that will be discharged to  
5 Snap Lake.

6 The third step was how to model the discharge  
7 -- the discharge of treated -- how the dis -- sorry -- the  
8 third step was to model how the discharge of treated water  
9 would change water quality in Snap Lake.

10 Predicted water quality in Snap Lake was  
11 compared to Canadian Water Quality Guidelines for the  
12 protection of aquatic life and drinking water supply, and to  
13 site-specific water quality benchmarks.

14 My presentation will provide brief -- brief  
15 overviews of the prediction of site water quality and  
16 quantity, and the assessment of water treatment, but will

17 focus on the third step; changes to water quality in Snap  
18 Lake.

19               Because an environmental assessment predicts  
20 changes that will happen in the future, uncertainty cannot be  
21 avoided. However, uncertainty can be addressed so that  
22 impacts will not be greater than predicted.

23               This was done in the Snap Lake environmental  
24 assessment by using conservative assumptions in each step of  
25 the assessment.

---

11

1               Conservative assumptions means, where there  
2 was uncertainty in a value, for example, metal concentrations  
3 in the treated water discharge, the value used in the  
4 environmental assessment would be selected to make the  
5 predicted water quality worse than expected.

6               Conservative assumptions were used to predict  
7 the quality and quantity of site water, in assessing water  
8 treatment, and in modelling of changes to water quality in  
9 Snap Lake.

10              Uncertainty was also addressed by identifying  
11 mitigation, or water management measures that could further  
12 reduce the volume of site water, and improve its water  
13 quality, should these be required.

14              A comprehensive site water and lake water  
15 monitoring program will be implemented, and the results will  
16 be used to update the environmental assessment model to  
17 verify impact predictions and to provide a feedback loop to  
18 operations.

19              As I go through my presentation, describing  
20 each of the three (3) steps in the water quality assessment,  
21 I will identify the key areas of uncertainty, and describe  
22 how they were addressed to ensure that impacts will not be  
23 greater than predicted.

24              As discussed in the hydrogeology and mine  
25 water quality presentation yesterday, there are three (3)

---

1 main sources of water that must be managed at the Snap Lake  
2 Diamond Project: underground mine water, resulting from  
3 groundwater inflow to the mines, runoff and seepage from the  
4 North Pile, and site runoff from developed area.

5 And as we heard yesterday, the underground  
6 mine water will comprise more than 95 percent of the total  
7 volume of site water that will pass through the water  
8 treatment plant, and then be discharged into Snap Lake.

9 There were a number of factors that were  
10 incorporated into the environmental assessment to ensure that  
11 site water predictions are conservative.

12 The predicted volumes and quality of site  
13 water represent a balance between being realistic, and being  
14 conservative. The predictions are conservative enough that  
15 it is unlikely that values will be higher than predicted, but  
16 realistic enough to ensure that we will not predict  
17 unreasonable changes to water quality in Snap Lake.

18 As I discussed earlier, the level of  
19 conservatism required will also depend on what mitigation or  
20 management measures are available to ensure that site water  
21 concentrations and volumes will not be greater than  
22 predicted.

23 Grouting can be used to reduce inflows in  
24 areas of high concentrations, or high rates of inflow, if  
25 these are encountered.

1 Grouting provides an additional measure of  
2 protection to ensure that the amount of total dissolved  
3 solids, metal, or phosphorus in the site water, will not be  
4 greater than were predicted.

5 Water treatment, which I will discuss next,  
6 provides another measure of protection by providing the  
7 capacity to reduce higher than expected concentrations of  
8 metals and phosphorus, should these occur.

9 Water treatment will not reduce total

10 dissolved solids, or TDS concentrations. Because there is  
11 one less measure of protection for TDS, we have predicted  
12 that TDS level in Snap Lake with a the higher concentration  
13 and higher flow predicted as part of the mine water  
14 variability assessment.

15 For all mine water variability runs, the  
16 maximum TDS concentrations in Snap Lake remain below the  
17 thresholds identified in the aquatic health assessment.  
18 Stella Swanson will talk more about the effects of TDS in her  
19 presentation, which follows mine.

20 Finally, a site water monitoring program will  
21 be implemented, and the data collected will be used to update  
22 the site water model.

23 The site water model will, in turn, be used to  
24 verify EA predictions of site water quality and quantity, and  
25 to provide a feedback loop to operation, and into the

---

14

1 environmental management system for the project.

2 The proposed water treatment process was  
3 developed based on proven, practical treatment technology  
4 required to protect water quality in Snap Lake.

5 The characteristics of the untreated mine  
6 water that are important for water treatment are: high  
7 concentrations of suspended solids, and low concentrations of  
8 dissolved phosphorus and dissolved metals that are near  
9 solubility limits.

10 Most of the metals and phosphoreus in the  
11 untreated mine water are attached to suspended particles.  
12 The basis of the proposed water treatment process is proven  
13 best available, practical technology for removal of suspended  
14 solids to low concentrations.

15 Removal of suspended solids from the site  
16 water will also remove most of the metals and phosphoreus,  
17 since they are in the particulate form.

18 The water treatment process also has the  
19 capacity to removed dissolved metals and phosphorus should  
20 these occur at higher concentrations than the low levels  
21 predicted in the Environmental Assessment.

22                   The proposed treatment process was assessed  
23 based on extensive sampling of underground mine water,  
24 collected as part of the advanced exploration program,  
25 combined with modeling to predict untreated site water

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15

1 quality, and modeling of the treatment system process itself.  
2                   The treatment process was also tested through  
3 bench scale and pilot plant testing with actual mine water  
4 collected during advanced exploration.

5                   Uncertainty in the water treatment process  
6 relates to the level of treatment that can be achieved for  
7 suspended solids, metals, and phosphorus, as well as the  
8 volumes of site water that will require treatment.

9                   The uncertainty was addressed in the  
10 Environmental Assessment by using conservative assumptions  
11 for treatment.

12                   The Environmental Assessment assumed removal  
13 of suspended solids to a concentration of five (5) milligrams  
14 per litre. This high level of removal is achievable based on  
15 proven technologies that are practical in the North.

16                   The proposed treatment system is equivalent to  
17 conventional municipal water treatment plants using surface  
18 raw water supplies, such as rivers, that tend to have high  
19 suspended solids concentrations.

20                   The testing of the treatment process  
21 demonstrated that the treatment plant will be able to remove  
22 some of the dissolved metals and phosphorous present in the  
23 untreated site water, in addition to the removal of those in  
24 the particulate form.

25                   To be conservative, the Environmental

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16

1 Assessment accounted only for the removal of particulate

2 metals and phosphorus associated with suspended solids, but  
3 did not account for any removal of dissolved metals or  
4 phosphorus.

5 To ensure sufficient capacity through the  
6 operation, the plant will be built to full capacity at  
7 project startup, and will be designed with enough capacity  
8 not -- to treat not only expected site water volumes but also  
9 the upper estimate of potential flow volumes.

10 The quality and quantity of site water and the  
11 level of water treatment were predicted using conservative  
12 assumptions, backstopped with mitigation measures so that  
13 potential effects of treated water discharge to the water  
14 quality of Snap Lake would not be underestimated.

15 The third step in the process was to model  
16 changes to water quality in Snap Lake. Four (4) key water  
17 quality issues and concerns were identified during the  
18 Environmental Assessment review process.

19 The first issue is how the discharge will mix  
20 in Snap Lake during the winter in particular, when ice cover  
21 prevents wind driven mixing. The second issue is the effect  
22 the phosphorus in the treated discharge will have on algal  
23 concentrations in Snap Lake.

24 The third issue is how increased algal  
25 productivity and nitrification of ammonia in the treated

1 water discharge could effect dissolved oxygen concentrations  
2 in Snap Lake during the winter.

3 The fourth issue is whether predicted metal  
4 concentrations could impact aquatic life in Snap Lake.

5 These issues cover the range of water quality  
6 conditions predicted. For each issue, I will describe what  
7 changes could happen in Snap Lake and how the main  
8 uncertainties related to water quality have been addressed.

9 The treated water for the project will be  
10 discharged to Snap Lake through a diffuser outfall. I won't  
11 go into the technical details of how a diffuser works, but  
12 will provide an overview of its purpose and what it will  
13 achieve in Snap Lake.

14 Concentrations of some metals, nutrients and  
15 total dissolved solids are higher in the treated water  
16 discharge than in Snap Lake. Even after treatment, the  
17 concentrations of some parameters will be higher than water  
18 quality guidelines in the treated water.

19 The purpose of the diffuser is to maximize the  
20 amount of initial mixing of the discharge with lake water to  
21 lower concentrations in Snap Lake near the diffuser outfall.  
22 With the diffuser, initial mixing can be achieved within  
23 about sixty (60) to one hundred (100) metres of the  
24 discharge.

25 The modelling that was undertaken in the

---

18

1 Environmental Assessment showed that the maximum  
2 concentration in Snap Lake, after initial mixing, would meet  
3 water quality guidelines or site specific water quality  
4 benchmarks, for all parameters for the duration of operations  
5 and beyond.

6 Under open water conditions, wind driven  
7 currents will result in effective mixing of the discharge  
8 throughout the water column. Snap Lake is shallow and wind  
9 driven mixing will result in effective horizontal and  
10 vertical mixing within the main body of Snap Lake.

11 Mixing of treated water discharge into the  
12 North Arm, shown here as this area, will be less effective  
13 because of the narrow connection between the North Arm and  
14 the main body of Snap Lake.

15 This diagram was generated by the overall  
16 circulation and water quality model of Snap Lake. This model  
17 does not account for initial mixing due to the diffuser. The  
18 is the discharge area here. And, therefore, will  
19 underestimate initial mixing and overestimate concentrations  
20 near the discharge.

21 In the Environmental Assessment the open water  
22 predictions of maximum water quality near the discharge were  
23 based on the whole lake model and are higher than would occur  
24 with the diffuser.

25 The maximum predicted open water total

1 dissolved solids concentration near the discharge, using the  
2 whole lake model, that's essentially this area in red, was  
3 four hundred and forty-four milligrams (444) per litre.

4 This was the value that was used in the  
5 Environmental Assessment to represent maximum concentrations  
6 in Snap Lake. Accounting for initial -- initial mixing due  
7 to the diffuser, the maximum open water concentrations near  
8 the discharge, or in this area, would actually be  
9 approximately three hundred and forty (340) milligrams per  
10 litre.

11 I mention this example to illustrate the value  
12 of the diffuser outfall in lowering concentrations in Snap  
13 Lake. This also provides a specific example of one (1) layer  
14 of conservatism that was used in the water quality and  
15 aquatic assessments to ensure that the effects of changes to  
16 water quality in Snap lake will not be greater than  
17 predicted.

18 The mixing properties will be very different  
19 under ice than during open water conditions. The diffuser,  
20 shown in this diagram, will continue to provide initial  
21 mixing, however there are no wind driven lake currents to  
22 drive additional mixing in Snap Lake under ice.

23 Even after initial mixing of the diffused --  
24 from the diffuser, the mixture of discharge and lake water  
25 will have a slightly higher total dissolved solids

1 concentration than the surrounding lake water.

2 This makes the mixture of discharge and lake  
3 water slightly more dense or heavier than the surrounding  
4 lake water. Because there are no wind driven currents under  
5 ice covered conditions, the mixture of discharge and lake  
6 water will sink down to the bottom of Snap Lake as it moves

7 away from the diffuser outfall.

8                   And I've shown that in a cross-section from  
9 the -- the diffuser outfall towards -- along the main body of  
10 Snap Lake towards the -- the outlet. What this shows is --  
11 is TDS in year 19. So it's TDS in year 19. The whole lake  
12 concentration in Snap Lake will have increased to about three  
13 hundred and ten (310) milligrams per litre.

14                   Initially mixing of the diffuser will take the  
15 TDS concentration from the average or median concentration or  
16 the maximum concentration that we looked at, about nine  
17 hundred (900) milligrams per litre and mix it with the water  
18 in the lake in this area and the resulting mixture will have  
19 a concentration of three hundred and fifty (350) milligrams  
20 per litre which -- and because of that concentration  
21 difference between the TDS in the -- in the remainder of the  
22 lake and after initial mixing that water is still more dense  
23 and because there's -- there's no -- it's essentially calm  
24 conditions, the water is -- is going to sink down to the  
25 bottom and -- and you'll have a layer of higher concentration

---

21

1 water about -- here, about 10 percent higher than in the  
2 majority of Snap Lake.

3                   To ensure that we would not underestimate  
4 concentrations in Snap Lake, the Environmental Assessment  
5 used a conservative estimate of initial mixing, that's this  
6 mixing driven by the diffuser, that was lowered to account  
7 for the reduced volume due to ice-covered conditions, and --  
8 and the lack of mixing in the Northwest Arm and in other  
9 Bays.

10                   As well, effects were assessed assuming that  
11 the concentration in the entire lake would equal the maximum  
12 concentration after initial mixing.

13                   In other words, recognizing that mixing in  
14 Snap Lake would occur very slowly under ice-covered  
15 conditions -- and what I mean by that, is after the initial  
16 mixing, is this moves away -- any additional mixing would  
17 occur very slowly.

18                   We assumed that it would be zero (0), and

19 assessed concentrations in the entire lake based on this  
20 initially mixed concentration.

21           Phosphorus is a nutrient that limits the  
22 growth of algae in most lakes, including Snap Lake. The  
23 treated water discharge will increase the amount of  
24 phosphorus released to Snap Lake, and is expected to increase  
25 the concentration of algae in Snap Lake.

---

22

1           The environmental assessment predicted an  
2 increase in algal concentrations, but that the lake would  
3 remain relative unproductive and nutrient-poor.

4           And this diagram, which you could apply either  
5 the algal concentrations, expressed as chlorophyll A, or the  
6 -- the phosphorus concentration in the lake, represents the -  
7 - the range of -- of productivity, or conditions that you see  
8 in lakes, ranging from ultra-lipotrophic lakes, to hyper-  
9 atrophic lakes at the upper end at the -- at the  
10 productivity.

11           And, this shows just schematically that under  
12 baseline conditions, we're falling within the middle to upper  
13 lipotrophic system.

14           With the -- the addition of the mine water  
15 discharge, the environmental assessment predicted that algal  
16 concentrations, or productivity could increase, but that the  
17 lake would remain relatively unproductive and nutrient poor,  
18 in other words, at the lower end of this total range of  
19 productivity in lakes.

20           Concern was raised in the review that the  
21 environmental assessment predictions may have under-estimated  
22 phosphorus concentrations in the discharge, as well as  
23 changes to algal concentrations in Snap Lake.

24           Considerable effort has been made to resolve  
25 the -- this issue. A break-out session to discuss phosphorus

---

23

1 loading and algal modelling was held during the November 2002  
2 technical sessions.

3 As a result of that meeting, a phosphorus  
4 loading memo was prepared, outlining possible scenarios for  
5 phosphorus concentrations in the treated water discharge.

6 A meeting was held on February 10th, 2003, to  
7 discuss the phosphorus loading scenarios that should be  
8 modelled to address concerns raised by Intervenor.

9 The results of the model re-calibration were  
10 also presented to better explain potential changes to  
11 phosphorus concentrations in Snap Lake.

12 As a result of the February meeting, eight (8)  
13 phosphorus loading scenarios were modelled, covering the full  
14 range of phosphorus concentrations in the discharge, and  
15 potential changes to algal concentrations in Snap Lake.

16 The results of the modelling indicate that  
17 algal concentrations could be higher than predicted in Snap  
18 Lake, and that's shown in this lighter blue bar in this  
19 diagram, but that the results remain consistent with the  
20 environmental assessment conclusion that Snap Lake would  
21 continue to be relatively unproductive and nutrient poor.

22 The addenda to the Intervenor reports indicate  
23 that issues related to phosphorus loading and predicted algal  
24 concentrations in Snap Lake have been resolved by phosphorus  
25 variability, and the algal modelling update.

1 Environment Canada concluded that the  
2 re-calibrated modelling was more credible, and the results  
3 indicates slightly increased productivity, but still within  
4 the range found in the lipotropic lakes.

5 Indian and Northern Affairs Canada concluded  
6 that the issue of under-estimated -- under-estimation of  
7 dissolved phosphorus in the water discharge has been  
8 resolved, and that the values of dissolved phosphorus and  
9 orthophosphate in the Environmental Assessment Report and in  
10 the technical memorandum on Algal modeling in Snap Lake are  
11 considered acceptable.

12                   What is the pattern of winter dissolved oxygen  
13 levels under baseline, or in other words, natural conditions?

14                   This diagram shows a cross-section through  
15 Snap Lake, from near the discharge location on the left,  
16 towards the outlet of Snap Lake on the right.

17                   It shows a winter dissolved oxygen pattern  
18 that is typical of lakes with low to moderate productivity.  
19 Water is well oxygenated near the surface and oxygen  
20 decreases with depth.

21                   In deeper areas concentrations may fall below  
22 levels preferred by fish or bottom dwelling organisms. In  
23 shallower areas, dissolved oxygen concentrations tend to  
24 remain high throughout the water column.

25                   The oxygen levels decrease in winter because

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25

1 the ice cover blocks light, preventing algae from producing  
2 oxygen by photosynthesis. Ice cover also prevents the  
3 exchange of oxygen between the air and water through a  
4 process called re-aeration.

5                   The decay of organic matter concentrated near  
6 the lake bottom consumes oxygen and without photosynthesis or  
7 re-aeration, oxygen concentrations, particularly near the  
8 lake bottom, decrease during winter.

9                   Once the ice cover leaves, re-aeration and  
10 photosynthesis, combined with wind driven mixing, increase  
11 the oxygen levels throughout the lake.

12                   So, that described baseline or natural  
13 conditions. The question is: How are winter oxygen  
14 conditions expected to change during project operation?

15                   Increased algal concentrations and  
16 nitrification of ammonia in the water discharge will increase  
17 oxygen consumption during winter.

18                   The Environmental Assessment predicted that  
19 the project would result in a maximum decrease in dissolved  
20 oxygen levels of one (1) milligram per litre, near the  
21 surface, and up to two point two (2.2) milligrams per litre  
22 at depth.

23                   The questions has been raised: How much of

24 Snap Lake could be affected by increased oxygen consumption  
25 during winter?

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26

1 We used the results of fifty (50) winter  
2 oxygen profiles measured this winter, to give a good picture  
3 of the pattern of winter dissolved oxygen levels throughout  
4 Snap Lake. And this diagram shows one cross-section through  
5 Snap Lake using this information.

6 To predict the changes associated with -- with  
7 the project, we reduced baseline dissolved oxygen  
8 concentrations that were shown on the previous slide, by the  
9 maximum one (1) to 2.2 milligrams per litre of oxygen, to  
10 provide an estimate of the maximum potential decrease in  
11 oxygen concentrations due to the mine water discharge.

12 Under operations, you will see the same  
13 dissolved oxygen pattern as under baseline conditions, but  
14 shifted slightly lower concentrations.

15 The volume of Snap Lake that is above the  
16 preferred dissolved oxygen concentration of lake trout could  
17 decrease slightly during operations.

18 Based on this winter's results, the volume of  
19 Snap Lake that is above the preferred range could decrease  
20 from 95 percent under baseline conditions, to 92 percent  
21 during operation.

22 As shown in this cross-section, this decreased  
23 volume, shown as this yellowish area, occurs mainly in the  
24 middle of the water column because deeper areas tend to  
25 already be below the preferred levels for trout under

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27

1 baseline conditions. And that's these deeper areas, here.

2 Similarly, the bottom area of Snap Lake that  
3 is above the threshold for sensitive Benthic Invertebrates

4 could decrease from 98 percent under baseline conditions, to  
5 96 percent during operation.

6 We believe that be basing the assessment on  
7 the maximum potential reductions in winter dissolved oxygen  
8 levels, that the impacts will not be greater than predicted.

9 The fifty (50) additional winter dissolved  
10 oxygen profiles that were measured this winter have improved  
11 our understanding of the spacial pattern of winter dissolved  
12 oxygen levels and have allowed us to estimate the volume and  
13 area of Snap Lake that could be impacted.

14 The results of the winter dissolved oxygen  
15 modelling that were done this winter were placed on the  
16 Public Record as a technical memorandum.

17 The overall conclusion of our Environmental  
18 Assessment was that changes of these magnitudes in winter  
19 dissolved oxygen concentrations would have negligible impact  
20 on aquatic life in Snap Lake. Stella Swanson will elaborate  
21 more on this in her presentation which follows mine.

22 Concentrations of metals in the treated water  
23 discharge are generally low but maximum concentrations of  
24 some metals were predicted to be greater than water quality  
25 guidelines.

1 Initial mixing will lower concentrations near  
2 the diffuser outfall, as I illustrated earlier. As I also  
3 discussed earlier, wind driven mixing will occur throughout  
4 the main part of Snap Lake in open water conditions.  
5 However, under ice covered conditions, after initial mixing  
6 from the diffuser, limited additional mixing will occur in  
7 the remainder of Snap Lake.

8 I discussed earlier how mixing was treated  
9 conservatively. For under-ice conditions, this was done by  
10 assessing under-ice effects, assuming that the concentration  
11 in the entire lake would equal the maximum concentration near  
12 the discharge, after initial mixing.

13 For open water conditions, this was done by  
14 using the full lake model predictions, which overestimate  
15 concentrations near the diffuser outfall. The results of the

16 assessments are that maximum metal concentrations will be  
17 below water quality guidelines or site specific benchmarks,  
18 after initial mixing in Snap Lake.

19 Even using the full lake model, which does not  
20 account for the effects of the diffuser, only two (2) metals,  
21 cadmium and chromium, were predicted to be above guidelines  
22 or benchmarks, in a very small area of Snap Lake. These two  
23 (2) metals were carried forward into the aquatics assessment,  
24 which will be presented next.

25 To summarize, the quality and quantity of site

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29

1 water were predicted using conservative assumptions  
2 backstopped with mitigation measures. Water treatment will  
3 provide effective removal of suspended solids, metals and  
4 phosphorus.

5 Predicted changes to water quality in Snap  
6 Lake were also assessed using conservative assumptions.  
7 Predicted concentrations are expected to be below water  
8 quality guidelines or site specific water quality benchmarks  
9 in Snap Lake, for all parameters, after initial mixing by the  
10 diffuser.

11 The layers of conservatism applied to each  
12 step of the water quality assessment provide a high level of  
13 confidence that changes to water quality in Snap Lake and the  
14 effects of those changes, were not underestimated.

15 Will water quality be protected in Snap Lake?  
16 Yes. The project includes measures to minimize effects of  
17 water quality in Snap Lake.

18 Two (2) key measures are, the water treatment  
19 plant, which will provide a high level of treatment for  
20 suspended solids, phosphorus and metals, and the diffuser  
21 outfall, which will maximize the amount of initial mixing of  
22 the treated water with lake water to lower concentrations  
23 near the discharge in Snap Lake.

24 Additional measures are available if required.  
25 Grouting can reduce mine water inflows if rates of inflow or

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1 concentration are higher than predicted. The water treatment  
2 plant will remove phosphorus and metals if they are present  
3 at concentrations higher than were predicted in the  
4 Environmental Assessment.

5 Comprehensive site water and lake monitoring  
6 programs will be implemented to verify impact predictions and  
7 to update the predicted models to forecast whether additional  
8 mitigation measures will be required.

9 Thank you, Mr. Chairman and Members of the  
10 Board. That concludes my presentation.

11 MR. ROBIN JOHNSTONE: Mr. Chair, we will  
12 follow, with your permission, directly on to  
13 Dr. Stella Swanson.

14 THE CHAIRPERSON: Go ahead.

15  
16 (BRIEF PAUSE)

17  
18 MS. STELLA SWANSON: Mr. Chairman, Members of  
19 the Board, my presentation this morning will focus on the  
20 overall effects on Snap Lake of the Snap Lake Diamond  
21 Project. Next slide.

22 This presentation will focus on the predicted  
23 biological response in Snap Lake, which is found towards the  
24 bottom of the linkage that we've been looking at through the  
25 last couple of days.

1 The biological response refers to how the  
2 plants and animals in Snap Lake will be affected by the  
3 changes in the water quality that you've just heard about  
4 from Mark. This presentation will deal with the outstanding  
5 issues identified at the pre-hearing conference that are  
6 listed on the slide.

7 The presentation will deal with each of these  
8 issues and we will be presenting our detailed analysis in

9 order that the Board understand the reasons why we believe  
10 our assessment approach is sound.

11 We will be referring to information that is in  
12 the Environmental Assessment Report as well as supplementary  
13 information that has been provided in technical memoranda on  
14 the public record as of the end of February 2003.

15 The big picture question is: Will Snap Lake  
16 be okay? There are three (3) specific questions we ask  
17 ourselves when we try to answer that big picture question.

18 The first is: Will there be enough of a  
19 change in the quality of the water in Snap Lake to really  
20 have the potential to affect fish and other life in the lake?

21 Changes in water quality do not automatically  
22 mean there are changes to aquatic life and we will be  
23 presenting our detailed analysis for how we would decide  
24 whether those effects are enough -- or changes are enough to  
25 affect plants and animals.

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32

1 The second question there: How sure are we,  
2 refers to the fact that whenever you get more than one (1)  
3 scientist in the room there will be disagreements. That does  
4 not mean that the Board cannot make a decision.

5 Rather, it means that the scientists must be  
6 sure that they are clear in how they -- in their explanation  
7 of judging how sure we are. Usually it comes down to a  
8 discussion of the worst thing that could happen and I'll be  
9 describing that later.

10 The third question: Will the changes in Snap  
11 Lake be acceptable, is the mandate of the Board. The Board  
12 will judge whether it is confident that there will be no  
13 significant adverse impact in Snap Lake.

14 It is the job of a scientist like myself to  
15 clearly explain the level of confidence we have in our  
16 science.

17 In order to answer the first question, that  
18 is: Will changes in Snap Lake be enough to affect aquatic  
19 life? We progress through four (4) basic steps.

20 First, we must understand what the water and

21 the aquatic life are like now in Snap Lake. This is called  
22 the baseline.  
23                   It's important to understand the baseline,  
24 because the way plant and animal life respond to the changes  
25 depend in part upon the conditions they are adapted to now.

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33

1                   The second step is to consider all possible  
2 effects of the mine. This is usually a very long list.  
3 Therefore, we move to step three (3), which is focussing on  
4 the things that truly have potential to affect the mine.  
5                   This step is called screening, and it results  
6 in a short list. The short list provides the focus for  
7 designing mitigation, to -- mitigation measures to prevent or  
8 minimize effects on Snap Lake. That screening step will also  
9 be explained in detail later in my presentation.  
10                  Once we have that focus on the short list, and  
11 the mitigation measures are in place, then the potential for  
12 effects on plants and animals in Snap Lake is assessed.  
13 Monitoring is also a key tool for checking the accuracy of  
14 our impact predictions.  
15                  So, step 1, understanding baseline, or what is  
16 there now in the lake. There are several different kinds of  
17 baseline programs. When we do an environmental assessment,  
18 the purpose of the baseline data is to focus on information  
19 that is relevant to the key linkages between the project  
20 activities, and the potential impacts.  
21                  So it is not a thorough inventory of  
22 everything that might ever have lived in the lake, or lives  
23 in the lake now, but it focusses on those key linkages  
24 between the project and potential impacts.  
25                  So, the objectives of an environmental

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34

1 assessment baseline program are to describe the important  
2 basic features of Snap Lake, and describe the characteristics  
3 of the plants and animals in enough detail that we can assess  
4 the potential for effects.

5           The 1999 to 2001 studies conducted for the  
6 baseline, showed that Snap Lake had some characteristics that  
7 are not typical of arctic lakes.

8           It is very important to understand this,  
9 because it affects our assessment of a significant of water  
10 quality changes.

11           The main things that are not typical about  
12 Snap Lake are that the lake has more nutrients and algae  
13 growth than other arctic lakes.

14           Because of this, the dissolved oxygen in the  
15 deep water in mid to late winter is lower than you would  
16 normally find in arctic lakes.

17           The low dissolved oxygen is related to the  
18 fact that during the winter, the algae have died, and settled  
19 to the bottom, and start to decay. This decay uses up some  
20 of the dissolved oxygen.

21           There has been a lot of discussion about  
22 whether there are enough baseline data. The definition of  
23 enough, depends upon the purpose.

24           For an Environmental Assessment, the purpose  
25 is to understand enough about Snap Lake to allow confident

1 predictions. We believe that we have enough understanding of  
2 Snap Lake to allow that confident prediction.

3           However, future monitoring programs may  
4 require the collection of additional data to make sure that  
5 we understand enough about the natural variations in  
6 measurements, such as what we have on the slide, the  
7 abundance of bottom dwelling insects, which may vary from  
8 place to place within the lake, and from year to year.

9           In other words, for monitoring programs, we  
10 may need more data to make sure we can distinguish the signal  
11 from the noise; and the noise is created by that natural  
12 variation.

13                   The sources of effects on Snap Lake have  
14 already been described by previous speakers, and they are  
15 summarized briefly on this slide. All of these sources were  
16 accounted for in the models used to predict water quality.

17                   Now, we're at step three (3), which is called  
18 the screening step. This is the step we use to focus on the  
19 things that truly have the potential to effect the plants and  
20 animals in Snap Lake.

21                   The way we screen is by comparing maximum  
22 predicted concentrations in Snap Lake with water quality  
23 guidelines. And most of the time, those water quality  
24 guidelines were a Canadian Water Quality guidelines for the  
25 protection of aquatic life.

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36

1                   Sometimes there were no Canadian guidelines,  
2 so, then we used guidelines from the United States  
3 Environmental Protection Agency.

4                   We note that Canadian Water Quality Guidelines  
5 are designed to protect 100 percent of the species, 100  
6 percent of the time so they are very useful for screening.  
7 This is because, if the very highest concentrations we  
8 predict in Snap Lake are still below those guidelines levels,  
9 we are very confident there will be no effects.

10                   Therefore, all of the chemical changes where  
11 the maximum concentration was below the guidelines were  
12 screened out and we focused on the water quality changes that  
13 were greater than the guidelines.

14                   Sometimes the parameters have no guidelines,  
15 in this case the change was carried forward automatically  
16 into the assessment.

17                   The final point I wanted to make, is that  
18 changes or increases above water quality guidelines does not  
19 mean an automatic effect.

20                   To determine if there could be effects, we  
21 look at the points on this slide, which are: Would the  
22 predicted concentrations actually be in the range where we've  
23 seen effects in other studies, either in the laboratory or in  
24 field studies.

1 concentrations with studies where effects have been observed  
2 in very sensitive species in other studies elsewhere. And  
3 these very sensitive species would be the species that are  
4 relevant to those that live in Snap Lake.

5           The amount of the change and whether or not it  
6 falls into the range of effects is not the only thing we need  
7 to consider, though.

8           Because the -- the amount of time that a plant  
9 or animal is exposed, whether or not the exposure is constant  
10 or only a few times a year, will contribute to whether there  
11 are effects.

12           Also, the goal in environmental assessment is  
13 to predict effects on populations and communities of plants  
14 and animals, not individuals. If a tiny area of Snap Lake is  
15 effected only part of the time and only a few individuals are  
16 effected, these effects would not be large enough to effect  
17 the entire population.

18           Now we're at step four (4), which is where we  
19 really have to look at, are there going to be effects on the  
20 plants and animals in Snap Lake?

21           We examined several so-called lines of  
22 evidence. This approach is necessary because the scientific  
23 methods regarding how we assess several water quality changes  
24 occurring all at the same time, are still developing.

25           Therefore, we examine each change one (1) by

1 one (1) and then we also look at summing everything up. So  
2 we're looking at the overall water quality change from  
3 several different angles.

4           Furthermore, the whole assessment was done

5 using layers of safety. In other words, each line of  
6 evidence included conservative assumptions that overestimated  
7 the potential for impacts.

8 This was done to account for the fact that the  
9 scientists are still developing methods for dealing with what  
10 are called multiple stressors, where there are several change  
11 occurring at the same time.

12 When we examine each line of evidence, we  
13 answer -- were asked a number of important questions. Would  
14 the expected change truly cause an effect? And as I  
15 explained earlier, we compare that with effects that have  
16 been observed in other studies.

17 Would the change be large enough, over a wide  
18 enough area, and over a long enough period of time, to effect  
19 either individuals or populations? Therefore, the size of  
20 the change in water quality, the area of Snap Lake effected  
21 and how often and for how long plants and animals are  
22 exposed, must all be considered in the impact assessment.

23 We did consider both direct effects on plants  
24 and animals, and indirect effects, be it changes in habitat  
25 or food. So here we're going through each particular water

1 quality change, one (1) at a time, and we'll start with total  
2 dissolved solids.

3 As you heard from Mark Digel, TDS, or salts,  
4 will gradually, over nineteen (19) years, increase to a  
5 maximum predicted concentration, lake-wide, of three hundred  
6 and fifty (350) milligrams per litre. And then it will start  
7 coming back down again.

8 The maximum whole-lake chloride concentrations  
9 are predicted to be one hundred and thirty-seven (137)  
10 milligrams per litre. When we examined these predicted  
11 changes with what has been observed in studies, we noticed  
12 that the changes fall within the range where aquatic life in  
13 Snap Lake are known to be able to live.

14 Furthermore, the increase in salts will be  
15 very gradual. So we have concluded, there are no predicted  
16 direct adverse effects of salts, since concentrations are not

17 high enough to exceed effects thresholds, including  
18 thresholds for calcium and chloride.

19                   When we look at indirect effects, we think  
20 there may be some because some of the salts are needed for  
21 things like the outer shells of small clams or water fleas.  
22 Thus, more salts may mean more nutrients for building those  
23 shells.

24                   While water fleas are not currently abundant  
25 in Snap Lake, any increase in salts may increase the water

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1 flea population, offering a bit more food for fish.

2                   Environment Canada has stated that if TDS  
3 levels are below six hundred (600) milligrams per litre  
4 effects will likely be restricted to increased productivity  
5 and minor zooplankton species shifts such as what I just  
6 mentioned for water fleas and that has been reported in the  
7 February 14th Intervenor Report.

8                   As far as lake trout is concerned, Department  
9 of Fisheries and Oceans agree that lake trout can tolerate  
10 the predicted TDS levels. So, overall, the expected change  
11 in the salts is predicted to have little or no effect on the  
12 plants and animals in Snap Lake and we illustrate this with a  
13 little diagram.

14                   The green bars refer to the tolerance ranges  
15 on the left, this is for fish. And on the right is for the  
16 little microscopic animals called zooplankton and this is a  
17 little water flea. What we find in the literature is that  
18 the tolerance ranges are as shown and here's the predicted  
19 maximum salt level in Snap Lake, and you can see that it  
20 falls well within the range.

21                   Just as an example of what the literature  
22 reveals for fish, it shows that for all of the species of  
23 fish found in Snap Lake, except lake chub, all of the fish  
24 species are actually -- can be found even in brackish water.  
25 And brackish water is mixed with salt water -- sea water can

---

1 be much, much, higher salinity, way up here.

2 Now, we'll deal briefly with nutrients. As  
3 you heard from Mark, Snap Lake is a moderately productive  
4 lake. That means that it has more nutrients than the typical  
5 crystal clear nutrient poor arctic lakes. The total  
6 phosphorus will gradually increase and in -- as a  
7 consequence, the chlorophyll A, which is the green pigment  
8 used by algae to convert the sun's energy to food, will also  
9 increase.

10 What does this mean? In this slide, and  
11 you've seen this one before from Mark, it means that there  
12 will be a slight shift in the chlorophyll A, the abundance of  
13 algae, but it'll still mean that the lake qualifies as a  
14 relatively nutrient poor to moderately productive lake.

15 It definitely will not change into the green  
16 slimy lake that's -- like at the top of this slide that we  
17 might associate with, for example, the Great -- Lake Eyrie in  
18 the time when there were a lot of phosphates being discharged  
19 from detergents.

20 It will not mean that we will be getting  
21 massive blooms of blue-green algae associated with these  
22 kinds of lakes. That means there won't be a large amount of  
23 blue-green algae toxicity because of the decay of those types  
24 of algae. This is because we're not in the zone where this  
25 happens. We're down here.

1 Next slide. So, we're expecting that there  
2 won't be a change in the overall productive status of Snap  
3 Lake. Because we are adding phosphorus which, as Mark  
4 explained, is a limiting nutrient, you might have a slight  
5 increase in the number of algae.

6 In turn, because there is a bit more food, you  
7 might have a bit of an increase in zooplankton and Benthos.  
8 However, there is a basic principle in food chains that there  
9 is a loss of energy during the transfer from one (1) step to

10 the next step in the food chain.

11 Therefore, by the time you get up to the top  
12 of the food chain at fish, it may be very difficult to  
13 measure any increases in fish size or fish growth.

14 There may be some slight shifts in the  
15 proportion of one (1) kind of algae over another. These  
16 shifts will not be large, and they will not mean an  
17 elimination of what we call keystone species, such as  
18 important fish food, or as I said earlier, dominant kinds of  
19 algae.

20 In other words, the menu for the fish will not  
21 change. Just the size of the portions.

22 Dissolved oxygen. As the next slide shows, we  
23 have gone out into the lake under ice during winter  
24 conditions and collected dissolved oxygen data from a number  
25 of different locations in the lake.

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1 This slide shows oxygen conditions from just  
2 under the ice, down to the bottom, where you show -- where  
3 you can see there is a steady decline in oxygen, down to very  
4 low levels at the bottom. This is occurring right now during  
5 baseline conditions.

6 On the right hand side, we explain what this  
7 means in terms of the lake trout that are in the lake right  
8 now. Lake trout prefer to swim around in water that has at  
9 least seven (7) milligrams per litre oxygen in it.

10 That means that during the mid to late winter,  
11 the lake trout will prefer to be in this upper part of the  
12 water column. They will avoid the lower water that has low  
13 oxygen.

14 After the Snap Lake mining operation begins,  
15 the decrease in oxygen will start taking place. The  
16 decrease, as Mark was explaining, will vary, depending on  
17 where you are in the lake.

18 It will be greatest at the bottom of the deep  
19 basins, where the largest amount of algae will be decaying,  
20 and using up the oxygen.

21 As pointed out, this will only occur in mid to

22 late winter. Once the ice goes off, the oxygen will come  
23 back into the water through wind stirring, and -- and turn --  
24 and so-called turnover of the water column.

25 Right now, the fish are avoiding areas below

---

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1 seven (7) milligrams per litre and they will continue to do  
2 so.

3 Next slide. And what we're saying is that  
4 there will be an increase in the proportion of the lake which  
5 dissolved oxygen concentration less than seven (7) milligrams  
6 per litre.

7 Right now, the volume of the lake that has  
8 optimum values of oxygen, which is greater than seven (7)  
9 milligrams per litre, is 95 percent. That will drop to 92  
10 percent of the lake at -- during operation of the mine, so  
11 there will be a 3 percent decrease in the optimum habitat for  
12 lake trout in mid to late winter.

13 This is restricted, as you heard from Mark, to  
14 a narrow band of water in the middle of the water column,  
15 this effect.

16 What about the bottom dwelling worms and clams  
17 and insects? Right now, the worms and clams and insects that  
18 live there are adapted to low oxygen conditions. The area  
19 where you would have only the kinds of insects and clams and  
20 worms that can tolerate low dissolved oxygen will be  
21 increased somewhat; there will be about a 2 percent shift.

22 So, it would be a small increase in the area  
23 of the bottom where only the species that can tolerate low  
24 dissolved oxygen can live, and we emphasize that most of the  
25 Benthos in deep water already live in low dissolved oxygen

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1 conditions.

2                   So, the next slide illustrates this with a  
3 simple diagram, again, from the point of view of the fish.  
4 Right now, the baseline condition is that they are avoiding  
5 this much -- or, sorry, this much of the lake.

6                   Once the mine is in operation, there will be a  
7 3 percent increase in the volume that the fish are avoiding.

8                   We do not believe that this change will create  
9 a change in the available food to lake trout during mid-  
10 winter, because there will be very small shifts in the  
11 habitat for Benthos, and feeding activity is reduced in the  
12 mid-winter.

13                  There is such a small increase in the total  
14 area that fish avoid, that it is not predicted to have an  
15 overall effect on fish populations.

16                  We note that in Ontario, Lake Trout lakes,  
17 where the dissolved oxygen is limiting, in this case, in late  
18 summer, the dissolved oxygen threshold for having a healthy,  
19 and productive Lake Trout population is to have 20 percent of  
20 the lake with dissolved oxygen greater than six (6)  
21 milligrams per litre, and 40 percent of the lake with  
22 dissolved oxygen greater than four (4) milligrams per litre.

23                  Notice that in Snap Lake, even after the mine  
24 is in operation, we're well above those percentages. We have  
25 93 percent of the lake with dissolved oxygen greater than six

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1 (6) milligrams per litre, and 95 percent of the lake with  
2 dissolved oxygen greater than four (4).

3                  Based on this, there will be no change to the  
4 fish productivity in Snap Lake because dissolved oxygen  
5 limitation will not reach thresholds known to reduce  
6 productivity.

7                  Now, we'll deal with the two (2) metals,  
8 cadmium and chromium. First, cadmium. Maximum cadmium  
9 concentrations may exceed the threshold for effects on the  
10 most sensitive species, which turns out to be water fleas,  
11 in less than 1 percent of the lake, on rare occasions.

12                  This was given a rating of small negative  
13 effect because the area affected is small. The effects would

14 be on rare occasions, and there were not -- would not be  
15 effects on water flea populations because only a very small  
16 proportion of the population would ever be affected.

17 With chromium, the maximum concentrations  
18 would be above thresholds for effect in less than 3 percent  
19 of the lake.

20 We note that the maximum chromium  
21 concentrations would not exceed the known threshold for even  
22 the most sensitive test species, which are water fleas.

23 What we were forced to do is, we couldn't find  
24 a concentration in the literature that caused effects on  
25 water fleas as low as what we were predicting in Snap Lake.

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1 So, we actually took a theoretical possible level for effect.  
2 If there were effects on water fleas from  
3 maximum chromium concentrations, the maximum effect would be  
4 a decrease in growth in individuals, in a very small part of  
5 the lake, on rare occasions.

6 Since the maximum chromium concentrations  
7 would be lower than anything ever observed in laboratory  
8 tests anywhere, the impact assessment rated the effects as  
9 uncertain, in the unlikely effect that some sensitive  
10 individuals would be affected, population level effects are  
11 even more unlikely because of the small area of the lake  
12 affected and the rare occurrence of maximum concentrations.

13 To sum up, the maximum effect of cadmium and  
14 chromium would be to some individual sensitive organisms,  
15 such as water fleas, on rare occasions, in less than 1  
16 percent of the lake.

17 This lake would -- this effect would be so  
18 small that there would be no measurable affects on the water  
19 flea population itself, or on the availability of fish food.

20 I will now sum everything up by looking at  
21 the -- how all of the changes that are occurring at the same  
22 time might effect the plants and animals in Snap Lake. This  
23 is referred to as multiple stressors.

24 The multiple changes assessed for Snap Lake  
25 are, TDS, nutrients, dissolved oxygen and metals. There are

1 two (2) ways of evaluating effects of multiple changes.  
2 Laboratory tests on treated mine water and using a weight of  
3 evidence approach.

4 Laboratory tests on treated mine water test  
5 for the combined effects of all of the water quality changes.  
6 These tests were completed for Snap Lake, for bench scale  
7 and pilot scale water quality samples. The tests were done  
8 on algae, water fleas, and small fish such as juvenile trout.

9 Using their test results from the laboratory,  
10 the water quality model predicted that the whole effluent  
11 would effect test organisms prior to mixing in the water of  
12 Snap Lake.

13 The effects were not lethal, no animals or  
14 plants are expected to die. The effects were predicted to be  
15 sub-lethal, for example, growth slowing down, or fewer young  
16 produced for females.

17 We note that the laboratory tests conducted on  
18 Snap Lake water had TDS concentrations much higher than the  
19 maximum predicted concentrations in Snap Lake. Actually, it  
20 was at one thousand, two hundred and ninety (1,290)  
21 milligrams per litre.

22 Once the treated mine water actually mixes  
23 with Snap Lake water, it will become so dilute that toxic  
24 effects are not expected, except perhaps very close to the  
25 discharge point.

1 The Environmental Assessment predicted that  
2 chronic toxicity may occur in 1.1 percent of the lake, if no  
3 mixing is assumed. In fact, the diffuser will create rapid  
4 mixing and rapid reduction in the potential to cause  
5 toxicity.

6 The second way of looking at multiple

7 stressors is to sum up so-called weight of evidence. A score  
8 is assigned to the effects of each of the individual  
9 stressors. The black solid circles refer to negative effects  
10 and the open circles would refer to positive.

11 We're defining a small negative effect as less  
12 than 1 percent of the lake, in only a few days or weeks, in  
13 only a few years, and the effects would be mostly indirect or  
14 sub-lethal, i.e., there would not be deaths.

15 The two (2) dots would be more of an effect in  
16 greater part of the lake, over more than one (1) season, in  
17 several years. A strong effect would be, greater than 10  
18 percent, up to all of the lake, year round, and largely  
19 direct effects, which may include death of the organisms.

20 So, if you go to the next slide, we'll give  
21 you an example of how this all summed up.

22 The double sided arrows mean that we predicted  
23 no real measurable change. The open circle means that there  
24 might be a small positive effect. The black circle means  
25 that there might be a small negative effect. The little

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1 square means that we're highly unsure because our maximum  
2 concentrations are still lower than the concentrations shown  
3 to effect any species tested, in the literature.

4 How you read this slide is, you take -- you  
5 read across the row. So each of the changes in water quality  
6 are across the top, and each part of the Snap Lake plant and  
7 animal community are along the side.

8 So let's, for example, look at the algae  
9 community structure. This means, the types of algae that are  
10 present in the lake. If you read across, what this slide is  
11 showing you is that for each stressor, when we looked at it  
12 one (1) at a time, there really were no particular measured  
13 effects predicted. So the overall effect is also neutral.  
14 Really, no measurable effect. That's a fairly simple  
15 example.

16 Let's look at one (1) where we have some both  
17 open and closed circles. Zooplankton, for example, the water  
18 fleas. We're expecting that there might be a few more of

19 particular kinds of water fleas because of their having more  
20 food.

21                   To balance that out, there might be, in a very  
22 small portion of the lake, on rare occasions, a few water  
23 fleas that grow more slowly or produce fewer young per female  
24 because of cadmium.

25                   We're really not sure what we should be

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1 predicting for chromium because, as I've explained, our  
2 maximum concentrations are lower than anything observed to  
3 have caused effects. But to be on the safe side, we're just  
4 saying that's uncertain.

5                   The combination of a positive, some neutral, a  
6 small negative and an uncertain adds up to, well, maybe  
7 uncertain. This is very conservative. We're just saying  
8 there may be still a small potential for some overall effect  
9 on the numbers of things like water fleas in the lake.

10                   This is how this table works. I won't go  
11 through each -- through each and every one (1) of these rows.  
12 But this is one (1) way of looking at multiple stressors.  
13 It's a very qualitative approach. However, it is being  
14 increasingly used by scientists and government agencies in  
15 the absence of anything better and any better understanding  
16 so far among scientists.

17                   Getting back to the big picture questions  
18 again. Really, it all boils down, as I said at the beginning  
19 of my talk to you, how sure are we about this. As I've said,  
20 there will always be uncertainty. So to account for  
21 uncertainty we think through the worst thing that could  
22 happen.

23                   Another way of putting this is that in the  
24 face of uncertainty we use a conservative approach. The  
25 philosophy is that if the worst thing that could happen does

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1 not produce significant adverse effects then we can be sure  
2 that any other events would not cause significant adverse  
3 effects.

4           There are layers of safety built in to the  
5 assessment, starting with seepage and ground water  
6 predictions and ending with the assessment of effects on  
7 aquatic life. Each team in the assessment made sure we were  
8 using a reasonable worst case set of assumptions.

9           For example, seepage was assumed to enter Snap  
10 Lake and we are confident we have not underestimated seepage  
11 from the North Pile regardless of how quickly or slowly the  
12 North Pile freezes. Sometimes, it is not logical to combine  
13 two (2) worst case assumptions into one (1) analysis.

14           For example, high water flow or volume cannot  
15 coincide with maximum chemical concentrations because of the  
16 basis principles of dilution. This is why we call our  
17 approach reasonable worst case because we cannot include  
18 illogical combinations of events.

19           Within this definition of reasonable worst  
20 case, we are sure we did not underestimate impacts. Of  
21 course, there are always examples of extremely unlikely and  
22 unanticipated events. Mitigation measures are available in  
23 the highly unlikely event that changes are greater than  
24 predicted.

25           The last question, is that acceptable?

1 Acceptability is defined under the MVRMA in terms of the  
2 likelihood of significant adverse impacts. The impact  
3 assessment includes scientific and government agency  
4 reasoning about acceptability.

5           Scientists and regulatory agencies use  
6 reasoning based on defined levels of predictions. For  
7 example, 100 percent of the species, 100 percent of the time  
8 as embodied in the Canadian Water Quality Guidelines. Or,  
9 layers of safety added into the assessment to account for  
10 uncertainty as you've just heard.

11           It is the job of scientists to clearly

12 describe the predicted impacts, the reasoning used to arrive  
13 at their predictions, and the level of certainty attached to  
14 those predictions, and then the Board will decide whether  
15 there is a likelihood of significant adverse impact.

16 As scientists, the environmental assessment  
17 team are confident in our assessment, because we have  
18 incorporated several layers of safety.

19 The question, is that acceptable, is of  
20 course, the Board mandate. Scientists alone cannot answer  
21 this question. However, we can help by providing a clear  
22 description of how we produce our assessment, and how sure we  
23 are about our methods.

24 We are confident that we have used a  
25 sufficient number of layers of safety all of the way through

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1 each step, and that we have not underestimated the potential  
2 for effects.

3 Furthermore, we have made use of the best  
4 available information and up-to-date methods. Mitigation and  
5 monitoring will be in place to prevent or minimize impacts,  
6 and monitoring data can be plugged back into the model, to  
7 increasingly refine the model predictions, leading to more  
8 and more realistic, rather than conservative, predictions as  
9 we carry on.

10 Will Snap Lake be okay? Yes. The changes in  
11 water quality will not be large enough to create an unhealthy  
12 lake. The changes in water quality will not be large enough  
13 to affect plant and animal populations in the lake.

14 We are sure we have not underestimated the  
15 potential for effects, including the potential for multiple  
16 stressor effects. Our methods are presented in detail, and  
17 they're open to scrutiny.

18 Monitoring will be in place to provide  
19 feedback on the accuracy of our predictions, and we are  
20 confident that monitoring will confirm the conservative  
21 nature of our predictions.

22 After a careful, step-by-step consideration of  
23 the worst thing that could happen from water quality changes

24 in Snap Lake, we conclude that the environmental consequences  
25 are negligible or low, and there'd be a very low likelihood

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1 of significant adverse impacts.

2 Thank you, Mr. Chairman. This concludes my  
3 presentation.

4 THE CHAIRPERSON: Thank you very much. We'll  
5 now take a coffee break, and after the break, we will resume  
6 with questions of the Proponent. Thank you.

7  
8 --- Upon recessing at 10:38 a.m.

9 --- Upon resuming at 11:00 a.m.

10

11 THE CHAIRPERSON: We will now resume the  
12 hearing. Thank you. Just before we go to questions of the  
13 Proponent, a little bit of housekeeping.

14 A reminder to bring your own hard copies of  
15 your PowerPoint Presentation, instead of just placing them on  
16 the table outside, please hand out copies to all parties  
17 before 9:00 a.m., or at breaks. Extra copies can be placed  
18 on the table outside.

19 Several parties have also provided PowerPoint  
20 Presentations that have been revised slightly since being  
21 posted to the MVEIRB website. Please ensure that we receive  
22 electronic copies of these revised versions. Please label  
23 the top of these presentations as revised, and please also  
24 indicate the date of the revision.

25 EIRB staff will update the website with any

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1 revised presentations as soon as we have the opportunity to  
2 do so.

3 We will now go to questions of the Proponent.

4 First up, Yellowknives Dene First Nation, do you have any  
5 questions of the Proponent? Mr. Byers...?

6 MR. TIM BYERS: No, we do not.

7 THE CHAIRPERSON: Thank you, sir.  
8 Indian and Northern Affairs Canada, Mr.  
9 Bohnet?

10 MR. SEVN BOHNET: Yes, thank you, Mr.  
11 Chairman. Sevn Bohnet with DIAND. We do have several  
12 questions, and I'll just pass it on to whoever's going to  
13 start first.

14 MR. EUGENE YAREMKO: Mr. Chairman, my name is  
15 Eugene Yaremko, and I'm representing DIAND, in the area of  
16 surface water hydrology.

17 And I -- I do have some -- a question or two  
18 (2), based on this information that was given out this  
19 morning by De Beers and I wonder if I might proceed with some  
20 questions?

21 THE CHAIRPERSON: Yes, sir, go ahead.

22 MR. EUGENE YAREMKO: Now, this -- this  
23 document, I don't know if everyone -- everyone has a copy,  
24 but it's a document prepared in the last day, I think, the  
25 29th, it's addressed -- dated.

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1 And the purpose of the document is to address  
2 the question of whether or not the lake level will be well  
3 mixed during the summer period.

4 And the document includes an equation; an  
5 equation that, at the end of which gives you a  
6 Richardson number which, depending on the answer, will give  
7 you -- will let you know whether you have a well mixed  
8 condition or an unwell mixed condition, or a layered  
9 condition.

10 And -- and I think the -- the goal is here to  
11 -- to -- we need to realize that the lake does stratify, or  
12 the effluent does -- does stratify, and what becomes of that  
13 stratified water, effluent water.

14 So, just simply, in that -- in this equation  
15 there are four (4) variables, two (2) of which are the

16 density of the -- one (1), the lake density at the surface,  
17 and one (1), the density of the -- of the water at the bottom  
18 of the lake and supposedly in the -- in the stratified layer.  
19 And two (2) other variables, one (1) being the  
20 depth of the lake, and the other being the velocity, the  
21 current velocity in the lake.  
22 Now, this equation is -- the answer that you  
23 would get from this equation is very sensitive to --  
24 sensitive to the depth of the lake and very sensitive to the  
25 current velocity.

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1 And I -- I'm not going to argue about the  
2 values used in this thing, except -- or the values of  
3 densities used in the equation, but I do have questions  
4 about -- about how -- how it was used.

5 And in -- in the equation, they used an  
6 average depth of 5.6 metres, being average of the lake --  
7 lake depth, throughout the lake; and a current velocity of,  
8 in the range of .1 to .4 metres per second.

9 THE CHAIRPERSON: Before you proceed, Mr.  
10 Yaremko?

11 MR. EUGENE YAREMKO: Hmm hmm?

12 THE CHAIRPERSON: As I understand it, both of  
13 these documents that I've been given a copy of have not been  
14 filed with the Board and the Board does not have copies of  
15 this, other than what has just been handed to me now.

16 As I understand it, there's an exchange  
17 between De Beers and DIAND. Would DIAND like these documents  
18 filed so the Board can have copies?

19 MR. SEVN BOHNET: Mr. Chairman, it's Sevn  
20 Bohnet. My understanding is that this letter was actually  
21 forwarded to the Board, we were just copied on it. It was  
22 submitted by De Beers.

23 THE CHAIRPERSON: Mr. Donihee...?

24 MR. JOHN DONIHEE: Mr. Chairman, we did get a  
25 copy of it last night. We understand it was provided to

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1 DIAND this morning.

2 And it's not been filed because, basically,  
3 the way that it was provided to us was with a suggestion from  
4 De Beers that if this issue came up, that the written  
5 material might be of use.

6 And so what we advised both De Beers and DIAND  
7 was that, if they wanted to have this material filed, one (1)  
8 or -- one (1) or other of them should advise the Board  
9 accordingly. But the Board -- we didn't provide copies to  
10 the Board yet, because it's not a matter that's been on the  
11 record.

12 THE CHAIRPERSON: Would either of the parties  
13 like to file this -- these documents?

14 MR. JOHN MCCONNELL: John McConnell with De  
15 Beers. I guess, what we thought we were doing, Mr. Chairman,  
16 is following your instructions following lunch yesterday. We  
17 anticipated, based on DIAND's presentation, that there would  
18 be a question about mixing in the lake.

19 To answer that question, we needed to refer to  
20 an equation or a methodology that has been presented in this.  
21 So we sent that the Board and to DIAND last night. We  
22 thought we were following your instructions, and we'd like it  
23 on the record.

24 THE CHAIRPERSON: Okay, we'll take a -- just  
25 a five (5) minute break to register and make copies. Thank

1 you.

2 I do appreciate the fact that you're trying to  
3 provide us with information that clarifies a lot of the  
4 issues, it's just that we don't have the documents so it's  
5 hard for us to follow when we don't officially have the  
6 document in front of us.

7 So just give us a couple of minutes, please?

8 MS. JEAN TEILLET: Mr. Chair, I assume we

9 will get copies as well?

10 THE CHAIRPERSON: Yes, that's what I want to  
11 do, is just take five (5) minutes to have copies run off for  
12 everybody.

13 MS. JEAN TEILLET: Thanks, I appreciate that.

14 MR. ROBIN JOHNSTONE: Mr. Chair, we have  
15 copies, here, if that would suit your pleasure?

16 THE CHAIRPERSON: Yes, thank you very much.  
17 Do you have enough for everybody, Mr. Johnstone?

18  
19 (BRIEF PAUSE)

20  
21 THE CHAIRPERSON: Okay, five (5) minutes.

22  
23 --- Upon recessing at 11:09 a.m.

24 --- Upon resuming at 11:14 a.m.  
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1 THE CHAIRPERSON: We'll resume and I take it  
2 now that everybody has copies of the relevant documents.  
3 There are two (2) documents, a letter from De Beers dated  
4 April 29th, subject "De-stratification in Snap Lake" to the  
5 MVERB and then a -- a briefing note -- a short briefing note  
6 entitled "Snap Lake Diamond Project De-stratification  
7 technical note" prepared by Mr. Digel of Golder Associates  
8 dated April 29th.

9 One (1) point the Board Members have asked me  
10 to point out though is that if you're referring to slides  
11 that we're showing in the presentations, please refer to the  
12 slide number or the page number of the handout so we can  
13 follow.

14 Anyway, continue, sir.

15 MR. EUGENE YAREMKO: Thank you, Mr. Chairman.  
16 Just -- and I'd like to thank De Beers for -- for this  
17 document. It -- certainly it's an issue that will be coming  
18 up or a matter that will be coming up in my presentation and  
19 it's -- it is new information that I haven't seen before.

20 Just -- just to repeat myself a bit but the

21 equation that they used was -- they used an average depth and  
22 -- and a range of velocities.

23 In -- in a non-average world, the diffuser  
24 will be located in a part of the lake that will be ten (10)  
25 to twelve (12) metres deep and -- and it goes off to the

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1 south and gets to a depth of twenty-eight (28) metres very  
2 quickly.

3 And goes off to the east to depths of eight  
4 (8) metres. So there's a lot of lake area surrounding or to  
5 the east and south of the diffuser that is much, much deeper  
6 than five point six (5.6) metres.

7 And also in those deeper areas, I would expect  
8 that current velocities would be much, much lower than  
9 what -- the range that they've got in here.

10 So, my only -- my only -- I guess my -- my  
11 position on this is that the -- the conclusion that the lake  
12 will totally re-strat -- or, strati -- re-stratif -- I'm  
13 sorry, de-stratify, and -- and become well mixed, I think  
14 I -- I would question that, based on this simple calculation  
15 that there -- there may be large parts of the lake that will  
16 not -- that will not mix -- mix in open water.

17 May I ask a second question?

18 THE CHAIRPERSON: I actually didn't hear the  
19 first question, but...

20 MR. EUGENE YAREMKO: Good point, no, and I --  
21 yeah -- yeah, the first point, is it -- it's just a comment  
22 that I -- I have -- I have some reservations about the  
23 conclusions that -- that were arrived at here.

24 I think it's a bit simplistic, and -- and in a  
25 real world, it's -- it's not going to be quite like this.

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1                   And, I have one (1) question.  
2                   THE CHAIRPERSON:    Go ahead, Mr. Yaremko.  
3                   MR. EUGENE YAREMKO:    I -- and I guess one's a  
4 request.   I wonder if De Beers could just re -- just go over  
5 in a -- in a few minutes, their -- their 10 percent position  
6 on that they -- they presented yesterday, but it was -- it  
7 was part of their earlier, I think, discussion of how they  
8 arrived at this.  
9                   And really, could they clarify for me what,  
10 again, what -- how they arrived at that, and what it -- what  
11 it means, if you remember?  
12                   THE CHAIRPERSON:    Thank you.   Mr. Digel...?  
13                   MR. MARK DIGEL:    Mark Digel with Golder  
14 Associates.   So, the -- the question as I understood it was,  
15 yesterday, we had a -- a discussion -- we were discussing  
16 hydrogeology, and we were discussing the site water model, or  
17 the Goldsim model that is used to predict site water quality,  
18 and -- and quantity concentrations.  
19                   And, one (1) of the -- the issues with  
20 predicting the con -- the quality of the discharge is that  
21 the -- the water is -- is discharged into the lake, but then  
22 the lake also recharges back into the mine, so it's a  
23 feedback loop.  
24                   And, we used one (1) model to predict the site  
25 water and another model, or a series of models, to predict

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1 the concentrations in the lake.  
2                   Well, they -- they had to be linked, and it  
3 wasn't feasible to take the complex, hydrodynamic model, and  
4 the core mix model that -- that calculates initial mixing,  
5 and put them into the Goldsim model.  
6                   So, what we did, was we used a -- a simpler  
7 approach, and what we did was, we said, okay, if -- if the  
8 discharge mixes with smaller and smaller volumes of water in  
9 Snap Lake, that's going to increase the concentration.  
10                   So, we decreased the volume that -- in the  
11 site water model that -- that you would mix with.   So, you  
12 take the water that was discharged, mix it with -- and what

13 we settled on was 10 percent of the lake volume, and that  
14 would result in a concentration that was as high or higher  
15 than would have been predicted by the lake water quality  
16 model that accounts for the initial mixing and the settling  
17 to the bottom.

18 So, the site water model, using 10 percent of  
19 the effective lake volume predicts a concentration that's the  
20 same, or in some cases, higher, than the maximum  
21 concentration after initial mixing from the diffuser  
22 predicted by the site water models.

23 So, it provides a -- a simpler way of coming  
24 at a same number, so that when you're accounting for the  
25 amount of recharge into the mine, you're not underestimating

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1 the concentrations that would be in that denser water that  
2 can settle into the -- the bottom of the lake in the winter.

3 THE CHAIRPERSON: Thank you, sir. Mr.  
4 Yaremko...?

5 MR. EUGENE YAREMKO: Mr. Chairman, Eugene  
6 Yaremko again, just to clarify, are saying then that the --  
7 the concentrations of -- of whatever that you used are the  
8 concentrations computed at -- at the end of the end of the  
9 initial mixing zone, and you applied that to the total -- to  
10 the total area over the mine site or, is it the concentration  
11 of the water in a -- in a layered stratified area?

12 THE CHAIRPERSON: Mr. Digel...?

13 MR. MARK DIGEL: Mark Digel with --  
14 representing De Beers. So, two (2) things.

15 One (1) what -- what did the -- what did the  
16 site water model use, and -- and what did the water quality  
17 modelling -- surface water quality modelling did, and how did  
18 -- how did we make sure that they were the same?

19 So, the -- the surface water quality model  
20 took the -- the discharge coming into the lake, through the  
21 diffuser, and through a combination of using the whole lake  
22 model, and the core mix model, then the -- the mixing zone  
23 model, predicted what the maximum concentration could be in  
24 the lake, after initial mixing. So, that's very close to the

25 diffuser outfall.

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1                   We then -- the -- the core mix model actually  
2 told us that as that water moves away from the discharge it's  
3 going to settle back down to the bottom. And -- and that  
4 system is going to continue during the winter.

5                   And so, it's -- that water that for at least  
6 part of the winter, that -- that slightly more dense water  
7 that is going to migrate towards the area that's recharging  
8 into the mine.

9                   And so, we wanted to make sure that the site  
10 water model that's predicting site water concentration  
11 doesn't underestimate that concentration, but it wasn't  
12 feasible to put in that kind of layered type of model.

13                   So, what we did was we reduced the volume of  
14 Snap Lake that the water from the site model would mix in, so  
15 that the concentration predicted by that would be equal to or  
16 in some cases, greater than the concentration predicted by  
17 the water quality modeling that accounts for the layer.

18                   MR. EUGENE YAREMKO: Thank you, Mr. Chairman.

19                   THE CHAIRPERSON: Thanks. No additional  
20 questions? Thank you.

21                   MR. PETER CHAPMAN: Peter Chapman,  
22 representing INAC. I have a question for Mark.

23                   Mark, on the slide on the left-hand side, the  
24 top of Page 3 of your presentation, I believe it's slide  
25 number 13.

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1                   THE CHAIRPERSON: This was the first  
2 presentation this morning, Mr. Chapman?

3                   MR. PETER CHAPMAN: That was the first  
4 presentation, Mark's presentation. While you're looking for

5 that slide, I'd like to just comment that I really thought  
6 that Mark and Stella did an excellent job and it was an  
7 excellent presentation.

8 And I think, and I'll point this out in my  
9 presentation, that we are coming closer on some areas and it  
10 was very helpful.

11 But anyway, now coming back to the slide 13,  
12 the first presentation slide on the left hand side, top of  
13 Page 3.

14 Forgive me, but I don't recall having seen  
15 that before, that particular presentation, the material ahead  
16 of time.

17 Was that in the material that was handed out  
18 before the hearing?

19 THE CHAIRPERSON: Thank you. Mr. Digel...?

20 MR. MARK DIGEL: Mark Digel, with Golder  
21 Associates. This -- this particular figure hasn't -- was in  
22 our presentation that was given to the Board in advance.

23 This particular representation of -- of  
24 this -- what happens hasn't been provided previously, but the  
25 Environmental Assessment Report does include a similar type

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1 of figure that shows the diffuser and this, sort of, this  
2 wedge of -- of mixing, and then the discharge settling back  
3 down to the bottom.

4 So, all -- all I've done is taken, you know,  
5 that figure and the information from the EIA, and have just  
6 tried to present it in a way that -- that I thought would be  
7 clearer to everyone what's happening.

8 THE CHAIRPERSON: Thank you, sir.  
9 Mr. Chapman...?

10 MR. PETER CHAPMAN: Peter Chapman,  
11 representing INAC.

12 Yes, this was a helpful figure. I have the  
13 same question for two (2) further slides. At the bottom of  
14 the same page, Page 3 of the first presentation, the last two  
15 (2) slides on that page, slides 17 and 18.

16 Again, I don't recall seeing those previously.

17 Where those provided previously?

18 MR. ROBIN JOHNSTONE: Mr. Chairman, Members  
19 of the Board. The representations of dissolved oxygen  
20 profile is on slide 17, 18, and 19.

21 Graphical representation of information that  
22 is freely available on the public registry, namely the Snap  
23 Lake symmetry map, in Section 9.5 of the EA, submitted in  
24 February of 2002.

25 Winter dissolved oxygen level in Snap Lake

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1 from De Beers, dissolved oxygen technical memorandum  
2 submitted on the 28th, and predictions of dissolved oxygen  
3 con -- consumption from Section 9.4 of the Environmental  
4 Assessment.

5 This information was graphically  
6 representative -- graphically representative to clearly  
7 communicate the result for the purpose of this public  
8 hearing, and were in the presentation provided to the Board  
9 on Friday, April 23rd.

10 THE CHAIRPERSON: Thank you. Mr. Chapman...?

11 MR. PETER CHAPMAN: Thank you. And I agree  
12 that the slides were useful.

13 Questions now for Stella, if I may? Stella,  
14 the second presentation, your Slide 15. And in that  
15 presentation, under the second bullet, you stated, and I  
16 quote:

17 "The expected TDS levels are within the  
18 range where algae, zooplankton, eg., water  
19 fleas, Benthos and fish of Snap Lake are  
20 known to live."

21 My question is: Did you do any actual  
22 testing on the organisms in Snap Lake or was this information  
23 derived from the literature and the use of surrogate  
24 organisms, i.e., organisms that could be similar to these  
25 organisms?

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1 THE CHAIRPERSON: Ms. Swanson...?

2 MS. STELLA SWANSON: Stella Swanson, Golder  
3 Associates for De Beers. It was a combination of evidence,  
4 Peter. As I explained, we had tested the site water with  
5 much higher TDS than is the maximum concentrations predicted  
6 in the lake.

7 Also, there is, as you know, a large amount of  
8 information for an organism such as the water flea. And the  
9 particular kind of water flea that is normally used in  
10 laboratory toxicity tests happens to also live in Snap Lake.

11 Rainbow trout is the usual fish tested in  
12 standard toxicity tests. They're a very close relative of  
13 Lake Trout, and in the same family as, for example, other  
14 fish in the lake such as Whitefish. So it is a very well  
15 established practice to accept the test results for Rainbow  
16 trout as an adequate and acceptable representation of what  
17 the effects would be on a closely related species like Lake  
18 Trout.

19 Similarly, the algae tests make use of a  
20 standard green algae species, that's a member of a particular  
21 family called Green Algae. And normally, what standard  
22 practice is, to say that those tests indicate effects on  
23 algae that would also occur in Snap Lake.

24 THE CHAIRPERSON: Thank you. Mr. Chapman...?

25 MR. PETER CHAPMAN: Thank you. Stella,

1 again. A question on your Slide 10 in your presentation.  
2 And the second bullet talks directly about Canadian Water  
3 Quality Guidelines being designed to protect 100 percent of  
4 the species, 100 percent of the time.

5 My question is: Why -- there are established  
6 procedures for developing Canadian water quality based  
7 benchmarks on a site specific basis, using information from  
8 the literature. These are called the Canadian Council of  
9 Ministers of the Environment Procedures, you chose to use the

10 United States Environmental Protection Agency Procedures,  
11 rather than the CCME procedures, and I'm just curious why?

12 THE CHAIRPERSON: Ms. Swanson...?

13 MS. STELLA SWANSON: Stella Swanson, Golder  
14 Associates for De Beers. Mr. Chairman, we actually used the  
15 combined approach, if you will, of the CCME adapted, using  
16 some draft guidance for development of site specific water  
17 quality benchmarks.

18 Mr. Chairman, that's not particularly what  
19 we're talking about on this slide, though. We were using the  
20 water quality guidelines in this slide, for that screening  
21 step, where we eliminated the longer list of potential  
22 chemicals that might effect plants and animals, down to the  
23 list of chemicals that truly have a potential for effect.

24 And the way we did that was we started with  
25 the CCME Water Quality Guidelines that are definitely

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1 protective of anything, anywhere. And if the maximum  
2 concentrations predicted in Snap Lake are below the  
3 concentrations that are in the guidelines, we can be very  
4 sure we can take that off the table. That's what this slide  
5 is about.

6 THE CHAIRPERSON: Thank you. Mr. Chapman...?

7 MR. PETER CHAPMAN: Peter Chapman  
8 representing INAC. Thanks for the clarification, but I'm not  
9 sure you fully answered my question. Let me rephrase the  
10 question.

11 Why didn't you develop chronic toxicity  
12 thresholds for the metals released from the Snap Lake Diamond  
13 Mine using the Canadian Council of Ministers of the  
14 Environment's procedures?

15 THE CHAIRPERSON: Thank you. Ms. Swanson...?

16  
17 (BRIEF PAUSE)

18  
19 MS. STELLA SWANSON: Stella Swanson, Golder  
20 Associates for De Beers. We did, in fact, develop water  
21 quality -- site specific water quality benchmarks, but they

22 are not referred to in any great detail in our -- or in any  
23 detail at all, in the presentation, today. They have been  
24 the subject of detailed discussions in the technical  
25 sessions.

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1 For each metal we developed -- and this is  
2 cadmium and chromium -- hexavalent chromium, we developed an  
3 effects -- site specific effects concentration using the most  
4 relevant sensitive species relevant to Snap Lake.

5 Then we tied that site specific water quality  
6 benchmark which we called the HC5, you may have recalled  
7 seeing that, to the overall spacial extent of the exposure.  
8 There are -- I would like to ask a question of clarification  
9 if I may of Dr. Chapman?

10 Dr. Chapman, how much further would you like  
11 me to get into the details of how we developed site specific  
12 benchmarks?

13 MR. PETER CHAPMAN: Peter Chapman  
14 representing INAC. All I want to know is a simple, yes, no.  
15 Did you or did you not use the CCME procedures?

16 THE CHAIRPERSON: Ms. Swanson...?

17 MS. STELLA SWANSON: The short answer is,  
18 yes, we did. For example, with the ammonia, the CCME site  
19 specific approach. For -- and then for cadmium and chromium  
20 we had in our possession the draft document describing how  
21 you would produce a site specific benchmark screening the  
22 toxicity literature for species that are relevant to Snap  
23 Lake.

24 All of that information is -- appears in great  
25 detail in an appendix to the Environmental Assessment.

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1 THE CHAIRPERSON: Thank you. Dr. Chapman...?

2 MR. PETER CHAPMAN: Peter Chapman  
3 representing INAC. I'm not sure I've got an answer but I'm  
4 not going to belabour it. I'll get back to it in my  
5 presentation.  
6 Moving on, Stella. Your slide 8 in your  
7 presentation when you talked about enough baseline data, as  
8 you're aware we've been concerned about enough baseline data.  
9 You mentioned, correctly, the need to have enough baseline  
10 data when it comes to monitoring to, quote:  
11 "separate the signal from the noise"  
12 Which I fully agree with.  
13 Could you clarify; does that mean that you  
14 will ensure that you have enough baseline data so that you  
15 can clearly detect such a signal and, in doing so, will you  
16 use appropriate statistical, i.e., mathematical techniques,  
17 and forgive my using a scientific term, in other words  
18 something such as par analysis to determine your ability to  
19 detect such an effect?  
20 THE CHAIRPERSON: Thank you. Ms. Swanson...?  
21 MS. STELLA SWANSON: Stella Swanson, Golder  
22 Associates for De Beers. Yes, Mr. Chairman, we will  
23 definitely be looking at the available information we have  
24 right now to make sure that we have enough to calculate, for  
25 example, how many samples we'd need to take in how many parts

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1 of the lake to be sure we could detect a change over time or  
2 with position in the lake.  
3 And if we don't have, we'll get that  
4 information.  
5 THE CHAIRPERSON: Thank you. Mr. Chapman...?  
6 MR. PETER CHAPMAN: Peter Chapman  
7 representing INAC. Excellent. Thank you. I'm glad to hear  
8 it.  
9 Just a couple more questions, if I may.  
10 Stella, under your, quote, "worst thing that could happen"  
11 scenario, will there be any loss of any sensitive species?  
12 THE CHAIRPERSON: Ms. Swanson...?  
13 MS. STELLA SWANSON: Stella Swanson, Golder

14 Associates for De Beers. No. There will be no loss of  
15 sensitive species.

16 THE CHAIRPERSON: Thank you.

17 MR. PETER CHAPMAN: Peter Chapman for INAC.  
18 Just a follow up, you refer in your presentation to changes  
19 in community structure, so the changes in structure would  
20 occur in the abundance, in other words, the numbers of  
21 species but you would not lose any of the species under your  
22 scenario; correct?

23 THE CHAIRPERSON: Ms. Swanson...?

24 MS. STELLA SWANSON: Stella Swanson, Golder  
25 Associates for De Beers. Yes. Mr. Chairman, what I was

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1 describing was a change in the relative proportion of the  
2 numbers of different kinds of algae and zooplankton, for  
3 example.

4 So, as I had tried to explain in terms of fish  
5 food, if you looked at the display of fish food on a  
6 smorgasbord table, the number of bowls would be the same but  
7 the size of the bowls might be different.

8 THE CHAIRPERSON: Thank you. Dr. Chapman...?

9 MR. PETER CHAPMAN: Peter Chapman, INAC.  
10 Stella, in terms of your, quote, "worst thing that could  
11 happen" scenario, what would that look like if total  
12 dissolved solids, TDS concentrations from the lake, were two  
13 (2) times higher than your maximum predictions?

14 THE CHAIRPERSON: Thank you.

15 MS. STELLA SWANSON: Stella Swanson, Golder  
16 Associates, for De Beers. Mr. Chairman, as we carefully  
17 explained, we are convinced that the maximum total dissolved  
18 concentrations that we've presented, of three hundred and  
19 fifty (350) milligrams per litre incorporate more than enough  
20 layers of safety, and represent a very credible, worst thing  
21 that could happen example.

22 I really have a hard time even thinking about  
23 or discussing anything even higher than that, because as I  
24 explained in my talk, we get beyond the description of what  
25 is a reasonable worst case that can happen, and we are in the

1 territory of having to combine things that don't make sense  
2 scientifically.

3 THE CHAIRPERSON: Thank you. Dr. Chapman...?

4 MR. PETER CHAPMAN: Peter Chapman with INAC.  
5 My question still remains unanswered, of what, under that  
6 scenario, if that scenario were to occur, you might expect to  
7 happen?

8 THE CHAIRPERSON: Thank you. I think Ms.  
9 Swanson answered that question in as much as that they did  
10 not contemplate that scenario, so, the answer is, that  
11 scenario was not contemplated.

12 MR. PETER CHAPMAN: Okay. Thank you. In  
13 that case, I'm finished with my questions. I'll pass it over  
14 to Ken Raven.

15 THE CHAIRPERSON: Thank you. Mr. Raven...?

16 MR. KEN RAVEN: Ken Raven on behalf of INAC.  
17 I have a question for Mark concerning your presentation. You  
18 indicated at several points within the presentation that  
19 mitigation measures would be available to lessen the impacts  
20 on Snap Lake water quality.

21 The question that I have is, and -- and you  
22 described these as backstop mitigation method -- measures.  
23 What sort of backstop mitigation measures would be  
24 implemented if the TDS in mine water discharge is greater  
25 than -- that you have assumed?

1 And -- and I'm going to -- I'm interested in -  
2 - in some specifics.

3 THE CHAIRPERSON: Thank you. Mr. Digel...?

4

5 (BRIEF PAUSE)

6

7 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
8 Johnstone. The answer to that question, Mr. Chairman, I  
9 think was essentially answered yesterday.

10 With regards -- with regards specifically to  
11 TDS, what was described yesterday was that hot spots, in  
12 terms of in the mine, would be areas of high flow, or hi --  
13 sorry, areas of high concentration TDS would be grouted where  
14 -- where useful.

15 But I think that -- that question -- response  
16 was provided yesterday.

17 THE CHAIRPERSON: Mr. Raven...?

18 MR. KEN RAVEN: Ken Raven, INAC. So, the  
19 answer to the question is -- is that grouting will be the  
20 extent of the mitigation measures to address any higher  
21 concentrations of TDS than has been assumed in the EA?

22 THE CHAIRPERSON: Mr. Johnstone...?

23 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
24 Johnstone. As stated yesterday, that is correct.

25 THE CHAIRPERSON: Yes, I do remember

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1 yesterday, Mr. Raven, in fact, I may even have asked the  
2 question, but there were no other mitigation measures  
3 contemplated, other than grouting, and I believe that was the  
4 answer that was provided yesterday.

5 MR. KEN RAVEN: I have no more questions.

6 THE CHAIRPERSON: Okay. Thank you very much.

7  
8 (BRIEF PAUSE)

9  
10 THE CHAIRPERSON: Thank you. Okay, nobody  
11 from the NWT Nunavut Chamber of Mines.

12 Northwest Territories Metis Nation, questions?  
13 No.

14 North Slave Metis Alliance? Ms. Johnson...?

15 MS. KRIS JOHNSON: Just one (1) quick  
16 question. It's for Stella Swanson. In the second last page  
17 of your hand-out, I'm not sure what slide number -- oh, slide  
18 number 32, you mentioned that two (2) ways of evaluating

19 effects of multiple changes were evaluated -- were used.  
20 I'm just wondering if traditional knowledge  
21 was used at all.

22 THE CHAIRPERSON: Thank you. Ms. Swanson...?

23 MS. STELLA SWANSON: Stella Swanson, Golder  
24 Associates for De Beers. The way that traditional knowledge  
25 is incorporated in the evaluation of the effects of many

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1 changes occurring at the same time was really, mostly, to  
2 revert back to what we knew about the major uses of the lake  
3 by the people, and making sure that we were protecting the  
4 fish, and making sure that Snap Lake would be okay.

5 THE CHAIRPERSON: Thank you. Ms. Johnson...?  
6 Okay.

7 Fisheries and Oceans Canada?

8 MR. DAVID BALINT: David Balint, for Fisheries  
9 and Oceans. I have one (1) question related to TDS in the  
10 plume.

11 In the EA and technical sessions, TDS was  
12 predicted to accumulate in all areas of the lake greater than  
13 eight (8) metres in depth.

14 So, my question would be: Is that assumption  
15 still valid, or is modeling showing different results at this  
16 time?

17 THE CHAIRPERSON: Thank you, sir. Mr.  
18 Digel...?

19 MR. MARK DIGEL: Mark Digel, Golder  
20 Associates.

21 The -- we haven't changed our modeling  
22 approach from what was in the EA. The -- I'm not sure the  
23 exact context of the eight (8) metre comment, but it -- it  
24 really depends on the -- on the volume of discharge, which  
25 increases over the life of the mine.

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1           It starts off very small and then increases to  
2 a maximum predicted value of about, I think, the peak is  
3 about twenty six thousand (26,000) cubic metres per day.

4           So, the -- the depth at which you would get --  
5 you would get the higher, you know, the water with higher TDS  
6 concentration varies.

7           At maximum -- early on, it would be much lower  
8 than eight (8) metres, at maximum it's likely to be higher  
9 than eight (8) metres, you know, a fairly significant  
10 proportion of the lake.

11          The main thing to point out, though, is that  
12 because of the effect of the -- the changes in concentration  
13 in Snap Lake are more governed by the gradual increase in the  
14 concentrations throughout the lake over time, than what  
15 happens over the course of one particular winter.

16          So, you -- the concentrations that we're  
17 talking about in that lower water, are only, you know, 10 to  
18 whatever percent higher.

19          So, you know, if they're in the order of three  
20 hundred (300) and --throughout the lake they're going to be  
21 in the order of three hundred and fifty (350) in that lower  
22 bottom water, so it could occur at a depth of greater than --  
23 less than eight (8) metres.

24          But the main point is, is the way it was  
25 assessed is, we took that maximum concentration and assumed

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1 it was over the whole lake.

2           THE CHAIRPERSON: Thank you. Follow up?

3           MR. DAVID BALINT: I'm not sure that the  
4 questions was answered.

5           I guess, I'm looking at, at the end of the  
6 winter when this plume will settle out to the lake, how deep  
7 in the water column can we expect that layer of different  
8 water to be?

9           THE CHAIRPERSON: Thank you. Mr. Digel...?

10          MR. MARK DIGEL: Mark Digel, Golder  
11 Associates.

12                   During the year of maximum discharge, at the  
13 end of operations, we can expect it to be through a  
14 substantial part of the water column.

15                   So, the exact number, I'm not sure, but within  
16 -- through a substantial part of the water column.

17                   THE CHAIRPERSON: Thank you. Ms. Dahl...?

18                   MS. JULIE DAHL: Julie Dahl, Fisheries and  
19 Oceans.

20                   I just have one (1) question here. I'm  
21 referring to the presentation by Stella Swanson. Slides 16  
22 and 17, in particular, on Page 3.

23                   First of all, on Slide 16, it -- it refers to  
24 a statement that DFO had made about Lake Trout and TDS  
25 effects, and I -- I agree with the statement there, that DFO

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1 agreed that Lake Trout can tolerate the predicted TDS levels.  
2 The key word there is, tolerate.

3                   On Slide 17, it gives a TDS tolerance range  
4 for Lake Trout. I guess I just want to point out, that  
5 tolerance is very different from preference or ideal  
6 conditions.

7                   And I was just wondering, I'd like to ask De  
8 Beers if their use of the term tolerance is meant to mean an  
9 absence of acute or chronic effects and does it extend to  
10 maintenance of a population's ability to thrive?

11                   THE CHAIRPERSON: Thank you. Ms. Swanson...?

12                   MS. STELLA SWANSON: Mr. Chairman, I'd like  
13 to ask my colleague, Dr. Rich Schryer to answer that  
14 question.

15                   THE CHAIRPERSON: Thank you. Dr. Schryer...?

16                   MR. RICK SCHRYER: Rick Schryer, Golder  
17 Associates. I guess the use of the word tolerance was  
18 probably a poor choice of words. The range of values that we  
19 presented in that graphic are values that we know that Lake  
20 Trout are able to thrive in, in lakes across Canada.

21                   So the -- the key message here is that we are  
22 confident that this is well within the range of TDS values  
23 that Lake Trout can live successfully in. Thank you.

24 THE CHAIRPERSON: Ms. Dahl...?  
25 MS. JULIE DAHL: That's it. Thank you.

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1 THE CHAIRPERSON: Thank you. Dogrib Treaty  
2 11?  
3 MS. JEAN TEILLET: Thank you, Mr. Chair. I  
4 have one (1) question and then Dr. Wilbur has some.  
5 My first question, Mr. Chair, is whether De  
6 Beers understands that traditional knowledge is not the same  
7 thing as knowing that there are fish in the lake and actually  
8 going there, in the same way that the fact that we know that  
9 there are people who live in Yellowknife and we know there  
10 are fish in this lake and we know that there are people who  
11 fish them, is not knowledge, scientific knowledge, about the  
12 fish or the environment.  
13 And I want to know whether De Beers  
14 understands that?  
15 THE CHAIRPERSON: Mr. Johnstone...?  
16 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
17 Johnstone. De Beers does understand that.  
18 MS. JEAN TEILLET: A follow-up question, Mr.  
19 Chair. Then, can we have a -- an answer to the question that  
20 Ms. Johnson asked earlier, which is, was traditional  
21 knowledge used in any of the analysis here? Because all we  
22 got, previously, was a statement that they knew that  
23 Aboriginal people went there and that they fished there.  
24 THE CHAIRPERSON: Thank you.  
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1 (BRIEF PAUSE)  
2  
3 THE CHAIRPERSON: Mr. Johnstone...?

4 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
5 Johnstone. The extent of traditional knowledge use regarding  
6 this specific, I think it was the -- the dissolved oxygen,  
7 that the question was around, traditional knowledge was not  
8 directly used in the estimation of the dissolved oxygen  
9 concentrations in the lake.

10 Traditional knowledge, we certainly have had  
11 the contribution of knowledge regarding the location of  
12 lakes -- sorry, the location of fish in relation to where  
13 they are in winter. And -- which has confirmed the  
14 predictions of impacts to fish around dissolved oxygen  
15 levels. I hope that answers the question.

16 THE CHAIRPERSON: Thank you. Ms. Teillet...?

17 MS. JEAN TEILLET: Just a point of  
18 clarification. It wasn't my understanding that Ms. Johnson's  
19 question was directed to total dissolved solids, but was  
20 rather a more general question as to whether traditional  
21 knowledge was used in gathering any information.

22 THE CHAIRPERSON: Mr. Johnstone...?

23 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
24 Johnstone. Traditional knowledge was not -- was not used in  
25 the collection of dissolved oxygen concentrations, TDS

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1 concentrations, and physical parameters of the lake.

2 There was -- there was participation by First  
3 Nations in collecting that information, but it was -- and in  
4 the interpretation, as I've stated, around where lake trout,  
5 for instance, occupy that water column.

6 THE CHAIRPERSON: Dr. Wilbur, perhaps though  
7 just prior to your questions, do you anticipate that you  
8 would be finished prior to noon because if not I would rather  
9 not, sort of, interrupt you halfway through. I'd rather  
10 adjourn for lunch now and allow you to begin your questions  
11 after lunch or do you think you will finish prior to lunch.  
12 I know a lot depends on the answers but.

13 MR. STEVE WILBUR: I -- so you expect me to  
14 have some questions then?

15 THE CHAIRPERSON: Well, Ms. Teillet said that

16 you had a number of questions.

17 MR. STEVE WILBUR: Actually, I was going to  
18 suggest, do you want to take a break before I ask my  
19 questions.

20 THE CHAIRPERSON: We're of one (1) mind, sir.  
21 Okay. We will adjourn for lunch then and we'll resume at  
22 1:30. Thank you.

23  
24 --- Upon recessing at 11:51 a.m.

25 --- Upon resuming at 1:32 p.m.

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2 THE CHAIRPERSON: Thank you and good  
3 afternoon. Prior to our break we were at the questioning of  
4 the Proponent stage, and Dr. Wilbur representing Dogrib  
5 Treaty 11 was next up in questioning.

6 Before I go to Dr. Wilbur, though, over lunch  
7 I had a couple of non-scientific people in the room ask me  
8 about TDS and what was TDS, and -- because they were finding  
9 it difficult to follow what it actually was.

10 And on the advice of one (1) of the Board's  
11 Consultants, Dr. Hutchinson, perhaps the easiest analogy for  
12 those that want to get sort of an idea of what we're talking  
13 about, this bottle of water, which we're all drinking,  
14 contains two hundred and ninety (290) milligrams per litre of  
15 TDS. So you can use that to put it in context with the  
16 numbers that you're seeing appear before you. Two hundred  
17 and eighty-seven (287), to be accurate, I guess. No rounding  
18 off allowed.

19 Okay, if we can proceed now. Dr. Wilbur...?

20 MR. STEVE WILBUR: Thank you, Mr. Chair. I  
21 have some questions for Mark, to start off. I'm going to  
22 refer to some of his slides.

23 And the first slide is, I guess, Number 8,  
24 where he has -- talks about water treatment. And this is  
25 just a clarification on -- on some of the aspects that were

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1 talked about yesterday and that lead to today.

2 He mentions that the plant will be built to  
3 full capacity at -- at project start up. And I just want to  
4 be clear that -- what full capacity is, and has this number  
5 changed since the -- when they first -- the EA first came  
6 out?

7 In essence, what -- what level of -- of mine  
8 water is the plant designed for?

9 MR. GREG ORYALL: Greg -- Greg Oryall with  
10 AMEC for De Beers. The -- the plant initially is going to be  
11 built for the full expected flow capacity which is -- hasn't  
12 changed since the outset which is projected at about twenty-  
13 four thousand (24,000) cubic metres a day plus a 50 percent  
14 over capacity which we'd normally install.

15 So, initially it's going to have about thirty-  
16 five (35), thirty-six thousand (36,000) cubic metres a day  
17 capacity.

18 THE CHAIRPERSON: Thank you. Dr. Wilbur, one  
19 (1) point perhaps, again, because I was asked yesterday and I  
20 neglected to do it, I had a note here. Could you explain in  
21 gallons what twenty-four thousand (24,000) cubic metres is?

22  
23 (BRIEF PAUSE)

24  
25 THE CHAIRPERSON: You see, you ask scientists

1 a simple question. Okay, while somebody's working on that,  
2 Dr. Wilbur, continue.

3 MR. STEVE WILBUR: Next question refers to  
4 the slide, I guess, number 12 where Mark has depicted the  
5 open water conditions in year 19. And I guess this is also  
6 clarification.

7 I know this has been discussed in Information  
8 Requests and -- and so forth but I just want to clarify that

9 the conditions depicted here are also the same that were  
10 presented in the EA? Are they any different or have they  
11 been remodelled?

12 THE CHAIRPERSON: Mr. Digel...?

13 MR. MARK DIGEL: Mark Digel with Golder  
14 Associates. No. In fact, this figure is lifted directly out  
15 of the Environmental Assessment from Section 9.4.

16 MR. STEVE WILBUR: I guess just a point of  
17 clarification. A lot of this information is -- is packaged,  
18 kind of, in a -- a new format and so it's difficult to know  
19 whether we're looking at new information or -- not  
20 necessarily new, I might not have read it but so I just, kind  
21 of, want the Board to be sure that we're talking about old  
22 stuff or -- or reinterpretation of old stuff.

23 THE CHAIRPERSON: Thank you. I am cognizant  
24 of that and I will allow some leeway in the questioning  
25 because of it.

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1 MR. STEVE WILBUR: Okay. Thanks. Steve  
2 Wilbur again. Okay, on this diagram, Mark, I just was -- was  
3 curious just in some of the assumptions that maybe we can  
4 talk about since you -- you've put it up.

5 Did -- did the assumptions for the model, did  
6 you vary conditions for wind change through the open water  
7 season or was it -- wind direction and wind speed held  
8 constant?

9 THE CHAIRPERSON: Mr. Digel...?

10 MR. MARK DIGEL: Mark Digel, Golder  
11 Associates. Mr. Chairman, Steve, the -- the winds were  
12 actually based on measured wind levels so they vary daily  
13 throughout the simulation and this simulation was based, I  
14 believe, on three (3) years of wind data.

15 So we did a -- a twenty-five (25) year  
16 simulation and so we had daily data over a three (3) year  
17 period that we used. So the -- the wind data is definitely  
18 not constant. It varies daily based on measured values.

19 MR. STEVE WILBUR: Steve Wilbur. Follow up.  
20 Also velocities in the lake, obviously they were determined

21 by wind but did you go out and measure velocities to help  
22 calibrate this model?  
23 MR. MARK DIGEL: Mark Digel, Golder  
24 Associates. He's just passed me a note which says:  
25 "The answer was yes"

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1 Well, actually it's not. It was for the  
2 previous question. They're trying to tell me if the answer's  
3 yes, just say yes. So the answer is, no.  
4 We didn't go out and measure velocities in  
5 Snap Lake. We based our measurements on values that we would  
6 expect from the literature for similar lakes as well as  
7 values from our experience at Diavik for where we did the --  
8 calibrated the same model and we did actually calibrate it to  
9 -- to measured values.  
10 THE CHAIRPERSON: Thank you. Dr. Wilbur...?  
11 MR. STEVE WILBUR: Thank you. Steve Wilbur.  
12 Now, so I understood your answer better, no, than the follow-  
13 up, which you've kind of said, yes.  
14 So, I guess I'm -- I'm confused now. The --  
15 the calc -- the -- the model was not calibrated to actual  
16 flow velocity conditions, yes or no?  
17 THE CHAIRPERSON: Thank you. Mr. Digel...?  
18 MR. MARK DIGEL: No.  
19 MR. STEVE WILBUR: The next figure is -- has  
20 to do with -- I guess it's just a -- number 13, and it's one  
21 (1) that Peter Chapman talked about. I guess my question has  
22 to do with what's being depicted here, and I realize it's a  
23 schematic, and I want to be clear on what's -- what's trying  
24 to be represented.  
25 Now, I see this is year nineteen (19). What

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1 would it be like in year -- year four (4), close to the  
2 diffusers?

3 For example, we know the lake level is, I  
4 mean, the lake concentration is going to be considerable less  
5 than three hundred and ten (310), but will the -- right near  
6 the diffuser outflow, will the concentrations be as high as  
7 the three hundred and fifty (350), or will they -- what will  
8 they be there?

9 THE CHAIRPERSON: And, I gath -- that was in  
10 year four (4), you asked?

11 MR. STEVE WILBUR: Yes. Year four (4), or  
12 three (3) or, you know, something like that, or -- or early  
13 on in -- in the operation?

14 THE CHAIRPERSON: Mr. Digel...?

15 MR. MARK DIGEL: Mark Digel, Golder  
16 Associates. In year four (4), the concentrations would be  
17 proportionately lower both in the lake, and in -- in the main  
18 part of the lake, shown there as three ten (310), and in this  
19 area.

20 So, no, it wouldn't be three fifty (350) here,  
21 it would be proportionately lower in both areas.

22 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

23 MR. STEVE WILBUR: Steve Wilbur. So, I guess  
24 I don't understand, I asked close to the diffuser, where the  
25 diffuser's actually has much higher concentrations.

1 So, there's got to be some gradation there,  
2 where we have -- actually have high concentrations, next to  
3 very low concentrations. I just want to be clear that, is  
4 there going to be a situation that we have very high  
5 concentrations next to very low concentrations.

6 THE CHAIRPERSON: Thank you. Mr. Digel...?

7 MR. MARK DIGEL: Mark Digel, Golder  
8 Associates. The answer is no, you wouldn't. The -- the  
9 initial mixing occurs very close to the diffuser, and it's  
10 very close to the diffuser that you're going to get down to  
11 the concentrations that we're talking about in this area.

12 So no, there would not be.

13 MR. STEVE WILBUR: Steve Wilbur. So, this  
14 occurs all year round. How about during the winter, when we  
15 have much less circulation, or officially, no circulation,  
16 these -- density -- you're saying that the diffuser is going  
17 to be effective in -- in reducing the concentration of  
18 dissolved solids, what? Sixty (60) metres, eighty (80)  
19 metres, and then at sixty (60) to eighty (80) metres, it will  
20 be this very low concentration?

21 MR. MARK DIGEL: Mark Digel, Golder  
22 Associates. Yes, the diffuser is effective at knocking down  
23 the concentrations year round, open water, and ice covered  
24 conditions, and the -- the distance which I quoted in my talk  
25 is -- is a range between approximately sixty (60) and one

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1 hundred and twenty (120) metres from the discharge.

2 MR. STEVE WILBUR: Steve Wilbur. Next  
3 question is the next slide, which has depicted,  
4 hypereutrophic, all the way down to ultra-oligotrophic, and I  
5 guess my question is I -- I'm not sure what we're trying look  
6 -- what -- what Mark was trying to represent here.

7 So, I haven't seen the comparison like this  
8 before, ultra-oligotrophic, all the way up to hypereutrophic,  
9 and so, my -- my questions are, you know, is this on an  
10 absolute or relative scale?

11 You mentioned it was either chlorophyll or  
12 phosphorus. Are we -- are we to -- to know that that's an  
13 absolute scale?

14 MR. MARK DIGEL: Mark Digel, Golder  
15 Associates. The -- the space -- it is an absolute scale.  
16 The spacing between ultra-oligotrophic, oligotrophic,  
17 mesotrophic, eutrophic, hypereutrophic, is -- is an absolute  
18 scale.

19 If you're looking at it in terms of phosphorus  
20 concentration, the numbers you would use at those boundaries  
21 are going to be different, but the -- the distance between  
22 them is the same.

23 MR. STEVE WILBUR: Okay, so -- Steve Wilbur,  
24 the -- the follow-up question then is: Does a comparable

25 change on this graph, for example, from -- since there's no

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1 numbers there, I'll just say at the baseline condition up to  
2 operations, that percent change, does that have the same  
3 effect there as -- as that same proportional change somewhere  
4 else on the diagram, on organisms?

5 MR. MARK DIGEL: Mark Digel, Golder  
6 Associates. I'm afraid I didn't understand what the question  
7 there was.

8 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

9 MR. STEVE WILBUR: Steve Wilbur. I'll -- I'll  
10 ask it in a different way. If I'm a fish, and I'm swimming a  
11 lake trout, and I am experiencing a change from base oper --  
12 baselined operations, am I'm going to be subjected to the  
13 same proportion of amount of stress as I have, say, from  
14 going from mesotrophic up to something that's just a little  
15 bit -- that's an equal amount of change?

16 MR. MARK DIGEL: Mark Digel, Golder  
17 Associates. I'm going to let my colleague Stella, who is a  
18 fisheries person, answer this question.

19 THE CHAIRPERSON: Ms. Swanson...?

20 MS. STELLA SWANSON: Stella Swanson, Golder  
21 Associates, De Beers.

22 Dr. Wilbur, Mr. Chairman, I'm wondering -- I'm  
23 still a little concerned that I'm understanding your question  
24 because what we have illustrated, with your indulgence, Mr.  
25 Chairman, you can't see this, but I think you have it in

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1 front of you; do you? Good.

2 So, what we are assessing in this case, in  
3 Snap Lake, is a small shift in either phosphorus, or  
4 chlorophyll A, as illustrated by operations versus baseline.

5                   If you're a fish swimming around under  
6 baseline, and you are gradually going to be changing into the  
7 operations conditions, what we are saying is, you might  
8 eventually have a little bit more to eat because there's a  
9 little bit more phosphorus, there's a little bit more algae,  
10 and therefore, that might translate into a little -- few more  
11 water fleas, or something like that.

12                   That's what -- why we put that scale on there,  
13 is to help you understand that we're down at the bottom of  
14 the scale where that little bit of a shift in phosphorus  
15 isn't going to push you up into the really green slimy kinds  
16 of lakes that we might see down in southern Saskatchewan.  
17 It's -- it's still very familiar territory for that trout.

18                   THE CHAIRPERSON: Thank you. Dr. Wilbur...?

19                   MR. STEVE WILBUR: Thank you. Stella, I guess  
20 I -- I guess what I'm asking is that it seems to me that if  
21 I'm in a ultra-oligotrophic to oligotrophic, that that's,  
22 from a percentage wise, is a big change in the conditions.

23                   And I could just -- if those were absolute  
24 numbers, I don't know what the numbers are, but percentage  
25 wise it would be a bigger change than if I'm going from

1 oligotrophic to -- oligotrophic to mesotrophic, however the  
2 boundaries are.

3                   So -- I'm just trying to get an understanding  
4 of the proportion of change what -- where -- so, I'll stop  
5 there.

6                   I just wanted to be sure what you were trying  
7 to represent by that -- by that figure, it seems -- seems --  
8 doesn't seem -- I hadn't see it before, so I hadn't had a  
9 chance to -- to look at it.

10                   Has this been put anywhere, have you had this  
11 diagram anywhere else?

12                   THE CHAIRPERSON: Dr. Swanson...?

13                   MS. STELLA SWANSON: Stella Swanson, Golder  
14 Associates for De Beers. No, this particular way of  
15 demonstrating this information is -- is the first time we've  
16 showed it this way is in this presentation.

17                   The -- for, Mr. Chairman, the Board, if you're  
18 interested in the numbers that associate with the  
19 illustration, if you go to my presentation, slide number 19.  
20                   In slide number 19, we state that, for  
21 example, total phosphorus will go up from what it is right  
22 now, which is four (4) to twelve (12) micrograms per litre,  
23 to -- in operations, thirteen (13) to twenty three (23)  
24 micrograms per litre.  
25                   So, that gives you an idea of, kind of, the

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1 range of change we're talking about. And as we say on this  
2 slide, Snap Lake already is in the oligo/mesotrophic  
3 category, and we don't think it's going to change categories.  
4                   THE CHAIRPERSON: Thank you. Mr. Wilbur...?  
5                   MR. STEVE WILBUR: Thank you. Steve Wilbur,  
6 again. Okay. Now, down a bit further on the -- the  
7 dissolved oxygen slide, I think it says:  
8                   "What is it like, now, in winter?"  
9                   THE CHAIRPERSON: That's page 17 of the  
10 report.  
11                   MR. STEVE WILBUR: And that would be Slide  
12 17. This is not in -- not in Stella's, but in -- in Mark's.  
13  
14                   (BRIEF PAUSE)  
15  
16                   MR. STEVE WILBUR: Thank you. Steve Wilbur.  
17 Okay, also, just to follow up on what Peter Chapman had --  
18 had suggested, that this is new information. And I'll --  
19 I'll say, this is a little bit more new than some of the  
20 other stuff, simply because this is an interpretation of data  
21 from several sources put together.  
22                   I recognize that there's been the symmetry  
23 data out and the -- the data has been collected in the  
24 winter, recently, and that that data is out there. But in  
25 terms of this representation, the contours are -- are

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1 interpretation of where and how those contours were made.  
2 And so we haven't had a -- I haven't had a chance to really  
3 look at it and say if I agree with the interpretation or not.  
4 But anyway, I'll still ask my questions. And  
5 I guess, I'm looking at the values and I -- I -- it's hard to  
6 see the values. I guess they -- they constantly -- they  
7 decrease all the way from the -- from the top down to the  
8 bottom.

9 Can somebody tell me what the values are, at  
10 the top, there?

11 MR. MARK DIGEL: Mark Digel, Golder  
12 Associates. The -- the concentrations near the ice would be  
13 in the range of fifteen (15) to sixteen (16) milligrams per  
14 litre.

15 MR. STEVE WILBUR: Steve Wilbur, Dogrib. And  
16 what's the percent DO saturation at that time?

17 MR. MARK DIGEL: Mark Digel, Golder  
18 Associates. I'm not sure the exact percentage but that's  
19 pretty close to saturation.

20 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
21 guess, in my experience, that's almost over-saturated. I  
22 haven't had the experience of measuring DO values that high,  
23 but I just thought I'd put that on the record.

24 At the same time, here, I was just curious,  
25 what the temperature profile might over -- overlay on this,

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1 what that would be like?

2 MR. MARK DIGEL: Mark Digel, Golder  
3 Associates. The -- the temperature profile, at this time in  
4 the winter, you would have concentration -- or,  
5 concentration -- temperatures of around zero (0) to one (1)  
6 degree nearer the ice cover.

7 And then increasing gradually with depth to  
8 temperatures in the two (2) to four (4), two (2) to three (3)  
9 degree Celsius range, near the bottom.

10 MR. STEVE WILBUR: My question then is:  
11 Wouldn't fish prefer the warmer waters?

12 MR. MARK DIGEL: I'll defer that to a fish  
13 person.

14 MR. RICK SCHRYER: Rick Schryer, Golder  
15 Associates. No, at that time of year they wouldn't  
16 necessarily prefer any temperature in that range. It's such  
17 a small range that, no, there's no temperature preference.

18 MR. STEVE WILBUR: Steve Wilbur, Dogrib. My  
19 expert that I use, that's in our company, Entrix,  
20 Dr. Jeff Fisher is also a toxicologist and aquatic biologist  
21 of about twenty (20) years' experience and he differs with  
22 Rick's opinion on -- on the preference of fish.

23 THE CHAIRPERSON: I take it then, Mr. Wilbur,  
24 what you're saying is that your information is that the fish  
25 would prefer to be in warmer water as opposed to colder

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1 water?

2 MR. STEVE WILBUR: Yes.

3 THE CHAIRPERSON: Thank you.

4 MR. STEVE WILBUR: And I'll preface -- I'll  
5 add to that, the information we have some -- Isadorre was at  
6 a technical session in, I guess, it was December, mentioned  
7 that fish, during the winter go down to deeper waters, it's  
8 preferable.

9 My next question is on the metal  
10 concentrations in Snap Lake and that's, I guess, slide 20.  
11 And here the -- where they have talked about results, Mark  
12 mentioned that the EA assessed the potential for low effects  
13 for two (2) metals, cadmium and hexavalent chromium.

14 And I just want to clarify, and maybe this  
15 goes back to tomorrow, that these metals were not changed in  
16 the variability modelling so -- so that these -- we haven't  
17 really evaluated the change -- a potential change in cadmium  
18 or hexavalent chromium based on a different concentration in  
19 groundwater?

20

21 (BRIEF PAUSE)

22

23 MR. STEVE WILBUR: Do you want me to ask the  
24 question again?

25 MR. MARK DIGEL: Mark Digel, Golder. Yes,

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1 please.

2 MR. STEVE WILBUR: Steve Wilbur. Did you do  
3 variability -- did you do variability modelling -- in your  
4 variability modelling did you vary concentrations of metals?

5 MR. MARK DIGEL: Mark Digel, Golder  
6 Associates. In terms of the variability modelling, you're  
7 talking about the mine water variability modelling; is that  
8 correct?

9 The answer to that question is, yes, we did  
10 consider changes to the metals as well. Two (2) factors that  
11 resulted in metal concentrations not increasing, there isn't  
12 a gradient of increasing metal concentrations for those  
13 metals with depth.

14 Secondly, the concentrations of those are  
15 controlled by -- by the -- solubility. So the mine water  
16 variability runs did include solubility and I guess there's a  
17 third item is that the concentrations for cadmium and  
18 chromium were largely non-detectable in the mine waters.

19 So, we're actually dealing with concentrations  
20 below the level that we were predicting. So if you're doing  
21 a mine water variability, you're basically still at your  
22 detection limit so there's not as substantial a change as if  
23 you're dealing with concentrations that are well above  
24 detection limits because we've assumed levels at or at a  
25 certain portion of the detection limit.

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1 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

2 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
3 guess I'm confused then. If cadmium and chromium --  
4 hexavalent chromium are not -- are at detection limits then  
5 how can we have the low effect?

6 THE CHAIRPERSON: Thank you. Mr. Digel...?

7 MR. MARK DIGEL: Mark Digel, Golder  
8 Associates. Simple answer is the guidelines, in particular  
9 for cadmium, are so low that they're actually lower than the  
10 detection limits.

11 So even if we used maximum concentrations  
12 based on detection limits, we can still get the potential for  
13 low effects which we have mentioned all the way through is  
14 the conservative estimate. We don't expect concentrations to  
15 be that high.

16 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

17 MR. STEVE WILBUR: Steve Wilbur, Dogrib. So,  
18 in essence, what you're saying is that the samples that you  
19 collected from the mine workings, you -- you couldn't detect  
20 cadmium, or hexavalent chromium in them?

21 MR. MARK DIGEL: Mark Digel, Golder  
22 Associates. What I -- what I stated was, in a majority of  
23 the samples, so certainly, in some of the samples there were  
24 detectable levels, but in -- in many, or majority of the  
25 samples depending on the -- the particular water, or area,

1 concentrations were below detection limits.

2 MR. STEVE WILBUR: Thank you. I'm going to  
3 keep following up on this. So, in essence, some areas had  
4 cadmium, some areas didn't have it, and we know that we  
5 haven't sampled below a certain depth, and we have -- haven't  
6 sampled other depths.

7 We know that there's rock heterogeneity in the  
8 -- will -- but that will be mined in a different rock types,  
9 and so forth, and with different solubilities.

10 So, can we be sure that we've actually got the  
11 -- the worst case, or, well, not necessarily the worst case,  
12 but a case where cadmium chromium and for -- for that matter,  
13 any metals haven't been analysed and detected, and -- and how

14 are you going to deal with that if you do come upon an area  
15 that may have some metals?

16

17 (BRIEF PAUSE)

18

19 MR. MARK DIGEL: Mark Digel, Golder  
20 Associates. Just because I've been conferring for a while,  
21 and I want to make sure I remember the question.

22 The question -- and don't answer another  
23 question. The question was to do with how can we be sure  
24 that we've been conservative enough in accounting for  
25 concentrations at -- at the -- greater depth.

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1 MR. STEVE WILBUR: That's part of it. I  
2 guess the -- the real -- the bigger question is, we haven't  
3 sampled all the rock bodies out there, and we've sampled a  
4 certain part of the rock bodies, and you've said -- you made  
5 the statement that some areas -- we have samples we detect it  
6 and some areas we don't detect it, and I don't know what that  
7 variability is -- is due to.

8 I'm sure it's due to the rock heterogeneity,  
9 and -- and solubility and -- and so forth, so there's lots of  
10 -- lots of the area that will be mined that you haven't  
11 sampled, and so, how can we be sure that we've got metals  
12 taken care of?

13

14 (BRIEF PAUSE)

15

16 MR. MARK DIGEL: Mark Digel with Golder  
17 Associates. While it's true we haven't sampled everywhere,  
18 we have sampled all the representative rock types, and we  
19 feel that we have enough samples to provide -- to predict  
20 concentrations that are representative -- conservative --  
21 representative of a conservative estimates of concentration  
22 of metals in -- in the -- in the groundwater that inflows to  
23 the mine.

24 So, we believe that we do have enough data to  
25 characterize, and we do account conservatively for

1 concentrations of metals that would inflow to the mine.  
2 THE CHAIRPERSON: Dr. Wilbur...?  
3 MR. STEVE WILBUR: Steve Wilbur, Dogrib. So,  
4 that's -- that's based on the assumption that metal concen --  
5 concentrations of various metals do not change with -- with  
6 depth? Or they do change with depth?  
7 MR. MARK DIGEL: Mark Digel, Golder  
8 Associates. I'm going to get Ken DeVos, who was actually  
9 responsible for the site water predictions, to give an answer  
10 to that question.  
11 MR. KEN DeVOS: Steve, there's -- Ken DeVos,  
12 with Golder Associates. The data that we have from the  
13 Canadian Shield shows three (3) parameters that have the  
14 tendency to increase with depth, those are: chloride, sodium,  
15 and calcium.  
16 Those are the three (3) parameters that  
17 we've -- we've most focussed on. We've also accounted  
18 for -- for, like as Mark indicated, the other metals seen to  
19 increase based on what we've observed in the mine.  
20 So, we've accounted for that, Steve.  
21 MR. STEVE WILBUR: That's -- that's fine, Ken.  
22 Thank you. I just wanted to know if you ultimately did get  
23 into a situation that's unpredictable is there a -- what --  
24 is there a contingency or treatment, or what -- what do you  
25 do when you come across an outside condition that -- you just

1 -- you just -- what you're saying is that you're sure that  
2 you're not going to get any, and so you don't have to have  
3 that contingency, or do we need a contingency?  
4

5 (BRIEF PAUSE)  
6

7 MR. ROBIN JOHNSTONE: Robin Johnstone, De  
8 Beers. I'm going to outline one (1) thing to begin with,  
9 Steve, which I think will hopefully address part of your  
10 question.

11 And that is, that we're talking about -- a lot  
12 of the measurements we're talking about are very close to  
13 detection limits.

14 And so, in taking a representation of samples,  
15 some may be above or below that limit. So, we're -- we're  
16 confident that we've got a representative sample that will  
17 bracket that area, or bracket those values.

18 Now, what I'm just going to get Tom Higgs to  
19 do is very briefly describe the contingency if metals are  
20 higher than we would expect.

21 THE CHAIRPERSON: Mr. Higgs...?

22 MR. TOM HIGGS: Tom Higgs, AMEC for De Beers.  
23 Short answer? I think it might have to be a little longer  
24 than short answer, Robin.

25 But, as we discussed yesterday, the -- the

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1 mine water contains particulates -- fairly elevated levels of  
2 particulates in any mine water, and in that particulates is  
3 metals -- total metals in the particulate form.

4 The -- the actual dissolved metals in the mine  
5 water are very, very low. And that forms the basis of our  
6 treatment system, which is to remove those suspended solids  
7 to -- to achieve the very low values.

8 Now, in the event that there are elevated  
9 levels that are above our predicted dissolved metals  
10 concentrations, we -- the treatment system will be able to  
11 remove those because those metals will be above their  
12 solubility limits, and therefore in colloidal form that will  
13 respond to conventional treatment by physical means, using  
14 flocculents, and ferric sulfate, and then therefore be  
15 removed by filtration.

16 So, the system has the ability to remove both  
17 particulate metals, and elevated colloidal metals that may be  
18 there above our current predicted concentrations.

19 MR. STEVE WILBUR: Steve Wilbur, Dogrib.  
20 Thanks, Tom. I -- now, is that a universal statement about  
21 all metals, are they -- or that you could confront -- that  
22 you could realistically confront, I guess, is the question?  
23 MR. TOM HIGGS: Tom Higgs, AMEC for De Beers.  
24 You have to be careful about universal statements about  
25 metals because as a process engineer, I tend to treat

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1 individual metals on a -- on a specific basis when we're  
2 developing treatment technology.  
3 But, certainly the solubility of metals is  
4 controlled by, mainly pH, which is the condition of the mine  
5 water.

6 And our particular pH, it's optimum for  
7 precipitating metals, and metals tend to be in their minimum  
8 solubility level at the particular pH that we're at.

9 So I -- I would suggest that, yes, it does  
10 apply to metals in general, but I would have -- I would make  
11 that statement subject to dealing with the individual  
12 particular metal that's -- that someone was concerned about,  
13 because it may be a little bit too much of a blanket  
14 statement.

15 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

16 MR. STEVE WILBUR: Thanks, Tom. Okay, I'm  
17 just going to change concept a little bit, here, but it's  
18 still kind of on the same vein.

19 And that is, I guess when we're -- the  
20 mitigation in the -- one (1) of the mitigation's that -- that  
21 has been discussed is grouting and you can handle high TDS or  
22 these upset conditions.

23 Now, I assume you'll be monitoring these.  
24 What's the actual plan for monitoring and -- my question is:  
25 What are the chances that you'll miss -- miss some -- some

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1 high TDS concentration?

2

3 (BRIEF PAUSE)

4

5 MR. MARK DIGEL: Mark Digel, Golder  
6 Associates. What's important in terms of monitoring in the  
7 mine water is the -- is the -- the concentration and volume  
8 that are going to the water treatment plant. So what's  
9 important is to -- to monitor that and -- and we're going to  
10 use that information to update models.

11 So if -- if we -- if that's within the  
12 expected range, then we're going to pick it up. If it starts  
13 to get outside the expected range, then we'll pick that up as  
14 well.

15 So we -- there will be, in the site  
16 monitoring, the -- the capacity to look at whether or not  
17 you're within the range of expected concentrations, or  
18 whether you may be in a condition where mitigation measures  
19 would be warranted.

20 MR. STEVE WILBUR: Thank you. Steve Wilbur,  
21 Dogrib. So, how long does it take to go from -- for a water  
22 particle that's just entered the mine, to be released to --  
23 into Snap Lake?

24

25 (BRIEF PAUSE)

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1 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
2 Johnstone. Steve, depending on the depth of the mine, it may  
3 be twenty (20) to thirty (30) minutes from it appearing in a  
4 sump to it going through the treatment plant -- into the  
5 treatment plant.

6 MR. STEVE WILBUR: Okay. Thank you. Steve.  
7 So that's -- to the treatment plant, how -- how long does it  
8 take to go from the mine, through the treatment plant, to the  
9 lake?

10 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
11 Johnstone. From the treatment plant to the mine -- sorry,

12 from the treatment plant to the lake, it would be a few  
13 hours.

14 MR. STEVE WILBUR: So -- Steve Wilbur. So,  
15 the time that water could enter the mine and be in the lake,  
16 is roughly three (3) hours?

17 MR. ROBIN JOHNSTONE: That's direct addition  
18 from the figures I just gave you, Steve.

19 MR. STEVE WILBUR: So, my -- I guess my  
20 question, then, is, if -- my first question, which Mark kind  
21 of answered: Is there monitoring of these high TDS areas in  
22 the mine, that we'll know that we're not putting really high  
23 saline waters into the lake? What's the -- how are we going  
24 to know when to -- when to stop?

25 MR. MARK DIGEL: Mark Digel, Golder

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1 Associates. One (1) of the things that would be incorporated  
2 into the monitoring would be continuous conductivity  
3 measurements. So, basically, you get an instantaneous  
4 measure of concentrations.

5 The other thing to consider is that, you know,  
6 as the flows ramp up, the influence of a higher concentration  
7 in one (1) area isn't going to show up as a, sort of, a one  
8 (1) to one (1) ratio for higher concentrations in the  
9 discharge.

10 You have a higher inflow in one (1) area it's  
11 going to be dampened because you've got inflows from a whole  
12 bunch of areas in the mine.

13 So, you know, if you have a higher  
14 concentration in one (1) area you're going to have a much  
15 smaller concentration in the mine water discharge. But the  
16 mine water discharge or the -- the water that reports to  
17 treatment will have continuous conductivity measures so you'd  
18 know right away.

19 MR. STEVE WILBUR: Okay, my -- Steve Wilbur --  
20 -- questions now about -- for Stella. And it's on the --  
21 first question is, I guess, on slide 8. And, Stella, you  
22 mentioned that you'll be collecting new baseline data and  
23 then will be doing some analysis; when is this new baseline

24 data going to be collected after you've analysed that it may  
25 or may not be -- be needed?

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1 MS. STELLA SWANSON: Stella Swanson, Golder  
2 Associates for De Beers. Mr. Chairman, the first thing we  
3 would do is we'd look at the data we now already have and we  
4 would check, as I was explaining earlier, whether or not we  
5 have enough to, first of all, choose the right thing to  
6 measure in Snap Lake that's a good indicator of what might be  
7 happening with the plants and animals.

8 Then we'll look at whether we have enough data  
9 to describe the variability. In other words, how much it  
10 varies from place to place and from time to time. Depending  
11 on what we find out, we'll make the decision about which  
12 kinds of new data we need to collect.

13 And we would proceed to go and collect those.  
14 We're in the middle of designing aquatic effects monitoring  
15 right now and we're in the middle of that decision process  
16 right now and we would be making decisions on kind of data  
17 and the timing, literally, almost as we're speaking. We're  
18 in the midst of that process.

19 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

20 MR. ROBIN JOHNSTONE: De Beers Canada. If I  
21 could add to that response is that this is -- this is one (1)  
22 of the reasons why we've stated in the submission that we  
23 made to the Board on February 28, that we think that it's  
24 important to provide -- to get input from Intervenor and  
25 communities around monitoring plans.

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1 So, what Stella's talking about, a phased  
2 approach, would provide people with an outline of the general  
3 areas which have been identified as monitoring needs during

4 the EA and then we are continuing to develop detail to put  
5 meat on those bones so that we can then come and, basically,  
6 ensure that we've got the -- the meat to everybody's  
7 satisfaction later in the process.

8 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

9 MR. STEVE WILBUR: Steve Wilbur. Thanks,  
10 Robin. I guess my confusion is that the title up there says  
11 enough baseline data and we're not talking about monitoring -  
12 - enough -- developed enough monitoring programs. Typically,  
13 I would consider baseline data as the information you would  
14 collect as part of the EA assessment.

15 So maybe it's just -- it's just semantics or  
16 poor word choice there but I just -- clarify what you mean by  
17 baseline as opposed beginning a monitoring program?

18 MS. STELLA SWANSON: Stella Swanson, Golder  
19 Associates for De Beers. As I had explained on that slide,  
20 the definition of "enough" depends on the purpose of  
21 baseline. And as I explained there are many different kinds  
22 of baseline programs.

23 Back, Mr. Chairman, twenty-two (22) years ago  
24 when I started my career when you collected baseline data for  
25 EA's you ended up producing several thicknesses of Toronto

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1 telephone books simply counting everything that was there.

2 We learned our lesson from that and we --  
3 we've realized that we have to focus baseline in support of  
4 environmental assessment as I explained on the links between  
5 what might happen from the project and plants and animals in  
6 the lake that are mostly likely to show effects.

7 That helps you focus your effort because  
8 baseline collection in support of EA's, of course, has a time  
9 limit on it. It's usually one (1) or two (2) years and you  
10 collect enough data to be sure that you can make confident  
11 predictions of impacts.

12 That's a different purpose from very detailed  
13 mathematical analysis that you might use for support of  
14 design of detailed monitoring later, where you want to make  
15 sure that no -- that now that you know what the predicted

16 impacts are, you focus even more, and let's say, for example,  
17 we decide we really have to focus on those algae, because  
18 we're saying some of them might increase.

19 Well, then you want to have enough data to  
20 make sure that you can pick up the difference between natural  
21 ways that numbers of algae vary, and a true increase, and  
22 that might require a little bit more data, so that's the  
23 difference.

24 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

25 MR. STEVE WILBUR: Steve Wilbur. So, I guess

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1 I'd -- it's augmentation of baseline, rather than initial  
2 baseline, is what you're -- you're saying?

3 MS. STELLA SWANSON: Stella Swanson, Golder  
4 Associates. That's another way of putting it.

5 MR. STEVE WILBUR: Then, I'll go back to my  
6 original question is, when?

7  
8 (BRIEF PAUSE)

9  
10 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
11 Johnstone. Again, it's the split between baseline for EA,  
12 baseline for monitoring. We have done the baseline for the  
13 environmental assessment, and the process of which we're --  
14 we're almost concluding.

15 The next step is collection of that baseline  
16 as part of the monitoring program, and so subject to having  
17 approval for a project to proceed, we will basically develop  
18 that.

19 MR. STEVE WILBUR: Thank you. Steve Wilbur.  
20 I -- I guess my concern is, will the data -- the -- the  
21 augmented baseline data be collected prior to any further  
22 activity?

23  
24 (BRIEF PAUSE)

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1 MR. ROBIN JOHNSTONE: De Beers Canada. We  
2 can't carry out any activity until we have a license, so we  
3 will be collecting baseline data prior to activity.

4 MR. STEVE WILBUR: Steve Wilbur. Where when  
5 you get your license? I -- what's the first thing you're  
6 going to do? Are you going to collect baseline data? Or are  
7 you going to go out and start moving the machines around, and  
8 stuff, I guess?

9 THE CHAIRPERSON: Thank you. I'll let the  
10 Proponent answer that, but I think what you also have to  
11 understand is that -- that if the project receives approval  
12 to proceed, there will be extensive water license hearings  
13 that the Proponent must go through.

14 Now, if there's consistency, I suspect that  
15 there will be a fairly rigorous aquatic effects monitoring  
16 program included in that water licence, which will require  
17 the Proponent to undergo extensive amount of work.

18 So, there is a time line, Mr. Wilbur. Thank  
19 you.

20 MR. STEVE WILBUR: I won't go into that any  
21 further. That was, I guess, it can be annoying.

22  
23 (BRIEF PAUSE)

24  
25 MR. STEVE WILBUR: One (1) -- on slide number

1 11, Stella, you pointed out that the -- the estimated -- the  
2 area effected in Snap Lake, and the potential for effects on  
3 the overall populations, and I -- I guess I just want to be  
4 sure that what the assumptions are behind the area affected,  
5 and I'm assuming that -- that the lake, that you'd assume  
6 that the lake is homo -- homogenous with respect to community  
7 and habitats?

8 MS. STELLA SWANSON: Stella Swanson, Golder

9 Associates for De Beers. No, Mr. Chairman, we have not  
10 assumed that they'd be uniform. We made -- paid particular  
11 attention, for example, to where lake trout might spawn.  
12 THE CHAIRPERSON: Dr. Wilbur...?  
13 MR. STEVE WILBUR: Thank you. So -- Steve  
14 Wilbur -- so, you've mapped these area, or -- or how -- how  
15 do we know where -- where these areas are?  
16 MR. RICK SCHRYER: Rick Schryer, Golder  
17 Associates. The location of habitats such as spawning  
18 habitat, and rearing habitat for lake trout are available in  
19 the EA.  
20 MR. STEVE WILBUR: Steve Wilbur. I don't  
21 think that the question was -- was answered. I asked if --  
22 if the -- basically, if the various habitats and -- have been  
23 mapped.  
24 Now, you mentioned spawning habitat, if I was  
25 to -- can I go to the EA and look at -- at a map that shows

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1 were all the spawning habitats are, and where all the various  
2 other types of habitats are, so I know how heterogeneous is the  
3 -- the community structurally is?  
4 MR. RICK SCHRYER: Rick Schryer, Golder  
5 Associates. Yes, the habitats maps are available in the EA,  
6 and they're in Section 9.5.  
7  
8 (BRIEF PAUSE)  
9  
10 MR. STEVE WILBUR: This is a, kind of, an  
11 overall -- Steve Wilbur, kind of an overall question related  
12 to total dissolved solids.  
13 And Stella, you mentioned the theme is a  
14 gradual change, and that these organisms -- we can find lake  
15 trout and so forth in -- in environments such as what will  
16 happen to Snap Lake.  
17 My question is: We're asking these specific  
18 community -- these organisms, to shift from fifteen (15)  
19 milligrams per litre, to three hundred (300) to four hundred  
20 (400) milligrams per litre environment in a very short period

21 of time.

22 In my mind, maybe -- maybe not in your mind,  
23 but in ten (10) years is a pretty short time, and some -- I  
24 guess, that's how many generations is that, and is that  
25 enough for this particular community to -- to adapt?

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1 MS. STELLA SWANSON: Stella Swanson, Golder  
2 Associates for De Beers. If I understand the question  
3 correctly, you're asking whether, in my opinion, there is  
4 sufficient time for adaptation for the plants and animals  
5 that are living right now in water that has low TDS, and will  
6 eventually, after nineteen (19) years, reach, let's say,  
7 three hundred and fifty (350) milligrams per litre, right?

8 Mr. Chairman, my answer to that question is,  
9 of course for the very short lived species, like algae, that  
10 can go over -- through one (1) whole generation in one year,  
11 is a different way of answering that than for a fish that  
12 lives, like lake trout, can be decades.

13 Our understanding of how plants and animals  
14 can tolerate and adapt to changes to salts is largely based  
15 on a combination of two (2) things.

16 One (1) is our experience from the field. And  
17 I'll ask Rick Schryer to fill in a little bit on fish, and  
18 also our experience from natural lakes.

19 I originally got my PhD studying saline lakes  
20 in southern Saskatchewan. I spent five (5) years going  
21 around and looking at a whole range of conditions, where some  
22 of the exact same species that we find in Snap Lake were  
23 found swimming around in lakes in southern Saskatchewan.

24 Based on those years of experience with those  
25 kinds of lakes, and also my experience with the effects of

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1 human activities on lakes, including increasing salts, the  
2 con -- the increase in concentration in Snap Lake simply  
3 isn't anywhere near the concentrations that I have ever seen  
4 full scale change in the numbers or the kinds of species.

5 And that's really the bottom line answer.

6 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

7 MR. STEVE WILBUR: Steve Wilbur. So, I'm just  
8 going to re-phrase your answer, and hopefully I understand  
9 what you said.

10 You're basically saying that the individual  
11 organisms may not make it, but as a whole, the group of  
12 organisms can make it?

13 MS. STELLA SWANSON: Stella Swanson, Golder  
14 Associates, De Beers. No, I'm afraid that's not what I'm  
15 saying.

16 If you imagine, Mr. Chairman, that you're a  
17 little water flea --

18 MR. CHAIRPERSON: I've been called worse.

19 MS. STELLA SWANSON: -- and you're swimming  
20 around in the water, what -- what Mark's modeling is saying,  
21 is those -- the salts that that one (1) individual little  
22 water flea will experience over its life, and it'll live  
23 about a year, maybe, will increase very little. It will give  
24 birth, if it's a female, to new little ones and they -- and  
25 they will then, in turn, be in -- exposed to slightly higher

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1 salts.

2 Each little incremental change, from  
3 generation of water flea to generation of water flea, is not  
4 going to be enough to kill them, or even slow them down very  
5 much, in terms of growth. That's what my experience, and  
6 that's what the literature says to us.

7  
8 (BRIEF PAUSE)

9  
10 MR. STEVE WILBUR: Steve Wilbur. So -- so,  
11 all the organisms are going to be okay, is that what you're  
12 saying?

13 MS. STELLA SWANSON: For total dissolved  
14 solids, yes.

15  
16 (BRIEF PAUSE)

17  
18 MR. STEVE WILBUR: Just to follow up on that,  
19 for total dissolved solids, there's a follow up slide on --  
20 your 21, you're talking about nutrients and you say there  
21 will be no major shifts in keystone species.

22 And I guess my -- my questions here are, do  
23 you actually mean there will be no major shifts in -- in the  
24 populations of keystone species -- species populations, or  
25 the actual species themselves?

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1 THE CHAIRPERSON: Thank you. Ms. Swanson...?  
2 MS. STELLA SWANSON: Stella Swanson, Golder  
3 Associates for De Beers. As I understand the question, I  
4 think my answer would be, yes, to both.

5 I -- what we are expecting is that because of  
6 the slight increase in the nutrients, you might get a few  
7 more algae and a slight shift in the relative abundance of  
8 different kinds of algae. You also might be getting a little  
9 bit more of certain kinds of the zooplankton.

10 What I can say, with a great deal of  
11 confidence, is that you will not get a complete loss of any  
12 one (1) particular species, including species that are really  
13 important as key food for fish, for example.

14 MR. STEVE WILBUR: Thank you. Steve Wilbur.  
15 And I guess, just in -- in putting this in big -- in a large  
16 perspective, based on what DIAND was saying, yesterday, about  
17 TDS, their -- their opinion that it could actually be -- be  
18 higher and based on your discussion awhile ago, about  
19 adaptability to change, does it bother you that they say that  
20 it could increase two (2) to three (3) times, or is that  
21 still within the realm, the safety realm, for these  
22 organisms?

23 THE CHAIRPERSON: Ms. Swanson...?

24 MS. STELLA SWANSON: Stella Swanson, Golder

25 Associates for De Beers. As I pointed out when I answered a

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1 question from Dr. Chapman this morning, I have a lot of  
2 problem even trying to imagine the salts getting that high  
3 because the assumptions that were used to get to that higher  
4 concentration, I can't figure them out, they don't make a lot  
5 of sense to me.

6 I would prefer to stay with discussing the  
7 maximum salt concentrations that we calculated, using many  
8 different layers of safety, but combined with realism, that  
9 obeys some of the basic laws of -- such as, if you have a  
10 higher volume of water, a higher coffee cup, for example, the  
11 same amount of sugar means you have a lower concentration.

12 So that's the reason why I don't really want  
13 to go to there, with talking about higher salt  
14 concentrations.

15 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

16 MR. STEVE WILBUR: Steve Wilbur, Dogrib.

17 I -- I guess I'm a little confused that Stella's answering  
18 the question the way she's answering it, simply because she  
19 didn't do the modelling or the -- gather the baseline data  
20 for establishing what TDS concentrations would be.

21 So my question had nothing to do with the  
22 origin of -- and the modelling of that, but my question was,  
23 to her, as a biologist, if she saw these organisms, put these  
24 organisms in -- in essentially, what these scientists are  
25 saying could be two (2) to three (3) times higher, what would

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1 the results be?

2 I'm not asking her for her interpretation of  
3 the levels of conservatism, I'm asking for her opinion as to  
4 what would happen if that did occur?

5 MS. STELLA SWANSON: Stella Swanson, Golder  
6 Associates for De Beers. The impact assessment that I would  
7 do would be using the very same reasoning as we've been -- as  
8 we used and presented in this talk.

9 And the thresholds for effect for the higher  
10 salt concentrations would then be compared with our known --  
11 or sorry, the higher salt concentrations would be compared to  
12 thresholds for effect.

13 I have not had a chance to make all of those  
14 detailed comparisons. And that's about all I can say at this  
15 point.

16 THE CHAIRPERSON: Thank you.

17 MS. STELLA SWANSON: Mr. Chairman, if I could  
18 also add that in a few minutes, I'm expecting to hear a bit  
19 more about this from Dr. Chapman who will be analysing some  
20 of the higher salt concentrations and then perhaps in that  
21 particular presentation and subsequent dialogue we can get a  
22 little bit more clarity on the effects of higher salt  
23 concentrations.

24 THE CHAIRPERSON: Thank you, Ms. Swanson.  
25 Dr. Wilbur...?

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1 MR. STEVE WILBUR: Steve Wilbur. That will  
2 be -- that will be entertaining. Slide 24 please. My  
3 question is: The statement is made:

4 "deep water will be re-oxygenated once the  
5 ice cover leaves the lake"

6 And I guess I'd like to know at what rate will  
7 this occur and how has this been established? The rate, that  
8 is?

9 MR. MARK DIGEL: Mark Digel, Golder  
10 Associates. The process of a re-oxygenation when the ice  
11 cover leaves the lake is -- is a normal process. I mean,  
12 it's going to vary somewhat from year to year depending on  
13 how quickly the ice comes off and what the wind conditions  
14 are, you know, the size of the lake and all sorts of things.

15 So I can't give you an exact date saying, oh,  
16 two (2) weeks after it's going to come off. But, I mean,

17 during the open water period after the ice comes off, the  
18 first time you get a, you know, a strong wind event you're  
19 going to mix the -- the water in the lake and then there's  
20 going to be enough momentum in that lake that it's going to  
21 stay relatively well mixed throughout the open water season.  
22 MR. STEVE WILBUR: Steve Wilbur, Dogrib. So  
23 you're -- you're saying that it's going to happen relatively  
24 fast after break up? Is that what you're implying in a  
25 couple of weeks or are you -- I guess my question is: Will

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1 these lower oxygen areas that's not re-oxygenated, will they  
2 persist to -- how late into the -- into the summer?

3 MR. MARK DIGEL: Mark Digel, Golder  
4 Associates. As I mentioned, it's difficult to predict.  
5 Definitely wouldn't expect them to persist, I mean, I can't  
6 say whether it's a week, two (2) weeks or within a day. I  
7 wouldn't expect them to persist well into the summer in the  
8 lake. It's going to happen fairly rapidly in most of the  
9 lake, in the deeper areas it'll be a little slower.

10 But it -- it -- it's something that, you know,  
11 I can't predict just off the top of my head right now. And  
12 also, I can definitely say that it's not going to persist  
13 from year to year.

14 MR. STEVE WILBUR: Steve Wilbur. This  
15 wasn't modelled, I guess, is what you're saying, Mark? You  
16 didn't model the change in DO concentration over time?

17 MR. MARK DIGEL: Mark Digel, Golder  
18 Associates. Could you repeat the question, I was --

19 MR. STEVE WILBUR: My question --

20 MR. MARK DIGEL: -- my attention was  
21 elsewhere I'm -- I apologize.

22 MR. STEVE WILBUR: It's okay. I was just  
23 asking had -- I thought you had modelled these aspects, are  
24 you able to tell us how this change in DO happened over time?  
25 And that's how you came up with your low DO profiles in the

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1 winter and so forth?

2 MR. MARK DIGEL: Mark Digel, Golder

3 Associates. What we did to come up with those profiles was

4 take the maximum reduction in oxygen concentrations that you

5 would get over the course of the winter and then look at that

6 relative to what it would be under baseline conditions.

7 So no, it doesn't reflect how it evolves over

8 the winter --

9 MR. STEVE WILBUR: Okay, thanks.

10 MR. MARK DIGEL: -- what the worst could be.

11 MR. STEVE WILBUR: So the -- in -- in answer,

12 if I might rephrase it, you didn't model the change in DO

13 over time?

14 MR. MARK DIGEL: Mark Digel, Golder

15 Associates. That's correct. We didn't model the change in

16 DO concentrations over the course of a winter.

17 MR. STEVE WILBUR: So there's a -- a little

18 bit of uncertainty in -- in when that actually takes place,

19 the -- the evolution of DO concentration in the lake?

20

21 (BRIEF PAUSE)

22

23 MR. MARK DIGEL: Mark Digel, Golder

24 Associates. I -- I'm not sure I understand the word, the --

25 the use of the term uncertainty, because, no, we didn't model

1 it. We know from, you know, studies on other lakes, that

2 oxygen consumption tends to be relatively constant over the

3 course of the winter, or in some lakes, it occurs earlier in

4 the year and then levels off.

5 So, we expected to evolve over the course of

6 the winter, and so what we've predicted is the maximum change

7 at the end of the winter.

8 THE CHAIRPERSON: Thank you. Before your

9 next question, Dr. Wilbur, do you -- can you give me an

10 estimate on how much more time you're going to need, because  
11 we still have seven (7) presentations to go through today?

12 MR. STEVE WILBUR: Yeah. One (1) more  
13 question.

14 THE CHAIRPERSON: Okay. Thank you.

15 MR. STEVE WILBUR: Slide number 27. Stella,  
16 you mentioned the Ontario Lake Trout, and I -- I guess this  
17 is just from my own ignorance about the representation of --  
18 or the ability to compare an -- an Ontario lake to the Snap  
19 Lake, because I'm assuming that the Ontario Lake has a much  
20 more -- is much more productive.

21 So, do we have any similar comparisons to  
22 lakes in sub-arctic, arctic, where you can make this -- this  
23 same type of analysis?

24 MR. RICK SCHRYER: Rick Schryer, Golder  
25 Associates. I guess the short answer is no, we don't have

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1 anything in an arctic situation, but that's because  
2 conditions are considerably different.

3 What the -- what this paper was getting at was  
4 that when these lakes stratify and the trout are trapped in  
5 the lower part of the lake where the temperatures there are  
6 where they prefer them, they have to have the proper amount  
7 of oxygen in order to survive.

8 So, that's where they came up with the  
9 criteria that Stella mentioned. In an arctic sort of  
10 situation where the lake does not stratify, a lot of these  
11 rules don't apply, but -- so, the short answer is no, we  
12 don't really have any comparable data in an arctic situation,  
13 because it's not the same.

14 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

15 MR. STEVE WILBUR: I just wanted the -- the  
16 Board to be aware that there's -- that's the -- some -- to be  
17 able to make useful comparisons, whereas we're dealing in a  
18 realm of -- of some uncertainty here.

19 THE CHAIRPERSON: We got the point.

20 MR. STEVE WILBUR: Yeah.

21 THE CHAIRPERSON: Continue.

22 MR. STEVE WILBUR: This is on slide 35,  
23 Stella, and I guess I'm -- I was going -- comparing this to  
24 the February 28th document that also had the same type of  
25 table, and with respect to this, I'm wondering this -- the

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1 handout I have, has all these question marks in it.  
2 Now, I was thinking that might mean that -- I  
3 felt good, which means uncertainty is really high, and that's  
4 what she's trying to show here, but indeed, I come up with  
5 this one (1), so I was just curious why these are different?  
6 Is that a -- a mistake, or does anybody -- I have a document  
7 that has all these questions in it, and I was curious what  
8 the -- what that was -- what the meaning of that was? Yes.

9 MS. STELLA SWANSON: Stella Swanson, Golder  
10 Associates, for De Beers. That's a font problem that  
11 computer number 1 wasn't talking to the printer number 2 very  
12 well, and that -- we're -- we are trying to supply the  
13 correct version to all of you as soon as we can. I  
14 apologize.

15 MR. STEVE WILBUR: Yeah.

16 THE CHAIRPERSON: Dr. Wilbur's familiar with  
17 computer problems.

18 MR. STEVE WILBUR: I guess I want -- wanted to  
19 point out that the definitions that were used in determining  
20 small, moderate, and strong, on the previous slide, 34, which  
21 are used here, are different than -- not the -- not the same  
22 as the ones in the February 28th memo, and I was wondering if  
23 Stella could explain why -- what the differences are, and why  
24 they've -- why she made these differences.

25 THE CHAIRPERSON: Thank you. Ms. Swanson...?

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1 MS. STELLA SWANSON: Stella Swanson, Golder

2 Associates for De Beers. Mr. Chairman, the reason the  
3 wording is a little bit different, is I was trying to make it  
4 more brief and more lay language, to make my presentation a  
5 little -- hopefully a little more clear.

6 And the extra words in the technical memo  
7 refer primarily to just additional adjectives to fill out the  
8 reasoning.

9 The one (1) main point that's missing from the  
10 slide that's in the technical memo, is the concept of the  
11 strength of our understanding of the relationship between the  
12 cause, the suggested cause, for example, higher salts, and an  
13 observed effect in, let's say, in a field or in a test.

14 And one (1) of the things that I have to do as  
15 a scientist is always make sure that I understand that there  
16 is either strong or weak evidence for truly a connection  
17 between an observed increase, let's say, in salts, and a  
18 change, let's say, in algae.

19 And the reason that's important is that  
20 sometimes something else can be going wrong -- along --  
21 something else can be going on in the lake that is the main  
22 reason why the algae changed, and you mistakenly are saying  
23 it changed because of the salts.

24 So, that -- that's a pretty hard concept to  
25 get across in five (5) words or less in a slide. So, that's

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1 why I didn't put it in there.

2 THE CHAIRPERSON: Thank you.

3 MR. STEVE WILBUR: I have one (1) last  
4 question that's kind of an overall question, here, and it may  
5 lead to some follow up questions.

6 THE CHAIRPERSON: Well, we're going to have  
7 to -- I think I'm going to have to make this your last  
8 question.

9 I really --

10 MR. STEVE WILBUR: Okay. Right.

11 THE CHAIRPERSON: -- have to get on. We've  
12 got seven (7) other groups to make today.

13 MR. STEVE WILBUR: I'll just ask one (1) last

14 question then.  
15 Which one (1) should it be now. On slide 36.  
16 And you -- you made a bold statement there, no pun intended:  
17 "We are sure we did not underestimate  
18 impacts"  
19 And I guess this goes to the whole concept of  
20 layers of safety and conservatism, and I guess I wanted to be  
21 sure what you meant by sure.  
22 And in terms of the Board's context, we -- we  
23 want to know likely. And -- and since we've been dealing  
24 with realms of uncertainty, what are you meaning by -- by,  
25 sure; is this a probability statement, or is -- does that

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1 mean certain, or -- and is this based on all these layers of  
2 safety?  
3 So, just comment on that.  
4 MS. STELLA SWANSON: Stella Swanson, Golder  
5 Associates for De Beers. The statement, we are sure, is  
6 based on probability.  
7 What we did was we added many layers of  
8 safety, so that it would be extremely unlikely that we have  
9 underestimated effects.  
10 It's so unlikely, in fact, that it, for me,  
11 equates to, I'm sure. It's, again, a lay language expression  
12 of the extreme unlikely event of being any higher impacts  
13 than what we have predicted.  
14 THE CHAIRPERSON: Thank you. With that, I  
15 still have five (5) parties who may wish to ask questions.  
16 We still have seven (7) presentations to go through, with  
17 questions.  
18 So, we're going to have an extremely busy two  
19 (2) hours, or more. Therefore, we'll take a coffee break for  
20 ten (10) minutes. Thank you.  
21  
22 --- Upon recessing at 2:50 p.m.  
23 --- Upon resuming at 3:02 p.m.  
24  
25 THE CHAIRPERSON: Thank you. Canadian Arctic

1 Resources Committee. Mr. O'Reilly, do you have any  
2 questions? I would ask that, please, if -- if questions be  
3 kept succinct and to the point, and the same with the  
4 answers? Thank you.

5 MR. KEVIN O'REILLY: Yes, thank you, Mr.  
6 Wray, we have -- I have four (4) questions and my colleague  
7 has one (1).

8 The first question is with regard to the first  
9 set of slides that were shown by Mr. Digel. And I believe  
10 it's on Slide 7, where De Beers says that their water  
11 treatment process is going to remove TSS to five (5)  
12 milligrams per litre.

13 If memory serves me correct, the limit in the  
14 BHP licence is twenty-five (25) milligrams per litre. And in  
15 the Diavik water licence, I believe it's fifteen (15)  
16 milligrams per litre.

17 So I'm just wondering if they can explain to  
18 me, has there been a change in technology or is this a better  
19 system, or whatever? How is it that they seem to be able to  
20 achieve a much lower level of TSS than either of the other  
21 two (2) diamond mines? Thank you.

22 THE CHAIRPERSON: Thank you. Mr. Digel...?

23 MR. GREG ORYALL: Greg Oryall, AMEC for De  
24 Beers. I think the discrepancy there, or the difference  
25 there, Mr. Chairman, is the number that is within a permit,

1 not for discharge, and what the technological capability of  
2 the water treatment plant is.

3 And what is being quoted here is the  
4 capability of the water treatment plant.

5 THE CHAIRPERSON: Thank you. Mr.  
6 O'Reilly...?

7 MR. KEVIN O'REILLY: Okay, well, I'll watch  
8 this with a great amount of interest and I'll probably be at  
9 the Water Board asking some further questions about this.  
10 But my second question is, and if I understood  
11 correctly, following up on one (1) of the questions asked by  
12 Mr. Wilbur, that the kind of monitoring De Beers is going to  
13 undertake, of the mine water is simply when it goes into the  
14 plant -- the treatment plant, I don't -- maybe I  
15 misunderstood but is there going to be any site specific mine  
16 water monitoring underground?  
17  
18 (BRIEF PAUSE)  
19  
20 MR. MARK DIGEL: Mark Digel, Golder  
21 Associates. Yes, there will be site specific water  
22 monitoring underground. The specifics of the monitoring  
23 program have yet to be fleshed out.  
24 THE CHAIRPERSON: Thank you.  
25 Mr. O'Reilly...?

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1 MR. KEVIN O'REILLY: Thank you. Just one (1)  
2 quick follow up question then. The reason why I asked that  
3 is, I'm wondering how do they know which areas to grout if --  
4 is there -- I presume then that that'll be part of their  
5 monitoring program? That if there's an area where there's  
6 high levels of TDS in the mine water or a lot of water coming  
7 in, those would be the areas that they're going to grout?  
8 But will the monitoring program account for that?  
9 THE CHAIRPERSON: Thank you. Mr.  
10 Johnstone...?  
11 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
12 Johnstone. Mr. Chairman and the Board, what we do is we  
13 basically start with the measurement of TDS at the water  
14 treatment plant. We monitor the levels there and we look for  
15 trends. And if we see that the TDS is changing and it's a  
16 cause for concern, then we start, basically, going backwards  
17 from there to find out the source of the high TDS in the --  
18 in the mine.

19 THE CHAIRPERSON: Thank you. Mr.  
20 O'Reilly...?  
21 MR. KEVIN O'REILLY: Thank you. Two (2)  
22 further questions on different topics. I'm going to move now  
23 to the overheads presented by Ms. Swanson. And I just want  
24 to go back to slides -- the first one (1) where this appears  
25 is slide 20.

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1 Once again, it's this diagram showing the  
2 different types of lakes and, I think it's the nutrient --  
3 different classifications of nutrients in the lakes and so  
4 on.  
5 I'm just wondering, what -- what sort of  
6 scales then are on the sides here. I understood that there's  
7 -- this is related to phosphorus and algal production or  
8 chlorophyll content; is that the sort of scales then that are  
9 on the sides of this diagram or should be on the side of the  
10 slide -- of this diagram?  
11 THE CHAIRPERSON: Mr. Digel...?  
12 MR. MARK DIGEL: Mark Digel, Golder  
13 Associates. Yes. That's exactly what would be on there.  
14 You could either express the scale in terms of total  
15 phosphorus concentration or in terms of chlorophyll A  
16 concentrations.  
17 THE CHAIRPERSON: Thank you.  
18 Mr. O'Reilly...?  
19 MR. KEVIN O'REILLY: One (1) follow-up  
20 question if I may? Is there a direct linear relationship  
21 then between phosphorus levels and chlorophyll levels?  
22 THE CHAIRPERSON: Thank you. Mr. Digel...?  
23 MR. MARK DIGEL: Mark Digel, Golder  
24 Associates. There is a direct correlation, it isn't always  
25 exactly linear.

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1 MR. KEVIN O'REILLY: If I may then, thank  
2 you. I guess I would have found this a much more helpful  
3 diagram if there was some sort of scale and whatever on the  
4 sides in relationship to chlorophyll and phosphorus levels.  
5 I did want to ask one (1) other question  
6 though on slide 25 of this presentation. And the second  
7 bullet on the slide refers to 3 percent increase in the areas  
8 where trout may not go, I assume because the dissolved oxygen  
9 levels are going to be below what trout like.  
10 Have this -- has this area, the 3 percent, has  
11 that actually been mapped in any way within the lake?  
12 MR. MARK DIGEL: Mark Digel with Golder  
13 Associates. We haven't -- we have not mapped the specific  
14 areas that would be -- that -- for that change. We have just  
15 predicted the volume of the lake in terms of lake trout, or  
16 the area of the lake for Benthos.  
17 THE CHAIRPERSON: Thank you.  
18 MR. KEVIN O'REILLY: Thank you. I guess De  
19 Beers goes on later in the -- in the presentation to indicate  
20 that this is not going to be a significant change. What can  
21 they tell us, though, about this 3 percent reduction?  
22 How significant is that habitat for the fish?  
23 If they haven't mapped it, how do they know how significant  
24 that habitat may, or indeed, may not be?  
25 THE CHAIRPERSON: Mr. Schryer...?

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1 MR. RICK SCHRYER: Rick Schryer, Golder  
2 Associates. The change in oxygen that we are predicting is  
3 going to happen at the mid-level, or mid-column level in the  
4 lake, and this is not a particularly critical habitat for  
5 these fish.  
6 It is just sort of the middle of the lake, and  
7 it will not affect the ability for the lake trout population  
8 to sustain itself over the winter. Thank you.  
9 THE CHAIRPERSON: Mr. O'Reilly...?  
10 MR. KEVIN O'REILLY: Thanks. That's all the  
11 questions that I have.

12 THE CHAIRPERSON: Thank you. Dr. Montgomery,  
13 I believe you have a question?

14 MS. SHELAGH MONTGOMERY: Yes, Shelagh  
15 Montgomery, Canadian Arctic Resources Committee. I have a --  
16 a general question, although it's probably directed to Della  
17 Swan -- Stella Swanson.

18 It's -- in the presentations, there's  
19 discussion about the atrophic status of the lake, and how  
20 that may or may not change, how it may become slightly more  
21 productive.

22 You've measured total phosphorus, and  
23 chlorophyll A for that. I'm just wondering if you've done  
24 any work on the nutrient status of the lake, how that may  
25 change, and looking more specifically at elemental ratios of

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1 carbon nitrogen and phosphorus, CNP, which is a very good  
2 indicator of nutrient status, because you can have nutrient  
3 poor lakes, or a severally phosphorus limited lakes that are  
4 eutrophic or oligotrophic.

5 The trophic status can be different, but there  
6 may not be very -- very sustainable.

7 THE CHAIRPERSON: Thank you. Mr. Digel...?

8 MR. MARK DIGEL: Mark Digel with Golder  
9 Associates. Yes, we did look at the -- at the nutrients,  
10 because we did a full nutrient and algal model of the lake,  
11 and what it told us is that under baseline conditions, the --  
12 the nutrient ratios are such that the lake is phosphorus  
13 limited, and with the project, the lake will continue to be  
14 phosphorus limited, and that's really why we focussed on  
15 phosphorus, because it's the limiting nutrient, and it's the  
16 nutrient that governs -- governs algal productivity in Snap  
17 Lake.

18 THE CHAIRPERSON: Thank you.  
19 Government of the Northwest Territories,  
20 questions? No.

21 Environment Canada, any questions?

22 MR. MARK DAHL: Yes, one (1) question. Or  
23 actually, not a question, a -- a clarification. It has to do

24 with Dr. Swanson's presentation. Slide 16, total dissolved  
25 solids.

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1 In that slide, Can -- Environment Canada is  
2 paraphrasis -- paraphrased as saying that:  
3 If TDS levels are below six hundred (600)  
4 milligrams, effects will likely be  
5 restricted to increase productivity, and  
6 minor zooplankton species shift."  
7 That's a mis-interpretation. What was stated  
8 in the EC Technical Report on February 14th is as follows:  
9 "Biological effects at the predicted levels  
10 of TDS, three hundred and forty (340) BPM,  
11 would not be of high magnitude. EC  
12 anticipates that there may be minor species  
13 shifts within the invertebrate communities,  
14 and potentially slight enhancement of  
15 productivity."  
16 Further on in the report, we do discuss six  
17 hundred (600) BPM, but we discuss it as we would expect  
18 effects at that level. Thank you.  
19 THE CHAIRPERSON: Okay. I take it there's no  
20 question there, but you're just clarifying for the record.  
21 Thank you.  
22 Lutsel K'e Dene First Nation, any questions of  
23 the Proponent? Ms. Catholique...?  
24 MS. FLORENCE CATHOLIQUE: I have questions  
25 that were already filed yesterday, and I was to get a written

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1 response, or to be responded orally, and in written.  
2 THE CHAIRPERSON: Thank you. Mr.  
3 Johnstone...?

4 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
5 Johnstone. Mr. Chairman, we did go through the questions.  
6 We have provided a written answer, which we certainly hope  
7 will -- will be -- will satisfy the questions.

8 There are about thirty (30) responses.  
9 There's about ten (10) questions related to waste water. And  
10 there's another ten (10) related to groundwater quality.

11 We can either read through the responses,  
12 alternatively we can submit them to the Board. Obviously,  
13 the -- there would not be the chance for follow up questions  
14 if -- if we do the latter.

15 THE CHAIRPERSON: Ms. Catholique, what's your  
16 wish; would you like them to read the answers into the  
17 record, or I can take the answers and have them entered on  
18 the public record, so...?

19 MS. FLORENCE CATHOLIQUE: Let's see, I -- I  
20 think that in the time when things that are utmost important  
21 to us, I feel some pressure in -- in the time of various  
22 parties and rushing.

23 And I don't mean to be any disrespectful to  
24 anybody, but it's -- the importance for us is very high. And  
25 we did, you know, request sessions within the community where

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1 we have -- large members that are uni-lingual to be able to  
2 understand these things, and that's why we are a burden today  
3 in the sessions, but it could have easily done in a different  
4 way.

5 And Lutsel K'e did take the -- the offer of De  
6 Beers and the Mackenzie Valley in December, requesting that  
7 those things be done, and were not done in the community.

8 For the record, I want to say that I think for  
9 those people that were here that heard the questions that we  
10 asked, that the answers should be read, and recorded.

11 THE CHAIRPERSON: Mr. Johnstone...?

12 MR. ROBIN JOHNSTONE: Robin Johnstone, De  
13 Beers Canada. One thing that I'd like to say is that, when  
14 we taking another look through these today, there were some  
15 areas where we thought we could improve upon them, in terms

16 of less technical information still.

17 And so, I'll read out the answers that we've  
18 got. And there will be some changes with the version that we  
19 submit to the Board, and that is strictly in the intent of  
20 de -- de-jargonizing it further.

21 Groundwater flow and contamination. The  
22 question was: What are the current patterns of groundwater  
23 flow, how will the proposed mining activity effect and be  
24 affected by these flows?

25 The current pattern of flow -- groundwater

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1 flow is downwards and outwards towards the surrounding large  
2 lakes of lower elevation.

3 The proposed mining activity during  
4 operations, will reverse that flow towards the mine. The  
5 groundwater will enter the mine and be pumped out and treated  
6 and discharged. Therefore, it will not affect mining.

7 How does De Beers Canada -- this is the next  
8 question -- ground truth the computer models that have been  
9 developed, to understand groundwater flows?

10 This is a little bit different. What we do  
11 is, we take information from the -- we -- we take actual  
12 information and we build the model around that information.

13 In this case, De Beers conducted eighty (80)  
14 tests, known as hydraulic conductivity tests, on about two  
15 hundred (200) metres of boreholes during the advanced  
16 exploration program.

17 And it was that information that was used to  
18 construct the model. So, we had real information, and we  
19 used that to build the model.

20 Question: How will groundwater seeping into  
21 the mine be managed? What is the plan for ensuring that  
22 water seepage does not exceed the capacity of water treatment  
23 facilities?

24 Groundwater will be collected at sumps, within  
25 the mine, and pumped to the surface and to the water

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1 treatment plant. The treatment facility is designed to  
2 handle 50 percent above the maximum expected flow, and  
3 capacity can be added if necessary.

4 We'll monitor the flow in the early years to  
5 determine if additional capacity should be added, and we  
6 would add it if it was necessary.

7 Question: What is the proposed process, the  
8 testing and treating mine water (deep ground water and water  
9 infiltrating from the lake) for dissolved metals, for  
10 example, chromium?

11 Answer: The process for testing will be part  
12 of routine monitoring program that includes the collection of  
13 samples and chemical analysis of dissolved metals, both on  
14 site and off site. The treatment system does not remove  
15 dissolved metals unless they are above the current predicted  
16 concentrations.

17 Question: What is the proposed process for  
18 testing and treating water from inside the rocks, known as  
19 connate water, for dissolved solids such as phosphorous?

20 Answer: The same procedure for mine water  
21 will be used for connate water, since it will be included as  
22 -- as a component of the mine water. The treatment system  
23 will not remove dissolved solids such as dissolved  
24 phosphorous, however, in the event that dissolved phosphorous  
25 concentrations are higher than predicted, any additional

1 phosphorous, the treatment plant will be able to remove the  
2 phosphorous to current predicted discharge concentration.

3 Question: How will groundwater be managed  
4 and monitored upon abandonment? How will De Beers prevent  
5 dissolved chemicals from the backfill pit, from surfacing and  
6 contaminating Snap Lake?

7 We assume that the first part of this question  
8 relates to groundwater in the mine. The abandoned mine will

9 fill with groundwater to the lake elevation, and groundwater  
10 pumping to surface will cease.

11 So in other words, we stop mining, the water  
12 fills up, that it doesn't flood out of the mine, and that's  
13 the situation that we have on site, now. There will be no  
14 monitoring of groundwater in the mine after abandonment  
15 because the mine porthole will be sealed. For safety  
16 purposes, we don't want anybody getting in there. The  
17 natural downwards flow pattern will be re-established and the  
18 groundwater from the underground mine will not flow upwards  
19 into Snap Lake.

20 Question: How will connate water, water from  
21 the pores of rocks, effect overall water quality? What is  
22 the potential impact of sulfides and dissolved phosphorous?

23 The water from the pores of the rocks, known  
24 as connate water, is a component of the overall mine water  
25 from the underground mine, following treatment in the water

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1 treatment plant, this water will be released to Snap Lake.  
2 This is the water studied in the impact assessment.

3 The assessment indicates that the water will  
4 change, that no adverse impacts will occur to the aquatic  
5 community in Snap Lake. Minimal sulfides are released as a  
6 result of this project. The impact will be negligible.

7 A portion of the dissolved phosphorous may be  
8 available for biological uptake. This was evaluated in the  
9 Environmental Assessment and an increase in lake productivity  
10 was predicted, as Stella discussed before, and was shown on  
11 that bar chart.

12 In the area of Lutsel K'e's question on waste  
13 water or effluent discharge, question: How will ice  
14 conditions affect the 'plume'? What alternative plans are  
15 there for discharging this treated water?

16 The ice cover prevents the wind from creating  
17 currents in Snap Lake as Mark discussed earlier. This  
18 creates calm conditions in Snap Lake water during the water.  
19 This limits the amount of mixing of the plume in Snap Lake  
20 under -- under ice conditions.

21 In the Environmental Assessment we calculated  
22 concentrations in Snap Lake after mixing from the diffuser.  
23 The maximum concentrations in the plume would be below  
24 concentrations that would impact aquatic life in Snap Lake.  
25 There are no other plans being considered or required for

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1 discharging treated water.

2 What are the cumulative effects of effluent  
3 discharging as treated water into Snap Lake over the life of  
4 the mining project. How will the effects of this treated  
5 water on the lake and watershed be monitored and managed?

6 Answer: The maximum concentrations predicted  
7 in the Environmental Assessment took into account the  
8 accumulation of chemicals over the long-term. Based on the  
9 long-term accumulation the maximum concentration predicted  
10 would be below concentrations that would impact aquatic life  
11 in Snap Lake.

12 Both flows and chemistry of the treated water  
13 will be monitored prior to release into Snap Lake. Once the  
14 treated mine water enters Snap Lake, water chemistry will be  
15 monitored at several locations within the lake.

16 Question: More studies are needed on the very  
17 small fish and insects known as benthic invertebrates that  
18 live at the bottom of lakes.

19 Answer: Monitoring of both fish and benthic  
20 invertebrates or insects will be included as a component of  
21 the aquatic monitoring program of the Snap Lake Diamond  
22 Project.

23 Question: How will the effects of the cloud  
24 of water or plume being released into the lake be monitored?

25 Answer, both flows and chemistry of the

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1 treated water will be monitored prior to release into Snap  
2 Lake. Once the treated mine water enters Snap Lake, water  
3 chemistry will be monitored at several locations within the  
4 lake.

5 I'm sure that will be a discussion held at the  
6 water licence.

7 Question: What does De Beers Canada know  
8 about how fish use the area around the diffuser?

9 Answer: Fish sampling was conducted in Snap  
10 Lake around the area where the diffuser will be located. The  
11 habitat near the diffuser was given a low value for spawning  
12 and rearing use. Our evaluation of the potential effects to  
13 sensitive life staged fish is based on the assumption that  
14 the fish may use this area near the diffuser.

15 Based on this assumption and our evaluation,  
16 no direct or indirect effects to fish health are predicted.

17 THE CHAIRPERSON: Thank you very much,  
18 Mr. Johnstone.

19 Mr. Catholique, any questions? Okay.

20 The Board has a couple of very quick questions  
21 that we will put through Neil Hutchinson. Mr. Hutchinson...?

22 MR. NEIL HUTCHINSON: Thank you. Neil  
23 Hutchinson, Gartner Lee on behalf of the Board. I'm hoping  
24 this is as much a clarification as a question but it depends  
25 on the response. This is for Robin Johnstone.

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1 In response to Peter Chapman's question this  
2 morning, you said, this is the dissolved oxygen question, you  
3 said your analysis of under ice conditions of dissolved  
4 oxygen was based on the Winter measurements that were made  
5 this past Winter and the analysis of dissolved oxygen  
6 consumption that was done in the Environment Assessment.

7 Is that -- did I get that right?

8 THE CHAIRPERSON: Thank you.  
9 Mr. Johnstone...? Mr. Digel...?

10 MR. MARK DIGEL: Mark Digel, Golder  
11 Associates. That's correct.

12 MR. NEIL HUTCHINSON: Okay, because, in March

13 of this year, you went back and -- and did a -- a revisiting  
14 of the -- of the phosphorus model, with a few -- a few more  
15 conservative assumptions thrown in, and that predicted higher  
16 levels of phosphorus in Snap Lake, than were predicted during  
17 the EA.

18 As a result, I'd anticipate that the dissolved  
19 oxygen consumption might be higher than the values that were  
20 used in the EA. Were these incorporated into your -- your  
21 new presentation?

22 THE CHAIRPERSON: Thank you. Mr. Digel...?

23 MR. MARK DIGEL: Mark Digel with Golder  
24 Associates. No, we didn't incorporate new values into our  
25 presentation. One (1) because the -- the changes would be

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1 relatively small, because the increase in phosphorus  
2 concentrations was only one (1) factor; the nitrification of  
3 ammonia, which hasn't changed, is the other factor.

4 The second one (1) is, it gets into the realm  
5 of introducing new information. So, we feel the magnitude of  
6 the changes that were presented in the EIA, given that  
7 they're conservative, are still realistic, and still  
8 appropriate.

9 THE CHAIRPERSON: Thank you. Dr.  
10 Hutchinson...?

11 MR. NEIL HUTCHINSON: So -- so just for a  
12 point of clarification then, the -- the conditions of  
13 dissolved oxygen that have been presented today may not be  
14 quite as -- what -- quite as conservative, as we hoped they  
15 may be a -- a little bit worse than -- than what was  
16 presented?

17 THE CHAIRPERSON: Mr. Digel...?

18 MR. MARK DIGEL: Mark Digel, Golder  
19 Associates. The -- I believe the predictions are still  
20 conservative. They may be a little less conservative than  
21 they were, based on the environmental assessment case.

22 MR. NEIL HUTCHINSON: Thank you.

23 THE CHAIRPERSON: Thank you. We'll now move  
24 to a presentation by the Yellowknives Dene First Nation, Mr.

25 Byers...?

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1 MR. TIM BYERS: Thank you, Mr. Chair. My  
2 name is Tim Byers. I'm a consultant for the Yellowknives  
3 Dene First Nations Land Environment committee, and we have  
4 concerns, basically, on five (5) different topics.

5 Localized nitrification, total dissolved  
6 solids, dissolved oxygen, and baseline -- baseline -- the  
7 adequacy of baseline work on zooplanktons and fish.

8 And, I -- I don't have any -- any nice looking  
9 visual to back up what I'm saying, but you'll just have to  
10 bear with my droning on for the next twenty (20) minutes.

11 Although I would say that there was one (1)  
12 slide, number 35 of Stella Swanson's that I'm going to refer  
13 to later on in my -- my presentation when we get the  
14 dissolved oxygen. So, if that's called up later, that would  
15 be wonderful.

16 First of all, localized eutrophication.  
17 Although predicted phosphorus loading by the mine to Snap  
18 Lake is no different from the current baseline loads from  
19 natural stream inflows, the maximum values during  
20 construction and operation are expected to be over five (5)  
21 times greater than baseline.

22 This being the case, De Beers says that there  
23 will not be any whole lake eutrophication of Snap Lake, which  
24 is fine, and I'm some -- something that I'm not willing to  
25 argue against one (1) way or the other, but I would suggest

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1 that rather than whole lake eutrophication, I'd be interested  
2 in knowing what possibilities there could be for local  
3 eutrophication in small bays, or arms of the lake.

4 As stated in our technical report, the

5 possibility of eutrophication on a site-specific scale in the  
6 lake ought to be investigated as to either discount or verify  
7 the potential for blooms of cyanobacteria.

8           Now, what cyanobacteria is blue green algae.  
9 Part of the phytoplankton -- naturally occurring part of the  
10 phytoplankton, and it's -- it's called by some people, cyano-  
11 bacteria. Other people call them blue green algae. I prefer  
12 to use the term cyanobacteria, because it's more of a  
13 bacteria than an algae. It's not a true algae.

14           The Company states, in their supplemental  
15 paper, that in lakes that become more eutrophic, the  
16 proportion of cyanobacteria in the phytoplankton community  
17 increases.

18           As well, searching through the literature,  
19 there is various literature on the subject of the  
20 cyanobacteria, and what happens when you put -- pump  
21 phosphorus into lakes.

22           Specifically, there is one (1) that's come to  
23 my attention by the University of Alberta, on boreal lakes in  
24 Northern Alberta, that show that a 100 percent increase --  
25 sorry, a 40 percent increase in phosphorus put into these

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1 lakes resulted in a 100 percent increase in the amount of  
2 cyanobacteria, which produced a 1000 percent increase in the  
3 toxins that cyanobacteria species can sometimes produce.

4           As well, in weakly stratified lakes, a decline  
5 in the amount of Zooplankton was created from these toxins  
6 produced by cyanobacteria.

7           And given a phosphorus rich environment,  
8 cyanobacteria can actually out compete true algae. Now, we  
9 note that there are naturally occurring toxin producers in  
10 Snap Lake.

11           There are two (2) species of cyanobacteria  
12 that are known as toxin producers. And this isn't mentioned  
13 as -- as something to be alarmed about because these are  
14 naturally occurring organisms in lots of lakes, Snap Lake  
15 included.

16           Now, they don't normally create a problem,

17 however, problems from these particular species of  
18 cyanobacteria can be created when there's a big dump of  
19 phosphorus into a lake.

20 So, my concern is -- or, our concern for the  
21 Yellowknives Dene is, if concentrations of phosphorus rise  
22 significantly above baseline, can we be sure that there will  
23 be no small areas of the lake which will experience  
24 cyanobacteria blooms dominated by these species?

25 We currently have no evaluation of the

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1 significance of impacts of such a scenario, either on aquatic  
2 organisms or on birds, or mammals, even that could be  
3 swimming through, or drinking the water of such an affected  
4 area.

5 To summarize then, this issue, De Beers, we  
6 feel, should be required to address the following: Number  
7 one (1), is there a possibility that nutrient loading, and  
8 that is loading of phosphorus into Snap Lake, could cause  
9 local blooms of cyanobacteria into small bays, or arms of the  
10 lake.

11 And number 2, if so, what effect would  
12 cyanobacterial blooms, of these particular species, have on  
13 aquatic life, birds, and mammals that could live in, swim  
14 through, or drink the affected area?

15 On to total dissolved solids, which we've been  
16 hearing a lot of in the last -- throughout the day, Indian  
17 and Northern Affairs made the case that TDS levels, total  
18 dissolved solids, are likely to be two (2) to three (3) times  
19 higher than the EA reports estimate.

20 This is -- this, in itself, gives cause to  
21 questioning the certainty of this estimate, but there are  
22 other things revolving around TDS concentration increases  
23 that should concern us.

24 Golder states that conditions for aquatic life  
25 in Snap Lake will return to baseline in less than a hundred

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1 (100) years.  
2 And they state that, quote,  
3 "Community structure is also expected to  
4 return to baseline conditions over time."  
5 But give no evidence to support this  
6 assertion.  
7 They discussed the resilience of Arctic lakes,  
8 that is, the rebound -- the ability of lakes to rebound back  
9 to their pre-development conditions after a disturbance.  
10 They discuss the resilience of Arctic lakes, but only in  
11 relation to nutrient loading and not recovery from TDS  
12 loading.  
13 The implication is that fish adapted to higher  
14 TDS levels will suffer no ill effects from the -- from the  
15 decrease after closure of TDS, which is expected to be  
16 reduced, that is, the total amount of TDS is supposed to  
17 be -- expected to be, rather, reduced by two thirds after the  
18 first fifteen (15) years of closure.  
19 However, Golder does not give any evidence  
20 that fish that have adapted to this higher than normal TDS  
21 level, will not suffer effects once that salt tap has been  
22 turned off after the mine is closed. So will fish be able to  
23 re-adapt to a more dilute water environment?  
24 De Beers seems to believe that lake community  
25 function will be the same, post development as pre-

1 development. But what will the communities in the Snap Lake  
2 look like?  
3 Salt intolerant species of phyto and  
4 zooplankton communities would be expected to be replaced by  
5 species more tolerant to high TDS. If these newly dominant  
6 species now fill this same niches, the same parts of the  
7 community, the same parts of the water colony, eat the same  
8 things, as those they've replaced, the eco-system may be  
9 expected to function in the same or a similar way, as

10 baseline communities.

11 But once the post closure TDS condition  
12 returns to very dilute conditions, again, the way it is now,  
13 we can question whether the salt tolerant species will be  
14 able to adapt to these renewed ion poor conditions.

15 If these species die off, there will be an --  
16 will there be any remnant of the original dominant  
17 zooplankton species to fill the void? If not, then this will  
18 impoverish the plankton community, which of course will  
19 affect the fish higher up the food chain that rely on that  
20 plankton community.

21 So these are some of the questions that we  
22 have in relation to TDS. And it's not, again, not TDS  
23 increase so much, that -- that may be the problem, but the  
24 decrease afterwards.

25 The precautionary principle, we maintain,

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1 should dictate that this matter be thoroughly investigated.  
2 Yellowknives Dene want to be assured that lakes and streams  
3 in a development area will be just as healthy and productive  
4 after the mine is gone, as they are today.

5 The second point under dissolved solids that  
6 we would like to -- to put out there, for your consideration,  
7 is that if predictions prove inaccurate, with respect to a  
8 decrease in TDS after mine closure, and if fish are having to  
9 continue to live in high TDS waters, Yellowknives Dene would  
10 like to know if the taste of these fish will change?

11 De Beers has told us, during the technical  
12 sessions on Day 4, in November, that they had no information  
13 on this, at all. And we have not heard anything subsequent  
14 to that.

15 So if there's no information available on this  
16 possibility, then we would recommend that this is an area of  
17 traditional knowledge input that should be considered for  
18 monitoring. We consider this an unresolved issue that could  
19 impact future Dene use of Snap Lake and North East Lake, if  
20 the fish living in a saltier environment, become unpalatable.

21 Now we come to dissolved oxygen, Slide 35.

22 As stated in our technical report, the total  
23 area of Snap Lake that may become anoxic, or have water that  
24 has oxygen that dips below a CCME guideline level of six  
25 point five (6.5) milligrams per litre, if this happens, due

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1 to nutrient enrichment, then we have some concerns.

2 The company has presented a detailed winter  
3 base lining deal dissolved oxygen data in Snap Lake, which we  
4 appreciate, and I've looked over, but there's no quantitative  
5 evaluation, and where in the -- of where in the lake we would  
6 expect this decrease to occur.

7 Golder, however, has earlier today, told us  
8 that they expect in the bottom part of the lakes -- of the  
9 lake, sorry, that there would be a drop in oxygen level of  
10 two point two (2.2) milligrams at the worst case.

11 So, taking this worst case, looking at the  
12 data, decreasing the fifteen (15) -- the -- sorry, decreasing  
13 the oxygen values of the fifty (50) sites that De Beers has  
14 looked at by two point two (2.2) milligrams per litre, that  
15 would result in five (5) additional sites in the lake  
16 experiencing lower oxygen levels below a guideline safe for  
17 organisms.

18 Now, this being the case, this would  
19 contradict something that we heard earlier from Stella  
20 Swanson. She had mentioned that, as far as the benthic  
21 community is concerned, there will be only a 2 percent -- a 2  
22 percent increase in the area of Snap Lake experiencing a  
23 dissolved oxygen problem.

24 But, looking at this data now, with this two  
25 point two (2.2) milligram decrease over the same fifty (50)

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1 sites, we have five (5) additional sites, of fifty (50)

2 showing a problem, which means that would be a 10 percent  
3 increase in total lake area, not a 2 percent increase.

4 And, if I direct your attention to the slide  
5 that Stella Swanson has prepared, under "Dissolved Oxygen  
6 Decrease in Winter", which is the third column, and if we  
7 bring that down to the two (2) dots, the two (2) black dots,  
8 one (1) beside benthos community structure, and one (1)  
9 beside benthos productivity, I would suggest that this means  
10 that it is not a quote, "small negative effect", but because  
11 I would maintain there's 10 percent of the bottom is being  
12 affected by low oxygen.

13 That would be at least a moderate negative  
14 impact, and possibly, a strongly negative impact, which would  
15 then cause you to have to reevaluate the overall effect on  
16 the benthos.

17 It may not be neutral, as the last column  
18 shows for benthos. It may, in fact, be a significant adverse  
19 impact.

20 Moving on to acidification from airborne acid  
21 deposition, and how this affects Snap Lake. There's  
22 something that's not clear to me, and that is the EA report  
23 states on page 9-252 that:

24 "Potential acid inputs --"

25 So, the acid coming -- raining down, you might

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1 say, out of the sky, after being pumped into the air by  
2 mining activity:

3 "-- these potential acid inputs are  
4 predicted to be 84/1000 of a kilo  
5 equivalent."

6 And don't ask me what kilo equivalent is, I  
7 don't think I know, but regardless of the unit, just keep in  
8 mind the 84, for now.

9 So now, the threshold for Snap Lake being able  
10 to absorb acids raining down is, according to De Beers,  
11 125/1000 of this unit.

12 So, the text would have us believe that, yes,  
13 there will be no problem because there's only going to be

14 84/1000 being produced, but then when I look at De Beers' map  
15 in that same report, the figure 9.4-19, which shows us a nice  
16 view of the lake with contours around them, which represent  
17 the amount of acids that will -- De Beers expects to rain  
18 down on the land, De Beers -- sorry, Snap Lake is within  
19 110/1000 and 150/1000 of this same unit.

20 So, there is a discrepancy between the text,  
21 what De Beers has told us in their report, and what their map  
22 shows us. So, that's something that we need to see clarified  
23 because it points to the ability of the lake to be able to  
24 absorb whatever acids are being produce and rain down into  
25 the lake.

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1 And the last two (2) things point to  
2 inadequacies in the baseline. Under Zooplankton and Benthos,  
3 we would like to reiterate the concern of ours, expressed in  
4 our technical report, that the baseline studies for  
5 Zooplankton and Benthic communities in the affected lakes,  
6 especially Northeast Lake is inadequate.

7 Their technical report qualitatively assess  
8 the potential impacts of contaminated groundwater inflow on  
9 plankton of Northeast Lake, but there's no quantitative, no  
10 numbers attached, and that's because there was no baseline  
11 data gathered for zooplankton and benthos in Northeast Lake.

12 And keep in mind, Northeast Lake, again, is  
13 the receiving body for -- for groundwater flowing from the  
14 contaminated underground mine site after closure.

15 So, zooplankton and benthic invertebrates are  
16 subject to a high degree of temporal variability, naturally.  
17 That is, variability in their numbers between season of the  
18 year, and between years.

19 So, a number of years of pre-development data  
20 is usually required to define what this natural variation is.

21 So, if De Beers' predictions of groundwater  
22 quality entering the Northeast Lakes proves to be inaccurate,  
23 not accurate, as they maintain, then the effects on the  
24 abundance and diversity of secondary producers; that is, the  
25 plankton and the bugs on the bottom of the lake, this will be

1 difficult to assess without a baseline database against which  
2 to measure.

3           If we can't track changes in the trophic  
4 level, then determining the cause of any resulting effects of  
5 these changes on the fish higher up the food chain will be  
6 very much confounded.

7           If there's a change in the diet of fish in the  
8 Northeast Lake, or a change in the fish body condition, then  
9 without this baseline data we don't know if these changes  
10 fish are caused by changes in the composition of their food.

11           And finally, fish and fish habitat, the  
12 adequacy of baseline data in Lake IL5, we believe is  
13 questionable.

14           This is one of the inland lakes on -- on  
15 the -- on the peninsula, or just south of the airport. This  
16 lake was the only inland lake in which fish were caught.

17           Although lake chub were caught in minnow  
18 traps, there was nothing at all in the gill netting.  
19 However, the gill netting effort may not have been adequate,  
20 as less than six (6) hours in total were devoted to gill  
21 netting -- gill net fishing.

22           Had the same effort in gill netting been made  
23 as was the minnow trapping, which caught the chub, which was  
24 double the time of the gill netting, they would have been a  
25 stronger evaluation of the total species use of IL5, as IL5

1 is two (2) to three (3) times the area in maximum depth of  
2 all other inland lakes.

3           We feel that the greater size and depth of  
4 this lake, relative to the other inland lakes, should have  
5 been -- should have warranted a larger fishing effort.

6           And that concludes are presentation. Thank

7 you very much.

8 THE CHAIRPERSON: Thank you very much, Mr.  
9 Byers. Are there any questions of the Yellowknives?

10 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
11 Johnstone. We're in a bit of a quandary, Mr. Chairman.  
12 There are a number of issues there, that we could have easily  
13 answered as questions.

14 I guess we -- we are now in the position of,  
15 either asking the Board the opportunity to -- to clarify, or  
16 our questions being to the Yellowknife Dene, of whether they  
17 would ask -- like us to clarify some of the preceding points?

18 I -- we're in a difficult position.

19 THE CHAIRPERSON: Mr. Byers, are you in a  
20 position to answer questions by the Proponent? Or --

21 MR. TIM BYERS: Yes, Mr. Chair, I'm in a  
22 position to answer questions. If part of Robin's question,  
23 or quandary, was whether we wanted him to address, say for  
24 example, the -- the acid question of this disagreement  
25 between what they say in the text and the map, then, yes, we

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1 would be very happy if they could do that, in -- in this  
2 session.

3 MR. ROBIN JOHNSTONE: Can I provide an  
4 example, Mr. Chairman? This might get us going.

5 Mr. Byers, of Yellowknives Dene, would you  
6 like us to clarify the question, whether we can discount or  
7 verify the two (2) issues around cyanobacteria, either the  
8 possibility to cause local blooms in small areas of Snap  
9 Lake, or cause/effects on aquatic mammals?

10 MR. TIM BYERS: Tim Byers with the  
11 Yellowknives Dene. Yes, that would be appreciated. As long  
12 as there is time for me to offer rebuttal to the answer, if I  
13 feel that maybe there's more information that's needed here,  
14 in the answer.

15 THE CHAIRPERSON: Okay. No, we're not going  
16 to go there because we -- there's just not going to be enough  
17 time in the day to do all of this. I think, in all  
18 probability, if the Proponent has some points it wishes to

19 clarify or make in response to this presentation or any  
20 other, it does have the opportunity in its closing remarks to  
21 do that. And I would encourage you to perhaps take that  
22 opportunity.

23

24 (BRIEF PAUSE)

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1 THE CHAIRPERSON: Yes, that's the way it's  
2 going to be. INAC...?

3

4 (BRIEF PAUSE)

5

6 THE CHAIRPERSON: No, your presentation. I'm  
7 sorry.

8 MR. SEVN BOHNET: Thank you, Mr. Chairman.  
9 Sevn Bohnet. We do have --

10 THE CHAIRPERSON: Hold on a minute.

11 MR. SEVN BOHNET: Okay.

12 THE CHAIRPERSON: Ms. Crapeau...?

13 MS. RACHEL CRAPEAU: Rachel Crapeau with the  
14 Yellowknives Dene. Something happened here, too quickly. Do  
15 I understand -- did I hear that we're not going to get any  
16 answers today? And that we have to wait until the last day  
17 for our answers?

18 THE CHAIRPERSON: Well, you had the  
19 opportunity to ask questions all day today, when De Beers  
20 made their presentation. The point that has been made right  
21 now is, did the Proponent have questions for you? No, they  
22 don't have questions for you. What they'd like to do is, a  
23 chance to rebut some of the decisions that you've taken in  
24 your paper.

25 What I say is that, no, now is not the time to

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1 do it. They will have a chance to rebut those in their  
2 closing presentations. Thank you. Mr. Bohnet...?  
3 MR. ROBIN JOHNSTONE: Sorry, Mr. Chairman.  
4 THE CHAIRPERSON: Mr. Johnstone...?  
5 MR. ROBIN JOHNSTONE: De Beers' point was, we  
6 wanted to provide the answers to the Yellowknife Dene, for  
7 the outstanding concerns that they had, and some of the  
8 questions that they raised. And that we're, if --  
9 THE CHAIRPERSON: I realize that, but I mean,  
10 they -- they did have the opportunity to ask questions of you  
11 after you made your presentation today, as did everybody  
12 else. So, if I get into a situation of allowing you to  
13 clarify some of their questions, then I've got to do it for  
14 everybody, and we're never going to get out of here.  
15 So, Mr. Bohnet...?  
16 MR. SEVN BOHNET: Okay. Thank you, Mr.  
17 Chairman. We have a two (2) part presentation. We'll start  
18 off with the surface water hydrology, which we'll get up here  
19 in a second, and then, the surface water quality effects, but  
20 just to answer your query from earlier about what a cubic  
21 metre of water would equal in gallons, we've figured it out.  
22 Yeah, one (1) cubic metre of water would equal  
23 about two hundred and sixty-four (264) gallons, and  
24 therefore, about thirty-five thousand (35,000) cubic metres  
25 would equal around 9.2 million gallons, and then I'll turn it

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1 over to --  
2 THE CHAIRPERSON: Is that American or  
3 Canadian --  
4 MR. SEVN BOHNET: So, then I'll turn it over  
5 to Eugene Yaremko to give his presentation.  
6 THE CHAIRPERSON: Mr. Bohnet, is this -- this  
7 a one (1) and a half pager?  
8 MR. SEVN BOHNET: Yeah.  
9 THE CHAIRPERSON: Okay, so --  
10 MR. SEVN BOHNET: The first one (1) is double  
11 -- single -- yeah, double-sided page.

12

13 (BRIEF PAUSE)

14

15 MR. SEVN BOHNET: Mr. Chairman, we've  
16 circulated copies, and I have extras if there's somebody that  
17 needs one (1).

18

19 (BRIEF PAUSE)

20

21 MR. EUGENE YAREMKO: Mr. -- Mr. Chairman and  
22 Board members, my name is Gene Yaremko, and I'm here  
23 representing Indian and Northern Affairs Canada. My  
24 responsibility has been to review the Proponents -- project  
25 impact assessments on surface water hydrology, quantity, and

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1 physical behaviour.

2 One (1) overwhelming feature about this  
3 project is that 90 to 95 percent of the water to be dealt  
4 with on surface will be mine water pumped -- pumped to  
5 surface, and we've heard the numbers before, but it is  
6 anticipated that up to twenty-five thousand (25,000), to  
7 thirty thousand (30,000) cubic metres per day will be  
8 received at the water treatment plant from the underground  
9 mine.

10 Now, most of our surface water quantity issues  
11 have been -- they've been largely satisfied and resolved.  
12 The one (1) remaining issue has to do with mixing of water  
13 treatment plan effluent in Snap Lake, and except for a  
14 relatively small amount of treated water that will be  
15 diverted to the processing plant, the majority of surface  
16 water derived from the project footprint will be directed to  
17 Snap Lake via a diffuser system.

18 Now, my concern really comes down to the  
19 ability of the lake currents to de-stratify density layers,  
20 or density -- a density layer that form outside the influence  
21 of the diffuser, and De Beers have provided us this morning  
22 with some information that addresses this concern, but in the  
23 following material and discussion, I -- I wish -- I will

24 attempt to demonstrate why complete -- I don't feel it -- it  
25 makes a complete mixing will -- in a lake will occur.

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1                   Now, this -- this is just an outline of -- of  
2 Snap Lake, and some of the -- this is only the eastern  
3 portion of Snap Lake. Now inflow comes in from Snap Lake up  
4 at the corner here, the northeast corner -- I'm sorry,  
5 northwest corner, and additional flows come into the lake,  
6 around the lake, and some -- some relatively small basins.

7                   And outflow from the lake is over to the  
8 right, along the -- at the right end of the arm here. And  
9 the volume -- the volume of the lake is such that it, in  
10 terms of inflow, is such that it -- the volume is replaced on  
11 average, once every ten (10) to twelve (12) years.

12                   There are some contour lines on here, and they  
13 represent water depths. And generally, the average lake  
14 depth is about six (6) metres, but depths of ten (10) to  
15 twelve (12) metres are quite common.

16                   It should be noted that there are some very  
17 deep holes in the lake. And there's one right here, just  
18 south of the proposed diffuser system, and there are other  
19 holes around the lake also, that are much deeper than  
20 average.

21                   Now, the diffuser structure is to consist of a  
22 sixty (60) metre long diffuser line that will be fitted with  
23 seven (7) metre -- I'm sorry, seven (7) outflow ports, set  
24 vertically.

25                   And the diffuser will be centered about eight

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1 hundred (800) metres from the -- that's down here -- eight  
2 hundred (800) metres south of the north shoreline, and about  
3 a hundred and twenty five (125), hundred and fifty (150)

4 metres from the west shoreline.

5                   Now, this -- this illustration just provides a  
6 conceptualization of how -- what I believe is happening just  
7 beyond the -- well within the diffuser system, mixing area.  
8 The lower boundary is -- is the lake bed. And the upper  
9 boundary is the bottom of ice in the winter time.

10                   Now, the mixing zone illustrated here,  
11 represents the result of what is termed the near fill mixing  
12 that arises from momentum effects, and of the diffluent --  
13 effluent, I'm sorry, effluent, as well as density differences  
14 between the effluent and ambient lake water.

15                   The effluent leaves the diffuser port at about  
16 four (4) metres a second, in the form of a jet. It rises --  
17 rises to -- to the sur -- the bottom of the ice, and -- and  
18 it travels up it, it encounters with some buoyancy effects,  
19 and so in the end it tends to -- it'll tend to develop a  
20 circulation system here, an eddy -- eddy system, around the  
21 -- with some return flow back and it'll eventually mix in  
22 here.

23                   But, the important thing here is that as this  
24 eddy comes down through here, it collects, or joins with  
25 water from the lake, and because this effluent is heavier

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1 it'll sink to the bottom, and -- and could develop, and in  
2 this case probably will develop, a stratified layer of  
3 heavier -- heavier water along the bottom.

4                   Now, the mixing -- the mixing beyond -- beyond  
5 here is called the far-field mixing, and it -- so this really  
6 is the near-field mixing zone again.

7                   Now the Proponent utilized the well know core  
8 mix computer model to estimate behaviour of the near-field  
9 mixing. And we have no issue with the model, and with its  
10 inputs, and note that the Proponents have knowledge --  
11 acknowledge that the least effective mixing period would be  
12 during the winter -- winter period, when there's an ice  
13 cover.

14                   And it is also noted that has -- it has been  
15 predicted that the maximum limit of the near-mixing field

16 would be -- would extend to -- to about eighty five (85)  
17 metres from the diffuser, and that the bulk dilution factor  
18 would be in the order of 34:1, at the maximum effluent  
19 discharge.

20                   Okay. The important outcome from the near-  
21 field mixing modelling is the likelihood of stratification of  
22 the effluent, beyond the eight five (85) metre limit, or in  
23 the near -- the far-field mixing zone during the winter time.

24                   Beyond -- beyond the near-field mixing zone,  
25 it would be left to lake currents to pick up the stratified

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1 layer and produce complete mixing -- complete vertical  
2 mixing.

3                   The Proponent has utilized the model termed  
4 the RMA-10 to estimate the lake current pattern and strength.  
5 And this is a hydro-dynamic model, with various inputs,  
6 including wind -- wind speed.

7                   These results were combined with the model  
8 RMA-11, to estimate mixing throughout the lake -- mixing  
9 potential throughout the lake.

10                   Now, this -- this model is less -- the RMA-10  
11 model, or actually, both models were run two dimensionally.  
12 Two (2) dimensionally meaning that the depth average  
13 velocity's were generated. And the mixing analysis,  
14 therefore, assumes complete vertical mixing.

15                   Now, just -- now, I just -- since wind is so  
16 important I thought maybe we should look at the -- the  
17 wind -- the wind potential in -- in the area. Now, there --  
18 about four (4) years of wind data were collected at Snap  
19 Lake. And this -- this data -- these data were used in their  
20 modelling effort.

21                   But if we use some regional data, we can get a  
22 better representation of -- of direction and -- and strength  
23 of wind, by using -- by looking at some windroses. Now  
24 these -- these windroses, actually what they portray --  
25 there's one (1) up here on the coastline, and they represent

1 average velocity in a different -- in these different  
2 directions. And the length of the line represents the -- the  
3 frequency that -- at which that direction of the wind  
4 occurred, during -- during that period.

5 Now, this is for August, only. And it's  
6 important, you know, it's in the summer -- summer period.  
7 But if you look at the rest of the -- I should say, the ones  
8 down near Yellowknife are -- represent a windrose down here,  
9 also, on -- on these two (2), here.

10 But if you -- if you look at all the rest of  
11 the months, generally you can say that the -- the prevailing  
12 wind, here, is from the northwest. And so the strongest  
13 winds, and the most frequent winds, generally, during the  
14 summertime, are -- are from the northwest.

15 THE CHAIRPERSON: Mr. Yaremko, your handout  
16 says from the northeast.

17 MR. EUGENE YAREMKO: That's a mistake, it  
18 should be the northwest, sorry.

19 THE CHAIRPERSON: Okay.

20 MR. EUGENE YAREMKO: Yes.

21 THE CHAIRPERSON: Thank you.

22 MR. EUGENE YAREMKO: Now, the point I make  
23 from these is that, the fetch length -- the fetch length,  
24 that is, the -- the length at which a wind has to act on the  
25 lake surface, the fetch length from the northwest is very

1 short in -- you know, north of the diffuser.

2 In other words, given that short length of --  
3 of fetch, it's very unlikely you'll get strong currents from  
4 that direction, or -- or large waves. And so in combination  
5 with the short fetch and -- short fetch length, I -- I think  
6 I would conclude that -- that the -- there's a -- there's at  
7 least a very low potential of -- of bringing -- or de-  
8 stratifying the denser layer at the bottom, in this area.

9                   So generally, north of the diffuser and south  
10 of the diffuser, in the summertime, it -- it may be that the  
11 currents aren't strong enough to -- to bring up the -- the  
12 dense current, and mix it.

13                   So just -- just -- and now, these conclusions,  
14 I've -- the conclusions I had -- conclusions I have here,  
15 they're -- they're not the -- generally the same. Those are  
16 embedded in a greater number of conclusions, here. So I hope  
17 that it's okay that it'll be recorded verbally.

18                   Okay. Near-field mix. My first conclusion is  
19 that the near-field mixing modelling shows that re-  
20 stratification of the effluent is likely to occur, certainly  
21 during an ice covered lake period.

22                   The issue is whether a stratified layer will  
23 persist in the far-field zone over some portion of the mine,  
24 and to what degree there would be an increase in the TDS  
25 concentrations of water being taken into the groundwater?

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1                   Wind direction and speed and durations during  
2 the summer months suggests that the area to the north of the  
3 diffuser, and somewhat to the south, are likely to see  
4 breakup of the stratified layer and complete mixing. This  
5 area coincides with the mine area beneath the -- beneath Snap  
6 Lake.

7                   And regardless of the -- of the open water  
8 condition, given that the travel time of lake water to the  
9 mine may be in the order of weeks, as I've heard in the last  
10 couple of days, the stratified layer forming during the  
11 winter will be in a position to feed into the groundwater for  
12 much of the winter, also, I would think. So it's not just an  
13 open water -- an open water issue.

14                   Now, given the -- I'm sorry, given the  
15 likelihood of -- of re-stratification of the effluent plume  
16 in the far-field, it would have been more appropriate to -- I  
17 think, in my view, to use a three (3) dimensional  
18 hydrodynamic model to confirm where the layer would become  
19 mixed vertically. And use of two (2) dimensional model was,  
20 in my opinion, not appropriate in this case.

21 Now, because of the difficulty of modelling  
22 far-field mixing, in what is a complex situation, the  
23 Proponent has chosen to adopt his 10 percent rule, and -- and  
24 basically, we understand why the Proponent would want to do  
25 that, and take that approach, but with -- we feel it would

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1 have been better if had -- could have -- or we could have  
2 been provided with a technical -- or with a report showing  
3 some background and some argument and some technical validity  
4 to -- to the -- the approach taken.

5 And, my final concluding point is that I  
6 believe there will be many large pockets in our lake in which  
7 a stratification layer will form, and progressively deepen,  
8 and which will be beyond the capacity of the currents to  
9 remove them. Thank you.

10 THE CHAIRPERSON: Thank you, sir.

11 MR. SEVN BOHNET: Mr. Chairman, Sevn Bohnet  
12 with DIAND. We will just take a second here to switch  
13 presentations, and Peter Chapman will take over.

14 THE CHAIRPERSON: Thank you.

15  
16 (BRIEF PAUSE)

17  
18 MR. PETER CHAPMAN: Mr. Chairman, Board  
19 members, good afternoon. My name is Peter Chapman. My  
20 presentation combines the expertise and opinions of, I  
21 suppose myself, and Don MacDonald.

22 Normally, Don MacDonald would be here  
23 representing INAC. Unfortunately, he's very ill, and so I've  
24 been brought in to add my expertise, and provide this  
25 presentation.

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1           The focus of my presentation will be on two  
2 (2) issues. The first is important outstanding issues, and  
3 the second is the likelihood of significant adverse  
4 environmental effects.

5           If you look at the slide on baseline data that  
6 I'm putting up, the rest of my presentation will basically  
7 follow this format. I'll start out with what De Beers says  
8 from their documents. I'll then move to major concerns, then  
9 I will discuss the implications of those concerns.

10          All slides will not be like this, because  
11 there'll be some additional explanatory slides.

12          The first issue is baseline data, and the  
13 concern with that, I believe, has been addressed to my  
14 satisfaction, based on the exchange I had earlier with  
15 Stella, and the concern I had was being able to detect an  
16 effect if one (1) exists, or as Stella put it, be able to  
17 detect a signal against the noise, and given the undertaking  
18 that De Beers has given us, I believe this issue has now been  
19 addressed.

20          The second outstanding issue is metals, and  
21 our concern here is related to the use of the Canadian  
22 Council of Ministers of the Environment Calculation  
23 Procedures. It was not clear to us if the CCME procedures  
24 were used.

25               It's still not totally clear to me, and a

1 couple of points on this. We are in Canada. This is a  
2 Canadian mine in Canada. The Canadian Council of Ministers  
3 of the Environment Calculation Procedures should be used.

4           Now, when we did some calculations, which I'll  
5 show shortly, and I'm not claiming that these are the  
6 absolute final calculations that could be done; they're  
7 simply example calculations, we found some concentrations of  
8 metals were lower than some of those calculated by De Beers.

9           Our concern is that adverse affects could  
10 occur to sensitive species. I do not believe there's  
11 disagreement on the outcome because De Beers in their  
12 presentation, also said there's a possibility of adverse

13 effects to sensitive species, but this agreement simply is on  
14 the numbers.

15               Now, let me emphasize in this next slide,  
16 again, what I'm presenting on the right hand side are our  
17 calculations, and we've simply done these using De Beers  
18 numbers, and very simply, as examples.

19               On the left hand side, De Beers  
20 concentrations, on the right hand side, the CCME -- we've  
21 calculated, underlined and in yellow, where they're lower.

22               Cadmium was the one (1) that's really quite a  
23 bit lower, and I have talked, sir, with the De Beers folks,  
24 and they don't agree with it being quite that low. We do  
25 both agree that cadmium is an issue, and that there could be

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1 adverse effects on sensitive species.

2               So, there is agreement there, but again, the  
3 fact remains, certainly CCME procedures should be used here  
4 in all future such developments.

5               The really big issue is total dissolved  
6 solids, and you've heard that all the way through. What I've  
7 put here appears simply from De Beers.

8               TDS, which is an amalgam of a large number of  
9 different things. If you like, the analogy that was given  
10 was of coffee and adding sugar.

11               I'm a aquatic person, so my analogy would be  
12 simply an aquarium. Imagine an aquarium in your house that  
13 has fish, lots of nice little fish, it's got worms, it's got  
14 clams, it's got things on the bottom, some snails. And it's  
15 all fresh water, and everything's happy.

16               And you come along one day and you add a  
17 teaspoon of salt, and you do that for several days. As -- as  
18 the concentration increases, it will harder and harder for  
19 those organisms that like to live in fresh water to live. If  
20 you take it far enough, you'll kill everything.

21               And we're not saying that's going to occur,  
22 but let me go through what we believe will occur. If you  
23 look at the numbers, TDS, projected to increase from fifteen  
24 (15) to three thirty (330), possibly up to four hundred and

25 forty four (444).

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1 Calcium, from 1.34 to 88, to 133. A pretty  
2 big jump. Chloride, from less than .2, to 137 to 177. And  
3 we know that chloride is more toxic in combination with  
4 calcium. That's in De Beers' own documents.

5 Now, the issue here is the concentrations will  
6 likely be two (2) to three (3) fold higher. Our experts  
7 believe that it's quite likely that they could be two (2) to  
8 three (3) fold higher, and that makes things a bit different.

9 What I've done in this next slide is very  
10 simply take De Beers' values, straight down here, total  
11 dissolved solids, calcium and chloride, multiplied by two  
12 (2), multiplied by three (3), I hope my arithmetic is right,  
13 and over here I've put the lowest toxicity thresholds.

14 These values of three seventy two (372), from  
15 the US EPA document in 1998, and the 1116 for Daphnia from a  
16 study in the 1970's, are both from De Beers' document.

17 The five hundred (500) value refers to studies  
18 done in Alaska at the Red Dog mine. I could put up a value  
19 of two fifty (250), based on a study dated February 28th,  
20 release by the Alaska -- University of Alaska Juno, looking  
21 in laboratory at King Salmon, but I didn't believe it  
22 applied.

23 So, I think five hundred (500) is reasonable.  
24 And that matches about the six hundred (600) that Environment  
25 Canada talked about.

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1 If you look across here, I simply underlined  
2 and put in yellow where concentrations are above the lowest  
3 toxicity thresholds.

4 As you can see, as De Beers has stated for

5 their concentrations, the numbers are generally below.  
6 There's values a little bit above this, but not much, so it  
7 really, I don't believe it will have that much of an effect,  
8 and there are a few issues with the study.

9 But when you got two (2) fold higher, and  
10 three (3) fold higher, you are getting into areas where  
11 effects are going to occur.

12 Our major concerns are the projections are  
13 close to the effects levels. If their wrong, and the  
14 concentrations are higher, as indicated by experts, adverse  
15 effects will occur. There is no doubt about that.

16 Potential major effects can include: loss of  
17 species, changes in the food chains, and energetic effects;  
18 by that, I mean, reductions in growth, and reproduction to  
19 other species. And I'll explain more about this shortly.

20 Let me now move to phosphorus and dissolved  
21 oxygen. De Beers has talked about viable phosphorus not  
22 significantly effecting the oligo-mesotrophic lake. They've  
23 said there will be no significant eutrophication, but they  
24 have noted the 40 percent increase in algal concentrations.

25 And we've heard a lot about the old

1 concentrations naturally occurring in some parts of the lake,  
2 and we've heard -- and in the document it's been stated that  
3 avoidance and adaptation have occurred.

4 In other -- in other words, the animals use  
5 behavior to stay away from that, and they've gotten used to  
6 the situation.

7 They've also stated that winter DO reductions,  
8 1 to 2.2 milligram per litre, may be low enough to inhibit  
9 habitat in less than 10 percent of the lake.

10 And there will be some loss of species --  
11 decreased species richness of the animals living on the  
12 bottom of the lake.

13 Additional nutrient modeling since the EA,  
14 suggests the changes could be greater than predicted, and  
15 that's been eluded to by De Beers in their presentation, and  
16 brought out in questioning from the Boards experts.

17                   So, we could be looking at a little worse  
18 situation. Our major concern is increased eutrophication  
19 beyond that predicted by the EA and that the 10 percent of  
20 the lake affected by low DO in winter may well be  
21 significant.

22                   The implications, greater DO depressions than  
23 predicted, associated greater loss of habitat and species  
24 changes and changes will occur in the aquatic community  
25 structure of Snap Lake. And that has been brought up by

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1 other Intervenor.

2                   Let me move now to the general issue of  
3 aquatic community changes. De Beers have stated that  
4 functional redundancy exists. What this means is that if  
5 you've got a fish that preferentially eats one (1) species  
6 and that species vanishes or becomes very infrequent, the  
7 fish can change to something else.

8                   They've said there would be no energetic or  
9 other costs from this change from one (1) species of food to  
10 another and energy is everything to organisms. Our major  
11 concern is that functional redundancy is much less in the  
12 north because of simpler food chains than in more temperate  
13 climates.

14                   And that so-called energetic bottlenecks are  
15 possible. And I'm using an example from Ontario Lakes with  
16 metals.

17                   Be clear on this. I'm not saying that this  
18 will occur due to metals from De Beers going to the lake  
19 because, although we believe the metals will cause adverse  
20 effects to sensitive species, we do not believe the metals  
21 are going to be at such a concentration, from the data we've  
22 seen, to cause, by themselves, major adverse effects  
23 throughout the lake.

24                   But the issue of energetic bottlenecks is  
25 exemplified by this case of Yellow Perch in Ontario in a series

1 of publications from various universities.

2 Well, what happened because of the metals  
3 there is the animals that these Yellow Perch liked to eat,  
4 which are a decent size and they don't cost a lot of energy  
5 to catch and eat them, basically ceased to exist.

6 The Perch could move to other food but because  
7 of that they had to take more energy. They didn't get as  
8 good a nutrition and they're stunted throughout a series of  
9 Lake Ontario lakes. That's an example of what could happen.  
10 And our concern, again, is mainly related to total dissolved  
11 solids.

12 Now, what types of changes can occur in  
13 aquatic communities, the animals and plants living in water.  
14 You can have direct toxicity, you can actually have death or  
15 impairment. You can have toxicity that affects food, again,  
16 death or impairment. And you can have toxicity affecting  
17 interactions among species.

18 Impairment. Let me give you a couple of  
19 examples. Imagine you have a contaminant. Let's say it's  
20 TDS and this contaminant has negative direct effects,  
21 toxicity, on an exposed species, let's call it exposed  
22 species V.

23 Let's say that species is killed or its  
24 numbers are well reduced. Now, this species just happens to  
25 be the food for another species that isn't exposed or is

1 tolerant. Now, what happens to that species if the -- its  
2 main food organism is gone? You have negative indirect  
3 effects, lack of prey.

4 And Stella talked about direct and indirect  
5 effects so this builds on what she talked about. Let's take  
6 another example. You have a contaminant and, again, you have  
7 negative direct effects on a sensitive species, let's call  
8 this species X.

9 But in this case, this species is, in fact,

10 competing, fighting for life, fighting for space, with  
11 another species or maybe its eating another species which  
12 we'll call species Y and that species Y is tolerant or not  
13 exposed.

14                   What happens? Well, species Y is happy. It  
15 has positive indirect effects because the thing it's  
16 competing with or eating is gone and it blossoms. Now, that  
17 may sound good but there is a change to the food web.

18                   So, it is a positive effect but the ultimate  
19 effect for the food web may or may not be positive.

20                   Let me move now in my final slides and I'll  
21 talk about interactive effects of contaminants.

22                   De Beers have addressed cumulative effects, I  
23 don't believe they're really addressed interactive effects.  
24 By interactive effects, I mean you've got a number of  
25 stressors, increased TDS, increased productivity, low

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1 dissolved oxygen and increased metals in Snap Lake.

2                   Now, these are not necessarily additive. In  
3 other words, if you have more TDS and more metals that  
4 doesn't mean that they'll necessary add on in all cases  
5 because, for instance, TDS salt can ameliorate the effect of  
6 metals.

7                   But if you have decreased DO and metals, those  
8 will add on, if you have decreased dissolved oxygen and  
9 increased TDS, they will add on. So it's a complex  
10 interaction.

11                   And, overall, we believe these interactions  
12 will cause somewhat greater than predicted effects on the  
13 organisms living in the lake over a longer period of time.

14                   And potential major effects for the whole of  
15 Snap Lake, and remember, the major driver for this is TDS,  
16 will be loss of species, changes in food chains and energetic  
17 effects, reductions in the growth and reproduction of other  
18 species that remain.

19                   Last two (2) slides talking about the scope of  
20 effects in Snap Lake. De Beers have said the major effects  
21 are limited to less than 1 percent of Snap Lake. They've

22 said that subtle effects could occur in a lake-wide basis.  
23 Our major concern, related in large part to  
24 TDS, is substantially increased stressors compared to the EA  
25 predictions. The implications are substantial adverse

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1 effects the whole lake, for an extended period of time,  
2 decades, I believe De Beers mentioned a hundred (100) years,  
3 beyond mine closure.

4 Now, we're not saying this will be a dead  
5 lake. I'll, if you like, I'll use Stella's words, the worst  
6 thing that could happen would not be a dead lake. You would  
7 still have a lake with a functioning community, but it would  
8 be a different community. It would likely look very  
9 different and not have as many organisms or the same  
10 organisms as you start out with.

11 The effects are likely reversible, we believe,  
12 so we do agree with De Beers on this, but almost certainly  
13 not the same community as exists currently. And our reason  
14 for saying this is based on a lot of experience in terms of  
15 contaminated sites in other cases where things are changed  
16 due to stressors.

17 The old saying that you can't go home again is  
18 exactly right. Things move in and take niches. By that I  
19 mean, livelihoods of other organisms, and there are some  
20 changes. How different it would be, we can't say. It might  
21 be quite similar, it might be less similar.

22 But basically, again, to reiterate, it's not a  
23 dead lake, it's -- based mainly on TDS, will be a different  
24 lake. It will reverse, but not to exactly the same  
25 community.

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1 Thank you very much for listening to me.

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(BRIEF PAUSE)

THE CHAIRPERSON: Thank you, Mr. Chapman.  
Does that conclude your presentation, Mr. Bohnet?

MR. SEVN BOHNET: Yes, Mr. Chairman, that  
does conclude our presentation for this section. And maybe I  
can just bring it to your attention, Dr. Peter Chapman has to  
catch a flight at 5:30, so we have a limited amount of time,  
here to answer questions, but we'll do our best here.

THE CHAIRPERSON: Questions by the Proponent?  
And perhaps if you've questions for Dr. Chapman, you could  
ask them first and if you've got further questions for Mr.  
Yaremko, bring them second.

MR. JOHN MCCONNELL: John McConnell with De  
Beers. While our technical people are coming up with their  
list of questions for Dr. Chapman, I do have a practical  
question for Mr. Yaremko, if you'll indulge me to ask that  
first?

THE CHAIRPERSON: Yes, sir. Go ahead.

MR. JOHN MCCONNELL: Could we have the  
slide -- I think it was the second slide in the presentation?  
The one (1) that shows the lake.

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(BRIEF PAUSE)

MR. JOHN MCCONNELL: Sure. Slide 3. I'm  
just curious, I mean, you made some comments about wind  
directions and the effects on mixing. Obviously, we haven't  
built this mine yet and I'm just wondering if you have some  
suggestions on better locations for the diffuser than what is  
-- what we've indicated in our EA?

THE CHAIRPERSON: Thank you. Mr. Yaremko...?

(BRIEF PAUSE)

MR. EUGENE YAREMKO: Actually, I thought

14 about that a bit. And I didn't think there was a much better  
15 place to put it, other than further out into the lake,  
16 further east out into the lake. But certainly not towards  
17 that deeper hole, I wouldn't think.

18 MR. JOHN MCCONNELL: Okay, thank you.

19 MR. ROBIN JOHNSTONE: We have another  
20 question when you're ready, Mr. Chair?

21 THE CHAIRPERSON: Yes, go ahead, Mr.  
22 Johnstone...?

23 MR. ROBIN JOHNSTONE: Okay, Mark Digel,  
24 please?

25 MR. MARK DIGEL: Mark Digel with Golder

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1 Associates. I have a question for Dr. Chapman, and if you  
2 could pull up his presentation and -- and bring up slide 4,  
3 please?

4  
5 (BRIEF PAUSE)

6  
7 MR. MARK DIGEL: I'm curious about the  
8 chronic toxicity threshold that you quote there of -- or  
9 that's on that table of point zero three nine (.039)  
10 micrograms per litre.

11 I'm wondering why, I mean, you're saying that  
12 you followed the CCME protocol, and I'm wondering why it was  
13 based on acute toxicity data, when good chronic toxicity data  
14 are available for the same species?

15 THE CHAIRPERSON: Thank you. Mr. Chapman...?

16 MR. PETER CHAPMAN: Peter Chapman for INAC.  
17 As I mention in my presentation, we weren't trying to do an  
18 exhaustive search to make sure that we were getting  
19 absolutely right numbers.

20 We simply wanted to illustrate the point --  
21 two (2) points. One (1) that the CCME numbers were  
22 important, and also cadmium is an issue. We both agree on  
23 that.

24 Now, we provided you, when -- or, sorry. Let  
25 me backtrack. We met the deadline in terms of providing our

1 presentation that included this slide. At that time, De  
2 Beers had a number of questions about this and other slides,  
3 and they asked our rationale, for instance, where did we get  
4 the HT5 concentration.

5 We pointed out where in their document we  
6 found them, and hopefully that is now adequate. The answer  
7 as to how we developed the chronic thresholds, and we  
8 provided them that documentation.

9 I would have expected that if there would have  
10 been questions about the details of those, we would have  
11 gotten together to resolve them earlier.

12 I'm happy to sit here and discuss small  
13 differences in numbers, but in the bigger picture, I think  
14 the issue is simply using the CCME numbers, and you know,  
15 that cadmium is an issue, we both agree, is a concern, can  
16 result in some effects to -- in -- effects to sensitive  
17 species.

18 THE CHAIRPERSON: Thank you, sir. Mr.  
19 Johnstone...?

20 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
21 Johnstone. Thank you for your comments, Peter. The issue  
22 that we were getting to is -- is really the -- we understand  
23 you provided -- you -- us with some numbers.

24 This is also a public Hearing, and we'd  
25 certainly like some further clarification, and -- and some of

1 those numbers did not make any sense, and I'll -- I'll ask  
2 Mr. Digel to continue. And I -- I think the other issue is  
3 that your -- if I'm correct, your representing these numbers  
4 for illustrative purposes, and I -- I don't feel that that  
5 really gets us a lot further down the track in terms of the  
6 environmental assessment.

7                   We're certainly very cognizant, and take our  
8 assessment very seriously around issues like chromium, but  
9 I'll let Mr. Digel ask the questions.

10                  THE CHAIRPERSON:    Mr. Digel...?

11                  MR. MARK DIGEL:    Mark Digel with Golder.

12 I -- I'm not raising this question just to niggle over little  
13 numbers, because I -- I think there's a substantial  
14 difference, and my -- my concern is, is that, I mean, the  
15 CCME procedures say that if you have chronic data for a  
16 species, you should use that chronic data in preference to  
17 the acute data.

18                  And what was used for cadmium was an acute  
19 value, and it comes up with a much lower, a factor of ten  
20 (10) lower concentration, than you would get if you used the  
21 chronic data, and the chronic data was a bit -- some of the  
22 chronic data was available in the documentation that we  
23 provided.

24                  As well, the chronic data, upon which the CCME  
25 guideline itself was based, is at least an order -- a factor

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1 of ten (10) higher than this level.

2                  If you take the lowest observable effects  
3 level, which is based on the same chronic data that I'm  
4 talking about, from the CCME guideline, and correct it for  
5 the one hundred and eighty (180) milligrams per litre of  
6 hardness that you have here, you wouldn't get a value of  
7 point zero three nine (.039).

8                  You'd actually get a value of point five five  
9 (.55), which would be comparable, and in fact, even a little  
10 bit higher than our HC5 concentration and that's why I'm  
11 pointing it out and that's why I'm asking you as to why, for  
12 this particular calculation, you would have used an acute  
13 value rather than the chronic data.

14                  THE CHAIRPERSON:    Thank you.   Mr. Chapman...?

15                  MR. PETER CHAPMAN:   From the document we sent  
16 you, what we did was we looked at your data. We did use the  
17 acute data but we corrected with an acute to chronic ratio  
18 and we looked at your acute to chronic ratios in your data.

19 So we were using your data.

20 Now, I'd have to go back and take a look  
21 through your data to see where the chronic data were. If we  
22 missed it and it was there, I apologize, but it wasn't  
23 immediately obvious to us, possibly the same way as it wasn't  
24 immediately obvious to you how we got the HC5 concentration  
25 until you pointed it out.

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1 The fact remains, cadmium is an issue of  
2 concern to both of us and the CCME methods need to be used.

3 THE CHAIRPERSON: Mr. Digel...?

4 MR. MARK DIGEL: Okay. Just one final point,  
5 not to belabour it. You mentioned you did use the acute data  
6 that was in our report and the acute to chronic ratio that we  
7 -- we had and I'm not disputing any of that.

8 My comment is -- is that there is chronic data  
9 that's clearly laid out in the CCME guidelines for cadmium.  
10 There's chronic data in the documentation that we provided,  
11 as well as the CCME procedure clearly states that when you  
12 have chronic data you should use it in preference to acute  
13 data with acute to chronic ratio.

14 Now, you chose to use an acute to chronic  
15 ratio and the acute data which doesn't agree with the CCME  
16 procedure and if you had followed the CCME procedure you  
17 would have come up with a concentration of point five five  
18 (.55) micrograms per litre. So that's my point and that's  
19 why I'm asking you as to why you would use the acute data.

20 THE CHAIRPERSON: Thank you. Mr. Chapman...?

21 MR. PETER CHAPMAN: Peter Chapman for INAC.  
22 I don't disagree with appropriate chronic data being used  
23 preferentially to using acute data and correcting for it.  
24 What I'm saying is that we used the data that we could find  
25 there. Again, if we missed the chronic, we missed it.

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1 But it doesn't, as far as I can see, change  
2 anything in terms of cadmium still being an issue of concern  
3 and the CCME guidelines needing to be followed which is  
4 something that Don McDonald had been pressing for quite some  
5 time and had never gotten a proper answer to.

6 THE CHAIRPERSON: Thank you. Just so you  
7 know though, those that want to plan your evening. It's very  
8 obvious that we're not going to finish by five o'clock so it  
9 is the intention of the Board to adjourn at five o'clock for  
10 supper and reconvene the Hearings at 6:30 tonight.

11 So we intend to finish tonight the agenda that  
12 we set out today on surface water and fish. So we will come  
13 back at 6:30.

14 Sorry, Mr. Digel, go ahead.

15 MR. MARK DIGEL: One final question then for  
16 clarification is: The reason why I'm -- I'm bringing this up  
17 is the maximum predicted concentrations in Snap Lake that are  
18 in the EA report for cadmium, it's in table 9.4-19, are point  
19 zero six (.06) and point zero seven (.07) micrograms per  
20 litre.

21 Now these concentrations are clearly below the  
22 HC5 concentration that we've predicted. They're clearly  
23 below the lowest chronic level that -- upon which the CCME  
24 guideline was based and upon which this number should have  
25 been based.

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1 So the -- the point is is that the maximum  
2 concentrations of cadmium that you're going to see in the  
3 Lake are below the lowest chronic effects levels.

4 THE CHAIRPERSON: Thank you. Mr. Chapman...?

5 MR. PETER CHAPMAN: Peter Chapman for INAC.  
6 In that case, I'm totally confused because Stella's slide 29  
7 labelled "Metals, what is expected to change, cadmium" said  
8 maximum concentrations would occur in less than 1 percent of  
9 the Lake, would be reached rarely, but it did say it would --  
10 may affect only the most sensitive species. So it says  
11 exactly what I'm saying.

12 MR. MARK DIGEL: Mark Digel, Golder  
13 Associates. Hopefully one last point. That is true under a  
14 very conservative assumption because the -- the discharge can  
15 be above the point tree six (.36) concentration, or the CCME  
16 threshold concentration.

17 So, it's possible that somewhere in that  
18 initial mix zone, you could get concentrations that are above  
19 a -- a chronic threshold.

20 So, the point is, it's in a -- it's very  
21 unlikely to occur; if it does occur, it's in an extremely  
22 small part of the Lake.

23 So, we include cadmium as a -- as a metal of  
24 concern only based on those very conservative assumptions.

25 THE CHAIRPERSON: Thank you. Mr. Chapman...?

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1 MR. PETER CHAPMAN: Peter Chapman, INAC. But,  
2 remember too, I talk about interactive effects, you know,  
3 cadmium, if you have a -- cadmium that could have an effect,  
4 you have low dissolved oxygen. That would be more than  
5 simply just the cadmium itself. So, you have to look at that  
6 as well.

7 THE CHAIRPERSON: Do you think we could go on  
8 to the next subject, please. Thank you.

9 MS. STELLA SWANSON: Stella Swanson, Golder  
10 Associates for De Beers. This question is for Peter.

11 What would your assessment of the impacts to  
12 the aquatic plants and animals in Snap Lake be given the  
13 predicted concentrations in the Environmental Assessment  
14 Report?

15 THE CHAIRPERSON: Mr. Chapman...?

16 MR. PETER CHAPMAN: Peter Chapman, with INAC.  
17 If you're asking me what do I think would happen if the TDS  
18 didn't increase two (2) to three (3) fold and stayed, I think  
19 we're basically in agreement.

20 I don't see that there would be major changes.  
21 I think that would be tolerable to the organisms. I have  
22 some quibbles about not looking at interactive effects, but  
23 TDS would be the main driver. So, I don't substantially

24 disagree with you.

25 THE CHAIRPERSON: Thank you.

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1 MS. STELLA SWANSON: Mr. Chairman, I have one  
2 (1) other main question. Again, it is for Peter. This is  
3 Stella Swanson, Golder Associates.

4 On slide number 5, if we could go to slide 5,  
5 please. At the bottom, in yellow, it is stated --  
6 concentrations likely to be two (2) to three (3) times  
7 higher, and this is the concentrations of total dissolved  
8 solids.

9 My question is: Around that word, likely,  
10 would you explain why concentrations are likely to be higher,  
11 which implies that they are probably, and not just that it's  
12 possible that they would be higher.

13 MR. PETER CHAPMAN: Peter Chapman, INAC.  
14 Because of Ken Raven, because Ken Raven's description of the  
15 likelihood of this occurring basically indicates that it is  
16 likely to me.

17 But I, you know, like you, my main expertise  
18 is aquatics. So, I'm basing this on Ken Raven's  
19 interpretation, and his analysis of the information.

20  
21 (BRIEF PAUSE)

22  
23 THE CHAIRPERSON: Is that --

24 MR. MARK DIGEL: Mark Digel with Golder  
25 Associates. I believe we're done with questions for Dr.

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1 Chapman, are we? No? Momentarily, okay.

2 If I could ask one question of Gene Yaremko, I  
3 would appreciate that.

4 MR. SEVN BOHNET: Mr. Chairman, it's Sevn  
5 Bohnet, with DIAND. I was just wondering if maybe you want  
6 to check and see if anybody else has a couple of quick  
7 questions for Peter before he has to go, before we get  
8 into Eugene's questions, maybe?

9 THE CHAIRPERSON: I really have to give the  
10 Proponent the thumbs up, or thumbs down on this. Would --  
11 okay. In the interim, I'm going to take the minute and use  
12 it.

13 In the interim, are there any others in the  
14 audience, or from Intervenors who have a question for Mr.  
15 Chapman?

16 Mr. O'Reilly. That's why I was looking at  
17 you, sir.

18 MR. KEVIN O'REILLY: Thank you very much.  
19 Kevin O'Reilly, Canadian Arctic Resource Committee.

20 If indeed the TDS does turn out to be two (2)  
21 to three (3) times higher, is there any way in which De Beers  
22 can treat for this? What -- what is the option for them if  
23 treatment was necessary before discharge into the lake?

24 THE CHAIRPERSON: Thank you. Mr. Chapman...?

25 MR. PETER CHAPMAN: Peter Chapman, INAC. I

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1 don't know, that's not my area of expertise. I'm sorry I  
2 can't answer that question.

3 THE CHAIRPERSON: Thank you. Mr.  
4 Johnstone...?

5 MR. ROBIN JOHNSTONE: De Beers Canada. We  
6 certainly hope Mr. Chapman -- or Dr. Chapman makes his plane.  
7 We don't have any further questions. We do have a question  
8 for Eugene Yaremko, though, please?

9 THE CHAIRPERSON: Go ahead, sir.

10  
11 (BRIEF PAUSE)  
12

13 THE CHAIRPERSON: Thank you. DFO have a  
14 question for -- for you, Mr. Chapman.

15 MS. JULIE DAHL: Yes, sorry. Julie Dahl,

16 Fisheries and Oceans. I do have a quick clarification I'd  
17 like to seek from Dr. Chapman.

18 I noticed that, earlier, De Beers had answered  
19 a question saying they used a draft report when then  
20 established their site specific benchmarks. And I just  
21 wonder whether Dr. Chapman is aware of this draft document  
22 and if he recognizes that as a CCME sanctioned approach to  
23 developing the site specific benchmarks?

24 THE CHAIRPERSON: Thank you. Dr. Chapman...?

25 MR. PETER CHAPMAN: When it comes to

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1 something like CCME, I don't use draft reports. I use reports  
2 that are finalized, simply because drafts can change and you  
3 want to make sure you use what is accepted at the time.

4 THE CHAIRPERSON: Follow up? No? Okay. Any  
5 other questions for Dr. Chapman? Okay. Ms. Crapeau...?

6 MS. RACHEL CRAPEAU: The concentration is  
7 likely to be two (2), three (3) times higher, also the worry  
8 about chromium and stuff and the food of the fish changing.  
9 Do you see fish surviving in that lake, later on?

10 THE CHAIRPERSON: Dr. Chapman...?

11 MR. PETER CHAPMAN: Peter Chapman, INAC.  
12 Even under our absolute worst case scenario, we'd still see  
13 fish in the lake. We're not sure how many fish there would  
14 be, we're not sure how healthy they'd be, and we're not sure  
15 which species of fish would be there. You would still have  
16 fish, but we can't say how different it would be than the at  
17 present situation, except under TDS levels of two (2) to  
18 three (3) times higher, it would be quite a bit different.

19 THE CHAIRPERSON: Ms. Crapeau...?

20 MS. RACHEL CRAPEAU: Follow-up question,  
21 then. Are the fish likely to come back if things happen to  
22 them, if they've been impaired or if there was anomalies or  
23 something?

24 THE CHAIRPERSON: Dr. Chapman...?

25 MR. PETER CHAPMAN: Peter Chapman, INAC.

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1 Yes, TDS is not something that's going to persist and be a  
2 poison over generations. It will persist and you will have  
3 problems for a very long period of time. I mentioned  
4 decades, De Beers mentioned a hundred (100) years to  
5 recovery, so we're looking at a long time period before  
6 things come back.

7 I would expect most of the fish species, if  
8 not all, to come back. But exactly in what format the final  
9 food chain would end up, what they'd be eating and so on,  
10 would be another question.

11 As I mentioned, you will get recovery, but  
12 perhaps not -- but not to exactly the same. And how  
13 different it would be, I can't say at this point in time.

14 THE CHAIRPERSON: Ms. Crapeau...?

15 MS. RACHEL CRAPEAU: I just want to share  
16 something with you. In our area, Dettah, where we live, we  
17 used to get a lot of fish that we call Dedori (phonetic).  
18 And lately, the last twenty (20), thirty (30) years, we saw  
19 the numbers go down.

20 We -- the Elders figure that it was because of  
21 the effects of the mining activities around here. Still, to  
22 this day, we don't see the numbers of fish coming back. If  
23 they load that fish, it's probably on the southern part of  
24 the lake.

25 So could you see things like -- like that,

1 happening? Like maybe, right around the mine, the fish will  
2 disappear but how about the -- the outside or -- or the south  
3 part of the lake, or the west part of the lake, will -- will  
4 it change the whole area drastically? Just yes or no will be  
5 fine.

6 MR. PETER CHAPMAN: Well, I'll -- Peter  
7 Chapman, INAC. I'll answer a little bit more than that.  
8 Certainly, avoidance is a behavioural reaction that has been

9 noted by De Beers, that the fish can exhibit as well. And we  
10 would do it as well. Hey, if we had a situation we didn't  
11 like, we try to move away from it, and fish will tend to do  
12 that as well, they're pretty good in that respect, so you  
13 could very well have changes occurring.

14 An example would be what De Beers has already  
15 mentioned, the lower dissolved oxygen and avoidance, so they  
16 would certainly avoid some of those areas. If it became very  
17 salty in some areas compared to others, there'd be avoidance,  
18 so there would be changes.

19 And, other things that occur; TDS we know for  
20 instance, one (1) of the things that's fairly sensitive is  
21 the fertilization of the egg process in fish, so you could  
22 have, depending on where the TDS concentrations are, you  
23 could have some effects related to that, and the ability of  
24 the fish to produce eggs that are viable that will, you know,  
25 grow properly, so this could certainly occur.

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1 THE CHAIRPERSON: Thank you. Dr. Chapman,  
2 before you run off, I just have -- have one (1) question, and  
3 that is that -- that your comments, your predictions are all  
4 based on the premise that concentrations are lightly be --  
5 are likely to be two (2) to three (3) times higher.

6 However, your not responsible for that  
7 prediction that concentrations will be two (2) to three (3)  
8 times higher. You're basing that on somebody else's work,  
9 correct?

10 MR. PETER CHAPMAN: That is correct.

11 THE CHAIRPERSON: And, if it wasn't found to  
12 be two (2) to three (3) times higher, then your predictions  
13 would obviously then change?

14 MR. PETER CHAPMAN: That is correct.

15 THE CHAIRPERSON: Thank you, sir. Mr.  
16 Digel...?

17 MR. MARK DIGEL: Mark Digel with Golder  
18 Associates. We have one (1) more question, and I guarantee  
19 it has nothing to do with cadmium.

20 THE CHAIRPERSON: Okay, sir.

21 MR. MARK DIGEL: I'm wondering if -- does  
22 INAC acknowledge that the CCME guidelines for the development  
23 of site specific benchmarks were not finalized at the time  
24 the EA was developed, and in fact, those draft guidelines  
25 were provided by INAC for us to use in the environmental

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1 assessment?

2 THE CHAIRPERSON: Dr. Chapman...?

3 MR. PETER CHAPMAN: I wasn't -- Peter  
4 Chapman, INAC. I wasn't involved at the time that this  
5 occurred, but Don MacDonald was, as I mentioned earlier, but  
6 my understanding is that this did occur.

7 THE CHAIRPERSON: Thank you, sir. They just  
8 don't want to let you out. Ms. Blais...?

9 MS. ELAINE BLAIS: Very quickly, Elaine Blais  
10 with DFO. I just -- I just want to clarify with Dr. Chapman  
11 that, from slides 6 on, is that base on the two (2) to three  
12 (3) times higher, or is that based on the present predictions  
13 presented by De Beers?

14 THE CHAIRPERSON: Which slide were you  
15 referring to?

16 MS. ELAINE BLAIS: The presentation -- it --  
17 it would be, I guess, seven (7), slide 7, on.

18 THE CHAIRPERSON: The one (1) labelled TDS?

19 MS. ELAINE BLAIS: Yeah, the whole pres --  
20 after slide 6, are all those remaining twelve (12) slides  
21 based on the -- the current predictions?

22 MR. PETER CHAPMAN: Peter Chapman, INAC. Not  
23 totally. Slide 7 is TDS, but then slide 8, we talk about  
24 phosphorus and dissolved oxygen. The same thing with the  
25 next two (2) slides, and then we talk about interactive

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1 effects.

2 So, while I said that our predictions would be  
3 -- my predictions would be similar to those of De Beers if  
4 TDS didn't increase, they wouldn't be the same, because I  
5 would still be worried about interactive effects, and a few  
6 other things, and we've already brought up in the hearing  
7 that DO might be, to quote De Beers, a little less  
8 conservative based on increased phosphorous, and so on.

9 THE CHAIRPERSON: Thank you, sir. Okay, I  
10 think you can go, Mr. Chapman.

11 MR. PETER CHAPMAN: I would just like to --  
12 Peter Chapman, INAC -- apologize. I have to be down in  
13 Louisiana tomorrow for a big presentation, and I apologize to  
14 everyone. I'm sorry.

15 THE CHAIRPERSON: Thank you, sir. With --  
16 that's a nice segue into supper, so --

17 MR. ROBIN JOHNSTONE: Mr. -- Mr. Chairman, we  
18 had one (1) question for Dr. -- for Eugene.

19 THE CHAIRPERSON: Well, I -- I there are  
20 probably other questions for him, oh, he needs to go too?  
21 INAC's really batting a thousand (1,000) here, aren't you?

22 MR. ROBIN JOHNSTONE: It's our final one (1).

23 THE CHAIRPERSON: Mr. Johnstone...?

24 MR. MARK DIGEL: Mark Digel with Golder  
25 Associates. My -- my question relates to your in --

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1 interpretation of the -- the fetch of -- in Snap Lake. As I  
2 understand it, your interpretation is -- is that the --  
3 that's -- the discharge is located close to the north and  
4 west shore of the main body, therefore the wind -- the wind -  
5 - the fetch or the distance between the shoreline and the  
6 discharge is relatively small and therefore the wind is  
7 unlikely to affect currents in that area; is that correct?

8 MR. EUGENE YAREMKO: No. The wind is likely  
9 to not -- or to likely -- not likely to develop waves that  
10 are very high. Relatively low waves in that -- in the  
11 prevailing wind direction at the point of the -- at the point  
12 of the diffuser.

13 MR. MARK DIGEL: Mark Digel with Golder.  
14 Just as a follow up question. I -- I thought I heard, and  
15 maybe I didn't hear correctly, but I thought you had also  
16 said waves and as well as the currents because it's the  
17 currents rather than the -- the actual waves on the surface  
18 that would break up the stratification and I just -- just for  
19 clarification were you referring to the surface waves or the  
20 actual currents?

21 MR. EUGENE YAREMKO: Well, I think they're  
22 both the same thing. I think the waves and the currents are  
23 -- I think the currents are generated by -- by and large by  
24 the -- by the wind regime; right? There are other factors  
25 but I don't think they're quite as important as wind.

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1 THE CHAIRPERSON: Mr. Digel...?

2 MR. MARK DIGEL: Mark Digel with Golder. I  
3 guess my understanding, and in talking to some of our -- of  
4 our hydraulic engineers, is that the -- what really drives  
5 currents in a lake isn't the fetch from the edge of the lake  
6 to a particular point in the lake, but it's actually the  
7 fetch across the whole lake surface.

8 Because, in essence, what you can get is if  
9 you've got the wind blowing in one direction you actually  
10 push the water in that direction so you actually pile up the  
11 water on the other side of the lake slightly. Then when the  
12 wind changes direction, that water will slosh back. Now this  
13 is a simplification because it's affected by the symmetry.

14 So even though you may be on the north --  
15 close to the northeast shore and the wind is coming from the  
16 northwest, so from close to the shore, you're still affecting  
17 currents in the whole lake because as you move water out of  
18 that area from the wind piling up and then the water back in,  
19 you're affecting currents in the whole lake.

20 And I'm just wondering if that was factored  
21 into your analysis?

22 THE CHAIRPERSON: Mr. Yaremko, just for  
23 Wendy, the last three (3) questions have been answered by Mr.  
24 Yaremko representing INAC.

1 Gene Yaremko representing INAC. The process you talk about  
2 is sytching (phonetic) and generally to get any -- any -- any  
3 significant amount of sytching I think you have -- you have  
4 to have a fairly long -- long lake.

5 And, in this case, I would think that -- that  
6 factor would be fairly small in generating a current here.  
7 I'm not saying there's not a current and there will be a  
8 current because the winds are all from different directions,  
9 I just think, my gut feeling is that the current in that area  
10 may be smaller than -- or relatively small. That's all I'm  
11 trying to say.

12 MR. MARK DIGEL: Mark Digel with Golder. I  
13 think we have a slight difference of opinion so I have no  
14 further questions.

15 THE CHAIRPERSON: We will now have supper.  
16 Well, actually, no because I understand, Mr. Yaremko, you  
17 will not be back after supper. Mr. Jackson, Mr. Bohnet, are  
18 you prepared to answer questions?

19 MR. SEVN BOHNET: Mr. Chairman, Sevn Bohnet  
20 with DIAND. Mr. Yaremko is available probably for the next  
21 little while before he goes. And I don't -- I recognize  
22 everybody is getting tired and doesn't want to sit around  
23 late but there -- there is an opportunity, I think from our  
24 side of it anyways. He's not as rushed as Mr. Chapman was.

25 THE CHAIRPERSON: Are there any questions for

1 Mr. Yaremko from the floor? Okay. It's supper time. We  
2 will meet back at 6:30. Thank you.

3  
4 --- Upon recessing at 5:05 p.m.

5 --- Upon resuming at 6:37 p.m.

6

7 THE CHAIRPERSON: Okay, we'll continue. The  
8 next presentation on my agenda is from the North Slave Metis  
9 Alliance, Ms. Johnson?

10 MS. KRIS JOHNSON: That's correct. I just  
11 have one (1) question. I had some Elders here this afternoon  
12 that wanted to make a comment, but they were a little bit  
13 tired and didn't want to come back this evening. Is it all  
14 right if they comment tomorrow?

15 THE CHAIRPERSON: Well, we have set aside  
16 three (3) hours tomorrow night for Elders to make  
17 presentations to the Board. So if they wish to come tomorrow  
18 night, we'll have a whole three (3) hours for the Elders.

19

20 (BRIEF PAUSE)

21

22 MS. KRIS JOHNSON: Good evening, my name is  
23 Kris Johnson. I will be presenting for the North Slave Metis  
24 Alliance on the outstanding issues with surface water quality  
25 and aquatic resources.

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1 We'll be examining the final issues as they  
2 pertain to the questions the Board will seek to answer, that  
3 being, is the development likely to have a significant  
4 adverse impact on surface water and aquatic resources? Can  
5 the impacts be mitigated? And does the development pose  
6 significant public concern in regards to surface water and  
7 aquatic resources?

8 The issues we'll be looking at are surface  
9 water quality and aquatic resources. Will increases in  
10 nutrient and sediment in Snap Lake and adjacent lakes, likely  
11 have a significant adverse impact on surface water and  
12 aquatic resources?

13 The addition of phosphorous and nitrate can  
14 have dramatic effects on primary and secondary productivity  
15 at Snap Lake. Increasing the nutrient levels in Snap Lake  
16 will result in increased vital plankton.

17                   Additionally, shifts in nutrient balance of  
18 the lake can lead to proliferation of toxic cyanobacteria.  
19                   A shift in the nutrient balance may ultimately  
20 have impacts on the aquatic resources of Snap Lake as being,  
21 zooplankton, benthos -- benthic invertebrates, and fish.  
22                   Trophic status changes in the lake may be  
23 significant over time. Development of the project will  
24 compress the time frame in which the trophic level of the  
25 lake changes compared to the natural cycle. Lake level

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1   fluctuations will effect fish and fish habitat.  
2                   De Beers has not provided adequate information  
3 and documentation to determine the significant potential for  
4 adverse impacts. Nor is there sufficient information to  
5 determine the magnitude and extent of adverse impacts.  
6                   Potential impacts to aquatic life from mine  
7 water and discharge in the Snap Lake has not been fully  
8 addressed.  
9                   Clarification of nitrogen -- nitro --  
10 nutrient input effects are needed for proper assessment of  
11 impacts to the Snap Lake aquatic ecosystem.  
12                   Impacts of nutrient release have not been  
13 assessed to include food web linkages. Chronic toxicity  
14 testing, focusing on potential stimulatory effects of waste  
15 water discharge, rather than inhibitory effects, need to be  
16 conducted.  
17                   End of pipe predictions are based on a 100  
18 percent waste water treatment efficiency, and do not leave  
19 room for human or mechanical error.  
20                   A more conservative model for phosphorus  
21 release must be used before conclusions can be reached  
22 regarding impacts of nutrient discharge on productivity.  
23                   The Board cannot delegate the assessment of  
24 monitoring and mitigation measures to the Mackenzie Valley  
25 Land and Water Board without seriously jeopardizing the

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1 objectives in the Environmental Assessment.

2 Can the impacts be mitigated? De Beers has  
3 not provided enough information to assess if mitigation of  
4 adverse impacts is possible.

5 Monitoring programs have yet to be developed.  
6 Monitoring is essential in order to determine whether impact  
7 predictions are accurate and can be mitigated.

8 In the absence of sufficient baseline  
9 information, there's a need to know how monitoring programs  
10 will be developed to show scientific validity and vigor,  
11 locally or regionally, and how traditional knowledge and  
12 local communities will be involved in monitoring designs.

13 And again, I have another quote from the  
14 Mackenzie Valley's -- the guide that they adopted:

15 "It is only when a development's effects  
16 are known and understood that it is  
17 possible to determine and implement  
18 effective mitigation measures, and to make  
19 an informed decision about supporting the  
20 development."

21 Is there significant public concern? The  
22 following organizations documented unresolved surface water  
23 quality and aquatic resource issues with the Snap Lake  
24 Diamond Project: The North Slave Metis Alliance,  
25 Yellowknives Dene First Nation, Dogrib Treaty 11 Council,

1 Lutsel K'e Dene First Nation, Environment Canada, Indian and  
2 Northern Affairs Canada, Department of Fisheries and Oceans.

3 What can be done in a further review to remove  
4 the uncertainty surrounding the Snap Lake Diamond Project?

5 Baseline data and modeling. Nutrient inputs  
6 must be clarified before a proper assessment of impacts to  
7 the Snap Lake aquatic ecosystem can be complete.

8 Impacts of nutrient release have to be  
9 re-assessed to include food web linkages before approval can

10 be assessed.

11                   There must be a closer examination of  
12 potential impacts of flocculent release and development of  
13 slow release measures.

14                   A more conservative model for phosphorus  
15 release must be used before the Board can assess the impacts  
16 of nutrient discharge on the productivity of Snap Lake.

17                   Chronic toxicity testing must be conducted,  
18 focusing on potential stimulatory effects of waste water  
19 discharge, rather than inhibitory effects, before a proper  
20 assessment can be conducted.

21                   The prediction that trophic levels of the lake  
22 will change with the project has to be re-evaluated in  
23 ecological terms regardless of the lack of water quality  
24 guidelines.

25                   A more thorough examination of lake level

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1 fluctuations and potential effects on fish and fish habitat  
2 is necessary to provide a greater level of confidence in the  
3 impact predictions.

4                   Validating the regional groundwater flow  
5 regime with proper consideration for the faults and fracture  
6 zones would allow a proper assessment of post-closure impacts  
7 on adjacent lakes.

8                   Monitoring programs. Monitoring programs must  
9 be developed. Monitoring is an essential -- is essential in  
10 order to determine whether impact predictions are accurate,  
11 and as a safeguard to aquatic ecosystems of the project area.

12                   Monitoring programs must include specific  
13 objectives, proposed approach, methodology, and traditional  
14 knowledge. The monitoring program must address fish  
15 resources, population change, fish health, fish habitat and  
16 non-fish organisms.

17                   Consultation with affected Aboriginal  
18 communities must be done to ensure these programs address  
19 their concerns and incorporate traditional knowledge equally  
20 with western science.

21                   The NSMA and other affected Aboriginal

22 communities must be active participants in the monitoring  
23 program. The results of the monitoring program must be  
24 incorporated into an adapted management plan.

25 The Board cannot recommend the Snap Lake

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1 Diamond Project for approval because De Beers has not  
2 provided the Board with adequate information to assess if  
3 there is likely to be a significant adverse impact on surface  
4 water and aquatic resources.

5 The baseline information that exists does not  
6 adequately assess the impacts on surface water quality and  
7 aquatic resources of Snap Lake and adjacent lakes.

8 Given the absence of adequate baseline data,  
9 monitoring programs cannot be developed to accurately and  
10 adaptively mitigate impacts from the Snap Lake Diamond  
11 Project.

12 Monitoring programs must be developed and  
13 implemented before any development occurs, to ensure accurate  
14 baseline information exists.

15 There remains considerable public concern.

16 Again, another quote from the interim guide:

17 "If it is uncertain, however, whether the  
18 project is likely to cause a significant  
19 adverse environmental effect, or that the  
20 project will cause significant adverse  
21 environment effects that may be justified  
22 in the circumstances, the project must be  
23 referred to a mediator or a review panel."

24 Is the development likely to have a  
25 significant adverse impact on surface water and aquatic

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1 resources? Yes.

2 Can the impacts be mitigated? No, unknown  
3 impacts cannot be mitigated.

4 Does the development pose significant public  
5 concern in regards to surface water and aquatic resources?  
6 Yes.

7 Finally, where there is no sufficient  
8 information to determine the impacts of a project on the  
9 environment, the precautionary principle must be applied.  
10 Thank you.

11 THE CHAIRPERSON: Thank you, Ms. Johnson.  
12 And I guess, with the -- the codicil that you put on  
13 yesterday about your ability to answer questions, does  
14 anybody have any questions? Mr. Wilbur...?

15 Okay, our Proponent, Mr. Johnstone...?

16 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
17 Johnstone. In reaching the -- your conclusions, has the  
18 North Slave Metis considered the information placed on the  
19 Public Registry since the technical sessions and including  
20 the phosphorous loading technical memos, algal modelling  
21 updates and anthropic change technical memorandums and other  
22 information, including the memo on monitoring?

23 THE CHAIRPERSON: Thank you. Ms. Johnson...?

24 MS. KRIS JOHNSON: I can't speak for the  
25 experts that did the research in this area. As far as I

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1 know, given the large volumes of information that were put  
2 out during that time, I believe they did not look at that  
3 information. They, I think, before -- anything before  
4 February wasn't included.

5 I believe the reports that have been issued  
6 are available on the public registry.

7 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

8 MR. STEVE WILBUR: Thank you. Steve Wilbur,  
9 Dogrib. I just would clarify -- you mentioned that, experts.  
10 And I wanted to know who the experts where, or what their  
11 background was when they did their -- their work, so we know,  
12 basically, where the information's coming from?

13 THE CHAIRPERSON: Thank you. Ms. Johnson...?

14 MS. KRIS JOHNSON: It was Stantech  
15 Consulting, and I have their CV's, if you'd like to look at  
16 them.  
17 MR. STEVE WILBUR: Stantech, is fine.  
18 THE CHAIRPERSON: Thank you very much. Any  
19 other questions? No.  
20 Thank you very much, Ms. Johnson.  
21 MS. KRIS JOHNSON: Thank you.  
22  
23 (BRIEF PAUSE)  
24  
25 THE CHAIRPERSON: The next presentation is

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1 Department of Fisheries and Oceans, DFO. And you have a  
2 PowerPoint, right?  
3 MS. JULIE DAHL: Yes.  
4  
5 (BRIEF PAUSE)  
6  
7 MS. JULIE DAHL: Good evening. My name is  
8 Julie Dahl, with the Department of Fisheries and Oceans.  
9 Department of Fisheries and Oceans has  
10 prepared this presentation. The first part of it, I guess,  
11 constitutes a little bit of an -- little bit of an  
12 opening -- opening statement that we decided to give now  
13 instead.  
14 Department of Fisheries and Oceans has  
15 participated in the technical review of the proposed project  
16 since -- since March of 2002, we've made presentations at the  
17 technical hearings, and have submitted technical reports and  
18 technical addendums, as per requirements of the Review Board.  
19 DFO's approach to its technical review, I  
20 think, is much like everyone's approach. I just thought it  
21 might be helpful to -- to lay it out a little bit here.  
22 I guess, like all departments, we attempt to  
23 understand the story. We consider all information that comes  
24 forward during the EA process, not just information provided  
25 by the Proponent, but information that is provided by all --

1 all reviewers.

2 We attempt to understand what the components  
3 of the project are, what the predicted impacts related to  
4 those various components are, what the mitigation measures  
5 are; that are either proposed, or possibly available to deal  
6 with the impacts. And we look at the, among other things,  
7 the magnitude and extent of the residual, or the unmitigated  
8 impacts.

9 Ultimately, the attempt to provide  
10 recommendations to De Beers, and to the Review Board, on ways  
11 to lessen the residual impacts.

12 And finally, we attempt to make a  
13 determination, I guess, little 'd' determination on the  
14 acceptability of those predicted residual impacts on the  
15 perspective of the DFO's mandate.

16 Throughout the review process thus far, we  
17 have identified a number of issues. I've -- we've tried to  
18 summarize the ones that we call resolved.

19 And I would like to say that there may be some  
20 qualifiers required on the term resolved, based on what we've  
21 -- we've heard on a couple of items, but I'll -- I'll specify  
22 those shortly.

23 The first item was that of the identification  
24 of fish habitat in areas in the effluent zone of influence;  
25 that being in Snap Lake.

1 De Beers had provided information as a -- in  
2 response to an information request on this topic that -- that  
3 DFO had submitted.

4 And we have determined that all species were  
5 considered in the assessment, and the determination was that  
6 there would be negligible impacts to habitat in that zone of

7 influence.

8                   The issue of bio-accumulation of metals was --  
9 was also raised. And that is another issue that -- that  
10 appears resolved right now. When we looked at the calculated  
11 values of -- of metals in, specifically, whitefish and lake  
12 trout liver, they were at or below no effect levels.

13                   However, we do caution that perhaps the  
14 potential for bio-accumulation by fish should be monitored.

15                   Nutrient additions and effects. There have  
16 been numerous memos out on this topic. With specific  
17 reference to dissolved oxygen, it appears that the predicted  
18 dissolved oxygen decline is within a natural DO range that  
19 has been observed for Snap Lake.

20                   De Beers has committed to monitor DO and  
21 sedentary Benthic Invertebrates, and apply adaptive  
22 management approaches. And this is one (1) of those resolved  
23 issues that may require a bit of a qualifier, here, that in  
24 the event that the lake is experiencing one (1) if it's low  
25 DO years, for some particular reason, a particularly cold

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1 year where the ice-cover is extended and there is a decline  
2 in DO, coupled with, perhaps, discharge that results in the  
3 higher end of their predicted range, that in combination,  
4 would require adapted management approaches.

5                   Those approaches haven't really been  
6 discussed, and at some point, perhaps those should be  
7 discussed. It may be as simple as aerating the effluent or  
8 some other approach, to address it in -- in those cases.

9                   The other issue was that of increased metals  
10 from the waste rock seepage. Again, this issue is, for all  
11 intents and purposes resolved, however, the -- the method to  
12 resolve it, as we heard a couple of days ago in the  
13 discussion of the collection ditches, it might require some  
14 further thought.

15                   I guess, there was reference made to  
16 excavating these ditches and allowing the ice to melt out,  
17 followed by further excavation. And this raised some  
18 questions for us that, at some point, we would like to see

19 how De Beers proposes to control the rate and extent of  
20 horizontal melting in these ditches and how they're going to  
21 control slumping and erosion during construction.

22 We understand they talked about the ditch to  
23 be possibly lined and have suitable sub-straight to protect  
24 the banks. That's during final configuration, and we're --  
25 we're thinking about construction.

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1 Also, the embankment that they're proposing to  
2 build up on the outside of the ditch, next to the lake, in  
3 which they're hoping for aggravation of permafrost, we were  
4 also curious, now, about the influence of the lake talc on  
5 the development of that permafrost.

6 Is it close enough to Snap Lake that they may  
7 not get the permafrost developing that they were  
8 anticipating? These are questions that have arisen over the  
9 last couple of days of discussion.

10 So what that leaves us with is a -- four (4)  
11 issues that -- that remain unresolved. And I would say that,  
12 perhaps, the first one (1) is -- is the most easily resolved.  
13 And the next one (1) more, perhaps a little bit easier and  
14 the last two (2) still yet to be discussed.

15 So the fish habitat assessment, adequacy of  
16 baseline data, which we've heard a number of times already,  
17 total dissolved solids and the metals in the discharge of the  
18 mine effluent.

19 Under the topic of fish habitat assessment,  
20 the Department of Fisheries and Oceans had identified a lack  
21 of data to support the habitat assessments that De Beers had  
22 done for the small lakes on the -- on the peninsula.

23 In February of this year, De Beers did provide  
24 a report that clarified their habitat assessment approach and  
25 their approach to the no net loss accounting. And we felt

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1 that this report had clarified almost all of our issues.

2 In this report, however, it appeared De Beers  
3 had concluded that a total of .00002 habitat units will be  
4 impacted and need to be compensated for.

5 Remember here, that a habitat unit is a value  
6 that you get when you multiply the quantity of habitat,  
7 usually in metres squared, by its quality. And that's  
8 usually a -- a number applied from zero (0) to one (1).

9 It allows you to take lakes of -- of different  
10 characteristics and put them all in the same -- same units,  
11 or unit list, if you will.

12 What DFO has concluded, however, is that this  
13 number should actually be six (6) habitat units. To be  
14 compensated at a rate of 2 to 1, gains to losses.

15 And the -- the difference is that De Beers has  
16 applied a time factor to the impacted habitat, and DFO finds  
17 this to be an unacceptable approach to the -- the accounting  
18 of habitat impacts.

19 Under the topic of adequacy of baseline  
20 aquatic data, De Beers does not have any baseline data for  
21 Benthic invertebrates beyond eight (8) metres depth in Snap  
22 Lake.

23 They are, however, predicting negligible  
24 impacts to Benthic species, especially those deep water  
25 species that are the ones to be most likely impacted by the

1 TDS plume settling out in deep areas.

2 The confidence in this prediction is low  
3 because of the fact that real data has not been collected,  
4 and it's the professional judgment based on -- based on what  
5 should be there, that is used to make the predictions.

6 And so, to verify these predictions, pre-  
7 project data are required to measure against project  
8 conditions.

9 We had recommended that baseline data be  
10 collected before the project begins to impact Snap Lake. De  
11 Beers has since acknowledged that lack of specific data, and

12 they have committed to collecting samples before operations  
13 begin.

14 This was contained in writing in a April 23rd,  
15 document, that I understand was not placed on the public  
16 registry.

17 The issue of total dissolved solids, I guess,  
18 we've heard -- we've seen all these numbers before, but like  
19 everyone else, we attempting to make sense of it, so we  
20 included this in our step wise -- step wise presentation  
21 here.

22 We understand that the baseline TDS  
23 concentrations in Snap Lake are approximately fifteen (15)  
24 milligrams per litre.

25 And that the maximum concentration, the

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1 discharge, is predicted at nine hundred and twenty nine (929)  
2 milligrams per litre.

3 The multi-port diffuser is being proposed as a  
4 way of inducing rapid mixing to reduce local impacts. Even  
5 with this, TDS is still expected to be about three hundred  
6 and fifty (350) milligrams, under ice, in the whole of the  
7 lake, reaching four hundred and forty four (444) in the  
8 vicinity closest to the -- to the diffuser.

9 There's been a prediction that the effluent  
10 will accumulate in deep areas of the lake, due to increased  
11 density and lack of mixing under -- under ice.

12 And again, supported by what we've heard  
13 today, perhaps there still is a concern that meromictic  
14 conditions will persist in the summer; especially in the  
15 deepest holes, where mixing may not actually get down there  
16 deep enough to mix it out.

17 The primary toxicological concern of elevated  
18 TDS's, and increase in osmotic stress on aquatic biota. And  
19 we've been hearing that there are some discrepancies with the  
20 predicted concentrations that we feel need to be resolved,  
21 because the concerns with loading estimates will have a  
22 direct bearing on -- on how great the impacts to the TDS may  
23 become in the Lake.

24 Specifically the impacts on zooplankton, and  
25 we understand that there are no water quality criteria for

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1 TDS, so the effects were evaluated by looking at the specific  
2 ions that comprise the TDS; specifically, chloride and  
3 calcium.

4 The -- the Environmental Assessment Report had  
5 stated that the potential calcium concentrations may exceed  
6 chronic effect levels for cladocerans in up to 10 percent of  
7 the lake.

8 However, this is followed by a technical memo  
9 on TDS, where calcium was dismissed as a toxicological  
10 constituent. I guess we're not sure of -- of the validity of  
11 -- of dismissing it.

12 The chloride was predicted to increase to a  
13 hundred and seventy seven (177) milligrams per litre, in what  
14 -- closest to the diffuser.

15 And when De Beers had compared these values to  
16 EPA and Quebec criterion, and had concluded that because the  
17 predicted values were below these criterion, that there would  
18 be no effects in Snap Lake.

19 Again, if there are still discrepancies on  
20 what the actual concentrations are going to be in the  
21 discharge, and if in fact the concentrations are  
22 underestimated, we could be above the criterium for -- for  
23 zooplankton.

24 For the Benthic Invertebrates. They will be  
25 exposed to higher concentrations of TDS in the winter. We

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1 have heard that the plume will settle into deep water. These  
2 Benthic Invertebrates are unable to migrate away from areas  
3 to avoid salinity. It's difficult for them to pick up and

4 swim away.

5 In the technical memorandum on potential  
6 effects of increased TDS, there was reference made to species  
7 decline in the North Saskatchewan Lake. This report also  
8 referenced a study done in a California river where there was  
9 no decline. I guess we have some concern about using data  
10 that perhaps is not comparable to Arctic lake systems.

11 De Beers had stated that they expect a shift  
12 in relative species abundance only. Again, this was in the  
13 April 23rd memo. However, De Beers does not have any data on  
14 the Benthic community at greater than eight (8) metres depth.  
15 And the community composition at that depth is assumed.

16 In the Environmental Assessment Report,  
17 there's reference made to effective concentrations of greater  
18 than a thousand (1,000) milligrams per litre. Again, if the  
19 concentrations truly are underestimated, we could be above  
20 the effect level in the EAR.

21 There's also reference made in the TDS  
22 technical memo, of various chironomid species and the optimal  
23 TDS concentration. And it appears, based on the reference  
24 that's used, that these were all riverine species. And  
25 again, it may not be comparable to Arctic lake systems. And

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1 if it's not the case, I certainly would like clarification on  
2 that.

3 For fish, I guess we've heard a number of,  
4 sort of, conflicting reports on how the fish will fare in  
5 Snap Lake at the levels predicted by De Beers, as well as if,  
6 in fact, the concentrations do end up being two (2) to three  
7 (3) times higher.

8 The aquatic biota and especially the lake  
9 trout, have adapted to low salinity conditions of Snap Lake  
10 for thousands of years. The -- we've heard, by De Beers  
11 themselves, that the level of effect depends on this  
12 adaptation.

13 And lake trout exhibit the most sensitivity to  
14 ion concentrations in water, compared to other species such  
15 as whitefish. Whitefish species can tolerate brackish water,

16 lake trout very rarely, if ever, are found in -- in what we  
17 would call brackish water.

18 Lake trout tend to be a low salinity cold  
19 water species, typically not found in high saline waters,  
20 they are very few exceptions.

21 The TDS levels in Snap Lake approaching three  
22 hundred fifty (350) milligrams per litre, may not have a  
23 direct lethal impact on adult fish, after all, they've been  
24 given about twenty (20) years to acclimate. However, there  
25 are unknown impacts on reproductive success and the effects

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1 on more sensitive life stages such as larval fish.

2 And it is very possible that at the levels  
3 predicted by -- by De Beers, that there will be a community  
4 shift in the fish populations, due to the competitive  
5 advantage that is offered to those species that are less  
6 sensitive, namely the whitefish species.

7 They are, the increased energetics by the --  
8 by the lake trout, may put them at a disadvantage. Again, we  
9 must also consider what the level of the impact could be if  
10 TDS concentrations are, in fact, underestimated.

11 Move on to metals. Again, what we could  
12 ascertain from the Environmental Assessment Report is that  
13 there was quite a sweep of -- of parameters that were  
14 considered, that -- and they all exceeded the CCME guidelines  
15 at the end of pipe. Of those, cadmium, copper, ammonia and  
16 hexavalent chromium exceeded CCME guidelines in 1 percent of  
17 Snap Lake.

18 Site specific benchmarks were derived for  
19 cadmium, copper and hexavalent chromium. And cadmium and  
20 copper were not carried forward for impact assessment because  
21 their concentrations were below the HC5 benchmark value.  
22 Chromium was carried forward for assessment as chrome -- as  
23 hexavalent chromium.

24 So cadmium, copper and ammonia were not  
25 assessed further for impacts on aquatic biota. I guess the

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1 concern is that they weren't carried forward because of the  
2 site specific benchmarks. And the benchmarks that were used  
3 are less conservative -- are less conservative than the CCME  
4 values and therefore have a lower safety factor.

5 And I guess the question is, would a more  
6 conservative approach be more appropriate for a sensitive  
7 northern -- northern environment? And also, the benchmark,  
8 the site specific benchmark approach used by De Beers,  
9 perhaps should be reviewed more closely before being accepted  
10 as an alternate to the CCME.

11 As well, the -- the whole effluent was  
12 predicted in the Environmental Assessment Report to be  
13 chronically toxic in up to 10 percent of the lake.

14 The impact was classified as low, but it  
15 doesn't appear that it was carried forward in the assessment  
16 because there was no acute toxicity anticipated. And if this  
17 is the case, then it would underestimate the importance of  
18 chronic effects.

19 CFO identified numerous inconsistencies in the  
20 reported forms and concentrations of chromium. We -- we  
21 tried up until the eleventh hour to get it straight in our  
22 mind, what was going on with the chromium forms. And it's --  
23 it's led to a lot of -- a lot of difficulties in attempting  
24 to interpret the predicted levels of chromium and hence what  
25 the effects would be.

1 I'm not sure if we've got the story straight  
2 yet, we're still -- there's conflicting numbers in the  
3 reports. But I think what we understand is that the total  
4 chromium in the -- in the effluent is seven point five (7.5)  
5 micrograms per litre. And following the -- the magic of the  
6 diffuser, we are left with two point five (2.5) micrograms  
7 per litre, within a two hundred and thirty (230) metre zone,  
8 or 1 percent of the lake.

9                   It appears that the HC5 value is not achieved  
10 until beyond that 1 percent and up to 3 percent of Snap Lake.  
11 However, because the -- that two point five (2.5) microgram  
12 per litre value is less than the chronic effect values for  
13 three (3) of the most sensitive invertebrate species, the  
14 effects were rated as negligible.

15                   I guess we're concerned with the derivation of  
16 the site specific benchmarks and their use, rather than CCME  
17 for impact assessment. It appears that De Beers has  
18 concluded that impacts could occur in 1 to 3 percent of Snap  
19 Lake, and that there could be impacts to up to 5 percent of  
20 the aquatic community. But this seems to be rated as -- as  
21 acceptable or negligible and it may be a questionable  
22 approach in a sensitive Arctic environment.

23                   In conclusion, I guess the questions that --  
24 that remain for DFO, and I was struggling with whether or not  
25 to call them concerns, uncertainties, questions, what they

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1 were. We're still not 100 percent sure on where we stand on  
2 a couple of these issues, and I guess that they pertain  
3 mainly to discharge quality, specifically with respect to TDS  
4 and metals.

5                   Just to conclude, that the -- the metals, that  
6 there are concerns regarding the method of assessment that  
7 was used. Site specific benchmarks rather than the more  
8 conservative CCME, hence the assessment for impacts of metals  
9 may be incomplete for some of the metals.

10                   And for TDS, population community -- and  
11 community level shifts may occur at the predicted levels.  
12 And the importance of this can't and shouldn't be discounted.  
13 And I guess the bottom line is that, all impacts may not be  
14 positive. Thank you.

15                   THE CHAIRPERSON: Thank you, Ms. Dahl.  
16 Questions from the Proponent, Mr. Johnstone...?

17                   MR ROBIN JOHNSTONE: A moment, sir?

18                   THE CHAIRPERSON: Certainly. While they're  
19 preparing, I have a question for you, Ms. Dahl. And that is,  
20 INAC has stated that -- and I want to use their words,

21 concentrations likely to be two (2) to three (3) times  
22 higher, when they -- they talk about TDS.

23 Is that a statement that DFO would agree with,  
24 or as far as you're concerned, school's still out on that one  
25 (1)?

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1 MS. JULIE DAHL: Julie Dahl, Fisheries and  
2 Oceans. DFO did not undertake any modelling. We're not the  
3 department of modellers in that respect. So, no, we did not  
4 do our own calculations.

5 I cannot say whether or not we support that --  
6 that conclusion. I'm merely saying, that if it does hold  
7 true, that it -- that it could reflect as greater than  
8 anticipated impacts.

9 THE CHAIRPERSON: Thank you. Thank you. Mr.  
10 Johnstone...?

11 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
12 Johnstone. Just to -- to get on the record, I'd like to ask  
13 this question: Does -- does DFO acknowledge De Beers'  
14 expressed commitment to continuing discussions to -- related  
15 to resolving any outstanding compensation requirements?

16 THE CHAIRPERSON: Ms. Dahl...?

17 MS. JULIE DAHL: Julie Dahl, Fisheries and  
18 Oceans. Yes.

19 MR. ROBIN JOHNSTONE: Great. Okay. And now  
20 I'd just like to hand over to Dr. Schryer, please.

21 MR. RICK SCHRYER: Thank you, Robin. Rick  
22 Schryer, Golder Associates.

23 Julie, are you aware that lake trout, round  
24 whitefish, Arctic Grayling, Slimy Sculpin, Burbot, and  
25 Longnose Sucker, which are all found in Snap Lake, have all

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1 been documented to move in and out of fresh water and into  
2 brackish water in the Arctic waters?

3 THE CHAIRPERSON: Ms. Dahl...?

4 MS. JULIE DAHL: Julie Dahl, Fisheries and  
5 Oceans. Yes, I am aware of the fact that these species will  
6 move in and out of them if they want to take advantage of  
7 something that's better on the other side.

8 THE CHAIRPERSON: Thank you. Dr. Schryer...?

9  
10 (BRIEF PAUSE)

11  
12 MS. STELLA SWANSON: Stella Swanson, Golder  
13 Associates for De Beers. I have a general point of  
14 clarification with respect to the slide that talks about the  
15 confusion still regarding the chromium, and the difficulties  
16 in interpreting the effects. This is slide 14.

17 So this is point of clarification. There were  
18 inconsistencies between the two sections referred to. They  
19 are grammatical, and did not affect the impact assessment.

20 The bullets that are provided in the slide are  
21 correct, and consistent with a clarification provided by De  
22 Beers to DFO, on April 23rd, 2003. That's the clarification.

23 Now, I have a question. And this has to do  
24 with several slides actually. Slide 10, 13 and 14, in  
25 particular.

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1 Ms. Dahl, in all three (3) slides, the  
2 exceedance of CCME guidelines appears to be interpreted as a  
3 benchmark for effect. Furthermore, the use of the HC5  
4 benchmarks, is interpreted as De Beers alternative benchmark  
5 for effect.

6 I guess my first question is: Does DFO  
7 suggest that CCME guidelines provide the threshold for  
8 effect?

9 And secondly, does DFO understand that HC5  
10 benchmarks are for additional screening, not for the actual  
11 impact assessment?

12 THE CHAIRPERSON: Thank you. Ms. Dahl...?

13 MS. JULIE DAHL: Could you please repeat  
14 those, one at a time, please.

15 MS. STELLA SWANSON: Certainly. First  
16 question, I'll do -- I'll get -- get you to answer the first  
17 question, and then I'll go on to the second question.

18 So, the first question is: Does DFO suggest  
19 that CCMI -- CCME guidelines provide an effects threshold for  
20 use in assessing impacts?

21 MS. JULIE DAHL: Julie Dahl, Fisheries and  
22 Oceans. CCME, as an effects threshold, we do understand that  
23 CCME has the -- usually has a safety factor built into it.

24 So, if you were to compare the CCME value  
25 with -- with lowest effect levels in the literature, you

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1 would likely find that they are in order of magnitude, more  
2 conservative.

3 So, no. I wouldn't say that it is a threshold  
4 of effect. I would say that it's -- it's a starting point  
5 for doing an assessment from a most conservative perspective.

6 THE CHAIRPERSON: Thank you. Ms. Swanson...?

7 MS. STELLA SWANSON: Stella Swanson, Golder  
8 Associates. Thank you very much. That -- that definitely  
9 clarifies.

10 My second question was: With reference to  
11 your stated concern about the use of the HC5 benchmark, does  
12 DFO understand that those HC5 benchmarks were used for an  
13 additional screening step, and not for the final impact  
14 assessment we arrived at?

15 THE CHAIRPERSON: Thank you. Ms. Dahl...?

16 MS. JULIE DAHL: Julie Dahl, Fisheries and  
17 Oceans. I believe we do recognize that. Perhaps you could,  
18 in turn, clarify something for me then.

19 Was it not based on the HC5 value that cadmium  
20 and copper were not carried for -- forward in the assessment?

21 THE CHAIRPERSON: Thank you. I'll allow it.

22 MS. STELLA SWANSON: Sorry, Mr. Chairman.  
23 Stella Swanson, Golder Associates. Yes, that is true because  
24 we are -- we did use the HC5 benchmark as the next step in

25 screening.

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1                   So, the HC5 benchmark, which as we now  
2 clarified earlier today, we did develop using CCME  
3 guidelines, albeit, draft ones.  
4                   That is the next level that we go to, to check  
5 to see if there's any potential for effect. And it's still  
6 derived very conservatively.  
7                   THE CHAIRPERSON: Thank you. Does that help,  
8 Ms. Dahl?  
9                   MS. JULIE DAHL: It does. If I could be so  
10 bold as to ask --  
11                   THE CHAIRPERSON: Ask another question? Go  
12 for it. Go for it.  
13                   MS. JULIE DAHL: -- question here. I guess,  
14 hypothetically, in the absence of development to site  
15 specific benchmark, or your HC5, had you only used CCME,  
16 would copper and cadmium have been carried forward in the  
17 assessment, would they have therefore not been screened out?  
18                   THE CHAIRPERSON: Mr. Digel...?  
19                   MR. MARK DIGEL: Mark Digel, with Golder  
20 Associates. If you look at the maximum concentrations  
21 predicted in the Environmental Assessment, copper would not  
22 have been carried forward in the assessment because the  
23 maximum copper concentrations are below the CCME guidelines.  
24                   For cadmium, the maximum predicted  
25 concentrations are above the CCME guidelines. The maximum --

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1 maximum predicted concentration was point seven (.7), and the  
2 CCME guideline is point five five (.55) at that  
3 concentration.  
4                   So, they were slightly above the CCME

5 guideline for cadmium, so it was the one that would have been  
6 carried forward.

7 THE CHAIRPERSON: Okay. If we can perhaps  
8 go -- go back to what -- questions from the Proponent. No  
9 more questions.

10 MR. ROBIN JOHNSTONE: One moment, Mr. Chair.

11 THE CHAIRPERSON: Thank you, Ms. Dahl. I'm  
12 reminded that you didn't answer their -- their question.  
13 Do you want them to restate the one that they  
14 think you didn't answer?

15 MS. JULIE DAHL: Sure. I thought she -- it  
16 was a two (2) part, and that we had addressed it, but, sure.

17 THE CHAIRPERSON: I guess you did answer it.  
18 They've got a new question.

19 MR. MARK DIGEL: Mark Digel, with Golder  
20 Associates. Just two (2) points of clarification, which  
21 I'll -- I'll try to phrase --

22 THE CHAIRPERSON: Is it a clarification, or is  
23 it actually a question?

24 MR. MARK DIGEL: Well, it's -- I can phrase it  
25 as a question. It's -- it's --

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1 THE CHAIRPERSON: You can phrase it as a  
2 question, is it going to require an answer from Ms. Dahl?

3 MR. MARK DIGEL: It will.

4 THE CHAIRPERSON: Okay.

5 MR. MARK DIGEL: Okay. In the Environmental  
6 Assessment report, in Table 9.4-19, we predicted maximum  
7 concentrations of -- of all of the parameters with -- with  
8 guidelines.

9 And in that table, we predicted the maximum  
10 concentrations of ammonia at one point one (1.1) to two point  
11 one (2.1) milligrams per litre.

12 The CCME guideline is -- well, the minimum  
13 CCME guideline is five point seven (5.7) milligrams per  
14 litre, so the -- the ammonia guideline, after -- the ammonia  
15 -- maximum ammonia concentration, after initial mixing, is  
16 below the CCME guideline.

17 And you had stated, in your presentation, that  
18 ammonia was one (1) of the ones that was above the CCME  
19 guideline in Snap Lake, and I just wanted to clarify if you  
20 were aware that -- that that's not the case? And you  
21 referenced Table 9.4-19.

22 THE CHAIRPERSON: Thank you. Ms. Dahl...?

23 MS. JULIE DAHL: Julie Dahl, Fisheries and  
24 Oceans. We'll have to check, but the -- we thought that we  
25 had taken all of the information directly from the EAR. But

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1 if that is the case, I'll defer to that. But I was under the  
2 impression we had taken it directly out of the EAR. We'll  
3 check.

4 THE CHAIRPERSON: Thank you. One (1) more  
5 question? I'm sorry.

6 MR. MARK DIGEL: Mr. Chairman, if I could  
7 indulge your patience for one (1) more question. This  
8 relates to a -- a statement mentioned about chronic toxicity.

9 Table 9.4-21 provides the maximum extent of  
10 Snap Lake that could be above a chronic toxicity threshold in  
11 Snap Lake. And that number is 1.1 percent of Snap Lake.

12 In DFO's presentation, they've stated that  
13 chronic toxicity could be above the threshold and up to 10  
14 percent of the lake. And I just wanted to know if they were  
15 aware that the maximum is 1.1 percent? And reference, Table  
16 9.4-21.

17 THE CHAIRPERSON: Thank you. Ms. Dahl...?

18  
19 (BRIEF PAUSE)

20  
21 MR. MARK DIGEL: Mark Digel with Golder  
22 Associates. If they're looking for it in the presentation, I  
23 should have mentioned this, it's the last major bullet on  
24 Slide 13.

25

1 (BRIEF PAUSE)

2  
3 MS. JULIE DAHL: Julie Dahl, Fisheries and  
4 Oceans. We had taken that from the Environmental Assessment  
5 Report, page 9-322, where it states that:

6 "The maximum predicted calcium  
7 concentrations may approach or slightly  
8 exceed chronic effect levels for  
9 cladocerans. These effects will be limited  
10 to less -- less than 10 percent of the  
11 lake, they will be seasonal."

12 We were using, here, less than and up to,  
13 interchangeably.

14  
15 (BRIEF PAUSE)

16  
17 THE CHAIRPERSON: Okay, I take it, that's all  
18 the questions, then? Thank you. I lost my cheat sheet  
19 there, sorry.

20 Do the Yellowknives Dene have a question for  
21 DFO? Ms. Crapeau...?

22 MS. RACHEL CRAPEAU: The -- Rachel for the  
23 Yellowknives Dene. The fish that was mentioned earlier,  
24 the -- the trout, whitefish, the bottom feeders, all those  
25 fishes. If they can travel from fresh water to water with,

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1 like salt water or even go through brackish water, they don't  
2 stay in the brackish water for very long, do they?

3 I think it's just a path that they have to go  
4 through, to get to a better place where they want to go. Is  
5 that how it goes?

6 THE CHAIRPERSON: Ms. Dahl...?

7 MS. JULIE DAHL: Julie Dahl, Fisheries and  
8 Oceans. If -- if the species of fish is in an area where  
9 there -- there is a -- a chance of encountering brackish

10 water, they will enter it, if -- if it's a preferred feeding  
11 area.

12 But, no, it does not mean that the fish will  
13 preferentially live there, or that if they did, they would  
14 survive there.

15 THE CHAIRPERSON: Thank you. Ms. Crapeau...?

16 MS. RACHEL CRAPEAU: My follow-up question,  
17 also is that, if the area around, close to the shoreline of  
18 the site itself where the mine is going to be, if that water  
19 gets muddy or cloudy, and it's got solids in it and it's all  
20 dissolved and floating around like in a plume, would that be  
21 something like brackish water condition?

22 THE CHAIRPERSON: Thank you. Ms. Dahl...?

23 MS. JULIE DAHL: Julie Dahl, Fisheries and  
24 Oceans. I wouldn't consider Snap Lake being at three fifty  
25 (350), I wouldn't consider it brackish. Brackish is far

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1 saltier than that.

2 THE CHAIRPERSON: Perhaps, Ms. Dahl, could  
3 you give us a, you know, without holding you down, what --  
4 what would TDS levels be in brackish water? Just for  
5 reference.

6 MS. JULIE DAHL: Fisheries and Oceans, Julie  
7 Dahl. I can't give you those numbers, but perhaps De Beers  
8 may have someone there that could give a better ballpark.

9 THE CHAIRPERSON: Just to help me out, here,  
10 Mr. Johnstone?

11 MR. ROBIN JOHNSTONE: Mr. Chair, we may not  
12 have -- be able to tell you what the conversion rate between  
13 cubic metres and gallons are. We've got a salinity  
14 conversion table.

15 So, brackish water, on this -- that's  
16 bracketed by that -- would range from six thousand (6,000) to  
17 twelve thousand (12,000) milligrams per litre.

18 THE CHAIRPERSON: Thank you for that  
19 assistance, sir. Questions of DFO? Well, INAC's -- I'm  
20 sorry. Oh, Rachel, sorry.

21 MS. RACHEL CRAPEAU: My other question of DFO

22 is that, earlier, we heard, the next person, not Mr. Chapman  
23 but the -- the other INAC expert, mentioned that the diffuser  
24 should be not where they -- they are proposing to put it, but  
25 maybe on the eastern part of the lake. That way, that with

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1 the prevailing winds, will not make the solids all over --  
2 all over the Snap Lake.  
3 I was wondering if DFO agreed with -- with  
4 that idea, because I was wondering if -- if the winds blew  
5 the solids all over the lake, it would really interfere with  
6 the -- the fish.  
7 THE CHAIRPERSON: Thank you. Ms. Dahl...?  
8 MS. JULIE DAHL: Fisheries and Oceans, Julie  
9 Dahl. Rachel, I'm -- hopefully I didn't mishear your  
10 question. You were asking where the diffuser should be  
11 located, perhaps? Was that your question?  
12 THE CHAIRPERSON: Ms. Dahl, in the  
13 presentation by INAC, Yaremko -- Mr. Yaremko suggested that  
14 it might be better if the diffuser was moved east in the  
15 lake, because of prevailing winds. And that's the -- the  
16 point that Ms. Crapeau was asking, would you agree with that,  
17 that perhaps the diffuser could be moved to a better area?  
18 Or do you even know, is it something you've even considered?  
19 MS. JULIE DAHL: Yes, I -- I'm not sure,  
20 exactly, where -- where -- whether or not moving it further  
21 east is best. I would just say that you want to make sure  
22 you're avoiding an identified spawning area or a shallow  
23 rearing area or somewhere where a more sensitive life stage  
24 would definitely be --  
25 THE CHAIRPERSON: Thank you. Ms. Crapeau...?

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1 MS. RACHEL CRAPEAU: One (1) more. In De

2 Beers map, Figure 9.4-12, the information on their -- their  
3 map it says:  
4 "Maximum extent of water concentrations  
5 that were predicted to be above a site  
6 specific benchmark. Chronic toxicity  
7 threshold, or a Canadian Water Quality  
8 guideline in Snap Lake."  
9 And it shows a blue area in front of the site  
10 where the mine's going to be, and then also in that channel.  
11 And it seems like it's going to be like a  
12 cut-off channel, and I was wondering if that might have an  
13 effect on the -- the fish that are wanting to move out of  
14 Snap Lake towards MacKay Lake, or in the other lakes that  
15 way. If it will interrupt their -- their travel route?  
16 THE CHAIRPERSON: Thank you. Were you  
17 referencing the De Beers' presentation slide, or from the EA,  
18 I'm sorry?  
19 Do you have that, Ms. Dahl?  
20 MS. JULIE DAHL: No, I do not.  
21 MS. RACHEL CRAPEAU: We can wait for an answer  
22 until tomorrow, or...  
23 THE CHAIRPERSON: What page number in the --  
24 figure number, sorry. 9.4-12?  
25 MS. RACHEL CRAPEAU: Yes.

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1 THE CHAIRPERSON: Thank you.  
2 MS. JULIE DAHL: I have the figure here. I  
3 believe the question was, will the -- will the increase  
4 solidity in that -- that narrow, prevent fish from -- from  
5 accessing that -- that north arm.  
6 I honestly can't answer that. I'm not sure.  
7 THE CHAIRPERSON: Thank you. Ms. Crapeau.  
8 MS. RACHEL CRAPEAU: My worry was that the  
9 Elders had said that fish travel from Snap Lake and on  
10 towards our hunting, fishing, and trapping grounds at MacKay  
11 Lake.  
12 And that if fish are going to be interrupted  
13 in their travels, it might be a good idea if -- I kind of,

14 like, support the diffuser being somewhere else.  
15 That was just my point I was trying to make.  
16 Thank you.  
17 THE CHAIRPERSON: Thank you very much. Okay.  
18 INAC's not here.  
19 Chamber Mines isn't here.  
20 Northwest Territories Metis Nation are not  
21 here.  
22 North Slave Metis Alliance, do you have  
23 questions for DFO?  
24 Dogrib Treaty 11? Ms. Teillet...?  
25 MS. JEAN TEILLET: I have one (1) topic, and

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1 then Dr. Wilbur has some.  
2 My question is for the Department of Fisheries  
3 and Oceans. And I need to, sort of, set it up a little bit.  
4 And bring back my long memory of diamond mining, and diamond  
5 ore assessment hearings in the Northwest Territories, and  
6 remind us of what happened back in 1996, when we were dealing  
7 with BHP, and the issue of the DFO's no net loss policy and  
8 the compensation fund.  
9 I'd like to remind everybody that back then,  
10 the issue -- the idea was that there was going to be a  
11 habitat compensation fund established, and there was going to  
12 be close involvement with aboriginal groups, there was going  
13 to be money dispersed on various, but unknown, lake habitat  
14 compensation projects. And that was supposed to be all in  
15 accordance with DFO's no net loss policy.  
16 Now, as of last year, when we did the BHP  
17 Water Board new pipes Hearing, no successful, like-for-like,  
18 lake habitat compensation had been proposed, discussed, or  
19 even -- certainly not achieved.  
20 We are now in '95, I guess, from the EIS.  
21 '96, from the hearing to 2003. My question, Ms. Dahl, I  
22 understand -- and Robin Johnstone's question to you was,  
23 whether you agreed that you had -- you were in the process of  
24 agreeing to a compensation fund, you agreed, we've seen some  
25 correspondence in the course of this Review about that.

1                   And my question is: Has anything ever  
2 happened in the Northwest Territories, in -- by way of  
3 compensating for lake habitat, to your knowledge?

4                   THE CHAIRPERSON: Thank you. Ms. Dahl...?

5                   MS. JULIE DAHL: Julie Dahl, Fisheries and  
6 Oceans. The topic of the habitat compensation fund is one  
7 that has come up a number of times, and I'll be the first to  
8 admit that the track record with this is not -- has not been  
9 the best.

10                  To clarify, De Beers, we are not contemplating  
11 anything to do with the compensation fund for De Beers. The  
12 compensation fund was established as a one (1) time approach  
13 for the original BHP project, has not been repeated since.

14                  The impact for the De Beers project, we will  
15 take the approach as we have with other attempted -- lately,  
16 with other proponents, is we will attempt to do on site,  
17 like-for-like compensation to the extent possible, to try to  
18 benefit the impacted populations to the extent possible.

19                  If there are residual habitat units that need  
20 to be compensated for, we have agreed to move those  
21 compensation efforts off site, provided we can find suitable  
22 places to move it to.

23                  We have initiated conversation with numerous  
24 aboriginal groups to attempt to develop a habitat  
25 compensation database, that would identify for us locations

1 where efforts would be best spent to achieve habitat  
2 compensation.

3                   We wanted to ensure that we located the sites,  
4 and identified the sites, with full involvement of Aboriginal  
5 people.

6                   We don't have much of a list now. We're still

7 trying to work with -- with various groups to develop that  
8 list.

9 What comes up on the list now are abandoned  
10 mine sites, to go in and do some efforts there. There are  
11 currently two (2) projects that have been funded under the --  
12 under the fund.

13 There are currently three (3) projects that  
14 are being evaluated right now for further projects, under the  
15 fund, to retrieve habitat gains.

16 It's been a long, slow process. It's been a  
17 complicated process, but I'm still confident that we will see  
18 the habitat gains that we're striving for.

19 THE CHAIRPERSON: Thank you. Ms. Teillet...?

20 MS. JEAN TEILLET: Supplementary, Mr. Chair.  
21 Ms. Dahl, is that the same answer you gave me last year?

22 MS. JULIE DAHL: It could be. It's  
23 unfortunate that we are not able to just take the money, get  
24 the projects, and go and spend it.

25 We are attempting to do it with involvement of

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1 Aboriginal groups, and it has been a very long, slow,  
2 arduous, process; and, yeah, we're going to keep on working  
3 on it.

4 THE CHAIRPERSON: Thank you.

5 MS. JEAN TEILLET: A final comment before I  
6 pass this over to Dr. Wilbur. It -- it's very difficult  
7 for -- I represent the Dogrib Treaty 11 Council, and it's  
8 very difficult to hear continually the -- the we keep trying  
9 to work with Aboriginal people, as an -- as an excuse for the  
10 fact that nothing has happened with this fund.

11 And to our ears and eyes, it looks like  
12 nothing more than a tax on the Company, that goes and sits in  
13 DFO's coffers and never goes anywhere else.

14 Now, I'll pass it over to --

15 THE CHAIRPERSON: Thank you, Ms. Teillet.

16 MS. JEAN TEILLET: -- Dr. Wilbur.

17 THE CHAIRPERSON: Dr. Wilbur, do you actually  
18 have a question?

19 MR. STEVE WILBUR: Do you want me to clarify  
20 that? Steve Wilbur, for the Dogrib. I just want to follow  
21 up very simply, and ask Julie a question about the habitat  
22 that will be compen -- that they're asking to be compensated  
23 for.

24 And I want to know where are -- are these  
25 habitats that are -- you're asking for compensation?

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1 THE CHAIRPERSON: Thank you. Ms. Dahl...?

2 MS. JULIE DAHL: The habitats to be  
3 compensated for are on the Snap Lake peninsula, in the --  
4 that are influenced directly by the mine's footprint.

5 MR. STEVE WILBUR: Steve Wilbur. Are any of  
6 these within the Snap Lake proper, or just some of the inland  
7 lakes?

8 MS. JULIE DAHL: No, they are the inland  
9 lakes, the small ponds as contained. There is a habitat  
10 assessment report, that I believe, forms part of the public  
11 registry.

12 I don't have it at my fingertips right now,  
13 but it details the habitat assessment and the stream  
14 assessment that we've done on the -- the ponds and streams on  
15 the peninsula.

16 MR. STEVE WILBUR: Steve Wilbur. So you  
17 don't consider any of the habitat in Snap Lake needing  
18 compensation?

19 MS. JULIE DAHL: Julie Dahl, Fisheries and  
20 Oceans. Habitat compensation, which comes out of habitat  
21 authorizations, is a last resort. It is not our first choice  
22 to authorize impacts.

23 The first choice is to mitigate those impacts.  
24 And only when it is -- it proves impossible to mitigate, we  
25 will look at the residuals to see whether or not the, you

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1 know, what -- what is left after mitigation, causes a harmful  
2 alteration to habitat.

3 And if it does, then and only then can we look  
4 at authorizing it and seeking compensation. Section 35 of  
5 the Fisheries Act is -- contemplates physical alterations  
6 that are to be compensated for.

7 THE CHAIRPERSON: Thank you. Dr. Wilbur...?

8 MR. STEVE WILBUR: Steve Wilbur. I guess,  
9 haven't we heard that the area right around the diffuser will  
10 have some negative effects to fish and fish habitat?

11 THE CHAIRPERSON: Ms. Dahl...?

12  
13 (BRIEF PAUSE)

14  
15 MS. JULIE DAHL: Julie Dahl, Fisheries and  
16 Oceans. Yes, the -- the diffuser, it's understandable that  
17 it's going to be physically located in an area, and have --  
18 and have the effluent diffused in that area.

19 It was deemed that that -- that habitat was  
20 of, I guess we would call, marginal quality and that the  
21 impacts were considered not to be harmful, to -- to the  
22 extent of -- of where we would start to consider it a  
23 physical alteration.

24 THE CHAIRPERSON: Thank you, Ms. Dahl. Mr.  
25 Wilbur...?

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1 MR. STEVE WILBUR: Steve Wilbur. Having not  
2 memorized the habitat map that's over there, I can't -- I  
3 guess her answer, I'll just have to accept.

4 I have a couple more questions for her,  
5 though, just on -- on her presentation. One (1) was, it had  
6 to do with the topic of bio-accumulation of metals. And I  
7 was just -- wanted to be -- be certain about what her  
8 assessment was based on.

9 And, Julie, I -- I think you said that you did  
10 not consider this bio-accumulation -- you -- you considered  
11 that -- that issue resolved, bio-accumulation of metals. And

12 I was -- wanted to be sure that you used -- did you use De  
13 Beers' estimates when you considered, or did you use the  
14 potential range of -- of values?

15 What -- what did you use when you -- when you  
16 came to that conclusion?

17 THE CHAIRPERSON: Thank you. Ms. Dahl...?

18 MS. JULIE DAHL: Julie Dahl, Fisheries and  
19 Oceans. And I'll let Dave Balint address that.

20 MR. DAVID BALINT: Fishers and Oceans looked  
21 at the bio-accumulation potential of cadmium and chromium.  
22 We used De Beers' figures, did an analysis. We had a  
23 consultant look at those numbers and he derived different  
24 levels than De Beers did, but these levels were still under  
25 the effects.

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1 As we had mentioned in our reports, in our  
2 addendum and I think our technical report, was mentioned that  
3 it still came in below the threshold levels, according to  
4 those effects. There would be, perhaps, a problem if someone  
5 ate lake trout livers as their sole diet.

6 So someone would have to just have fish livers  
7 and that would be the only thing they would eat before there  
8 would be a problem.

9 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

10 MR. STEVE WILBUR: Thank you. Steve Wilbur.

11 So one (1) followup on that, if -- so you used De Beers'  
12 numbers when you were making assessments, and I guess we've  
13 heard that there might -- listening to various parties,  
14 there's some question as to the -- the range of those values.

15 If -- if the values -- I guess I wonder how  
16 close are we to these -- these effect thresholds, if the  
17 numbers are actually slightly higher?

18 MR. DAVID BALINT: The numbers -- it's Dave  
19 Balint for Fisheries and Oceans. The numbers that we used or  
20 looked at, where we looked at their calculations, our  
21 consultant did his own derivation on some different levels  
22 and arrived at a different number.

23 We don't understand how -- this is with

24 bio-concentrations factors. We're not quite sure how they  
25 derived theirs but our calculations came to a lower number.

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1 It is very close to that threshold level that you would see  
2 in liver tissue.

3 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

4 MR. STEVE WILBUR: One (1) more question and  
5 that has to do with, there was a slide that Julie had up that  
6 said, predicted DO decline within the natural range of DO  
7 decline. I don't have the slide presentation so I can't tell  
8 you what number it is.

9 But I guess the -- the numbers -- the -- what  
10 you had indicated was that the predicted dissolved oxygen  
11 decline was within the natural range of what they observed DO  
12 declining. And I guess that's a little different than how I  
13 understood what De Beers had said, that there was going to be  
14 a one (1) to two point two (2.2) milligrams per litre  
15 decrease, lower than what's currently in Snap Lake.

16 So could you clarify what she meant by, within  
17 the natural range of DO decline?

18 THE CHAIRPERSON: Thank you. Ms. Dahl...?

19 Oh, sorry.

20 MR. DAVID BALINT: Dave Balint for Fisheries  
21 and Oceans. I believe the range as stated in the  
22 Environmental Assessment Report and subsequent documents was  
23 between five (5) to eight (8) milligrams per litre. And with  
24 the decrease of one (1) to two (2) milligrams per litre, the  
25 range would go down to three (3) to seven (7).

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1 Our consultants and other individuals within  
2 DFO had ascertained that that variation may be somewhat  
3 natural, and it would depend on conditions during the winter.

4 Because that level is within that range of five (5) to eight  
5 (8), from three (3) to seven (7), it was deemed to be of a  
6 small effect.

7 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
8 think what -- what De Beers did was take that one (1) to two  
9 point two (2.2) milligrams per litre and -- and subtract that  
10 from what was existing, based on their assessment.

11 And I guess my question is, what's the lowest  
12 DO value that you would expect to occur in Snap Lake, and is  
13 that lower than the natural range that exists now?

14 MR. DAVID BALINT: My -- my -- Dave Balint  
15 with DFO. The range that we are expecting in this is, as we  
16 understand from their reports, would be from three (3) to  
17 seven (7). So three (3) is -- would be that lowest value.

18 MR. STEVE WILBUR: Steve Wilbur. I just  
19 wanted to clarify. I think the numbers from the baseline  
20 data in -- that were collected this winter, are actually  
21 lower than the -- the net value of lower than three (3). So  
22 I wanted to be clear on that.

23 THE CHAIRPERSON: Thank you, sir. Questions?  
24 Government of the Northwest Territories?  
25 Environment Canada?

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1 Lutsel K'e?

2 MS. FLORENCE CATHOLIQUE: I don't have any  
3 questions but I find it mind boggling. But I think that,  
4 under the -- the water licence, we are going to get another  
5 chance to question this part of -- of it. So I will just  
6 wait for that.

7 THE CHAIRPERSON: Thank you. Okay, before we  
8 go to the next presentation, we'll just take a quick five (5)  
9 minute break and let us do what we have to do.

10  
11 --- Upon recessing at 7:54 p.m.  
12 --- Upon resuming at 8:06 p.m.

13  
14 THE CHAIRPERSON: Okay, we'll continue. And  
15 we have presentation from Dogrib Treaty 11, Steve Wilbur.

16 And as -- as yesterday, Mr. Wilbur's computer is not working  
17 so he's going to read his presentation onto the record, and  
18 then he will get us copies of it once he finds himself a  
19 computer that works.

20 Mr. Wilbur...?

21 MR. STEVE WILBUR: Thank you. Steve Wilbur  
22 from Dogrib. I'm going to read semi-slow.

23 Throughout the EAIS process, there's been much  
24 concern expressed by various parties regarding the issues  
25 associated with the predicted effects of mine water discharge

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1 into Snap Lake, and resulting potential changes in water  
2 quality and impacts to aquatic life.

3 De Beers has responded to these concerns by  
4 gathering additional data, undertaking further study or  
5 elaborating on existing analyses to try and answer these  
6 questions and these concerns. And many of these concerns  
7 have been answered, and we appreciate their effort.

8 At this time we would like to use -- we'd like  
9 to focus on some key areas that we'd like to clarify, or  
10 don't believe have been adequately addressed. The issues  
11 involve, basically, five (5) topics and that is: the change  
12 in phosphorous balance, reduced dissolved oxygen  
13 concentrations, the effect of total dissolved solids, impacts  
14 to Benthic Invertebrates and interactive effects.

15 The first one (1) is phosphorous. Based on  
16 the latest analyses and documents from De Beers in their  
17 February report, the proposed Snap Lake mine will increase  
18 bio-available phosphorous in Snap Lake, which will in turn  
19 likely increase primary production in the lake, and  
20 potentially secondary production.

21 Before I go any further I want to comment on  
22 that, a lot of what I'm saying is not from me but from my --  
23 from my experts, and so I may not be able to clarify some of  
24 the points that -- if anybody asks me questions on it.

25 THE CHAIRPERSON: You won't be the first one

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1 (1) at these Hearings, Mr. Wilbur. Continue.

2 MR. STEVE WILBUR: De Beers has projected  
3 that the baseline conditions of Snap Lake reflect a system  
4 that exhibits both oligotrophic and mesotrophic conditions.

5 We would concur with this conclusion based  
6 upon the plankton community representations they have  
7 provided and the nutrient profiles indicated, assuming their  
8 estimates of phosphorous concentrations are valid.

9 According to the February, 2003 report,  
10 baseline average total phosphorous represented by De Beers,  
11 is eight (8) milligrams per litre with a range of two (2) --  
12 of one (1) to twenty-six (26) over a three (3) year  
13 monitoring period.

14 De Beers also indicates that the range of  
15 phosphorous predicted in Snap Lake is from four (4) to one  
16 hundred and ten (110), with a median of ten (10) milligrams -  
17 - micrograms per litre. They state that this range is  
18 similar to current inflows from streams entering the lake,  
19 which is in the range of six (6) to twenty (20) micrograms  
20 per litre.

21 So the comment here is, the maximum projected  
22 concentration is more than five (5) fold greater than the  
23 maximum current inflow concentration.

24 Since pulse episodic inflow events both  
25 disproportionally effect the mean and median baseline

1 concentrations in the lake, we believe the most appropriate  
2 comparisons to make are between the projected peak  
3 concentrations from the mine operation versus the peak inflow  
4 concentrations. And in effect, the concentrations used for  
5 impact analyses should be higher than that offered by De  
6 Beers.

7 Conclusions regarding the effects of the  
8 phosphorous enrichment on zooplankton community structure are

9 less clear and remain speculative. For example, De Beers'  
10 February, 2003 report identifies that the shallow water areas  
11 are dominated by Rotifera, representing 65 to 83 percent of  
12 the total numbers recovered in sampling.

13 The representation of impact to the  
14 zooplankton community focussed on Daphnia copepod, that's a  
15 water flea, right?. One (1) of our points of concern  
16 relative to the discharge into the lake was whether it would  
17 occur in an area of particularly concentrated sensitive  
18 organisms.

19 Since Rotifers are particularly important in  
20 nutrient re-cycling in lakes, they may have a  
21 disproportionately important role in maintaining nutrient  
22 balance relative to the total biomass.

23 The potential impacts to this component of the  
24 zooplankton community have not been considered and the  
25 effects of Rotifera inertia habitats are a concern.

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1 Overall, we would agree that the projected  
2 increase in phosphorous will have an effect on phytoplankton  
3 abundance that is unlikely to greatly effect zooplankton  
4 community composition. However, the composition and biomass  
5 of the zooplankton community should be monitored through the  
6 projects operation, to gauge potential long term shifts.

7 Now I'd like to talk about dissolved oxygen.  
8 The potential effects on aquatic organisms due to reduced DO  
9 concentrations are greater than that indicated by De Beers.

10 De Beers contends that the predicted  
11 decreases in dissolved oxygen will not impact aquatic life.  
12 Yet at the same time, they acknowledge that nearly 10 percent  
13 of the lake surface area could be expected to experience  
14 reduced dissolved oxygen.

15 Now, throughout the day I've heard variations  
16 on this 10 percent number, I -- and I don't really know how  
17 accurate that is, but that's the number that I -- my expert  
18 came up with and I -- I think I heard somebody else refer to  
19 it, today. So I'm going to assume that that 10 percent is  
20 valid.

21                   They further contend that areas of impact will  
22 not effect spawning shoals, presumably of lake trout. This  
23 conclusion suggests that all spawning shoals have been mapped  
24 and that an overlay of the projected areas of reduced DO have  
25 been produced.

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1                   So in essence, have we mapped -- have we taken  
2 the -- the reduced DO and -- and compared it to where these  
3 spawning shoals are and be able to assess that impact? I --  
4 I haven't seen any information in tech reports to verify that  
5 that's been -- been done.

6                   We are concerned about some of the reasoning  
7 reported in De Beers February 2000 document. Perhaps we have  
8 misinterpreted the information, but De Beers makes a major  
9 assumption about behaviour of fish under ice cover that may  
10 be -- may be flawed.

11                  They assume that lake trout will seek out  
12 shallow areas in the winter because that's where better  
13 forage can be found. In fact, very little food consumption  
14 occurs during the winter, and in the winter, water  
15 temperatures are stratified in the reverse, as indicated by  
16 De Beers.

17                  In the absence of an oxygen restricted  
18 environment, the fish will be found in the warmest waters  
19 they can find. So in my mind, it's unclear how fish in the  
20 Snap Lake, and particularly the lake trout, are going to  
21 react to a depressed dissolved oxygen environment in perhaps  
22 where -- where it's warmer. And currently and in the future,  
23 how they'll utilize these deeper zones.

24                  This is in contrast to De Beers statement  
25 regarding -- I'll go on.

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1                   Twenty-one (21) of the fifty (50) monitoring  
2 stations for DO had existing dissolved oxygen concentrations  
3 at or near the bottom that were considered stressful or  
4 lethal to some elements. What these data show is that the  
5 fish are likely already restricted to some habitats and are  
6 getting by in some of the habitats when conditions are  
7 already marginal.

8                   Further, six (6) of the stations were in what  
9 was defined as shallow habitats, thus invalidating the  
10 hypothesis that such habitat would be inherently available if  
11 deep water habitat were to encounter further depressions in  
12 dissolved oxygen.

13                   More information is needed on where exactly we  
14 might expect to find, based on lake currents and organic  
15 deposition rates, the lowest dissolved oxygen in winter. I  
16 might add that the change in dissolved oxygen concentrations,  
17 over time, has not been modelled or analysed quantitatively.

18                   Some of these areas are probably already  
19 represented by some of the stations sampled. What's probably  
20 more important are those areas on the margin. Those areas  
21 currently on the margin between acceptable and unacceptable  
22 could be unsuitable for fish from the increased biological  
23 oxygen demand resulting from the project action.

24                   Winter kill is often the limiting factor  
25 controlling population density in northern fish populations.

1 Any factor that has the potential to increase this kill, be  
2 it truncating acceptable habitat from water quality  
3 impairment or what have you, certainly must be considered an  
4 impact.

5                   De Beers has still not shown which areas of  
6 the lake will have depressed DO for what length of time and  
7 how these areas may change over time and in particular which  
8 species may be effected. Further, there are deep holes with  
9 low dissolved oxygen. It's unsure how fish will utilize  
10 these zones. And this -- if they avoid it, they could be  
11 construed as a temporary loss of fish habitat.

12                   So De Beers -- in our estimation, De Beers

13 should provide the area and volume of the lake of depressed  
14 DO conditions that will be below relevant criteria, and  
15 identify the duration of this impact, the zones of impact,  
16 preferably with -- and the potential habitats and species  
17 effected, in order to -- to continue with an assessment.

18               With respect to the whole lake, if oxygen  
19 levels drop below five point five (5.5) milligrams per litre  
20 in any area of the lake, this is an alteration in fish  
21 habitat, which must be considered a negative impact.

22               And I would refer to the diagram that was  
23 presented today, that showed the -- it was a cross-section  
24 that showed the percentage of -- of the water column that was  
25 reduced DO below the -- the criteria.

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1               And I'd like to see that type of information  
2 expanded throughout the whole lake so we get a better idea  
3 of -- of where these negative impacts are actually occurring.

4               Now, with respect to total dissolved solids,  
5 the February report summarized potential for toxicity for  
6 elevated TDS to aquatic organisms, and also considered other  
7 potential mechanisms of effect.

8               According to De Beers, calcium and chloride  
9 are expected to increase significantly in Snap Lake as a  
10 result of mine discharge. Baseline TDS in the lake, as we've  
11 seen, is fifteen (15) milligrams per litre and mine  
12 operations are projected to increase this TDS, in De Beers  
13 estimation, to around three hundred and fifty (350)  
14 milligrams per litre, lakewide.

15               I might add that, based on others' analysis,  
16 this concentration may be significantly higher, especially in  
17 deeper zones of the lake during the winter. And currently,  
18 the median calcium baseline the lake is one point three (1.3)  
19 milligrams per litre, and the median chloride concentration  
20 is less than point two (.2) milligrams per litre.

21               According to De Beers' analysis, mine  
22 operations are expected to increase lakewide calcium  
23 concentrations to a maximum of eighty-eight (88) milligrams  
24 per litre, and to a hundred and thirteen (113) milligrams per

25 litre within the mixing zone.

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1 Chloride concentrations are expected to  
2 increase, as we have heard, a hundred and thirty-seven (137)  
3 milligrams per litre lakewide, and a hundred and seventy-  
4 seven (177) milligrams per litre within the mixing zone.

5 So in essence, the calcium chloride ratio will  
6 be altered significantly in the lake, from a baseline of  
7 roughly 6:1, to an operational ratio of nearly 1:2.

8 De Beers has concluded that the projected  
9 increase in TDS, as reflected in calcium and chloride  
10 concentrations, should not have a toxilogical significance.  
11 We would generally agree that this is likely correct,  
12 although the chloride ion concentration criteria, as  
13 indicated by US EPA of three hundred and seventy-two (372)  
14 milligrams per litre, is referencing its toxicity when  
15 kellated (phonetic) with sodium.

16 And US EPA also indicates that he toxicity of  
17 chloride ion may increase when coupled with calcium. So it's  
18 not entirely sure if that consideration was -- was -- if that  
19 was considered.

20 The potential for the increased salt  
21 concentration to effective reproductive viability of lake  
22 trout and other fish species, was considered in De Beers  
23 February report.

24 And the conclusions regarding the lack of  
25 potential effects from the increased salinity in the lake are

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1 supported well with an array of field findings from lakes,  
2 where lake trout thrive under higher salinities than those  
3 projected for Snap Lake.

4 We don't disagree with De Beers reasoning,

5 that acutely toxic effects on juvenile and adult trout from  
6 increased TDS project would not occur, given their  
7 assumptions regarding potential increase in TDS.

8 I might add that it's based on the assumptions  
9 up to three hundred and fifty (350) milligrams per litre, not  
10 the higher -- potentially higher concentrations that could  
11 occur.

12 However, the potential for inducing chronic  
13 mineralization in the kidneys of lake trout and other species  
14 of fish, we don't believe that's been considered. Under most  
15 conditions, this occurs when dietary ratios of calcium and  
16 magnesium are not optimum.

17 Anecdotal evidence suggests that waters  
18 enriched in calcium may also lead to the condition when other  
19 ions dissolve in the water are not in balance.

20 Chronic mineralization has predominantly been  
21 observed in culture systems, but it is possible that an  
22 environmental disturbance altering the salt balance in a  
23 natural system, would lead to this pathological condition.  
24 And this would never be looked for in a standard toxicity  
25 test.

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1 So if TDS concentrations are indeed higher,  
2 and I say this not based solely on INAC's analysis, but on --  
3 on reviews of data presented yesterday regarding potential  
4 range of TDS concentrations in the deeper zones to be mined,  
5 where we'd have less certainty of -- regarding the actual  
6 values that will be encountered.

7 TDS concentrations in Snap Lake might be  
8 significantly higher than predicted. Then the potential  
9 negative effects would not be limited to Snap Lake, but to  
10 downstream waters as well.

11 So this is important to put in context. If we  
12 are just limiting our analysis to Snap Lake at the three  
13 hundred and fifty (350) threshold, but let's just say it's a  
14 five hundred (500) threshold or a six hundred (600)  
15 milligrams per litre threshold, we have to start considering  
16 effects downstream, not just in Snap Lake.

17 Interactive effects, impacts to Benthic  
18 Invertebrates is my next topic. Impacts to Benthic  
19 Invertebrates from phosphorous enrichment cannot be predicted  
20 from the information provided.  
21 Impacts are likely. in some basins, due to  
22 dissolved oxygen depression. Supposition indicating the  
23 areas effected by low dissolved oxygen will be re-colonized  
24 after oxygen levels return to normal is probably accurate,  
25 however, the ability to re-colonize and re-establish a

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1 healthy Benthic Invertebrate population will be predicated  
2 upon the frequency of this insult.

3 Thus if dissolved oxygen levels fall  
4 repeatedly or regularly during the mine operation, it is  
5 unlikely that a stable and diverse Benthic fauna community  
6 will develop. And a habitat that would otherwise support  
7 fish will be compromised to do so over the course of the  
8 operation of the mine.

9 Since some of the Benthic Invertebrates  
10 represent a significant food source for juvenile salmonoids,  
11 frequent fluctuations in the Benthos will likely affect the  
12 early life stage survival of lake trout at times during the  
13 operation of the mine.

14 The importance of juvenile salmonoids in the  
15 early diet -- now, I got that wrong -- the importance of  
16 something -- and I'm going to spell this, because I don't  
17 know how to pronounce it. I think it's chironomids,  
18 C-H-I-R-O-N-O-M-I-D-S -- the importance of this species in  
19 the early diet of juvenile lake trout should not be  
20 overlooked.

21 The February 2003 report concludes that no  
22 change in the food supply to fish is predicted, as a result  
23 of phosphorus enrichment, but also, in the same report, it is  
24 acknowledged that it is uncertain if dissolved oxygen levels  
25 in the Benthos could reach concentrations below three (3)

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1 milligrams per litre.

2                   So, we're asking, how can a prediction of no  
3 effect be made from such uncertainty?

4                   The last topic I'd like to talk about is  
5 interactive effects. The Proponent attempted to address the  
6 issue of interactive effects of the predicted changes to  
7 water quality, and aquatic community in a recent document.

8                   De Beers claims that the state of science does  
9 not allow a quantitative prediction of the net result of  
10 these individual stresses to be determined.

11                   Therefore, they developed a more qualitative,  
12 or subjective approach based on quote, unquote, "weight of  
13 evidence", to examine the issues.

14                   We don't believe that their results are  
15 convincing, and they leave still a considerable amount of  
16 doubt.

17                   The work does not provide any increased  
18 accuracy as to what will happen if the project proceeds. The  
19 uncertainty surrounding the predictions of individual  
20 components that would be loaded into Snap Lake, their  
21 behaviour and distribution within the Lake itself, and  
22 particularly, the net interactive effects of these on the  
23 aquatic ecosystems has not been narrowed by the weight of  
24 evidence approach, as depicted by the slide -- by -- by the  
25 table on slide 35 of Stella Swanson's presentation earlier

1 today.

2                   We also note that the additive and synergistic  
3 effects have still have not been addressed, for example, the  
4 relationship of predicted changes in water quality in aquatic  
5 community to potential changes between aquatic and  
6 terrestrial ecosystem interactions.

7                   In addition, an example would be, what is the  
8 effect of reduced Benthic productivity, and reduced Benthic  
9 community structure on various fish species, population, or

10 fish biomass? That hasn't been addressed.

11 Also, what would be the effect on reduced, or  
12 increased fish populations, or fish biomass on wildlife that  
13 use -- that eat this fish?

14 Further, what competitive advantages and  
15 disadvantages are being created amongst the various species  
16 as a result of this change in community structure?

17 These -- there are major changes that we're  
18 going to see in Snap Lake, and I guess we've heard lots of  
19 them, so I don't need to -- to go through and list them all,  
20 but the -- the effects are serious issues for the Board to  
21 consider for its understanding of the overall net effect of  
22 the mine-related changes in Snap Lake that should guide  
23 responsible determination of the acceptability of the  
24 project.

25 Yesterday, I related some concepts regarding

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1 uncertainty, in the likelihood of events or impacts, and we  
2 should be aware that it is what is being proposed for Snap  
3 Lake, and I don't believe we have a precedent for this  
4 activity in an arctic and sub-arctic, and I'm concerned about  
5 De Beers use of the terms sure and certain in the context of  
6 much uncertainty with a number of issues.

7 Certainly, good scientific methodology  
8 requires that the uncertainties be recognized, and I don't --  
9 they are talking about lay -- while they're talking about  
10 layers of safety, I see lots of layers of uncertainty in the  
11 analysis.

12 We should be aware that, even with the  
13 uncertainty of effects, we are still running on -- running an  
14 experiment to prove or disprove hypotheses put together --  
15 put forward by -- by De Beers, and I'll stop there. Thank  
16 you.

17 THE CHAIRPERSON: Thank you, sir. Questions  
18 for Mr. Wilbur?

19 MR. JOHN McCONNELL: John McConnell with De  
20 Beers.

21 THE CHAIRPERSON: Mr. McConnell...?

22 MR. JOHN McCONNELL: Yeah, I -- I guess given  
23 that Dr. Wilbur indicated he wouldn't be prepared to answer  
24 technical questions, I guess in spirit of moving the Hearing  
25 forward, we have no questions.

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1 THE CHAIRPERSON: Thank you. I believe he  
2 said he might not be able to answer some of the questions,  
3 not all of them, but thank you very much.  
4 MR. STEVE WILBUR: If he wants to ask, I can  
5 -- I can answer some, but some of the types of ones I can't.  
6 THE CHAIRPERSON: No, once an offer's made,  
7 I'm not turning it down. Thank you. Ms. Crapeau...?  
8 MS. RACHEL CRAPEAU: Question for Dr. Wilbur.  
9 Rachel from Yellowknives Dene. Are you suggesting that the  
10 diffuser where it's been proposed to be put in the Lake be  
11 put in the -- that north inlet part of -- of the footprint,  
12 and are you suggesting that it goes in...  
13

14 (BRIEF PAUSE)  
15

16 THE CHAIRPERSON: Thank you, as far as --  
17 MS. RACHEL CRAPEAU: I just -- I just wanted  
18 a clarification on where -- where you're suggesting that they  
19 move the diffuser to?  
20 THE CHAIRPERSON: Could you describe it, it's  
21 really hard to pick it up in the public record when it's a  
22 picture. Just...  
23 MR. TIM BYERS: Sorry. The north -- north  
24 arm, so basically, somewhere north of -- sorry, this is Tim  
25 Byers with the Yellowknives -- suggesting -- are you

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1 suggesting, Steve, that it could be repositioned, the

2 diffuser, somewhere in the vicinity of the north arm, north  
3 of the North Pile?

4 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

5 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
6 don't remember saying anything about relocation of the  
7 diffuser. I think that was -- had been offered by others. I  
8 think that definitely needs to be looked at, if it can reduce  
9 impacts, and uncertainties.

10 THE CHAIRPERSON: Thank you. Ms. Crapeau...?

11 MS. RACHEL CRAPEAU: Follow-up question for  
12 the Dogrib Treaty 11 Council. You brought up maybe moving  
13 the diffuser, but the question of the fish habitat fund was  
14 brought up by your table.

15 I was wondering if such a thing will be talked  
16 about in the future, where you be at the table to discuss  
17 this fish habitat work, or something, like, with the -- with  
18 the Company?

19 THE CHAIRPERSON: Ms. Teillet...?

20 MS. JEAN TEILLET: It's my understanding that  
21 the fish habitat compensation agreement is between the  
22 Proponent and DFO, not -- and the Aboriginal people have no  
23 part of that agreement. It's a bi-party agreement.

24 However, if -- if Ms. Crapeau is asking  
25 whether if and when DFO ever decides to -- or -- or is able

1 to put together some means of actually using some of that  
2 funds that they've been collecting, it's my understanding  
3 that the Dogribs are certainly prepared to participate in  
4 anything that is put forward by way of countering some of the  
5 environmental damage that's done by projects in the Northwest  
6 Territories, and particularly in the Mackenzie Valley Region.

7 So, I guess the short answer is yes, Rachel.

8 THE CHAIRPERSON: Thank you, Ms. Teillet.

9 Ms. Crapeau...?

10 MS. RACHEL CRAPEAU: In any case, from my  
11 last experience with the DHB3 pipes, we would have liked to  
12 have been present when the fisheries authorization was  
13 designed.

14                   If this fisheries authorization is going to be  
15 designed for De Beers, would you like to be there too, as an  
16 Aboriginal group?

17                   THE CHAIRPERSON:    Thank you.    I'm sure DFO  
18 has noted your statement.

19  
20                   (BRIEF PAUSE)

21  
22                   THE CHAIRPERSON:    Any other questions for Mr.  
23 Wilbur?

24                   MS. JEAN TEILLET:    I just want to say yes to  
25 Rachel.

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1                   THE CHAIRPERSON:    Okay, if not, we've got a  
2 small change in the agenda, and I appreciate the cooperation  
3 of Environment Canada, who have gracefully allowed Lutsel K'e  
4 to make the next presentation.

5  
6                   (BRIEF PAUSE)

7  
8                   MS. FLORENCE CATHOLIQUE:    Good afternoon, or  
9 good evening everybody.    I'm having a bit of a -- I'm  
10 catching a cold -- a Yellowknife cold here.

11                   So, I will -- I will read the -- the  
12 presentation that we've submitted in English, and then Elder  
13 J. B. Rabesca will then talk, and then, the recommendations  
14 will be done by our Youth, Kyle Enzoe.

15  
16                   (BRIEF PAUSE)

17  
18                   MS. FLORENCE CATHOLIQUE:    The Na Yaghe Kue  
19 lies within the watershed of the Tache Deze, the Lockhart  
20 River.    Tache Deze is home to the Ts'akui Theda, The Old Lady  
21 of the Falls, an important site to -- for us, the Denesoline  
22 people.

23                   This spiritual site is very important to the  
24 community of Lutsel K'e and others.    The water that flows  
25 through this system is sacred to the people, because they are

1 connected to this spiritual site.

2 It is for this reason that the community is  
3 very concerned about the water, and the Na Yaghe Kue area,  
4 and the potential risk posed by the De Beer Canada Project.

5 The Ts'akui Theda, The Old Lady of the Falls,  
6 on the Lockhart River, is downstream of the proposed mining  
7 project. The following aspects of mining activity and its  
8 impact on water quality in the Tache Deze are a concern to  
9 the Denesoline.

10 Quote from a concern by a community member:

11 "What happens when they explode the rocks?  
12 Everything -- the dust spreads out  
13 everywhere. If that happens, the fish will  
14 die, or get spoiled, then they flood area  
15 and they -- and the land dies.

16 The overflow kills the plants. The fish  
17 starts to eat these plants from the land,  
18 and they die. The water we drink will also  
19 be spoiled. There are lots -- large  
20 dynamite explosions on the mine in the  
21 water. It's very low. I think it will  
22 kill the fish. They shouldn't use so many  
23 explosives."

24 The concern the Elders have about impacts on  
25 migratory birds relate to the concern about impact on water

1 quality.

2 The animals, birds, live on the -- on the  
3 land. They drink the water. They will feel the effects.

4 And the fish -- fish in the region of the Na  
5 Yaghe Kue are valued for many different reasons, and in  
6 different geographic areas. At -- at least twelve (12)

7 different species of fish are commonly harvested in lakes  
8 throughout the study region.

9           The lake trout is called lue zane in Dene Yati  
10 and is among the most commonly harvest species, along with  
11 the lue and the luecho, whitefish. Both species are valued  
12 for their relative abundance, especially in late spring and  
13 summer, when caribou are scarce.

14           People value fresh fish, and would also dry  
15 and store it for future use for themselves, and for their  
16 dogs.

17           Okay, now J.B. will speak.

18  
19           (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

20  
21           MR. J.B. RABESCA: I'm not -- I'm not talking  
22 by the -- which is written down on paper. I'm talking by  
23 experience.

24           I have -- I have fished for about twenty (20)  
25 years with a fishing -- with a fish net, and then I had fish

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1 -- I went guiding. I had seen all the fish plants, like I've  
2 been around this Great Slave Lake, and I work there, and then  
3 I went to an Ananocho (phonetic) Lake trapping in winter, and  
4 -- and during the winter, I used to set nets for my dogs --  
5 in order to feed my dogs.

6           And, so far, I have never seen any fish that  
7 were contaminated, or fish that looked really poor. Those  
8 fishes were very good at those times.

9           And, then this Stark Lake mining came up, and  
10 now we're having a lot of problems with fish in -- in our own  
11 backyards -- in our backyard with the -- which is Stark Lake.

12           The fish have worms in there, and then there  
13 was a lot of people had looked at it, and so we went to -- to  
14 Ananocho Lake, there was ten (10) Elders there, and we got  
15 there by plane, and then we borrowed boat from the fish camp  
16 there, and we set nets just to test the fish, and the fishes  
17 were just black.

18           Their skin was black. It's because when the

19 land is flooded, the fish eat from the plants on the land, so  
20 this is what happened to the fish out there.

21 Before, a lot of our Elders, and the people  
22 that were raised around that area have been raised on that  
23 lake. The reserve is connection to the Anancho Lake, and  
24 there is fish at all over, it was plentiful.

25 Me and my dad, when we do -- go -- when we

---

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1 used to go hunting, where we used to look for where the ice  
2 was thinner, so that we could set -- we could ice fish there.

3 So, this is what happens when the land is  
4 flooded over. And this can't be reclaimed, no matter how  
5 hard you try, you can't ever reclaim a land that spoiled --  
6 that -- a land that's spoiled.

7 For -- this is what we had experienced in the  
8 past. I know that De Beers are going -- going to work on the  
9 land and bare lands, and there's a lot of watershed around  
10 that land.

11 They can't tell us nothing will be -- will be  
12 spoiled or contaminated because I know by experience, of how  
13 you have to respect the land.

14 So, these are the things that I have seen with  
15 both my eyes, this is what I have experienced.

16 Even in Stark Lake which is right -- and the  
17 Snap Lake when the -- if the water is spoiled after the  
18 closing of the mine, you guys would go home and make all the  
19 money, we're the ones that are going to be holding the bag  
20 for you guys, of all the land that's spoiled, and the  
21 caribou, and the animals, and the birds, the plants.

22 Because this land -- there are all animals  
23 that live on the land, they feed off the land. There is a  
24 lot of people and animals alike depend on that land and that  
25 water.

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1                   So, I've been sitting here all day waiting  
2 for -- for my turn to speak, and I'm an Elder, so I'm very  
3 tired right now, but this is what I wanted to say.

4                   Thank you for letting me speak.

5                   MR. KYLE ENZOE: De Beers Canada has said that  
6 their project will have a significant impact on the water,  
7 fish, and in Na Yaghe Kue region.

8                   However, we do not feel those visions can be  
9 guaranteed, therefore we recommend that outgoing monitoring,  
10 based on Denesoline traditional ecological knowledge part of  
11 the project and its effects on the fish and water be carried  
12 out.

13                   Monitoring should be focused on the key  
14 indicators of water quality and health of the fish; including  
15 water levels, water quality, respect of the water.

16                   Thank you.

17                   MS. FLORENCE CATHOLIQUE: Also, in regards to  
18 monitoring a fish size, fat, color, organs, and the  
19 population and diversity, and on parasites.

20                   More specific study and monitoring should also  
21 be done in respect to the following questions and concerns  
22 that I raised yesterday, in regards to water ground flow and  
23 contamination, and the waste water discharges.

24                   Marci.

25                   THE CHAIRPERSON: Thank you very much. No

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1 questions? No.

2                   Any questions from the floor? Ms. Crapeau...?

3                   MS. RACHEL CRAPEAU: Rachel, I'm the  
4 Yellowknives Dene First Nation. I wanted to know if Joe  
5 Rabesca thought about how the monitoring should go? What he  
6 thought, maybe, monitoring of the fish, or monitoring of the  
7 water. How they wanted to do the traditional ecological  
8 knowledge work in that area?

9

10                   (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

11

12 MR. J.B. RABESCA: We have to have respect for  
13 the fish. So, we have to watch out for the fish that's not  
14 contaminated, especially in the lake.

15 I know what -- how the fish is contaminated.  
16 I know what it looks like when it's contaminated, but you can  
17 tell the difference between a healthy fish and a fish that's  
18 not healthy.

19 When we check the fish over at Stark Lake, we  
20 set the nets in the water and as soon as we took the nets out  
21 that next day, we knew the fish were very unhealthy.

22 So, that's why we cut it open, and then we  
23 checked in there. Sure enough, there's all kinds of  
24 par -- there's lots of parasites in that fish.

25 And around that area too, it used to be a

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1 small village around there one time because people used to  
2 live in -- harvest fish around that area.

3 And now, because of all that flooding,  
4 there's -- that water moves and doesn't freeze anymore, so we  
5 lost two (2) of our individual trappers and hunters that went  
6 through the ice. And we didn't even get compensation for  
7 those people.

8 Even though we said something, there's no  
9 compensation at all. And there's been lots been saying, but  
10 we still have this dispute going on.

11 And those people -- two (2) people that we  
12 lost, they still have a -- their children are still living,  
13 and his wife is still alive, and nobody's got compensated.  
14 And here he's trying to support his family when he went out  
15 trapping.

16 Nobody helps us, even though there's all kinds  
17 of mining companies that's coming on our land, and we're not  
18 getting any benefits or resources from them.

19 So, if they had listened to us, and that --  
20 that Ananocho Lake wouldn't have flooded. The reason that  
21 we're talking about fish is because it's very important as  
22 our source of diet -- our main source of diet.

23 That's what I live on. That's my main diet is

24 fish. So, I want that fish to be monitored around Snap Lake,  
25 and also the water. I want it to be monitored thoroughly.

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1 And I'm not reading from any documents, but  
2 I'm talking from the bottom of my heart and my mind.  
3 THE CHAIRPERSON: Any additional questions?  
4 If not I would -- Mr. Wilbur, please keep in mind that the  
5 Elder is tired. Thank you.  
6 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
7 just wanted to just follow up with his -- Elder's comment  
8 about his observation of the fish.  
9 And I was wondering if when -- when you saw  
10 the -- these affected fish, could you see any changes in the  
11 water, or were they not that obvious?  
12  
13 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)  
14  
15 MR. J.B. RABESCA: I said that Ananocho Lake  
16 was flooded, but it didn't look like -- the water looks  
17 clear, but it was only the fish that was contaminated.  
18 And also, the trees were all in the water.  
19 And one time, there was an island there. And there's no  
20 island, and the water's all flooded over.  
21 So, here -- and there's all the trees, and  
22 they're all dead too, that were sticking out of the water.  
23 So, that's why the fish had start eating off the plants from  
24 the inland then, not plants from under -- from the lake, so  
25 that's why the fish was contaminated.

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1 And when you go there for fishing with  
2 fishing -- with tourists, there's a lot of fish there, but  
3 now we don't go there anymore.

4                   This is that Stark Lake area. I've been  
5 guiding for the last -- about fifteen (15) years around that  
6 area, and the fish is not -- is contaminated, so we don't  
7 have any fish around there anymore. That's Stark Lake, that  
8 near Lutsel K'e.

9                   THE CHAIRPERSON: Thank you very much. We  
10 will now move to the presentation by Environment Canada.

11  
12                                 (BRIEF PAUSE)

13  
14                   MS. ANNE WILSON: Thank you. Good evening,  
15 Mr. Chair, and Members of the Board. My name is Anne Wilson,  
16 I'm with Environment Canada.

17                   With me tonight is Gary Grove, who will join  
18 me in presenting on behalf of Environment Canada. The next  
19 slide, please.

20                   We didn't do opening comments. I'll just say  
21 a word about our responsibilities. Our departmental mandate  
22 is described in our written submissions so far.

23                   Briefly, Environment Canada has responsibility  
24 for protection of the environment under the Department of  
25 Environment Act and the Canadian Environmental Protection

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1 Act.

2                   Legislation which is administered by EC,  
3 includes: Section 36 of the Fisheries Act, for protection of  
4 water quality in waters frequented by fish.

5                   Other legislation administered by EC, includes  
6 the Migratory Birds Convention Act, and the Species At Risk  
7 Act. Next slide, please.

8                   Let me know if my speed is okay. I -- I think  
9 we don't have translators, so I won't go as slowly as I  
10 might, if that's all right. Thank you.

11                   THE CHAIRPERSON: That's fine.

12                   MS. ANNE WILSON: Environment Canada has been  
13 extensively involved in this review, and would like to  
14 commend De Beers for involving stake holders, and technical  
15 staff, at an early stage.

16 Over the course of this review, many of the  
17 issues raised by EC have been resolved through clarification,  
18 and through development and/or commitment to additional  
19 mitigation measures.

20 Some of the issues that have been resolved, as  
21 outlined in addenda, include: water management, specifically  
22 storage and treatment capacity; groundwater issues, such as  
23 quality, quantity, and impacts on the north and northeast  
24 lakes; surface water quality, such as phosphorus modeling,  
25 seepage collection, and treatment options; also, the effects

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1 of total dissolved solids. And a range of predictions for  
2 various scenarios have been provided.

3 This presentation will outline the issues that  
4 were outstanding when our technical addendum was filed. And  
5 Environment Canada would like to note that there will be  
6 details on all issues that will have to be worked out at the  
7 regulatory stage.

8 To give you a quick overview, this  
9 presentation will cover our basis for accepting the water  
10 quality predictions, and go on to issues resolved since the  
11 addenda were filed, including; water treatment optimization,  
12 specifically for dissolved metals, total dissolved solids,  
13 with respect to the density plume, a slide on air quality  
14 monitoring, followed by some general comments, and some  
15 thoughts on monitoring.

16 At this point I will turn the presentation  
17 over to Gary Grove. Gary is a groundwater specialist with  
18 the National Water Research Institute in Saskatoon.

19 MR. GARY GROVE: Thank you. As we heard  
20 during the hydro-geology hearings yesterday, the quality of  
21 the connate water largely dictates the concerns with the  
22 quality of the mine water effluent.

23 There was considerable discussion about which  
24 samples were representative of connate water. It -- the  
25 approach we have taken is to give equal weight to all

1 samples, including the original nine (9) samples that were  
2 presented -- this is equal weight to all the water samples  
3 from the ground, including the nine (9) samples that were  
4 originally presented in the Environmental Assessment Report.

5 The seven (7) samples from the North Lakes  
6 Program, and the six (6) additional samples from the Advanced  
7 Exploration Program reported in the technical memorandum on  
8 mine water assessment and variability.

9 We considered them all. The average TDS and  
10 chloride concentrations changed by less than 10 percent from  
11 those used in the Environmental Assessment Report.

12 It is my belief that the random collection of  
13 a large number of additional samples is not going to  
14 significantly change or alter the values used in the  
15 Environmental Assessment Report.

16 Now, in the mine water and variability Report,  
17 De Beers has examined several variations in connate water  
18 quality and flows. Next slide, please.

19 The TDS concentrations in the mine water  
20 discharge for these variability scenarios, ranged from less  
21 than those -- less than the predictions in the Environmental  
22 Assessment Report, to 53 percent greater than the case  
23 assessed in the Environmental Assessment Report.

24 There are still uncertainties associated with  
25 the proportions of connate versus lake water, rates of flow

1 into the mine, and the amount of -- of saline water  
2 up-welling.

3 In the mine water variability assessment, the  
4 expected plus one (1) standard deviation increase in the  
5 connate water quality, generated the largest increase of 53  
6 percent in total dissolved solids in the mine water  
7 discharge.

8 This scenario is meant to bracket some of the

9 uncertainty noted above. Environment Canada also recognizes  
10 that several conservative assumptions have been used during  
11 modeling of the mine water discharge quantity and quality.

12 Therefore, Environment Canada considers the  
13 expected plus one (1) standard deviation increase in connate  
14 water quality represents a reasonable worst case scenario for  
15 the quality of the mine water discharge.

16 Thank you.

17 MS. ANNE WILSON: Okay. Next slide. So, the  
18 next issue I'll touch on is water treatment. De Beers -- I'm  
19 sorry, Environment Canada had previously questioned water  
20 treatment optimization.

21 And in response, De Beers had provided a  
22 technical memo, entitled Summary of Water Treatment Process  
23 Development Selection and Comparison of Alternatives, which  
24 satisfied us that the full consideration had been given to  
25 identifying the best available practical treatment.

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1 In that document, De Beers clarified what  
2 options were explored, the criteria used in screening the  
3 options, why some of them were discarded, what the final flow  
4 sheet configuration for the treatment plant would look like,  
5 and where and how treatment contingencies have been built  
6 into the process.

7 Environment Canada required clarification  
8 further to that, on the removal of dissolved metals. This  
9 clarification was provided in a teleconference call on April  
10 10th, followed up by a memo from De Beers on April 16th, and  
11 meeting notes, and that memo, are on the public registry.

12 The -- in response to our concerns, De Beers  
13 has clarified that levels of dissolved metals observed during  
14 the pilot test work were very low.

15 And my understanding is, these were below  
16 levels that you could treat to, even. This is due to  
17 solubility controls inherent in the waste stream. The pH  
18 kept the metals from being very soluble.

19 One (1) thing that we weren't sure about was  
20 metals that might be measured as dissolved. It was explained

21 to us, it could actually be associated with colloids; that's  
22 when the metal element is attached to a very fine particle,  
23 it will pass through a .4 or 5 micron-filter, and be  
24 mistakenly measured as a dissolved, when it is truly a  
25 particulate.

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1 And the treatment contingencies that have been  
2 planned for are able to remove colloid associated metals. So  
3 that was a concern that was addressed.

4 Also, with respect to water treatment, De  
5 Beers committed to optimizing effluent quality using real  
6 time monitoring and treatment adjustment.

7 We heard that concern earlier from others,  
8 that they will have meters on the effluent, measuring  
9 conductivity, measuring turbidity, to know what treatment is  
10 needed and how to adjust it, to get the very best treatment.

11 So, on the water treatment, Environment  
12 Canada's position is that we are satisfied that options were  
13 adequately explored, and that De Beers will use monitoring,  
14 adaptive management, and best available technology  
15 economically achievable to minimize impacts on Snap Lake.

16 Next, we'll look at total dissolved solids.  
17 The Environmental Assessment predicts that after the initial  
18 mixing, the denser water will sink to the bottom of the lake.

19 Environment Canada raised concerns that denser  
20 water on the lake bottom would resist mixing, and possibly  
21 those heavier layers would persist throughout the summer.

22 Our concern was that this could isolate the  
23 deeper areas of the lake, and possibly result in reduced  
24 dissolved oxygen at the bottom.

25 De Beers clarified that it was true that

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1 under ice the plume is unlikely to mix much with the lake  
2 water beyond the initial discharge mixing. The density  
3 difference will be small but sufficient to cause the mixed  
4 water to sink to the bottom and the density difference is  
5 small enough that the lake will mix each summer due to wind  
6 and current.

7               Examples were provided of mixing between the  
8 lake waters and the effluent. It appears the density  
9 gradient would be less than 50 milligrams per litre and this  
10 difference between the initially mixed water and the lake  
11 water will decline as the lake TDS levels rise.

12              Environment Canada is satisfied that the plume  
13 will mix under open water conditions given the energy from  
14 wind, from heat and we do expect though that monitorings will  
15 have to be rigorous and action thresholds should be developed  
16 to ensure that mixing does occur.

17              In the event that action is required, De Beers  
18 has committed to optimising dispersion of effluent in  
19 response to the monitoring information.

20              We only have one slide on air quality and I'm  
21 not an air person so I'm just going to read this and I'll  
22 take any questions back to our air expert if there are any.

23              With respect to air quality the position of  
24 Environment Canada is that polluting up to a limit is not  
25 acceptable. De Beers emissions are predicted to approach

1 some of the guideline values. Most notably for particulate  
2 matter.

3              So Environment Canada sought clarification  
4 that De Beers would monitor both PM10 and DM2.5 to ensure  
5 that their emissions are indeed below the Canada-wide  
6 standards guidelines.

7              Environment Canada is available to assist in  
8 designing the monitoring plan and De Beers has undertaken to  
9 conducting that monitoring as requested.

10             A few general comments. Throughout the review  
11 Environment Canada has recommended that De Beers minimise  
12 environmental impact through monitoring combined with

13 adaptive management and through use of the best available  
14 technology economically achievable.

15           Issues that have been listed here are resolved  
16 provided that monitoring and adaptive management are employed  
17 to ensure that the predictions presented in the EA and  
18 supporting documents are accurate.

19           The biggest one we had was the -- the  
20 predictions being based so heavily on the mine water quality  
21 and being satisfied that those predictions are reasonable  
22 allowed us to develop the conclusion that the other  
23 predictions are also credible on their own basis as well.

24           The last item is monitoring and monitoring, of  
25 course, is key to confirming predictions and identifying how

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1 effective the mitigation is or whether further measures are  
2 needed. For example, the Company is committed to using  
3 monitoring results to continue to field calibrate the water  
4 quality modelling done for nutrient effects.

5           This is a key to detecting changes that may  
6 lead to unacceptable effects so that action can be  
7 implemented before the effects occur. Environment Canada is  
8 available to participate in the development of environmental  
9 monitoring and as per the commitment made by De Beers to  
10 include stakeholders in the design of the monitoring  
11 programs.

12           And, as previously stated, there are items  
13 which will be addressed at the regulatory stage and these  
14 will include setting of effluent limits and the environmental  
15 effects monitoring program.

16           So, in conclusion, we'd like to thank you for  
17 the opportunity to present this submission and we'll be happy  
18 to try and answer any questions.

19           THE CHAIRPERSON: Thank you. De Beers, any  
20 questions...?

21           Okay. Rather than go through my cheat sheet  
22 because I don't know who's here and who's not any more, I'll  
23 just ask if there are questions and I'll try and get them by  
24 hands. Tim...?

1 Tim Byers with Yellowknives Dene.

2 I realise this is a -- a fish and surface  
3 water forum right now, but Anne did bring up air quality and  
4 it does -- is something that we are interested in finding out  
5 about and that is, could you tell us, Anne, what government  
6 department is charged with the task of assuring air quality  
7 standards are met in licensing of mine development?

8 THE CHAIRPERSON: Ms. Wilson...?

9 MS. ANNE WILSON: Anne Wilson, Environment  
10 Canada. I can't give you a good answer to that because I  
11 think the territorial government is charged with setting  
12 guidelines.

13 We don't have a regulatory role with respect  
14 to air quality. We have a pollution prevention role, more  
15 so, at Environment Canada.

16 MR. TIM BYERS: In that case, Anne, I guess I  
17 -- ultimately we'd like to know if Environment Canada could  
18 determine for us, either now or at a later date -- or at a  
19 later date, whether it would be the Mackenzie Valley Land and  
20 Water Board or the National Energy Board or Environment  
21 Canada or the Government of the Northwest Territories that  
22 would -- that would be charged with the task of telling a  
23 developer this is the standard you must meet in air quality?

24 So, in other words, regulating the effluent,  
25 ultimately we're left with a big question as to who regulates

1 effluent.

2 MS. ANNE WILSON: Anne Wilson, again. The  
3 Canada-wide standards are in place but they are not  
4 enforceable. The compliance with them is voluntary and in

5 the case of EKATI, for example, the air quality monitoring  
6 fell under the Environmental Agreement because we don't have  
7 a regulatory mechanism to require it. So it is one that  
8 falls outside of the normal permits.

9 THE CHAIRPERSON: Thank you. Mr. Byers...?

10 MR. TIM BYERS: Thank you. Tim Byers here.  
11 Then, in that case, are you suggesting, Anne, that perhaps an  
12 Environmental Agreement is the only avenue for making sure  
13 air quality standards are met in this process?

14 THE CHAIRPERSON: Ms. Wilson...?

15 MS. ANNE WILSON: Anne Wilson, Environment  
16 Canada. I -- I wouldn't presume to suggest that. I think  
17 that the cooperation that Environment Canada and the  
18 Government of the Northwest Territories are having with  
19 various proponents in working towards achieving better air  
20 quality and raising awareness of air issues is certainly a  
21 good start.

22 I don't know, it may be discussions with RWED  
23 could occur later on on this.

24 THE CHAIRPERSON: Ms. Crapeau...?

25 MS. RACHEL CRAPEAU: Rachel Crapeau for the

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1 Yellowknives Dene. I don't want an answer today and I don't  
2 really expect one at the end of the week. All I want to know  
3 is your air quality specialist or the person who you deal  
4 with, I wonder if that person can look up the information for  
5 us on gas and oil guidelines or -- or policies regarding air  
6 emissions?

7 Maybe something that we could look at. Maybe  
8 your expert could talk to us. Thank you.

9 THE CHAIRPERSON: Thank you, Ms. Crapeau. If  
10 Environment Canada are willing to do that, but I believe that  
11 the Government of the Northwest Territories also has a role  
12 and perhaps they could commit to providing information to the  
13 Yellowknives Dene as well.

14 MR. STEVE WILBUR: Thank you, Mr. Chair.  
15 Yes. We'd be very pleased to get together with Rachel and  
16 talk it over with her.

17 THE CHAIRPERSON: Thank you. Any further  
18 questions. Steve...?  
19 MR. STEVE WILBUR: I thought you had turned  
20 me off.  
21 THE CHAIRPERSON: Not yet.  
22 MR. STEVE WILBUR: We're almost there. These  
23 questions are for Anne and I guess she made a statement about  
24 -- kind of an if/then statement based on her assumptions  
25 regarding De Beers' conclusions and such.

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1 I want to ask her, if the predictions that --  
2 about the water quality in Snap Lake are shown to be higher  
3 than what De Beers is -- has presented, would you change your  
4 opinions regarding your issues resolutions?  
5 THE CHAIRPERSON: Thank you. Ms. Wilson...?  
6 MS. ANNE WILSON: Anne Wilson, Environment  
7 Canada. We didn't contemplate the two times and three times  
8 scenarios. I would certainly re-examine my conclusions in  
9 that case. I can't say what they would be.  
10 THE CHAIRPERSON: Thank you. Mr. Wilbur...?  
11 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
12 notice that this is question 4. Mr. Grove, Gary Grove, you  
13 mentioned that the net change in TDS and chloride were less  
14 than 10 percent but these were for samples collected, I  
15 guess, as you mentioned, a random assortment.  
16 Do you consider that these samples have  
17 been -- are representative of deeper zones where the mine  
18 will go? And that they're actually -- would you re-evaluate  
19 that -- that number of less than 10 percent if samples from  
20 deeper zones are more representative -- or samples collected  
21 from more deeper zones were actually provided.  
22 THE CHAIRPERSON: Mr. Grove...?  
23 MR. GARY GROVE: Gary Grove, Environment  
24 Canada. In any sample collection program there's -- there's  
25 always going to be some sort of a bias built into the

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1 sampling that -- that you do.

2 So certainly if you put in another dozen holes  
3 down to 1500 metres and collected water samples from them  
4 then you are going to see a significant increase -- or some  
5 increase, not necessarily significant, but some increase in  
6 TDS and chloride concentrations in -- in the connate water.

7 I think you have to look at whether you're  
8 really, in that case, conducting a random sampling program.  
9 If you're going to be collecting --

10 I guess, I should back up and say, what you  
11 really need to do is collect your connate groundwater samples  
12 from a full range of depths and if you sit down and you do an  
13 average on that you're probably not going to find that it's  
14 too much different from what is in the Environmental  
15 Assessment Report.

16 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

17 MR. STEVE WILBUR: Thank you. Steve Wilbur.  
18 So, in your estimation then, without sampling below 160  
19 metres you can find representative samples of TDS for those  
20 depths? I think that's what you said.

21 THE CHAIRPERSON: Thank you. Mr. Grove...?

22 MR. GARY GROVE: Gary Grove, Environment  
23 Canada. I -- I am saying that the samples that have been  
24 collected at -- at the depths presently collected or the  
25 depths presently encountered in the Advanced Exploration

1 Program are probably a reasonable representation of the total  
2 range of TDS and chloride values in that mine area.

3 THE CHAIRPERSON: Thank you. Steve...?

4 MR. STEVE WILBUR: I just want to say I find  
5 it hard to believe that -- I disagree with his -- his --  
6 conclusion that you can actually be -- find a representative  
7 statistical measure without sampling from below that measure.

8 I have just a question for Anne and she talked  
9 about the treatment of colloids and I guess my question is:

10 What treatment efficiency of the colloids did you assume in  
11 convincing yourself that the issue of metals treatment was  
12 resolved?

13 THE CHAIRPERSON: Ms. Wilson...?

14 MS. ANNE WILSON: Anne Wilson, Environment  
15 Canada. Could you just rephrase that question, Steve. I'm  
16 not quite clear on -- on where the treatment efficiency comes  
17 in.

18 THE CHAIRPERSON: Thank you. Steve...?

19 MR. STEVE WILBUR: Steve Wilbur. Yes. You  
20 mentioned that you were able to -- to resolve an issue  
21 regarding metals and you mentioned that there was some  
22 treatment of colloids, treatment that was going to occur  
23 associated with colloids.

24 And I just wanted to know what efficiency that  
25 you assumed that this treatment would actually occur to

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1 remove those metals in order to -- to -- for you to consider  
2 that issue resolved?

3 MS. ANNE WILSON: Anne Wilson, Environment  
4 Canada. I didn't quite look at it on an efficiency basis.  
5 It was more the -- the metals which were going to be  
6 dissolved were a concern because they wouldn't be addressed  
7 by the treatment which was proposed.

8 And the way that concern was addressed was  
9 that they would not be true dissolved metals, they could be  
10 colloidal and treatable metals.

11 And I know from other operations in the north  
12 that the treatment technology proposed is very standard and  
13 is -- the fact that they are getting it down to 5 milligrams  
14 per litre of TSS means that the particulates are going to be  
15 extremely low in the effluent. So that was where our level  
16 of comfort came in.

17 THE CHAIRPERSON: Thank you. Steve...?

18 MR. STEVE WILBUR: Steve Wilbur. So, I'll  
19 just -- I'll just stop there. That's okay. I have -- on  
20 that one issue.

21 I have one last question. One last question.

22 THE CHAIRPERSON: Go ahead, sir.  
23 MR. STEVE WILBUR: And this is Anne's  
24 recommendation about monitoring and basically it is: What  
25 does Environment Canada recommend that De Beers do if

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1 monitoring showed that mixing is not -- mixing is not  
2 occurring as predicted?

3 THE CHAIRPERSON: Ms. Wilson...?

4 MS. ANNE WILSON: Anne Wilson, Environment  
5 Canada. If monitoring shows there is about -- a problem  
6 potentially developing, it would not be for us to say they  
7 should do this or that.

8 At that point, the Company would be required,  
9 certainly under their permits, to bring up some plans for  
10 mitigation to address whatever that problem was. Then as  
11 stakeholders, the process in the past has been that we would  
12 review these plans and raise any additional concerns that  
13 might arise in connection with them.

14 MR. STEVE WILBUR: Steve Wilbur. So, I guess  
15 from that statement you're not aware of any particular  
16 mitigation that could be done by -- by De Beers in order to  
17 resolve the inability to -- or the lack of de-stratification.

18 THE CHAIRPERSON: Thank you. Ms. Wilson...?

19 MR. STEVE WILBUR: Anne Wilson, Environment  
20 Canada. I'm not an engineer, but I'm sure there would be  
21 ways to optimise the diffuser -- diffuser configuration such  
22 that better mixing velocities were achieved, different  
23 volumes, possible introduction of air into the stream.

24 There have to be any number of engineering  
25 solutions that might be considered and then it would be our

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1 job to consider the effects associated with those.

2 THE CHAIRPERSON: Thank you, Ms. Wilson.  
3 MR. STEVE WILBUR: Steve Wilbur, Dogrib. She  
4 said she wasn't an engineer so she doesn't know. I might  
5 just mention that we're talking about an area in the lake far  
6 beyond the -- the -- the actual diffuser and so any  
7 engineering that could be done at the diffuser is not going  
8 to help some area outside in the body of the lake.  
9 THE CHAIRPERSON: Thank you for that  
10 clarification, sir.  
11 Okay. I believe that we have one question  
12 from the Board through Dr. Hutchinson.  
13 MR. NEIL HUTCHINSON: Thank you, Mr. Chair.  
14 Neil Hutchinson, Gartner Lee. Steve Wilbur just asked my  
15 question for me.  
16 THE CHAIRPERSON: Okay. Thank you very much.  
17 Okay. That brings us to the end of today. And we will  
18 reconvene tomorrow morning at nine o'clock and we will start  
19 with wildlife, wildlife habitat and vegetation.  
20 Thank you very much. Good evening.  
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22 --- Upon adjourning at 9:24 p.m.  
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5 Certified Correct,  
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11 Wendy Warnock, Ms.  
12 Court Reporter  
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4 MACKENZIE VALLEY ENVIRONMENTAL  
5 IMPACT REVIEW BOARD  
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9 HELD BEFORE:

10 Board Chairperson Gordon Wray  
11 Board Member Danny Bayha  
12 Board Member Frank Pope  
13 Board Member John Stevenson  
14 Board Member Charlie Snowshoe  
15  
16  
17

18 HELD AT:

19 Northern United Place  
20 Yellowknife, NT  
21  
22

23 May 1st, 2003  
24 Volume 4  
25

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10  
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20 Gavin More ) Government of Northwest  
21 Doug Doan ) Territories (GNWT)  
22  
23 John Ramsey ) Natural Resources  
24 Canada  
25

1 APPEARANCES (Cont'd)  
2  
3 Julie Dahl ) Fisheries and Oceans  
4 Canada  
5  
6 Mark Dahl ) Environmental Canada  
7  
8 Rachel Crapeau ) Yellowknives Dene First  
9 Tim Byers ) Nation  
10  
11 Jean Teillet ) Dogrib Treaty 11  
12 Council  
13  
14 Kevin O'Reilly ) Canadian Arctic  
15 Resources Committee  
16  
17 Mike Vaydik ) NWT and Nunavut Chamber  
18 of Mines  
19  
20 Jason Lepine ) Northwest Territory

21

Metis Nation

22

23

24

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25

1 --- Upon commencing at 9:06 a.m.

2

3 THE CHAIRPERSON: Good morning, ladies and  
4 gentlemen. Today's session will open with Wildlife, Wildlife  
5 habitat and Vegetation.

6 A couple of housekeeping, De Beers has  
7 developed a response to some of the questions of the  
8 Yellowknives Dene, and they will be giving us that sometime  
9 today. And when we get it, we will enter it on the public  
10 record.

11 That's it, other than the usual admonition  
12 about cell phones. So if we can now call on the Proponent,  
13 De Beers, to give their presentation?

14

15 (BRIEF PAUSE)

16

17 MR. ROBIN JOHNSTONE: Good morning, Mr.  
18 Chairman and Members of the Board. I'd like to introduce, on  
19 my immediate right, Ms. Bette Beswick. Bette is an  
20 Environmental Assessment Specialist with Golder Associates.  
21 She brings more than twenty-five (25) years of experience  
22 working in environmental assessment related projects, to the  
23 project team.

24 Her experience in environmental assessment  
25 includes managing environmental assessment approaches and

---

6

1 documentation for large projects such as railway lines,  
2 chemical plant development and mining, including diamonds,  
3 coal and oil-sands.

4 Bette is coordinating the terrestrial  
5 contribution, vegetation and wildlife, to the Snap Lake  
6 Environmental Assessment Review process, and she'll be giving  
7 this morning's presentation.

8 To Bette's right is Dr. John Virgl. Dr. Virgl  
9 is the Senior Wildlife Biologist for the Environmental  
10 Assessment and Monitoring Program at the Snap Lake Diamond  
11 Project. He has thirteen (13) years experience in the  
12 design, analysis, and interpretation of ecological studies.

13                   He is the principle scientist for the Wildlife  
14 Effects Monitoring Program at the EKATI Diamond Mine. He has  
15 also been contracted by Diavik Diamond Mines to provide  
16 advice on the study, design and analysis for their 2002  
17 Wildlife Monitoring Program.

18                   Dr. Virgl has been responsible for the study,  
19 design, and analysis of potential local and cumulative  
20 impacts of mining activities on caribou, wolves, grizzly  
21 bears, wolverines and, it's noted down here as avi-fauna,  
22 let's call it bird life, for the Snap Lake Project.

23                   And I'd like to pass over to Bette.

24                   MS. BETTE BESWICK:     Good morning, Mr.  
25 Chairman and Members of the Board. The purpose of my

7

1 presentation today is to discuss the land issues related to  
2 the Snap Lake Diamond Project.

3                   A constant theme in the messages from  
4 communities is the importance of taking care of the land.  
5 The land is important for both physical and spiritual  
6 reasons. It's been one (1) of the reasons for a number of  
7 the decisions that have been made about the Snap Lake  
8 Project.

9                   One (1) of those choices, for example,  
10 included using underground mining methods. That has allowed  
11 De Beers to significantly reduce the potential for  
12 environmental effects related to such things as traffic,  
13 dust, noise, and wildlife disturbance.

14                   It has also allowed the footprint of the mines  
15 to be significantly reduced with almost all the surface  
16 facilities concentrated in one (1) confined area.

17                   What do we mean by the land? Today, when I  
18 talk about the land, I'm referring to a group of physical and  
19 biological features. Those features include the terrain and  
20 landforms, soil, vegetation, and wildlife.

21                   In my presentation today, I'm going to focus  
22 on just a few of the things that we looked at in the  
23 environmental assessment. I'll talk about the landforms,  
24 soils, and vegetation all together, because they are

25 primarily affected by the physical presence of the mine

---

8

1 footprint.

2           For wildlife, we looked at a broad range of  
3 species, including mammals, birds of prey, waterfowl, and  
4 small birds. However, since of people's concerns have  
5 centred around caribou, wolverines, and grizzly bear, I'm  
6 going to focus on those.

7           In the environmental assessment, we  
8 investigated how the project could affect many individual  
9 components of the environment. For this presentation, I  
10 rolled it all up into one (1) overriding question. Will De  
11 Beers do it's part in taking care of the land? To answer  
12 that question, we need to do four (4) things.

13           First, we need to understand what's there now.  
14 Second, we need to be familiar with the project's activities,  
15 and understand how they could affect the land.

16           Now, we've had an advantage over the previous  
17 mining projects that have been approved, and are now  
18 operating, in that we've been able to learn from their  
19 experiences.

20           Next, we need to predict changes that could  
21 occur as a result of the project. We've been fortunate in  
22 that information has been derived from monitoring programs  
23 for the other diamond mines, and that has provided us with a  
24 much higher degree of confidence in our impact predictions,  
25 than we could have had if we'd had no previous project to

---

9

1 observe.

2           Finally, we need to have effective mitigation  
3 and monitoring plans to prevent adverse changes to the land.

4           After talking about these factors, I'll tell

5 you how sure we are about our predictions, and why we believe  
6 that De Beers will do its part to take care of the land  
7 during the Snap Lake project.

8  
9 (BRIEF PAUSE)

10  
11 MS. BETTE BESWICK: There have been many  
12 issues raised during the environmental assessment process.  
13 These issues include: adequacy of data, the analysis of data,  
14 use of traditional knowledge, and information from other  
15 sources, incorporation of activities, and pressures on  
16 wildlife that are not related to mining, and those are  
17 primarily associated with management of species, and  
18 mitigation and monitoring plans.

19 However, as was suggested for various issues  
20 related to water quality earlier this week, we need to focus  
21 on the overall theme inherent in the issues associated the  
22 land and wildlife.

23 The theme that the public and Intervenors have  
24 repeated throughout, is the classification and uncertainty of  
25 impacts.

---

10

1 (BRIEF PAUSE)

2  
3 MS. BETTE BESWICK: Okay. Before talking  
4 about current conditions, let me show you the areas that I'll  
5 be talking about. This slide shows a map of the area around  
6 Snap Lake.

7 Features marked on this map include: the  
8 Tibbitt-Contwoyto Winter road, up here. Features include  
9 Lake of the Enemy, MacKay Lake, Camsell Lake -- I'll be  
10 talking about all these later.

11 These brown lines are Esker complexes.  
12 They're around there. Up there. We have two (2) proposed  
13 roads marked in here in dotted lines. One (1) is the  
14 proposed winter access road to the Snap Lake Project.

15 This other road is a winter road that will go  
16 to the quarry site and that will be used from time to time on

17 -- on a very intermittent basis. The project footprint is  
18 right smack dab in the middle here. That's the Snap Lake  
19 footprint.

20 It encompasses about five hundred and sixty  
21 (560) hectares although we expect only about three hundred  
22 and fifty (350) hectares will be used. The local study area  
23 is this line around the project footprint and that's set back  
24 from the footprint about five hundred metres (500).

25 These lines that go straight up and down are

---

11

1 the flight lines that were used for the caribou survey.  
2 They're throughout there and I'll be showing them to you  
3 later as well.

4 And then this other bigger circle that goes  
5 around the outside is what we call the Regional Study Area.  
6 The radius of this is thirty-one (31) kilometres so the  
7 whole circle is sixty-two (62) kilometres across.

8 There have been questions about how that  
9 Regional Study boundary was selected. It was selected for a  
10 number of reasons. First of all, it encompasses all the  
11 project features and that includes the mine, the Esker  
12 quarries, the winter access road and it also includes part of  
13 the Tibbitt-Conwoyto winter Road.

14 It encompasses parts of Camsell Lake and the  
15 southern portion of MacKay Lake which traditional knowledge  
16 indicated were historical migratory routes for the Bathurst  
17 Caribou Herd. It's all contained within the Taiga Shield eco-  
18 zone.

19 It provides a range of habitat types available  
20 to the wildlife species we're looking at and it's large  
21 enough to include the zone of influence for species but not  
22 so large as to dilute the effects of the project in the  
23 impact analysis.

24 Now, this circle is going to show up in a  
25 number of the later slides. So if you remember it, it will

---

1 help orient you in the slides to come later in the  
2 presentation.

3 All of our descriptions reflect the cumulative  
4 effects of past and existing human activities. For instance,  
5 the information for wildlife reflects how animal populations,  
6 movement, and behaviour may have changed as a result of  
7 harvesting and hunting, the other mines and other things that  
8 are happening within the home ranges of these animals.

9 Now, I'm going to start out by providing an  
10 overview of the conditions related to terrain, soils and  
11 vegetation and then I'll follow that with an overview of the  
12 three wildlife species.

13 To prepare the Environment Assessment we  
14 collected information about the terrain, soils and vegetation  
15 by using satellite images, traditional knowledge, aerial  
16 photographs and collecting information on the ground. Within  
17 the area to be affected by the project, the landscape is  
18 mostly heath-boulder and it is underlain by permafrost.

19 We were particularly interested in Eskers  
20 because we know they have special habitat importance. We  
21 found Esker complexes throughout the regional study area.  
22 There was five hundred and fifty-two (552) hectares of Eskers  
23 or about 0.2 percent of the Regional Study Area.

24 For those of you that haven't been to the  
25 site, this is a picture of the heath-boulder vegetation

1 habitat that is typical of the mine project site. The next  
2 slide is a map of the ecological land classification.

3 That heath-boulder tundra is reflected here in  
4 this primarily pinkish sort of land cover type.

5 Approximately 46 percent of the regional study area is  
6 covered by that pinkish colour which is the heath-boulder  
7 tundra and it's primarily located, as you can see, to the  
8 south and the east of the Snap Lake Project down through  
9 here.

10                   You can also see that a great deal of the area  
11 is actually water. That's about one-third, 36 percent of the  
12 landscape and there's some spruce forest in the Study Area  
13 and that's distributed primarily along the east side of  
14 Camsell Lake.

15                   Caribou are an important part of the landscape  
16 and they are important to people. Because of that, there are  
17 a number of different data sources to call upon. Traditional  
18 knowledge represents long term information.

19                   The study by the Lutsel K'e, in which data  
20 were collected by Elders visiting the Snap Lake site,  
21 indicated that caribou tend to avoid rocky areas like Snap  
22 Lake, and not many caribou likely move through the project  
23 area.

24                   They told us that if caribou do move through  
25 the area, they are likely to move through in small groups.

---

14

1 Traditional knowledge indicated that most caribou move north  
2 and west of the mine, near MacKay Lake and Camsell Lake.

3                   We also looked at historic caribou trails. We  
4 have used RWED satellite data for animal movements. And  
5 we've also used aerial survey -- aerial surveys throughout  
6 the regional study area; that's four (4) years worth of data.

7                   We have site observations, we've got four (4)  
8 years, coming on three (3) years of data for that -- four (4)  
9 years, coming on five (5) years, for that. And we've got  
10 monitoring data from other projects, that's five (5), or six  
11 (6) years of that as well.

12                   This is a project -- or a picture that shows  
13 historic caribou trails. You can see these lines moving  
14 along here, those are trails.

15                   These trails represent long term information  
16 on the distribution and movement of animals through the  
17 regional study area.

18                   Personally, I like to think that this is what  
19 are caribou are telling us about themselves. The frequency  
20 and extent of these trails was highest in the northern  
21 portion of the study, near MacKay Lake. This is consistent

22 with the information that was provided to De Beers through  
23 traditional knowledge.  
24 RWED -- RWED has put radio collars on a number  
25 of caribou, then monitored their movements using satellites.

---

15

1 These dozen or so collared animals represent a  
2 small fraction of the approximately three hundred and fifty  
3 thousand (350,000) animals in the Bathurst Herd.  
4 This figure shows what RWED has detected for  
5 the northern migrations for the past four (4) years. This is  
6 a test. Remember that circle I told you to remember in that  
7 earlier slide, that's what we see here. That's that green  
8 circle, sixty-two (62) kilometers across.  
9 Now, in the background here, you see some gray  
10 shaded areas, those are the regional studies -- that's the  
11 regional study area for the EKATI and Diavik mines, and it  
12 shows you the context of how these projects are on the  
13 landscape.  
14 These areas are about forty (40) by forty (40)  
15 kilometers across. Different colored lines on this slide,  
16 represent different years of data.  
17 And this shows caribou movement from 1999 to  
18 2002, on the northern migration. As we can see, this data  
19 indicates that most of these animals are not moving the  
20 area -- the regional study area for the Snap Lake project.  
21 Similar data, in a recent report by RWED,  
22 indicates that no collared animals moved to the RSA in 1996.  
23 Three (3) were there in 1997, and one (1) moved through in  
24 1998.  
25 Now, as you can see, animals on the northern

---

16

1 migration seemed to destination focused. They have things to

2 do, and they have places to be. This means that they're on  
3 the move and they're not hanging around.

4 Here's another figure showing more information  
5 about caribou distribution. This slide is based on  
6 information collected during aerial surveys.

7 First, let me explain what all these lines  
8 mean. Okay, so here's our test circle again, this is our  
9 regional study area circle.

10 These lines are lines that the airplane has  
11 flown. And the dots show what people saw about caribou from  
12 the planes as they flew.

13 The color and the size of these dots represent  
14 how many animals were seen in a group. So, this study shows  
15 the size of caribou groups, and their location in the  
16 regional study area during northern migration for the past  
17 four (4) years. And another study this year is just starting  
18 today.

19 Most caribou, as you can see, were observed in  
20 the north and western part of the area. About 40 or 50  
21 percent of these dots represent groups of less than ten (10)  
22 animals. Only a few dots represent larger groups.

23 For example, we have six (6) dots showing  
24 locations of groups of a hundred (100) animals or more, and  
25 four (4) of them are located near MacKay Lake, here, here,

---

17

1 here and here. These data support traditional knowledge, the  
2 location of historic trails and they're consistent with our  
3 RWED's satellite information.

4 Okay, so let's see what animals are doing when  
5 they're moving in their post-calving migration. These next  
6 two (2) slides show you that data.

7 As you can tell, movement patterns seem more  
8 flexible and far more random when they're moving back, than  
9 the northern migration pattern.

10 But several animals did move through the  
11 regional study area, during the summer and fall of 2000,  
12 particularly in the northern part of the study area, right  
13 along here, near MacKay Lake, which supports traditional

14 knowledge and the mapping of historic trails.

15               This personally is my next favourite slide,  
16 which shows two (2) or three (3) caribou did move -- two (2)  
17 or three (3) collared animals, moved through the study area.  
18 Movement during this season appears to be quite scattered.

19               This is another slide showing the southern  
20 migration, based on ariel surveys for four (4) years, during  
21 the post-calving migration.

22               Although the distribution is more even across  
23 the study area than we saw in the spring movement, the  
24 density of groups is greater to the west and the south of the  
25 mine, down through here.

18

1               In addition, there were very few large groups  
2 observed, as more than 80 percent of the groups contained  
3 less than fifty (50) animals. This is consistent with  
4 traditional knowledge. This is particularly evident in the  
5 eastern portion of the study area, which mostly has heath-  
6 boulder and boulder habitats.

7               These six (6) sources of data provide enough  
8 information for us to be confident about predicting both  
9 local and cumulative effects of the project on caribou. This  
10 data provides two (2) very important pieces of information.

11               The first, caribou move through the regional  
12 area, but the number varies greater between seasons and among  
13 years.

14               The second thing it shows us is that the  
15 project site is not an area of concentrated use.  
16 Nevertheless, De Beers does not discount the possibility,  
17 that at times, thousands of caribou may move through the  
18 area.

19               The Environmental Assessment was submitted in  
20 February, 2002. That's almost a year and a half ago. Since  
21 then, De Beers has continued to collect new information and  
22 seek out information collected by others.

23               RWED satellite data, that we just looked at  
24 earlier, is an example. So is the monitoring information  
25 that we have used, that's been developed from other mine

1 projects.

2 De Beers has continued to look at that new  
3 information to see if the original predictions are still  
4 valid in the face of what we're learning. The new  
5 information continues to support traditional knowledge and  
6 other data, and increases our certainty in our impact  
7 predictions for caribou.

8 Sufficient data was collected to make impact  
9 predictions. We've benefited from data sources that have not  
10 previously been available, and we are continuing to learn.

11 Let's move on to wolverines. Data from 1999  
12 to 2002 indicate that wolverine are present in the regional  
13 study area. However, due to current limitations in survey  
14 techniques, information on the population's size, habitat  
15 use, movement, and behaviour of this species is extremely  
16 limited.

17 De Beers is not alone in this problem. RWED  
18 has also had difficulty in developing effective survey  
19 methods for estimating the abundance of wolverines.

20 De Beers is addressing the limitations of the  
21 existing methodology, by expanding the wolverine survey  
22 methodology, to provide an estimate of relative abundance of  
23 wolverine in the study area.

24 This will be consistent with methods that have  
25 been developed at EKATI.

1 Although there is limited data on wolverine  
2 populations, movement, and behaviour, there is sufficient  
3 information on the mine-related causes of mortality to be  
4 able to make predictions of project effects to wolverines.

5 That is, we have a good understanding of  
6 mitigation measures that work, and to do, to prevent

7     wolverine mortality.

8                     In view of the current difficulties in  
9     obtaining information on the population, De Beers' priority  
10    is to prevent wolverine mortality. Strict waste management  
11    has proven to be effective, and De Beers will go one (1) step  
12    further by deterring wolverines from the project site.

13

14                     (BRIEF PAUSE)

15

16                     MS. BETTE BESWICK:     What about grizzly?  
17    Well, data from 1999 to 2002, indicate that grizzly bears are  
18    present in the regional study area, but, as with wolverines,  
19    information about grizzly bear movement, behaviour, and  
20    habitat use in the area is limited.

21                     However, we'll point out that three (3) years  
22    of habitat survey data, and two (2) years of data from the  
23    GPS collared bears including a female with young at EKATI,  
24    indicate that bears still use the area adjacent to the EKATI  
25    mine.

---

21

1                     In 2001, De Beers adjusted their survey  
2    methods for grizzly bear, based on new research on habitat  
3    use and initiatives at EKATI.

4                     This data provides a better understanding of  
5    grizzly bear activity across the study area, and some  
6    information used from monitoring regional effects.

7                     Similar to wolverines, although there is  
8    limited data on movement and behaviour, there is sufficient  
9    information on mine-related causes of grizzly bear mortality.

10                    That is, we have a good understanding of  
11    mitigation measures that work to prevent Grizzly Bear  
12    mortality.

13                    In view of the current difficulties in  
14    obtaining information on the population, De Beers' priority  
15    is again, to prevent the loss of grizzly bears from the  
16    population.

17

18                    (BRIEF PAUSE)

19

20 MS. BETTE BESWICK: After screening all  
21 possible sources of effects of the land and wildlife, De  
22 Beers assessed the following key activities to determine the  
23 local and cumulative impact of the Snap Lake Project.  
24 Those activities are: the Core Mine Footprint,  
25 including the air strip, and North Pile, the Esker Gravel

---

22

1 Quarry, the winter roads, that includes the mine access road  
2 that connects Snap Lake to the Tibbitt-Contwoyto Winter Road,  
3 as well as the winter access road that goes to the Esker, and  
4 which will be used a few times over the life of the project.

5 We considered dust. We considered mine water  
6 and chemicals, such as increased concentrations of metals,  
7 such as aluminum. We looked at food, waste, and landfill,  
8 and we also looked at how people behave.

9 So, what will be the effects to terrain,  
10 soils, and vegetation? Well, as I pointed out earlier, most  
11 of the area encompassed by the project site is heath-boulder  
12 tundra.

13 In the impact assessment, we assumed that all  
14 the land within the project area would be affected, about  
15 five hundred and sixty (560) hectares. In reality, we only  
16 expect about two thirds (2/3) of that will be directly  
17 impacted.

18 The North Pile will be a new feature on the  
19 landscape at the end of the project. It will create a hill.  
20 A sand quarry will be developed in an Esker located south of  
21 the main project site.

22 About half -- one half (1/2) of a hectare of  
23 that Esker will be affected. That is about 0.1 percent of  
24 the Esker within the regional study area.

25 Overall, there will be little change to the

---

23

1 landscape within the regional study area, and the Slave  
2 Geological Province from the Snap Lake Diamond Project.

3  
4 (BRIEF PAUSE)

5  
6 MS. BETTE BESWICK: The most important  
7 mitigation that has been built into the project is keeping  
8 the footprint of the project small. A second important  
9 mitigation is reclamation.

10 The reclamation objective is to return the  
11 mine site and affected area to viable and, wherever  
12 practicable, self-sustaining ecosystem that is compatible  
13 with a healthy environment and with human activities. This  
14 is the objective of the Mine Site Reclamation Policy for the  
15 Northwest Territories that was provided by INAC in 2002.

16 De Beers has developed a re-vegetation and  
17 surface materials handling plan. That includes such things  
18 as use of native species, it includes transplanting and seed  
19 collection, it includes direct placement of materials,  
20 continuing monitoring to evaluate the success is an important  
21 part of that plan. Invasive species control and for people  
22 like me, what that means is weed control, and adaptive  
23 management.

24 There will be ongoing development of  
25 reclamation approaches during mine operations. De Beers

---

24

1 expects to learn a lot from its own monitoring and from the  
2 successes of other mines over the next twenty (20) years  
3 about how to improve reclamation techniques in this  
4 environment.

5 De Beers has made a commitment to reclamation  
6 following mine closure and monitoring will be an important  
7 component of that reclamation program.

8 So, with wildlife we considered four (4) types  
9 of effects. Those include habitat loss, changes in movement  
10 and behaviour, direct mortality and health effects.

11 Let's look at caribou first. The local and

12 cumulative effect of habitat loss from the Snap Lake Diamond  
13 Project will result in very little change to the seasonal  
14 range of caribou.

15                   The five hundred and sixty (560) hectare mine  
16 footprint represents less an 0.1 percent of the habitat  
17 available within a caribou's seasonal range. Although some  
18 changes in the movement and behaviour of caribou will occur  
19 for individuals that encounter the mine, the size of the  
20 footprint, underground operations and mitigation are expected  
21 to cause only a small local effect to the animals that  
22 encounter the project.

23                   The mine footprint will be confined. We can  
24 expect some changes near the project site, so, for example,  
25 10 or 15 percent decrease in feeding within five (5)

---

25

1 kilometres of EKATI has been observed.

2                   The changes in behaviour and movement for  
3 animals near the project does not mean that there will be a  
4 change in the health, number or vigour of the population.

5                   And we expect a smaller zone of influence at  
6 Snap Lake due to the small size, underground operations, and  
7 the fact that this project has no major haul loads.

8                   De Beers is well aware of the potential risk  
9 to caribou that encounter the mine and we cannot exclude the  
10 possibility of accidental mortality during the life of the  
11 project. Similar to the health and safety plan for workers  
12 at the project, De Beers is committed to a goal of no caribou  
13 mortality.

14                   Experience at Diavik and EKATI indicates that  
15 mortality will be rare with proper mitigation. We are  
16 certain that the likelihood of adverse local and cumulative  
17 effects on caribou from mine related mortality will be very  
18 small and there are mitigation measures available in the  
19 highly unlikely event that changes are greater than  
20 predicted.

21                   De Beers concurs with RWED's recommendation  
22 that De Beers use the experience of other mines to develop  
23 details on mitigation.

24 Consultation with communities and government  
25 will also contribute to the development of additional

---

26

1 mitigation. Such mitigation can include things like traffic  
2 advisories to provide collisions, herding caribou away from  
3 risk areas and shutting down the airstrip when large numbers  
4 of caribou move through the area.

5 Concern was also raised regarding the  
6 potential effects of chemicals on caribou health. Elevated  
7 concentrations of metals, for instance aluminium, were  
8 considered. However, a risk assessment on the potential  
9 health effects on Caribou and other wildlife, indicated that  
10 there was a high level of confidence that the project will  
11 not cause adverse effects to Caribou.

12 Let's move on to wolverine and grizzly bear.  
13 We estimated the amount of habitat loss to wolverine and  
14 grizzly bear that would result from the project. Based on  
15 the home range of animals, we estimated that the project  
16 would result in a loss of .3 percent for individual female  
17 grizzly bear's home range, and up to 11.6 percent for an  
18 individual female wolverine's home range. The disturbance of  
19 habitat will occur within the home range of a few  
20 individuals, but the impact should have little local or  
21 cumulative effect on population.

22 De Beers is aware that the loss of wolverines  
23 and grizzly bears at previous mine projects has been an  
24 important issue. However, these incidents were associated  
25 with waste management procedures and practices that have

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1 since been improved.

2 Mitigation has been effective. There have  
3 been no loss of wolverine or grizzly bear at Snap Lake since

4 exploration began, that's four (4) years ago. Other mines  
5 have also experienced marked reduction in wildlife conflicts  
6 as they have implemented their mitigation programs.

7 De Beers' objective for grizzly and wolverine  
8 mortality is zero (0). De Beers expects to be close to  
9 meeting that objective because information gained from other  
10 projects has been used to design the De Beers Mitigation  
11 Program. The track record is good.

12 In the past fourteen (14) years of De Beers  
13 presence in the Northwest Territories, there have been two  
14 (2) instances of bear mortality, one (1) black, in 1997/98,  
15 and one grizzly bear, and that was in 1994.

16 Mitigation to prevent grizzly bear and  
17 wolverine mortality includes a number of initiatives. The  
18 most important one (1) is ensuring that wildlife are not  
19 attracted to the site by food. Specifically, De Beers has  
20 implemented a comprehensive waste management plan at the Snap  
21 Lake site.

22 There are a number of other mitigations, and  
23 those include things such as placing the incinerator in an  
24 enclosed building, which will be connected by an enclosed  
25 utilidor to the main waste generating sources. It includes

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1 worker education, including the importance of not allowing  
2 animals access to lunches and garbage.

3 And the site design encounters features  
4 including skirting around buildings to prevent providing  
5 shelter to wolverine, and it's also been situated to ensure  
6 that there are escape opportunities in case there are  
7 encounters between wildlife and people.

8 What about the bigger picture? What is De  
9 Beers doing about cumulative effects? The Slave Geological  
10 Province is about 250,000 square kilometres. In that 250,000  
11 square kilometres, approximately sixty (60) square kilometres  
12 is occupied by development. That includes the mines, it  
13 includes the Tibbitt-Contwoyto Winter Road.

14 Although very small within the context of the  
15 region, De Beers' first response to minimize cumulative

16 effects is to mitigate its own project-specific impacts,  
17 resulting from the Snap Lake Project.

18 In addition, De Beers is collecting data that  
19 can be used assess and manage cumulative effects. Three (3)  
20 examples include, annual air -- aerial survey data for  
21 caribou during the spring and fall migration.

22 It includes annual monitoring of grizzly bear  
23 habitat to detect relative activity, and it includes the  
24 expanded wolverine survey methodology, which is consistent  
25 with techniques at EKATI and Diavik.

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1 De Beers is using current information as it  
2 becomes available, to help assess cumulative effects. For  
3 example, in response to recent requests from the Board, De  
4 Beers has used the West Kitikemeot Slave Study Grizzly Bear  
5 demography, and population viability analysis to determine  
6 cumulative impact of the Snap Lake project on the grizzly  
7 bear populations of the Slave Geological Province.

8 And, it's also used monitoring data from EKATI  
9 to project cumulative effects of all mines to caribou  
10 foraging behaviour on the Bathurst Caribou population.

11 How sure are we? We are confident that we  
12 have not underestimated impacts to the land for a number of  
13 reasons.

14 First, we have assumed that the entire project  
15 footprint will be locked for the duration of the project.  
16 This is conservative, but because the area that will be  
17 disturbed by the Snap Lake Project is expected to be much  
18 smaller than it's been assumed in the assessment.

19 In addition, our predictions have had the  
20 benefit of monitoring from other projects. That includes:  
21 five (5) years of monitoring at EKATI, which has indicated  
22 that the change in movement and behaviour of wildlife in the  
23 Lac de Gras Region is minimal -- is minimal, and we're also  
24 excusing experience from other mines, to develop effective  
25 mitigation programs.

1 (BRIEF PAUSE)

2  
3 MS. BETTE BESWICK: For many things in life,  
4 past success is an excellent indicator of future success. We  
5 are confident that the past success of wildlife mitigation is  
6 a solid indicator of what to expect in the future.

7 The track record to date from Snap Lake  
8 confirms our expectations that wildlife mitigation can be  
9 effective.

10 De Beers environmental management system  
11 provides rigorous methods to ensure that those mitigation  
12 plans are put in place, for example, worker orientation  
13 programs to the site, that those mitigation plans are used,  
14 and there's an -- a regular audit to review that.

15 Those mitigation plans are checked to see if  
16 they're working, so for example, there are incident reporting  
17 procedures that discuss that.

18 Those mitigation plans are refines, where  
19 improvements are needed. So for example, when the incident  
20 reporting procedure indicates a problem, they can be fixed,  
21 and that those mitigation plans are continually improved.

22 So for example, De Beers has arranged for a  
23 workshop with Elders in mid-May to discuss caribou at the  
24 Snap Lake site.

25

1 (BRIEF PAUSE)

2  
3 MS. BETTE BESWICK: One (1) of the issues  
4 that has been raised by Intervenor is the issue of certainty  
5 related to the impact predictions in the environmental  
6 assessment.

7 Differences of opinion have been expressed.  
8 As Dr. Stella Swanson mentioned yesterday, this is a common

9 occurrence when you get more than one (1) scientist in a room  
10 at the same time.

11 This should not stop the Board from making a  
12 decision. These differences are to be expected for a number  
13 of reasons.

14 First of all, natural systems are dynamic.  
15 Even complete knowledge of all details of past, and existing  
16 circumstances cannot provide proof for impact predictions;  
17 that's why monitoring is so important.

18 It also has been suggested that greater  
19 certainty in impact predictions could be established if more  
20 computer modelling was undertaken. We have used models  
21 throughout the Environmental Assessment. In the terrestrial  
22 program, for instance, we've identified important habitats  
23 based on modelling.

24 The development of the ecological land  
25 classifications units. For vegetation mapping uses

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1 vegetation modelling. However, we are careful when we use  
2 models because the ability of a model to provide an accurate  
3 impact prediction can be jeopardized by a number of factors.

4 Those factors include uncertainty of input  
5 data, they include uncertainty in the relationships that are  
6 depicted within the model and untested models provide  
7 unreliable results.

8 Instead, we have relied heavily on our  
9 observations of effects of similar circumstances. For  
10 example, we've looked at the behaviour of caribou in EKATI.  
11 We've also observed the effectiveness of bear and wolverine  
12 mitigation to help us predict the effects of the Snap Lake  
13 project. Again, past success is a good predictor of future  
14 success.

15 So, how do we reduce this uncertainty? Well,  
16 monitoring is an important factor. De Beers will develop a  
17 comprehensive monitoring plan that includes community  
18 consultations and consultation with RWED.

19 The monitoring will test predictions, identify  
20 unanticipated effects, it will involve others and it will

21 provide feedback for areas of improvement for reclamations  
22 and wildlife and waste management. De Beers will continue to  
23 use information available from other mines, the WKSS studies  
24 and any human related mortality to conduct further analysis  
25 related to mine effects and to adapt monitoring methods as

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1 required.

2                   And, finally, De Beers will participate in  
3 regional monitoring programs and continue to collect  
4 information to help assess and manage cumulative effects.  
5 The intent is to have the monitoring program evaluated and  
6 receive input from all stakeholder groups such as communities  
7 and government.

8                   We started out this presentation by telling  
9 you that one (1) of the most frequent things that people told  
10 us was that it was important to take care of the land. Will  
11 the land be okay? The answer is, yes. And why do we believe  
12 that?

13                   Well, for terrain, soils and vegetation there  
14 likely will be adverse affects to those resources. Those  
15 will result from the -- those impacts will come from the mine  
16 footprint, the quarry and the vents.

17                   However, we believe those effects will be of  
18 limited environmental consequence because a limited area will  
19 be impacted. That area is very small within a very large  
20 landscape and reclamation will reduce the duration of that  
21 impact.

22                   What about caribou, wolverine, and grizzly  
23 bear. Well, we believe impact from the Snap Lake Project  
24 will be of limited environmental consequence for the  
25 following reasons. There will be limited effects -- limited

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1 loss of habitat, effects to behaviour, both project specific  
2 and as a contributor to cumulative effects are unlikely to  
3 result in detectable effects to populations.

4 We expect direct mortality to be low.  
5 Rigorous mitigation will be applied. And monitoring will  
6 detect if militations required adaptation, we call that adapt  
7 -- we call that adaptive management.

8 So, where do we go from here? Well, we think  
9 the thing that's most important is to increase certainty.  
10 And to increase certainty we believe the following:  
11 monitoring programs need to be finalized in Environmental  
12 Agreements, these monitoring programs need to be coordinated  
13 with others to contribute to regional information.

14 De Beers will continually adapt and improve  
15 mitigation, as indicated by monitoring results, new  
16 information, and consultation with communities. De Beers  
17 will participate with others, for example, RWED in wildlife  
18 management initiatives.

19 Many of those monitoring programs have been  
20 outlined, and they were submitted to the Board earlier this  
21 year.

22 That concludes my presentation. Thank you,  
23 Mr. Chairman, and Members of the Board.

24 THE CHAIRPERSON: Thank you, Ms. Beswick.  
25

1 (BRIEF PAUSE)  
2

3 THE CHAIRPERSON: Thank you. We will now go  
4 to questions until 10:30, when we'll take a fifteen (15)  
5 minute coffee break.

6 Yellowknives Dene First Nation, Mr. Byers...?

7 MR. TIM BYERS: Thank you, Mr. Chair. Yes, we  
8 do have a couple of questions. The first one is, Bette,  
9 you've mentioned that there was a lot -- at the Esker, there  
10 was to be a loss of zero point five (0.5) hectares, and my  
11 question is: Is that zero point five (0.5) hectares the sum  
12 total of your activity footprint on the Esker?

13 MS. BETTE BESWICK: Bette Beswick, Golder  
 14 Associates for De Beers. Yes, Mr. Chairman, zero point five  
 15 (0.5) hectares is the full activity footprint there.  
 16 THE CHAIRPERSON: Thank you. Tim...?  
 17 MR. TIM BYERS: Thank you. So, -- so, for me  
 18 to get this absolutely clear in my mind, this footprint  
 19 includes not just the excavation itself, but the heavy  
 20 machinery tracks leading to that excavation, is that right?  
 21 THE CHAIRPERSON: Ms. Beswick...?  
 22 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
 23 Johnstone. The answer to that is that that includes the  
 24 physical area from which we are extracting that gravel.  
 25 The area is accessed in winter, and so that

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1 the -- the issue of tracks is really not an issue, it's done  
 2 over ice. So, we don't see a large disturbance resulting  
 3 from -- from tracks.

4 In addition, we will be -- we have invited the  
 5 Yellowknife Dene to site over summer, so that they can see  
 6 this for themselves.

7 THE CHAIRPERSON: Thank you. Mr. Byers...?

8 MR. TIM BYERS: Thank you for that answer. I  
 9 appreciate that. Our second question then would be in the  
 10 area of reclamation; and specifically, re -- re-vegetation of  
 11 the North Pile.

12 It's been a concern of ours that -- that  
 13 contaminants from kimberlite be -- be investigated in -- in  
 14 whatever plants are growing over -- over mined areas.

15 Now, it was explained to us by De Beers that  
 16 this shouldn't be a problem for -- for re-vegetation on the  
 17 North Pile because there will be a cap of clean country rock  
 18 over the -- over the kimberlite, which I can appreciate may  
 19 take care of that problem.

20 But I'm also thinking, if this cap is a  
 21 minimum of one half metre thick, I am wondering if the root  
 22 systems of whatever re-vegetated plants would extend past  
 23 that one half metre into kimberlite, thereby giving us the  
 24 possibility of -- of uptake of whatever contaminants may be

25 in the kimberlite.

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1 And if this is a possibility, will De Beers  
2 commit to monitoring vegetation growing on the North Pile  
3 after closure, monitoring for contaminants in those plants?  
4

5 (BRIEF PAUSE)  
6

7 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
8 Johnstone. Thank you for your question.

9 Mr. Chairman, De Beers does not expect that  
10 the plants will take up metals from the kimberlite in the  
11 North Pile. And -- primarily because, none of them pose a  
12 concern due to low bio-availability. In other words, they  
13 are unlikely to be taken up by the plants.

14 Low toxicity, they are unlikely to be harmful,  
15 and/or low bio-accumulation, they're not likely to be passed  
16 up through the food chain. However, as we've described  
17 before, in relation to monitoring of that, we have noted that  
18 monitoring priorities will be developed in conjunction with  
19 communities.

20 And this is obviously an item of great  
21 interest to the Yellowknives Dene, and we look forward to  
22 discussing it further.

23 THE CHAIRPERSON: Thank you. Mr. Byers...?

24 MR. TIM BYERS: Thank you, that's all for our  
25 questions.

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1 THE CHAIRPERSON: Thank you, Tim.  
2 INAC. INAC, do you have any questions for the  
3 Proponent?  
4 NWT and Nunavut Chamber of Mines?

5 Northwest Territory Metis Nation?  
6 North Slave Metis Alliance, Ms. Johnson...?  
7 MS. KRIS JOHNSON: I have one (1) quick  
8 question. Kris Johnson from the North Slave Metis Alliance.

9 The North Slave are very concerned that the  
10 cumulative impact of the loss of habitat will continue. How  
11 does De Beers plan to mitigate the loss of habitat? And if  
12 it can't be mitigated, how will it be compensated?

13 THE CHAIRPERSON: Thank you. Mr.  
14 Johnstone...?

15 MR. ROBIN JOHNSTONE: It would be helpful to  
16 understand the part of the question about, it will -- will  
17 continue. I didn't quite understand that.

18 THE CHAIRPERSON: Could you repeat your  
19 question, Ms. Johnson?

20 MS. KRIS JOHNSON: Kris Johnson, North Slave  
21 Metis Alliance. It's in regards to the cumulative effects of  
22 loss of habitat. There are several mines in the area, and  
23 caribou do migrate through the mine site.

24  
25 (BRIEF PAUSE)

1 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
2 Johnstone. Mr. Chair, the area that is -- we anticipate --  
3 we've estimated in the environmental assessment that -- is  
4 over five hundred (500) hectares in our land lease, we were  
5 told right from the very beginning, because of concerns like  
6 these, that we should restrict our impacts.

7 So we have focussed our primary method of --  
8 of reducing that is to limit the amount of ground that we  
9 disturbed. And I think of that around five hundred (500)  
10 hectares, it's -- it's closer to three hundred and fifty  
11 (350).

12 So we have an impact, it's a small area. But  
13 then once that area is disturbed, the focus becomes on  
14 reclaiming that area. And our reclamation plans describe how  
15 we will, basically, reclaim that area, and lessen that impact  
16 over a long term period.

17 And we look forward to further discussions  
18 around that reclamation goal, too.  
19 THE CHAIRPERSON: Thank you. Fisheries and  
20 Oceans Canada, questions?  
21 Dogrib Treaty 11...?  
22 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
23 have several questions. On slide 12 you noted that there  
24 were several -- well, basically, just I want to know when the  
25 surveys were done with respect to the actual northern

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1 migration for these -- for this data points?  
2 MR. ROBIN JOHNSTONE: De Beers Canada, are  
3 you asking for the dates? The dates were provided to the  
4 public registry and the baseline interim -- baseline and  
5 interim wildlife monitoring report for the Snap Lake Diamond  
6 Project in 2002 that was placed on the public registry.  
7 They're in Table 2.2-1. In 1999 it was on the  
8 20th March, the 2nd April. In 2000, this is the northern  
9 migration -- in 2000 it was April 11 and 14. May 4th, 7th  
10 and 10th. In 2001 it was May 11 and 21st. And in 2002 it  
11 was April 4th and 25th and May 6th, 9th, 14th and 21st.  
12 Respective post-calving migrations in 1999, it  
13 was July 21, 22 and 23. In 2000 it was July 21, August 17th.  
14 2001 it was August 8, 11, 16, October 24th also. In 2002 it  
15 was the 23rd of July, the 2nd and 10th of August and the 30th  
16 of September.  
17 THE CHAIRPERSON: Thank you. Mr. Wilbur...?  
18 MR. STEVE WILBUR: Thank you, Robin, for that  
19 detailed response. I guess the basic concept here was do --  
20 were these surveys done when the migrations were at their  
21 peak or were they pre or post-peak?  
22 THE CHAIRPERSON: Mr. Johnstone...?  
23 MR. ROBIN JOHNSTONE: Mr. Chairman and  
24 Members of the Board, the surveys were timed to coincide with  
25 the peak migration.

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1                   We used whatever information that we had at  
2 our disposal which was usually a combination of the  
3 information from satellite collars, from observations on-site  
4 and also from talking with pilots that were flying around the  
5 area to provide us with a -- a closer picture of when we  
6 should time those surveys.

7                   THE CHAIRPERSON:    Thank you.   Steve...?

8                   MR. STEVE WILBUR:    Steve Wilbur, Dogrib.   The  
9 reason I bring it up is simply because the scales between  
10 slide, I think, 15 and 12 are different and it implies that  
11 the numbers in the southern migration were a lot higher than  
12 the ones in the northern migration.

13                   So I'm wondering why you would get larger  
14 numbers in the southern migration than you would in the  
15 northern and that suggested to me that perhaps you didn't get  
16 all the -- all of everything in the northern migration?

17                   THE CHAIRPERSON:    Ms. Beswick...?

18                   MR. ROBIN JOHNSTONE:   De Beers Canada.   The  
19 scales are the same.   We have added an additional size dot on  
20 page 15 to account for, I understand, it was a couple of  
21 larger groups of caribou.   This is consistent with what we've  
22 said all along.

23                   Caribou numbers will vary and they may vary on  
24 the southern and on the northern migration.   So, at any time  
25 during those migrations, we may expect during the project

1 history that we will get larger groups.

2                   THE CHAIRPERSON:    Thank you.   Steve...?

3                   MR. STEVE WILBUR:    Thank you, Robin.   Steve  
4 Wilbur.   On slide 13, you mentioned the use of using collared  
5 animals.

6                   And I was just curious, for each collared  
7 animal, how representative is this individual to the entire  
8 group?

9                   MR. ROBIN JOHNSTONE:   De Beers Canada.   There

10 are few numbers of caribou in the Bathurst Caribou Herd that  
11 have satellite collars on them.

12 We don't know that the movement of one (1)  
13 animal with a satellite collar also recommends -- also means  
14 that he brings twenty thousand (20,000) of his friends along  
15 with him. We can't provide that amount of information.

16 So, he or she --

17 MS. JEAN TEILLET: There are no 'he' collared  
18 caribous.

19 MR. ROBIN JOHNSTONE: -- there are no 'he'  
20 caribous? Sorry, there are not he car -- but that doesn't  
21 mean they may not be their friends along. Sorry for that  
22 sidebar there.

23 So, bottom line is, we may be able to provide  
24 more information on how representative the movement of one  
25 (1) animal is, in relation to the rest of the -- the herd.

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1 THE CHAIRPERSON: Thank you. Steve...?

2 MR. STEVE WILBUR: Steve Wilbur, Dogrib. This  
3 goes, kind of, back to, I guess, reclamation about what will  
4 be done with the cap in the North Pile, and whether caribou  
5 would migrate to that -- go over that area.

6 I'm -- I'm -- my question is related to, will  
7 the caribou be attracted to salts on the paste on the North  
8 Pile, and how soon -- I guess the question is: How soon will  
9 the pile be capped with granite, and so avoid that potential?

10 THE CHAIRPERSON: Mr. Johnstone...?

11  
12 (BRIEF PAUSE)

13  
14 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
15 Johnstone. Capping will be progressive. And so, it will be  
16 ongoing through the mine life.

17 However, there may be areas of the paste that  
18 is exposed to periods of up to a year.

19 THE CHAIRPERSON: Steve...?

20 MR. STEVE WILBUR: Steve Wilbur, Dogrib. Do  
21 you know if the paste is -- has salts in it, or is it

22 salty -- would it be attractive to the caribou?

23 We know in previous mine areas that caribou  
24 have been attracted to tailings, and actually eat them.

25 MR. ROBIN JOHNSTONE: De Beers Canada, Robin

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1 Johnstone. We don't know whether caribou will be attracted  
2 to the paste as it's deposited in the North Pile.

3 This is somewhat different than -- than  
4 tailings that Steve is referring to, but we don't know. And  
5 that's why we have an adaptive management component to our  
6 environmental management system.

7 If a concern was noted that caribou were being  
8 attracted to the North Pile, then we would implement  
9 mitigation to prevent their access.

10 MR. STEVE WILBUR: Steve Wilbur, Dogrib. On  
11 one (1) of the slides, I can't remember what it was, they  
12 mentioned mitigation to prevent avoidance in certain areas.

13 I guess, specifically, as an attractive  
14 nuisance -- I'm going to rephrase that. I guess I'm talking  
15 more about changes to -- the long-term change in -- in what  
16 we see in Snap Lake.

17 We've heard yesterday about potential changes  
18 in productivity, and I'm -- I'm wondering whether any of the  
19 wildlife biologists considered that if -- if Snap Lake  
20 productivity increased, we have more fish in the area, what  
21 they -- would that be a -- would animals be attracted -- will  
22 we see an increased use of Snap Lake by terrestrial wildlife?

23 THE CHAIRPERSON: Mr. Johnstone...?

24 MR. ROBIN JOHNSTONE: Can you -- can you  
25 clarify the question, please, Steve? I didn't quite follow

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1 the link between productivity through to wildlife. If you

2 could elucidate that?

3 THE CHAIRPERSON: Thank you.

4 MR. STEVE WILBUR: Steve Wilbur, Dogrib. We  
5 heard yesterday that -- that there was a potential that  
6 productivity would increase, and that it was potential for,  
7 ultimately, more food supply, and then perhaps, higher fish  
8 population.

9 So, if that -- that's the case, would there be  
10 more water -- avi-fauna and -- and bears, and other animals  
11 wanting to -- to come to this area, because there's --  
12 there's more fish -- more food supply available.

13 THE CHAIRPERSON: Mr. Johnstone...?

14 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
15 Johnstone. Yesterday, we referred in the aquatic assessment  
16 that the productivity of Snap Lake may change, conferring  
17 with Dr. Swanson about, do we expect more fish?

18 The answer was, no, we don't anticipate an  
19 increase in the fish. There may be slightly fatter fish, but  
20 we do not increase a number.

21 So, the information that we had from the  
22 aquatic assessment would indicate that we would not  
23 anticipate to expect increased wildlife related to that  
24 change in productivity.

25 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

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1 MR. STEVE WILBUR: Steve Wilbur. As I  
2 recall, she talked about a smorgasbord, and the bowls would  
3 change size, and that meant that perhaps, certain foods would  
4 be available, and other foods might not be available at the  
5 same proportion.

6 So, in my mind, that's a different food  
7 supply, and somebody else, you could -- other animals may be  
8 attracted to this different food supply.

9 THE CHAIRPERSON: Mr. Johnstone...?

10 MR. ROBIN JOHNSTONE: De Beers Canada. My  
11 understanding is that it's still an all you can eat buffet,  
12 but I'm going to get Dr. Swanson to -- to clarify that.

13 THE CHAIRPERSON: Thank you. Ms. Swanson...?

14 MS. STELLA SWANSON: Stella Swanson, Golder  
15 Associates for De Beers. Mr. Chairman, members of the Board,  
16 as you remember, the discussion yesterday was around whether  
17 or not there would be enough nutrients added to Snap Lake to  
18 change its overall category of productivity.

19 If you remember that slide that had the  
20 various gradations of green colour, and we were still down at  
21 the bottom, between oligotrophic, and oligo-mesotrophic; if  
22 you remember those terms?

23 That means, very low productivity to  
24 moderately productivity. The Snap -- Snap Lake will not move  
25 out of that category. Therefore, although there might be a

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1 little bit more food for the fish to eat, there will not be a  
2 large, or even measurable change, in the overall abundance of  
3 fish at the top of the food chain, because the overall  
4 productive status of the lake will not have increased enough.

5 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

6  
7 (BRIEF PAUSE)

8  
9 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I  
10 won't stay with that point any more.

11 With respect to migration patterns. I'm  
12 talking specifically about caribou. You mentioned that you  
13 don't expect to find large changes, and I was -- in -- in  
14 their patterns, and I was wondering what that comment was  
15 based on, or the statement.

16 How can you -- we be sure that we're not going  
17 -- that's not going to happen?

18 THE CHAIRPERSON: Mr. Johnstone...?

19  
20 (BRIEF PAUSE)

21  
22 MR. JOHN VIRGL: John Virgl, Golder  
23 Associates. Mr. Chairman, the Board. The satellite collar  
24 information from RWED indicates that really, the -- the  
25 movement of caribou across the Slave Geological Province,

1 they don't tend to either select or avoid mine sites. And  
 2 that their movement is really based on the seasonal  
 3 distribution of those animals. The natural variation in the  
 4 seasonal distribution.  
 5 Thank you.  
 6 THE CHAIRPERSON: Steve...?  
 7 MR. STEVE WILBUR: Steve Wilbur, Dogrib.  
 8 John, did -- did you just say that they -- they don't avoid  
 9 or they do avoid?  
 10 THE CHAIRPERSON: They don't avoid, Mr.  
 11 Wilbur.  
 12 MR. STEVE WILBUR: Steve Wilbur. How many  
 13 years of data is that based on?  
 14 MR. JOHN VIRGL: John Virgl, Golder  
 15 Associates. That's based on, from 1996 until 2002.  
 16 Actually, 2001, at the time that the report that I'm  
 17 referring to was written.  
 18 THE CHAIRPERSON: Mr. Wilbur...?  
 19 MR. STEVE WILBUR: Steve Wilbur. I -- I  
 20 guess one (1) of my concerns is that we have just a short  
 21 term database, and I'm not sure -- I have conflicting  
 22 opinions. I'm not a biologist so I can't really refute  
 23 what -- what John was saying about the ability to detect  
 24 changes.  
 25 But I guess I'm concerned that initial

1 adjustments may be harder to detect, and there may be  
 2 avoidances that may lead to major shifts in patterns in  
 3 herds.  
 4 And this is -- has been borne out by a study  
 5 done in Alaska of forty (40) years of data that show changes  
 6 in patterns -- in migration patterns, that started out slowly

7 and then became major -- major pattern shifts over -- over  
8 longer periods of time.

9 And I guess it just -- just bears to mind that  
10 we have a short database to work with, here.

11 THE CHAIRPERSON: I guess the question could  
12 have been, if De Beers have referred to the Alaskan study,  
13 are they are aware of its existence, and the conclusions  
14 within that study? So I'll ask the question.

15 MR. ROBIN JOHNSTONE: Mr. Chairman, Members  
16 of the Board, De Beers is very well aware of that forty (40)  
17 years of data from Alaska. You have to keep in mind that  
18 there are fundamental differences with the -- the nature of  
19 the development and -- that is addressed in the Alaskan  
20 report.

21 And there are fundamental differences in  
22 relation to where some of the development is occurring, too,  
23 in relation to calving grounds. The -- the key quandary here  
24 is that mines have only been developed in the last few years,  
25 so we -- we can't go back further.

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1 It's very important that we learn the lessons  
2 that -- that have been made, and take whatever applicable  
3 information there is from that Alaskan report and use it in  
4 regional monitoring.

5 And it's -- we're fully onboard, that -- that,  
6 the -- the effects on the Bathurst Caribou herd need to be  
7 monitored, and I'm sure RWED may -- may further address that,  
8 also.

9 THE CHAIRPERSON: Thank you, sir. Steve...?

10  
11 (BRIEF PAUSE)

12  
13 MR. STEVE WILBUR: Steve Wilbur, Dogrib. I'm  
14 not sure what slide it is, it's near the back, and it was one  
15 (1) that said, 'wolverine and grizzly bear, what will the  
16 effects be'.

17 Bette, you mentioned that the -- the -- you  
18 had very little data on grizzly bear and wolverine, and it

19 was difficult to be that -- that accurate.

20 And I'm wondering how you come up with numbers  
21 of .3 percent and 11.6 percent with very imprecise data?

22 THE CHAIRPERSON: Thank you. Ms. Beswick...?  
23

24 (BRIEF PAUSE)  
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1 MR. JOHN VIRGL: John Virgl, Golder  
2 Associates. Mr. Chairman, we based our estimates on the  
3 recent WKSS studies on wolverine and grizzly bear, provided  
4 us estimates of their home range.

5 THE CHAIRPERSON: Thank you. Mr. Wilbur...?

6 MR. STEVE WILBUR: Steve Wilbur. I -- I  
7 guess my question is that there's a bit of uncertainty in the  
8 -- in the analysis but it's not reflected in the number. The  
9 number suggests 11.6 percent and .3 percent, a very precise  
10 assessment of habitat loss and that's number one (1).

11 Number two (2), the 11.6 percent for an  
12 individual seems to be a pretty high number and I don't know  
13 is that 11.6 percent plus or minus .1 percent or is it really  
14 10 percent plus or minus 5 percent?

15 THE CHAIRPERSON: How precise are these  
16 numbers? Mr. Johnstone...?

17 MR. JOHN VIRGL: John Virgl, Golder  
18 Associates. Those numbers actually reflect the -- the  
19 smallest home range. So they are conservative. We not only  
20 used information from the -- for wolverine in particular from  
21 WKSS study, but we also used information from the literature  
22 that gave a range of home ranges.

23 And that 11.6 percent is based on the smallest  
24 home range. So it's a conservative estimate of the mount of  
25 loss within an individual's home range.

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1 THE CHAIRPERSON: Thank you. Mr. Wilbur...?  
2 MR. STEVE WILBUR: Steve Wilbur. Can you  
3 tell me what the uncertainty in the -- in the number is?  
4 THE CHAIRPERSON: Thank you. Mr. Virgl...?  
5 MR. ROBIN JOHNSTONE: De Beers Canada. What  
6 we are getting to is issue around available information. We  
7 have taken the information from relevant sources, WKSS,  
8 published literature. More information may change that.  
9 We also, if we were to look at an individual  
10 grizzly wandering around Snap Lake, we may get much more  
11 precise information. But that information would only hold  
12 true for the -- for that individual in that time.  
13 I think the estimate that we've provided is as  
14 good as the information that is available but it's very  
15 difficult to speculate as to what that -- what further  
16 information may -- may provide.  
17 And what we've done in the face of that  
18 uncertainty is add a layer of safety by assuming that the  
19 smallest home range, which would maximise the -- the  
20 predicted impact.  
21 MR. STEVE WILBUR: Steve Wilbur, Dogrib.  
22 Just -- just my comment here is that we're -- we're --  
23 De Beers is presenting numbers that appear to be more precise  
24 than -- than they actually may be if they're -- can't --  
25 can't explain what their accuracy is, that's okay.

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1 Further on down, I guess, on that same page in  
2 the handout, you talk -- you expressed a -- told us that the  
3 total footprint of mines and road was about sixty (60) square  
4 kilometres and I guess from a perspective of the animals that  
5 you're talking about, wolverine, grizzly bear, and caribou,  
6 the footprint seems to be maybe not what we're talking about.  
7 What we should talk about is zone of influence  
8 and I was wondering what that actual area is for the mines  
9 and the -- the -- all the roads?  
10 THE CHAIRPERSON: Mr. Johnstone...?  
11 MR. ROBIN JOHNSTONE: De Beers Canada, Robin

12 Johnstone. I'll ask John Virgl to elaborate. We haven't  
13 built the mine. We don't know what the zone of influence for  
14 Snap Lake will be. We have information from two (2) previous  
15 projects that are much larger in scale than Snap Lake, had  
16 greater haul roads that are much bigger footprints than the  
17 three hundred and fifty (350) impacted area that we have.

18 I'll just ask -- confer with my colleague to  
19 see if he'd like to add anything. It's a no.

20 THE CHAIRPERSON: Steve...?

21 MR. STEVE WILBUR: And a question -- I mean,  
22 on one (1) of the slides you had that was called "reducing  
23 uncertainty" maybe it's number 31 I guess, I don't know.

24 THE CHAIRPERSON: Yes. Thirty-one (31).

25 MR. STEVE WILBUR: It says -- I have

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1 differences of opinion with the -- with the bullet and --  
2 that's it, yes.

3 I guess I had -- when I saw this, at first --  
4 first blush, I said, okay, that's okay, but then I started  
5 thinking about it, and I -- uncertainty equals un --  
6 unreliable, and I -- I just didn't -- I didn't like the feel  
7 of that, and I guess what my problem is, is that, well we --  
8 we've heard yesterday about levels of uncertainty.

9 We all know that data has uncertainty, but  
10 certainly, even with uncertainty, we can express that from a  
11 statistical stand -- standpoint, or we could still get very  
12 reliable results with measures of uncertainty.

13 And, it's -- it's the -- if we have high  
14 degrees of uncertainty, and we use them inappropriately, we  
15 can be unreliable.

16 So, my comment here is -- my question is:  
17 What do you really mean by, uncertainty in input data equals  
18 unreliable results?

19 THE CHAIRPERSON: Thank you. When I saw  
20 that, I thought garbage in, garbage out.

21 MR. ROBIN JOHNSTONE: Good summary. The --  
22 and the key point though is, that's why we had to be very  
23 careful where, and when we rely on models, and that's why we

24 have to look beyond models to see what other informations  
25 that we have.

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1           The caribou, the -- as Bette said, the maps  
2 that caribou have left across the land, telling us where they  
3 went, rather than relying on a model, rather than relying on  
4 short periods of data.

5           We need to build a overall picture, using all  
6 information at our -- at our disposal. Traditional knowledge  
7 regarding caribou movement. So, that's why garbage in,  
8 garbage out.

9           It doesn't mean that models aren't useful, but  
10 we need to be careful where we use them, and we need to use  
11 all information at our disposal.

12           THE CHAIRPERSON: Thank you. It's 10:30, Mr.  
13 Wilbur, are you almost ready to wrap up? And then, well,  
14 after coffee, I can come back to the next -- okay.

15           MS. JEAN TEILLET: I'm not a scientist, so  
16 it's not really a scientific question. I'm a lawyer, Jean  
17 Teillet for the Dogrib Treaty 11 Council.

18           Question to De Beers generally. I -- I've  
19 been working in Siberia the last couple of years in -- with  
20 the Reindeer herders up around a big mine called Norilst.

21           Now, I know Norilst is a heavy metals mine, so  
22 the issues are somewhat different, but there's a very big  
23 issue up there of the combination of emissions from the mine  
24 with fugitive dust settling on the -- the vegetation, and so,  
25 what they have around that mine in Siberia is about a -- a

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1 sixty (60) kilometre radius, where their Reindeer simply will  
2 not go, because they won't eat.

3           And, I'm wondering if there's a possibility of

4 emissions and dust and things like that combining to create a  
5 somewhat similar effect, and again, Mr. Chair, I'm also  
6 thinking about the cumulative effect of all the mines as  
7 well, and I wondered if De Beers could comment on that  
8 possibility?

9 THE CHAIRPERSON: Thank you. Ms. Beswick...?  
10 Mr. Johnstone...?

11 MR. ROBIN JOHNSTONE: De Beers Canada. Our  
12 impact assessment discusses the issue of -- of dust and  
13 emissions, and provides information that we don't think it  
14 will have an impact the -- we're not likely to get a  
15 situation like that.

16 Probably the most important -- pertinent data  
17 to -- to answer Jean's question is that from Diavik -- much  
18 bigger projects.

19 Again -- and -- sorry, and EKATI. Much bigger  
20 projects, more emissions, more dust, and we are seeing some  
21 influence on caribou behaviour, but as Dr. Virgl stated, we  
22 are not seeing it expressed as an area of avoidance.

23 So, the monitoring from other projects to date  
24 would suggest that that's not the case. This is why we  
25 continue to monitor, to make sure that we are in a position

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1 to be able to -- to detect such effects.

2 THE CHAIRPERSON: And, the second part of the  
3 question, in terms of the cumulative effects? Have you taken  
4 a look at that? The combination?

5  
6 (BRIEF PAUSE)

7  
8 MR. ROBIN JOHNSTON: Could Jean repeat the  
9 question, please?

10 THE CHAIRPERSON: Ms. Teillet...?

11 MS. JEAN TEILLET: I guess what -- what I'm  
12 thinking is that, to me, what -- what you've just said is  
13 that Diavik is showing that there is some kind of -- that --  
14 it's a bigger project, and they've got more stuff, but that  
15 there is some effect happening.

16 When we add all these mines up, plus the dust  
17 from the road -- if there is dust, and I don't even know if  
18 there is, but you could probably help us with that.

19 If there's an effect that's hitting this  
20 larger area, and you probably remember the map that was put  
21 on the wall here by Canadian Arctic Resources Canada.

22 Are we creating, not just a wall on the  
23 ground, but also an area from this air and emissions that is  
24 going to create a bigger influence that will affect the  
25 wildlife in their ability to live off the vegetation on the

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1 land. That's the concern. So, the cumulative effect.

2 THE CHAIRPERSON: Mr. Johnstone...?

3 MR. ROBIN JOHNSTONE: First of all, I should  
4 clarify the comment about Diavik and BHP. The information is  
5 from the BHP wildlife monitoring, which shows that caribou  
6 close to the mine site, female caribou with calves, spend  
7 less time feeding.

8 The issue of the cumulative effects is that we  
9 do not anticipate that that will be the case. That in our  
10 dust monitoring, and in our emissions monitoring, we do not  
11 see that there will be an overlap of the effects of those  
12 projects.

13 And I think I'll leave it there.

14 THE CHAIRPERSON: Thanks.

15 MS. JEAN TEILLET: And perhaps we can clarify  
16 what that BHP -- could you clarify, please, what you  
17 understand the BHP data to say?

18 I also thought it said that the females spend  
19 less time feeding, but also, my understanding is that the  
20 data seems to show that the females with calves, are under-  
21 represented the closer you get to the mine, which seems to  
22 indicate a pattern, although maybe not a -- it's not  
23 statistically sure yet, but a pattern that cows with calves  
24 in the fall foraging time are, perhaps, staying back from the  
25 mine.

1                   And could you clarify, as best your  
2 understanding of the data from BHP?  
3                   THE CHAIRPERSON: Thank you. Mr. Virgl...?  
4                   MR. JOHN VIRGL: John Virgl, Golder  
5 Associates. Mr. Chairman, having been involved in that  
6 project for the last five (5) years, I don't -- the fact is  
7 that the results indicate that there is no difference in the  
8 proportion of females with calves, as a function of distance  
9 to the project footprint.  
10                  THE CHAIRPERSON: Ms. Teillet, last question.  
11                  MS. JEAN TEILLET: Okay. One (1) more  
12 question about the monitoring that -- and the programs that  
13 you've been setting up to collect your data so far.  
14                  Can you tell us whether the manner and method  
15 of your collection of data, and the designs for your  
16 monitoring programs, are set up consistently with the Diavik  
17 and BHP ones?  
18                  And I'll tell you my concern, is so that we  
19 can begin to get consistent data that we can create -- look  
20 at consistently over. And could you speak to that issue for  
21 us, please?  
22                  THE CHAIRPERSON: Thank you. Mr.  
23 Johnstone...?  
24                  MR. ROBIN JOHNSTONE: De Beers Canada. We've  
25 thought of that too, Jean. It's a critical point, and that's

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1 been our intention all the way.  
2                   And our caribou surveys, our grizzly bear  
3 surveys, we have -- we have changed our wolverine methodology  
4 to improve upon what's been done.  
5                   And we are moving, you know, we have made  
6 great steps to coordinate that data, so that apples can be  
7 compared with apples, caribou with caribou.  
8                   THE CHAIRPERSON: Thank you very much, Mr.

9 Johnstone. Sorry, we'll now take a short coffee break.

10 Thank you.

11

12 --- Upon recessing at 10:40 a.m.

13 --- Upon resuming at 10:58 a.m.

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15 THE CHAIRPERSON: Okay, prior to the break we  
16 were in the questioning phase of the Hearing. And next on  
17 the list of potential questioners are the Canadian Arctic  
18 Resources Committee, Mr. O'Reilly...?

19 MR. KEVIN O'REILLY: Thank you, Mr. Wray.  
20 Kevin O'Reilly, Canadian Arctic Resource Committee. I have,  
21 I think it's about three (3) questions for De Beers on their  
22 presentation.

23 The first question is: I didn't really see  
24 anything in the overheads about what the effects from their  
25 project would be in terms of their incremental use of the

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1 winter road.

2 And I'm just wondering if there was any  
3 attempt to try to look at what those effects would be, and if  
4 they would care to share those with us today? Thank you.

5 THE CHAIRPERSON: Thank you.

6

7 (BRIEF PAUSE)

8

9 THE CHAIRPERSON: Mr. Johnstone...?

10 MR. ROBIN JOHNSTONE: Our pause is related to  
11 the question. And just, do you mean in relation to the -- to  
12 the physical winter road, the capacity of it, Kevin? Can you  
13 maybe be a little bit more explicit?

14 THE CHAIRPERSON: Mr. O'Reilly...?

15 MR. KEVIN O'REILLY: Thank you. Kevin  
16 O'Reilly, CARC. I guess, as I understand it, I might not  
17 have these figures right, but I think De Beers is going to  
18 have -- if this mine does proceed, there's going to be about  
19 an extra 8,000 truck loads of material that are going up the  
20 Tibbitt-Contwoyto Lake Road to your mine site.

21                   And I guess I'd like to know what the effects  
22 of that extra traffic on the winter road is going to be on  
23 the Bathurst Caribou herd, wolverine, grizzly bears, other  
24 forms of wildlife?

25                   THE CHAIRPERSON:     Thank you.     Mr.

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1     Johnstone...?

2                   MR. ROBIN JOHNSTONE:     De Beers Canada.     We  
3 did not address that in this Environmental Assessment.

4                   THE CHAIRPERSON:     Mr. O'Reilly...?

5                   MR. KEVIN O'REILLY:     I -- I guess I'm a bit  
6 surprised to hear that, but I'll leave that with the Board.

7                   One (1) further follow up question, then, on  
8 that.     Does De Beers actually propose to do any monitoring of  
9 its use of the winter road, or is that going to be done in  
10 cooperation with others?     What -- if -- if they haven't  
11 predicted what the effects are, is there going to be any  
12 attempt to actually monitor what the effects may be?

13                   THE CHAIRPERSON:     Mr. Johnstone...?

14                   MR. ROBIN JOHNSTONE:     De Beers Canada, Robin  
15 Johnstone.     There is extensive monitoring of the winter road  
16 being done by the winter road joint venture.     And when we --  
17 that will continue, and when or if we become part of that  
18 joint venture, we will obviously be continuing with their  
19 rules and regulations and guidelines in monitoring.

20                   MR. KEVIN O'REILLY:     Kevin O'Reilly with  
21 CARC.     One (1), sorry, further follow-up question, then.

22                   What sort of monitoring is being done, then,  
23 by the joint venture and how does De Beers propose to be  
24 involved or -- in -- in that monitoring?

25                   MR. ROBIN JOHNSTONE:     Mr. Chairman, to answer

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1 this question, I'd like to ask for Mr. Don Hayley of EBA,  
2 part of the winter road joint venture, consultant to them, to  
3 provide that response, please?

4 THE CHAIRPERSON: Thank you. Mr. Hayley...?

5 MR. DON HAYLEY: Mr. Chairman, my name is Don  
6 Hayley with EBA Engineering Consultants.

7 We've been providing consulting services to  
8 the winter road joint venture for the past three (3) years,  
9 collecting and -- and evaluating data on the winter road.  
10 There is a report, which I believe is in the public domain,  
11 on the winter road project description, which I think would  
12 provide quite a number of the answers to questions that Kevin  
13 is raising.

14 THE CHAIRPERSON: We'd like to hear some of  
15 those answers, here, on the record, sir.

16 MR. DON HAYLEY: Yes. The winter road, as  
17 many of you probably know, has received a -- a renewal of  
18 their licence of occupation. And associated with that, they  
19 are putting into place a environmental management system.  
20 The planning for that system is in progress right now.

21 That management system includes a detailed  
22 description of conditions at -- at every portage along the  
23 road, it includes an ice management system and it includes a  
24 wildlife habitat assessment program, which is well underway.

25 THE CHAIRPERSON: Thank you. As a follow up,

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1 because we need to bring this into perspective. The caribou  
2 trail density was found to be the greatest in the area near  
3 MacKay Lake and where the winter road and the Snap Lake  
4 access road meet.

5 And I guess the question is, what are the  
6 potential impacts of the hauling activity on the behaviour of  
7 the caribou near the roads, and how did De Beers quantify the  
8 influence of their project on the behavioural effect?

9 MR. ROBIN JOHNSTONE: Mr. Chairman, it's a  
10 slightly different question. What we -- it's a good  
11 question. The answer is, the -- the caribou trails,  
12 certainly, the density is much greater by MacKay Lake and

13 down towards Camsell Lake. We see that sort of movement in  
14 the area, but what we need to get back to is when those  
15 caribou trails are formed.

16 And so, the opportunities are the northern  
17 migration, where -- where it's often under snow covered  
18 conditions. Sometimes, those caribou trails are exposed  
19 snow-free, or it's on the southern migration.

20 The key issue is the timing that the winter  
21 road, in relation to when the caribou are in that area, and  
22 the information that we have to date, is that the two (2)  
23 occur in different times.

24 THE CHAIRPERSON: Thank you, sir. I'm -- I'm  
25 sorry, Mr. O'Reilly...?

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1 MR. DON HAYLEY: Mr. Chairman, can I just  
2 clarify one (1) point for -- for Kevin?

3 THE CHAIRPERSON: Yes.

4 MR. DON HAYLEY: As part of our planning for  
5 the future of the Winter Road, we have done an -- an  
6 assessment of the traffic over the Winter Road, and just to  
7 clarify some of the numbers.

8 Over the past three (3) years, the -- not --  
9 the load of traffic going north has been in the order of  
10 eight thousand (8,000) loads per year, without the Snap Lake  
11 project, and that's -- and that's predicted to increase to a  
12 maximum in the order of twelve thousand (12,000) loads per  
13 year.

14 So, the incremental increase in traffic for  
15 Snap Lake is predicted to be in the order of four thousand  
16 (4,000) -- maximum four thousand (4,000) loads per year.

17 THE CHAIRPERSON: Is that during the  
18 construction phase? Or is that during operational phase?

19 MR. DON HAYLEY: That -- that is initially  
20 during the construction phase.

21 THE CHAIRPERSON: And the operational phase?

22 MR. DON HAYLEY: It -- it tails off somewhat  
23 during the operational phase.

24 THE CHAIRPERSON: Thank you. Mr.

25 O'Reilly...?

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1 MR. KEVIN O'REILLY: Thank you. I -- I just  
2 have two (2) follow-up questions, if I may. The document  
3 that Mr. Hayley is referring to, is that part of the public  
4 record for this proceeding?

5 THE CHAIRPERSON: Either Mr. Hayley, or Mr.  
6 Johnstone. I -- I really -- I don't know, Mr. O'Reilly.

7 MR. KEVIN O'REILLY: If it's not, I guess I  
8 would ask that it would be filed in by this Proponent.

9 THE CHAIRPERSON: Mr. Hayley...?

10 MR. DON HAYLEY: Mr. Chairman, Don Hayley.  
11 The document was filed with Indian Affairs, and with the  
12 Mackenzie Valley Impact Review Board to lead up to the  
13 screening process, I believe, for -- for the Winter Road, and  
14 where that sits at the current -- I -- I know it was  
15 available on your website for some period of time, and where  
16 that sits right now, in the public record, I'm -- I'm just  
17 not sure.

18 MR. ROBIN JOHNSTONE: Mr. Chairman, De Beers  
19 will request the joint venture to place that record on the  
20 Snap Lake public registry.

21 THE CHAIRPERSON: Okay, so -- thank you, sir.  
22 Yes, because I -- it might be on the Land and Water Board.  
23 I'm not sure if it's on the ERB's record, but anyway, we'll  
24 get the document, and we'll enter it on the public record.

25 Thank you, very much. Mr. O'Reilly...?

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1 MR. KEVIN O'REILLY: Thank you. Kevin  
2 O'Reilly with CARC. Just one (1) further point that I -- I  
3 want to make with the Board is that when I look at the terms  
4 of reference and work plan for this environmental assessment,

5 the scope of the development in 2.3.2.3 includes, and I quote  
6 here:

7 "Use of the current Lupin Winter Road."

8 So, I think I've made my point. Thank you.

9 THE CHAIRPERSON: Thank --

10 MR. KEVIN O'REILLY: Sorry, I have two (2)  
11 other questions.

12 THE CHAIRPERSON: Well, I'm really glad to  
13 hear that.

14 MR. KEVIN O'REILLY: I'm sure you are. I'm  
15 referring now to the slides that were used in the  
16 presentation, and I'm trying to get my accounting right here,  
17 it's -- anyway, it's on page 6, and it's titled, Reducing  
18 Uncertainty, and it's the second of those two (2) slides.

19 I'll just wait for it to come up on the  
20 overhead.

21  
22 (BRIEF PAUSE)

23  
24 MR. KEVIN O'REILLY: The last point on this  
25 slide talks about how -- or mentions that:

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1 "De Beers will participate in a regional  
2 monitoring program, and continue to collect  
3 information to help assess and manage  
4 cumulative effects."

5 And, I'm pleased to hear that. I'm wondering  
6 if De Beers could tell us what their involvement has been  
7 over the last two (2), three (3) years then, in the  
8 cumulative effects assessment management framework, which is  
9 a multi-stakeholder process to try to come up with a  
10 framework to better assess and manage cumulative effects, and  
11 that was a requirement from the Diavik comprehensive study in  
12 the Ministry Environments approval of that study.

13 So, has De Beers actually participated in this  
14 framework in any way?

15 THE CHAIRPERSON: Thank you.

16 Mr. Johnstone...?

17 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
18 Johnstone. De Beers' participation in CEMF has been through  
19 the NWT and Nunavut Chamber of Mines.

20 THE CHAIRPERSON: Thank you. Mr.  
21 O'Reilly...?

22 MR. KEVIN O'REILLY: Thanks. A follow-up  
23 question then. What specifically has De Beers done in terms  
24 of has it just been meeting with the Chamber of Mines  
25 representative once in while or what specifically have they

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1 done?

2 What I'm trying to do here is to find out what  
3 their -- their current track record has been in trying to  
4 work towards better regional cumulative effects and then I  
5 have a question about what their future involvement may be.

6 THE CHAIRPERSON: Thank you.

7 MR. ROBIN JOHNSTONE: We don't have a lot of  
8 evidence to provide to the Board around what our past track  
9 record is. As stated before, it's been through the Chamber  
10 of Mines.

11 We're very much interested in this, in the  
12 issue of regional cumulative effects monitoring. We're --  
13 we've -- that's why we've continued -- or we've set up our  
14 studies from the start to ensure that that information may be  
15 used on a regional basis.

16 Also, we have participated and will continue  
17 to participate in discussions around regional monitoring.

18 THE CHAIRPERSON: Thank you. I actually have  
19 a follow up because Mr. O'Reilly touched on a question that I  
20 intended to ask and that was: What contribution does  
21 De Beers intend to make with participation in the CEMF and  
22 the cumulative impact monitoring program in the future?

23 MR. ROBIN JOHNSTONE: We would put time and  
24 effort into it.

25 THE CHAIRPERSON: Money?

1 MR. ROBIN JOHNSTONE: That would be up for  
2 discussion.

3 THE CHAIRPERSON: Thank you.  
4 Mr. O'Reilly...?

5 MR. KEVIN O'REILLY: Thank you. Kevin  
6 O'Reilly with CARC and thank you for asking my next question.  
7 I did have -- I'm not quite sure how to approach this one (1)  
8 but I believe I heard -- Mr. Johnstone said that the study  
9 that was done recently on the cumulative effects in the  
10 Alaska North slope was really very, very different from what  
11 may be taking place in the Slave Geological Province.

12 And when I -- what I know about the Slave  
13 Geological Province is that there has been some mining  
14 activity there in the 1950's, 1960's. There was Tundra  
15 Salmeida (phonetic). The Lubin mine opened in 1981. A  
16 Winter road has been in there for more than twenty (20) years  
17 now.

18 BHP Mine is operating, Diavik is about to  
19 begin commercial production. Tahera is in the regulatory  
20 process. Doris is in -- and in the Hopi Belt is in the  
21 regulatory process. There's also a proposal for a Bathurst  
22 Inlet Port and Road. The Bathurst Caribou herd and the  
23 caribou herd in Alaska that's part of that study are  
24 migratory caribou herds and we just heard that the Winter  
25 road has been renewed for another thirty (30) years.

1 So, I'm wondering on what basis does  
2 Mr. Johnstone said that -- say that -- that the Alaska work  
3 is not comparable in any way to what's happening in the Slave  
4 Geological Province?

5 THE CHAIRPERSON: Thank you. Mr.  
6 Johnstone...?

7 MR. ROBIN JOHNSTONE: De Beers Canada,  
8 Robin Johnstone. I'd like to correct you, Kevin. We did not  
9 say that it was comparable in any way. There is important

10 information that we must use and we need to learn the lessons  
11 from.

12 The point I was making about why it is  
13 different is the nature of development and also the intensity  
14 of development. Mr. O'Reilly's information that was  
15 presented before on Monday provided an area of disturbance of  
16 around two hundred and twelve (212) square kilometres in an  
17 area of over two hundred thousand (200,000) square  
18 kilometres.

19 In the Alaskan study the information was  
20 focussing on development footprint of about seventy (70) to  
21 eighty (80) square kilometers, in an intensively used area of  
22 two thousand six hundred (2600) square kilometers.

23 So, we're talking very intensive use. We're  
24 also talking linear development. We're talking about roads  
25 and pipelines, and those tend to have very different effects

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1 than the likes of an outfitting camp, or a mine.

2 So, it's -- those are the main areas, the  
3 fundamental areas, where it's -- it's different.

4 THE CHAIRPERSON: Thank you. Mr. O'Reilly...?

5 MR. KEVIN O'REILLY: Thanks. I'm not sure I  
6 agree with Mr. Johnstone's assessment, but I'll leave --  
7 leave that for now. And that's all of my questions. Thank  
8 you.

9 THE CHAIRPERSON: Thank you, sir.

10 Government of the Northwest Territories...?

11 MR. GAVIN MORE: Gavin More, Northwest  
12 Territories. Thank you, Mr. Chair. We have a series of  
13 questions to ask.

14 Basically, I will go on first, and then I will  
15 pass the mike to Dr. Anne Gunn, our ungul biologist for RWED,  
16 followed by Dr. Ray Case, manager of technical services, and  
17 our last questioner will be Steve Matthews, habitat  
18 environmental assessment biologist.

19 The question that I have relates to the  
20 concept of traditional knowledge, and it's -- it's a multi-  
21 part question.

22                   And what -- what I'm trying to get at, to some  
23 extent, is some of the people here in the audience are  
24 Elders, they won't necessarily have read the EA.  
25                   I do appreciate that the EA was a work in

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1 progress, over several years. And there has been quite a bit  
2 of discussion over the past six (6) months what traditional  
3 knowledge is, what it should be in the future.  
4                   And I was very struck by the presentation by  
5 the Lutsel K'e, with their, rather beautiful presentation, of  
6 their photographs, their naming of sights and the cut of the  
7 land.  
8                   What I'd really like to get at is, first of  
9 all, in terms of the Environmental Assessment, when you  
10 started doing your work and your methodology, what was your  
11 concept of traditional knowledge?  
12                   And then, if I could see some -- hear some  
13 specifics about how you collected traditional knowledge and  
14 incorporated it into the work related to caribou, grizzly  
15 bear, and wolverine.  
16                   And I do realize that each of those might be  
17 quite different in terms of what you collected, and how you  
18 utilized it.  
19                   And then following with that concept is  
20 habitats. I do realize that you worked on an ecological land  
21 classification, which may or may not be similar to the Lutsel  
22 K'e presentation on the land.  
23                   And I also ask this, partly because we did  
24 see, in the presentation, a bit of a methodology of how we do  
25 caribou surveys, size the area, transects, that sort of

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1 thing.

2 And we used the phrase that we've incorporated  
3 traditional knowledge, but we didn't hear any specifics of,  
4 kind of, what was done, and how that can be incorporated in  
5 the Environmental Assessment.

6 THE CHAIRPERSON: There was a number of  
7 questions in there. Ms. Beswick...?

8 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
9 Johnstone. To begin with, I'd like to just address the  
10 notion of, what does De Beers consider traditional knowledge  
11 to be.

12 I think we recognize that there is a -- there  
13 are a number of levels of knowledge. That a comment made by  
14 a person visiting site, who is a traditional knowledge  
15 holder, must be careful that it isn't taken out of context.

16 And we did our best to respect that where ever  
17 possible. We also wanted to -- to take advantage of that  
18 information, as well.

19 In terms of formalized traditional knowledge  
20 study, we recognize that it is the holders of that  
21 traditional knowledge that really need to be telling us what  
22 traditional knowledge is.

23 And that's why we went out and asked for input  
24 to our project. Lutsel K'e provided us with a study of their  
25 assessment of the impacts of this project.

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1 We did not tell them what traditional  
2 knowledge was, we asked for their input. And perhaps, the  
3 further question may be best left to traditional -- to Lutsel  
4 K'e around what that traditional knowledge was.

5 I think, with respect to how we incorporated  
6 some of it, and the specific examples, in terms of the impact  
7 assessment, traditional knowledge from the Lutsel K'e report,  
8 West Kitikmeot Slave Study, and concerns of Elders noted on  
9 site, was used to validate linkages between potential effects  
10 and impacts on wildlife and wildlife habitat.

11 In other words, did they think that such an  
12 impact would have the potential to occur? Traditional  
13 knowledge was used to identify the negative effects on dust

14 on wildlife habitat and to suggest monitoring approaches. It  
15 was used to identify the negative effects of infrastructure  
16 activity, noise and odours from mining on wildlife movement.

17 We noted on the first day of this  
18 presentation, that there was concern that the out -- the  
19 shape of the original accommodation block would be such that  
20 wildlife could get trapped in between the wings, and blind  
21 spots were created.

22 So people coming around a corner could  
23 accidentally surprise wildlife. That was -- in -- in  
24 response, we changed the design of the building.

25 We heard that it was, from community members,

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1 it was very important to prevent attraction of carnivores to  
2 site. And we recognize the importance and we've focussed  
3 extensively on how we are going to reduce that attraction to  
4 site.

5 Moving the incinerator from outside, and  
6 basically, into a building where we're not going to have to  
7 take garbage outside, was part of that, as well.

8 It was used in the Impact Assessment to  
9 identify concerns regarding the potential toxicity to  
10 wildlife from runoff from the North Pile, and the concerns of  
11 potential toxicity to wildlife of spills. So we knew we had  
12 to have a rigorous spill management plan.

13 In terms of baseline monitoring, traditional  
14 knowledge via concerns expressed by First Nations, it really  
15 stressed the importance of caribou in our program. And a lot  
16 of our effort has been placed on caribou.

17 Aboriginal Elders and youth were present on  
18 aerial caribou survey. And we've heard the conclusions  
19 around traditional knowledge, around the caribou movements.  
20 And we compared that with what, basically, the information  
21 that we had from science base also told us.

22 In terms of grizzly bears, wolves and foxes,  
23 it was used to identify the -- it noted the importance of  
24 Eskers to carnivores for both den sites and travel.

25 And it was also -- Lutsel K'e also explained

1 why no bear dens were found in the study area, in their  
2 traditional knowledge report.

3 With regard to wolverines, a key part of our  
4 wolverine survey methodology what -- were Aboriginal  
5 community members on the survey, they basically led the  
6 survey and participated along side biologists.

7 With regards to upland birds, breeding birds,  
8 Aboriginal trainees were present on the bird -- bird surveys,  
9 recognized that there was traditional knowledge around small  
10 birds. We were sharing with them our scientific knowledge on  
11 how to do those studies.

12 And obviously, in relation to mitigation and  
13 monitoring, I've already touched briefly on mitigation. In  
14 terms of monitoring, it was outlined that we need to do  
15 extensive monitoring.

16 People are interested in community monitoring  
17 and people want to have a say in monitoring. And that's why  
18 we've stated that we will developing monitoring plans in  
19 conjunction with the communities.

20 THE CHAIRPERSON: Thank you, sir. Mr.  
21 More...?

22 MR. GAVIN MORE: Thank you, Mr. Chair. Gavin  
23 More of GNWT. Thank you, Robin, I really appreciate that  
24 answer and I will pass the mike over to Dr. Anne Gunn now.

25 THE CHAIRPERSON: Dr. Gunn...?

1 MS. ANNE GUNN: Mr. Chairman, my name is Anne  
2 Gunn. I'm representing Government of the Northwest  
3 Territories. And I have one (1) question and I have some  
4 clarification.

5 Quite a few points have been raised about  
6 caribou and I can share -- already this morning, and I can

7 share some information with you. Most of it I will hold over  
8 until my presentation, early this afternoon.

9 But I just want to make one (1) point about  
10 the winter road. Those Caribou that winter around the winter  
11 road in some years, and they're there during the time when  
12 the winter road is operational. And this seems to happen,  
13 perhaps one (1) year in ten (10).

14 Most of the time, when the caribou -- the  
15 Bathurst Herd is wintering to the west, the western edge of  
16 their range is then -- I would agree with Robin that there  
17 migration usually occurs after the time of the Winter Road.

18 But there's another complication in this,  
19 which has become apparent in the last couple of years, and  
20 that's that we have a second caribou herd wintering in the  
21 vicinity of the -- of the barrens, perhaps overlapping with  
22 the norther edge of the Winter Road, and also with the Snap  
23 Lake property, and that's the Ahiak Herd.

24 And it seems like we do not have a lot of  
25 information about the herd, but it is probably increasing,

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1 and it's expanded its range over the last few years.

2 So, I think it's important to distinguish  
3 them. It -- it also makes the argument about need -- the  
4 adequacy of baseline information. We need to collect  
5 information over a number of years to capture this variation  
6 in caribou distribution.

7 Anyhow, having said that, I do have a  
8 question. The environmental assessment for caribou dealt  
9 largely with information collected in 1999 and 2000. The  
10 presentation referred to information collected in 2001 and  
11 2002.

12 My question is, to what -- what's -- how did  
13 the information collected in 2002 contribute to measuring the  
14 scale of natural variation in the distribution of caribou in  
15 the Snap Lake vicinity?

16 And, the reason I'm asking this, is because we  
17 haven't seen this information, and we're just concerned about  
18 how it adds to this scale of variation over a number of

19 years. Thank you.

20 THE CHAIRPERSON: Thank you, Dr. Gunn.

21  
22 (BRIEF PAUSE)

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24 MR. ROBIN JOHNSTONE: De Beers Canada. On  
25 the latter point, the information around caribou distribution

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1 in 2002 was provided to RWED, and to the public registry, and  
2 I -- I don't know the date. It was January or February of  
3 this year. So, RWED should have that information.

4 I'll ask Dr. Virgl to comment on how it  
5 contributes to our information.

6 THE CHAIRPERSON: Thank you. Dr. Virgl...?

7 MR. JOHN VIRGL: John Virgl, Golder  
8 Associates. Mr. Chairman, the information, basically  
9 provides us with more data on that variation that Anne is  
10 referring to.

11 So, rather than just having two (2) years of  
12 -- of the distribution of caribou through the regional study  
13 area, we now have four (4) years of that distribution.

14 THE CHAIRPERSON: Thank you. Follow up?

15 MS. ANNE GUNN: Anne Gunn, Government of the  
16 Northwest Territories. Yes, I have a follow up question.  
17 How -- can you give me an idea of the scale of numbers in  
18 2002, particularly during post-calving migration, which I  
19 think is -- is the critical time in terms of exposure to the  
20 mine sites.

21 Not a precise number, just -- just some idea?

22 THE CHAIRPERSON: Thank you. Dr. Virgl...?

23 MR. JOHN VIRGL: John Virgl, Golder  
24 Associates. Mr. Chairman, the information really gives us, I  
25 guess, an order of magnitude difference from what we

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1 originally had stated in the environmental assess report.

2 THE CHAIRPERSON: Ms. Gunn...?

3 MS. ANNE GUNN: Anne Gunn, Government of the  
4 Northwest Territories. An order of magnitude, less, more,  
5 like, talking ten thousand (10,000) caribou, one hundred  
6 thousand (100,000) caribou? Can you help -- can you help us  
7 here?

8 THE CHAIRPERSON: You're not going to get  
9 away with not giving us a number, Dr. Virgl, so you might as  
10 well fess up.

11 MR. ROBIN JOHNSTONE: While -- while Dr.  
12 Virgl is doing that, is referring that, we've always stated  
13 that we are going to get a variety of numbers of caribou in  
14 the project area.

15 We understand that there will be natural  
16 variability, and the number is?

17 MR. JOHN VIRGL: Between approximately twelve  
18 hundred (1200), and thirty thousand (30,000) animals, from --  
19 from 1999 through 2002.

20 The lowest number was recorded in -- this is  
21 for the post-calving migration, okay? The lowest number is  
22 estimated at twelve hundred (1200) animals. In 1999, the  
23 estimated number was approximately thirty thousand (30,000)  
24 animals. In 2001, it was five thousand (5,000) animals and  
25 in 2002, it was approximately eight thousand (8,000) animals.

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1 THE CHAIRPERSON: Thank you, sir.

2 Ms. Gunn...?

3 MS. ANNE GUNN: Thank you. That was helpful.

4 THE CHAIRPERSON: Thank you. Further  
5 questions, Mr. More?

6 MR. RAY CASE: It's Ray Case with Government  
7 of the Northwest Territories. In your presentation you  
8 indicated the need and the importance of input from a number  
9 of different groups on the development of monitoring and  
10 mitigation plans.

11 I'd just like a comment on the need for and

12 the process you might see for ongoing input into these  
13 monitoring plans and the -- the adaptive management process  
14 that you make and following on that, how you would see  
15 decisions made regarding the -- the changes needed to  
16 monitoring plans and mitigation plans?

17 THE CHAIRPERSON: Thank you, Mr. Case.  
18 Mr. Johnstone...?

19 MR. ROBIN JOHNSTONE: De Beers Canada.  
20 De Beers has stated that in light of, essentially,  
21 anticipation of an environmental agreement that we are  
22 certainly interested in sitting down and negotiating one (1)  
23 in good faith.

24 So an environmental agreement really provides  
25 a formal mechanism to -- that will outline that -- that

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1 ongoing process. And that would include monitoring and  
2 mitigation. On a -- on an immediate project level, the  
3 changes needed to mitigation and -- and monitoring would be  
4 dealt with at the environmental management system.

5 We could not wait for -- if we identified a  
6 problem in our waste management system or our garbage  
7 disposal, whatever, we could not wait to -- to go through  
8 that entire process. We would have to change things  
9 immediately. But we could review what those results would  
10 be.

11 But something of critical importance, we're  
12 obviously going to go straight to -- to outside experts to  
13 identify what we have to do immediately.

14 THE CHAIRPERSON: Thank you. Mr. Case...?  
15 Mr. More...?

16 MR. STEVE MATTHEWS: Steve Matthews  
17 representing the Government of Northwest Territories.  
18 Mr. Chairman, my question follows on from Mr. O'Reilly's  
19 questions about regional monitoring.

20 And the question is for De Beers and my  
21 question is: Have you given any thought to how a regional  
22 cumulative effects monitoring program should be coordinated  
23 and, if so, do you have a preferred mechanism for that

24 coordination?

25 THE CHAIRPERSON: Mr. Johnstone...?

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1 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
2 Johnstone. I think the discussions that INAC has facilitated  
3 around regional monitoring have been -- have been very  
4 useful. I think we've stated, we don't have a preferred  
5 mechanism or way in which that would occur.

6 We've discussed that we -- we question the --  
7 whether it needs to be via another institution and we've made  
8 that comment previously. I think that the key issue is that  
9 cumulative effects can arise from a number of developments  
10 and certainly the information that Mr. O'Reilly presented has  
11 shown that there are a number of parties involved. And it's  
12 critical for all those parties to be involved in that concept  
13 otherwise we're only looking at part of the picture.

14 THE CHAIRPERSON: Thank you.  
15 Mr. Matthews...?

16 MR. STEVE MATTHEWS: That's it. Thank you  
17 very much.

18 THE CHAIRPERSON: Thank you. Environment  
19 Canada, any questions? Okay.

20 Lutsel K'e, Ms. Catholique...?

21 MS. FLORENCE CATHOLIQUE: Mari. I do have  
22 some questions.

23 And one (1) question that I do have is in  
24 regards to the -- in there, there was a diagram that I saw  
25 where it depict the surveys that were done showing the -- the

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1 amount of -- of caribou in the northern west area, and then  
2 another one that showed more caribou in the southeast area.

3 I was just wondering if those considerations

4 were taking as to whether they were just migrating through,  
5 or if they were just staying in the -- in the area when those  
6 surveys were done?

7 And I wasn't -- I wasn't really clear on -- on  
8 the -- on those two diagrams, Mr. Chairman.

9 THE CHAIRPERSON: Thank you. I believe, Ms.  
10 Catholique's referring to slides on Page 12 -- slide 12, and  
11 slide 15.

12 MR. ROBIN JOHNSTONE: De Beers Canada. What  
13 the -- what this information doesn't show is whether the  
14 caribou are moving or not.

15 And that was -- that information was recorded  
16 during caribou surveys. As we flew over the caribou, we  
17 noted whether they were moving, whether they were feeding;  
18 basically, what they were doing. Obviously, not counting  
19 every single one. So, that information was collected.

20 In general, it seems like caribou, like Bette  
21 stated, moving more -- looking towards their destination on  
22 the northern migration, than on the southern migration.

23 And we would anticipate that they may well  
24 spend more time in the area. For further information, I  
25 think what would be best to, perhaps, for August Enzoe, who

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1 flew most of this caribou surveys, perhaps he would like to  
2 make some comment on that this evening. He was sitting in  
3 the helicopter for most of the survey.

4 THE CHAIRPERSON: Thank you. Ms.  
5 Catholique...?

6 MS. FLORENCE CATHOLIQUE: August doesn't work  
7 for De Beers. Also, that in regards to the -- the surveys  
8 that were done on the caribou, my other question was a  
9 question that Anne had already asked was: How many herds, or  
10 different kinds of herds, migrate through that area, and are  
11 the different herds migrating through there in different  
12 times?

13 And if they are going through at different  
14 times, are they being surveyed within those times? Do you  
15 know which herds are being documented here?

16 THE CHAIRPERSON: Thank you. Mr.  
17 Johnstone...?  
18 MR. ROBIN JOHNSTONE: De Beers Canada. We do  
19 not know whether the individuals here represent where they  
20 come from. We can make generalizations, but we do not know.  
21 THE CHAIRPERSON: Thank you. Ms.  
22 Catholique...?  
23 MS. FLORENCE CATHOLIQUE: Also, in regards to  
24 -- in the -- in the question of the zone of influence that  
25 was questioned by another group, I want to ask the question

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1 of: Is the zone of influence on large mammal species --  
2 weren't really defined, and I have to say that in that way  
3 because Lutsel K'e did not have the opportunity to go through  
4 the three (3) EA manuals.  
5 And so, whether they were -- were addressed  
6 there, and these areas that are being -- these presentations  
7 that are being done today are only addressing those issues  
8 that aren't resolved.  
9 I wasn't sure as to why only the caribou and  
10 the naghai, the wolverine, and the -- and the Sascho, the  
11 grizzlies, were being presented, and not -- not other  
12 mammals.  
13 THE CHAIRPERSON: Thank you Ms. Beswick...?  
14 MS. BETTE BESWICK: Bette Beswick from Golder  
15 Associates for De Beers. We only had forty (40) minutes, so  
16 we didn't have time to talk about the others. And we thought  
17 we should focus on the ones that people had asked the most  
18 questions about.  
19 THE CHAIRPERSON: Thank you. Ms.  
20 Catholique...?  
21 MS. FLORENCE CATHOLIQUE: Mr. Chairman, and  
22 then, has the studies and data been collected on those other  
23 animals in that area?  
24 THE CHAIRPERSON: Thank you. Ms. Beswick...?  
25 Mr. Johnstone...?

1 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
2 Johnstone. The approach in what to study was largely was the  
3 result of two (2) things. One (1) was the work that had gone  
4 on before us. And for BHP and Diavik, the feedback from  
5 communities into that process was a list of the species  
6 that -- that should focus our efforts on.

7 And that included foot furbearers, so  
8 wolverines, we included grizzly bears, we included wolves and  
9 foxes, birds of prey, water fowl, upland birds. I'm sure I'm  
10 missing something out.

11 And so we did not study every single species.  
12 We have -- for instance, we have seen one (1) or two (2)  
13 moose during caribou surveys, but we have not extended  
14 that -- the study out. We've focussed on the species that  
15 was expressed to us that people had the greatest concern  
16 about.

17 THE CHAIRPERSON: Thank you. Ms.  
18 Catholique...?

19 MS. FLORENCE CATHOLIQUE: Marci. Mr. Chair,  
20 also I have questions in regards to the -- the roads. And  
21 what I understand is that there is a winter road, but there's  
22 also a road that will be used from the road to Snap Lake.

23 I'm not exactly sure how that road is going to  
24 be looking like or where it goes over, if it crosses any --  
25 any waterways? Or if it will -- will it be a road that will

1 be later permanent in the sense that it will have boulders  
2 and that?

3 And if it does, we -- we have, in this  
4 community, in our -- my community, a concern about injury to  
5 caribou. And we were just wondering if there are plans, by  
6 De Beers, to have -- should that happen, that -- that the  
7 road, in the period of reclamation, will be removed? Because  
8 I don't -- I've been told that those have not been mentioned

9 in -- in the EA.

10 THE CHAIRPERSON: Thank you. Mr.  
11 Johnstone...?

12 MR. ROBIN JOHNSTONE: To clarify what the  
13 roads are, I'll refer to the overhead that's -- that's  
14 presently up, and for the Board's clarification, that's Slide  
15 5. And -- actually, maybe not. Slide 15, actually, it is.  
16 Same thing.

17 In the top part of the study area, there is  
18 the Tibbitt-Contwyota Winter Road. Then, the other road that  
19 is of interest is the one (1) that we get to Snap Lake by.  
20 We call this the Winter Access Road.

21 And it comes down from the Tibbitt-Contwyoto  
22 Winter Road and is -- I think it's about twenty-five (25)  
23 kilometres.

24 It's represented on the -- on Slide 15 as the  
25 dotted line which ends up at Snap Lake. That is a winter

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1 road, so we do not plan, and have no reason for that to be an  
2 all weather road.

3 The other road is a winter road that would be  
4 used to access the Esker some ten (10) kilometres south. And  
5 that's represented in that diagram as a dotted line that  
6 comes south of Snap Lake, down to an Esker. So we are -- we  
7 do not have any plans to make a permanent road out of that.

8 Besides that, there are several roads on site.  
9 I think the maximum -- the maximum length you could drive is  
10 about three (3) or four (4) kilometres, I think.

11 The reclamation of those roads is discussed in  
12 the EA, and I'll my colleague to clarify what we are going to  
13 with those.

14 One (1) of the things that was noted, actually  
15 on Lut -- one (1) of Lutsel K'e first trips to Snap Lake, was  
16 their concerns about caribou breaking their legs as coming  
17 off, and we discussed they used to build the roads in such a  
18 way that caribou would have easy access on and off the road.

19 I'll just clarify with -- what we're doing  
20 with roads.

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(BRIEF PAUSE)

MR. ROBIN JOHNSTONE: I'll ask San -- Sandy  
to respond, please?

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1 MS. SANDY MARKEN: Sandy Marken, Golder  
2 Associates for De Beers. Mr. Chairman, for reclamation of  
3 the roads on-site, they're under the full reclamation  
4 program.  
5 So, at closure, those roads will be reclaimed.  
6 They'll be torn up. Surface materials that will have been  
7 salvaged and stored will be used to reclaim those. They'll  
8 be revegetated as part of the revegetation program for the  
9 project, and the monitoring program will then extend to  
10 include those.  
11 THE CHAIRPERSON: Thank you. Ms.  
12 Catholique...?  
13 MS. FLORENCE CATHOLIQUE: Marci, Mr.  
14 Chairman. My other question is this: Where the Winter Road  
15 is from the site to the -- I could just say, the access road  
16 from the site to the win -- to the main Winter Road, and the  
17 -- the access road from the site to the -- the Eskers, has  
18 there been studies done on -- on the oil and fuel possible  
19 spillages, and also, how -- what's the method of cleaning  
20 those up?  
21 THE CHAIRPERSON: Thank you. Mr.  
22 Johnstone...?  
23 MR. ROBIN JOHNSTONE: De Beers Canada. There  
24 have been studies done, and there are measures in place to  
25 prevent spills, and procedures in place to clean up spills if

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1 they occur.

2 Is that the information you were looking for?

3 THE CHAIRPERSON: Ms. Catholique...?

4 MS. FLORENCE CATHOLIQUE: My note says that  
5 they weren't done in the EA.

6 MR. ROBIN JOHNSTONE: De Beers Canada. There  
7 is a spill contingency plan, and a waste management plan that  
8 are -- form the -- one (1) of the appendices, or two (2) of  
9 the appendices to the environmental assessment.

10  
11 (BRIEF PAUSE)

12  
13 MS. FLORENCE CATHOLIQUE: Okay, well I'll  
14 have to look into that. Thank you.

15 Okay, my next question is in regards for  
16 reclamation success. What does De Beers perceive the  
17 criteria for reclamation success?

18 THE CHAIRPERSON: Mr. Johnstone...?

19 MR. ROBIN JOHNSTONE: I'll -- I'll ask Sandy  
20 Marken, reclamation specialist to address that question.

21 THE CHAIRPERSON: Thank you. Ms. Marken...?

22 MS. SANDY MARKEN: Sandy Marken, Golder  
23 Associates for De Beers. For reclaiming the site, De Beers  
24 defers to, and accepts the reclamation standard laid out in  
25 the Northern Affairs, Norther Department Whitehorse Mining

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1 Initiative.

2 Their definition for reclamation goal is:

3 "Returning mine site, and affected areas to  
4 viable and wherever practicable, self-  
5 sustaining ecosystems that are compatible  
6 with a healthy environment and with human  
7 activities"

8 So De Beers accepts this as a reclamation goal  
9 and we've laid out a number of activities and criteria to  
10 meet that goal. Thank you.

11 THE CHAIRPERSON: Thank you.

12 Ms. Catholique...?

13 MS. FLORENCE CATHOLIQUE: Marci for that  
14 answer. I'm not familiar with the source of your information  
15 and so just quoting them for me and probably I will not be  
16 able to even look or research it and so maybe you could cite  
17 the criteria for me. Thank you.

18 THE CHAIRPERSON: Thanks. Ms. Marken...?

19 MS. SANDY MARKEN: I'm sorry, Mr. Chairman.  
20 Can you repeat that question; citing what exactly?

21 MS. FLORENCE CATHOLIQUE: You cited the  
22 criteria as laid out by the, what did you say, the Alaskan or  
23 the Yukon, which or Whitehorse?

24 MS. SANDY MARKEN: It's called Mine Site  
25 Reclamation Policy for the Northwest Territories, INAC 2002

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1 and I have a copy of that with me if you'd like to see it?

2 MR. ROBIN JOHNSTONE: In addition, what I'll  
3 ask Sandy to do, the INAC policy isn't clear and what I'd  
4 like to do is for Sandy to try and give a visual  
5 representation of what the site would look like after De  
6 Beers has left the property, if that would be of value to the  
7 Board?

8 THE CHAIRPERSON: Yeah, it would be of value.  
9 In the INAC policy, doesn't it have a statement of principles  
10 or criteria, though, that it uses to base its policy on?

11 MR. ROBIN JOHNSTONE: That is correct.

12 THE CHAIRPERSON: Perhaps you could read  
13 those into the record if they're not too cumbersome?

14 MS. SANDY MARKEN: Sandy Marken, Golder  
15 Associates for De Beers. De Beers has adopted a number of  
16 those criteria and added to them in their reclamation plan  
17 for the mine site and I'll just list some of the key elements  
18 of the program.

19 The main component is minimising disturbance  
20 and I think we've explained a number of the actions we've  
21 taken to do that. Another element is progressive reclamation  
22 of the North Pile. So as that pile is developed, De Beers  
23 will take salvaged material from one (1) area, place it on  
24 the other and also implement a re-vegetation program that

25 focuses on native species.

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1 Other elements include direct placement of  
2 surface materials where possible to minimise the disturbance  
3 and accelerate re-vegetation.

4 We will also salvage, stockpile and have a  
5 strategic plan for the placement of salvaged surface  
6 materials. And that will include vegetation such as existing  
7 shrubs, lichen covered boulders, soil and other components on  
8 the landscape.

9 There will also be optimum use of any kind of  
10 soil and organic matter that we can salvage from the site.  
11 We also include to use island transplant of local vegetation.  
12 Other studies conducted by Diavik and BHP have shown some  
13 success in these activities. Optimum use of native plants  
14 and seed sources.

15 Now, as this program is going on we will also  
16 review the success of these activities through a monitoring  
17 program. We'll also collect and work with BHP and Diavik and  
18 other developments in the area to review their successes and  
19 adopt those as we proceed. The monitoring program will help  
20 us do this.

21 And, I guess we use that term adaptive  
22 management to allow us the time to adopt new technologies and  
23 methodologies. And I guess, in summary, a key component will  
24 also include working with the local communities to  
25 incorporate traditional knowledge as we reclaim the site.

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1 I hope that clarifies your question.

2 THE CHAIRPERSON: Thank you.

3 Ms. Catholique...?

4 MS. FLORENCE CATHOLIQUE: Marci, Mr.

5 Chairman. I will take your offer on that document. But I --  
6 I also want to question -- and it's something that I did hear  
7 that I was really pleased to hear that De Beers is  
8 considering being party to a regional cumulative effects  
9 program that the Department of Indian and Northern Affairs is  
10 initiating and the comments of involving communities.

11 I didn't really hear much of Aboriginal people  
12 but communities involved in the development of the monitoring  
13 programs. I -- and your comment of incorporating TK into  
14 this reclamation program monitoring, I just want to know  
15 exactly how does De Beers perceive the -- our involvement in  
16 that?

17 I'm -- I'm asking that question because  
18 usually in other cases, we have heard people saying we will  
19 be involved, but it's only words.

20 And so, I want to go on record asking that  
21 question. And I want to hear exactly how it is that you see  
22 this happening. Thank you.

23 THE CHAIRPERSON: Thank you. Mr.  
24 Johnstone...?

25 MR. ROBIN JOHNSTONE: De Beers Canada, Robin

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1 Johnstone. We note the interest in community involvement and  
2 monitoring, and in many other aspects.

3 There -- the ultimate answer is that we have  
4 to sit down and work out the details. An environmental  
5 agreement is a place where many of those are actually  
6 formulated.

7 We've expressed a strong interest in involving  
8 the communities, and working along side the communities. I  
9 think it's for that negotiation to finalize it, to make sure  
10 that we -- we know what the interests of the communities are,  
11 as well.

12 THE CHAIRPERSON: Thank you. So, I take it  
13 that you are committing, on the record, to meet with the  
14 community of Lutsel K'e, to involve them in the finalization  
15 of an EMA and monitoring program; that's the commitment that  
16 you made, Mr. Johnstone?

17 MR. ROBIN JOHNSTONE: De Beers Canada. We are  
18 committed to meeting with all communities, primary  
19 communities, to do that, and regulators.

20 THE CHAIRPERSON: Thank you. Ms.  
21 Catholique...?

22 MS. FLORENCE CATHOLIQUE: I see. The only  
23 other one that I have is in regards to the emissions. Lutsel  
24 K'e does have a major concern in regards to the health of the  
25 caribou, especially in regards to the health of the food of

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1 the caribou.

2 And we -- we see emissions having an effect on  
3 the lichen. Has De Beers does any studies on lichens in that  
4 area, and if so, which type of lichen have they studied, and  
5 what is the percentage of lichen in the -- in your area?

6 THE CHAIRPERSON: Mr. Johnstone...?

7 MR. ROBIN JOHNSTONE: De Beers Canada. We  
8 have done studies on lichen. We have collected information.  
9 I can't tell you right now, Florence, what the species, or  
10 what the Aboriginal name for those lichens are.

11 We have collected that information. Lichen --  
12 a very good organism to study contaminants and to monitor  
13 trends and air quality.

14 So, we've made sure that we have the  
15 appropriate samples, so we can monitor the changes as we  
16 proceed forward.

17 THE CHAIRPERSON: Would those studies be part  
18 of the EA documents?

19 MR. ROBIN JOHNSTONE: Thank you, Mr. Chairman.  
20 Yes, they are.

21 THE CHAIRPERSON: Perhaps you could provide  
22 Ms. Catholique with the reference numbers, and appropriate  
23 pages where she could find those?

24 MR. ROBIN JOHNSTONE: If the Board would wait  
25 one second, I'm sure we can actually give you that, here and

1 now, on the public record.

2

3 (BRIEF PAUSE)

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5 MR. ROBIN JOHNSTONE: Mr. Chairman, maybe  
6 we'll get back to you with those numbers.

7 THE CHAIRPERSON: Okay. Thank you, Mr.  
8 Johnstone. Ms. Catholique...?

9 MS. FLORENCE CATHOLIQUE: Marci.

10 THE CHAIRPERSON: I'm sorry I was -- do you  
11 have another question?

12 MS. FLORENCE CATHOLIQUE: Yes, I did.

13 THE CHAIRPERSON: Oh.

14 MS. FLORENCE CATHOLIQUE: I just can't  
15 remember what it was now. I did have a question, and the  
16 reason it's not written on my paper was because it was raised  
17 by an Elder, and I don't think she's here at the moment.

18 Her question was: In regards to the Eskers,  
19 which are used as dens, and I think I heard somebody  
20 commenting in the presentation that there was no bear dens.

21 And we were wondering what -- how that comment  
22 came about, which then led to the question, has there been  
23 studies carried out within that area on bear dens? And if  
24 so, how many bears are in the area and how many dens -- how -  
25 - how much studies were done?

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1 And -- and the reason for that question was  
2 that, it was mentioned in the presentations that gravel will  
3 be used from the Eskers for part of the -- the workings of  
4 the mine. And if that information of not knowing where the  
5 dens are, there is a possibility that when gravel is taken  
6 for -- for the use of the mine, that it could -- could  
7 actually be killing the bears, if you don't know that the  
8 dens are there.

9 So that was her question, and I thought I

10 better raise it.

11 THE CHAIRPERSON: Thank you. Mr.  
12 Johnstone...?

13 MR. ROBIN JOHNSTONE: De Beers Canada and --  
14 with assistance from Aboriginal community members, have  
15 surveyed Eskers in the area to look for dens. And we have  
16 not found any grizzly dens. The area where the quarry is  
17 proposed, we have not found any -- any dens there, also.

18 We have -- so we have not found any. We  
19 recognize that bears can also den off the Eskers. And your  
20 question about how many bears are in the area, we -- home  
21 range size would estimate about eight (8) bears, four (4)  
22 females, four (4) males.

23 We have changed our survey methodology to now  
24 look for bear sign. So we have a variety of plots all over  
25 the study area that we visit during preferred habitat

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1 seasonal times of the year, and we look for bear sign. And  
2 that has provided indication of bear use of the area. We  
3 can't narrow that down to the precise number.

4 THE CHAIRPERSON: Thank you. Ms.  
5 Catholique...?

6 MS. FLORENCE CATHOLIQUE: Marci, Mr.  
7 Chairman. Your reference -- you've just referred to the  
8 Dene? Are those Dene? Am I right? Which Dene are you  
9 talking about?

10 MR. ROBIN JOHNSTONE: That was the Lutsel K'e  
11 study of the area.

12 MS. FLORENCE CATHOLIQUE: Marci. And which  
13 study was that?

14 MR. ROBIN JOHNSTONE: The study was provided  
15 by Lutsel K'e. It is -- I think the correct title is,  
16 Traditional Knowledge of the Na Yaghe Kue Region. And it was  
17 submitted to the Public Registry and along with the  
18 Environmental Assessment.

19 Sorry, here's the title, it was, Traditional  
20 Knowledge in the Na Yaghe Kue Region -- apologies for  
21 pronunciation, there. And Assessment of the Snap Lake

22 Project, Final Assessment Report, July, 2001, submitted by  
23 the Lutsel K'e Dene First Nation.  
24 THE CHAIRPERSON: Thank you. Ms.  
25 Catholique...?

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1 MS. FLORENCE CATHOLIQUE: Was that Brenda  
2 Parlee?  
3 MR. ROBIN JOHNSTONE: That was -- Steve Ellis  
4 (phonetic) was the Project Director, Brenda Parlee was  
5 involved. And we -- the community researchers were Bertha  
6 Catholique, Henry Catholique, Marlene Michelle (phonetic),  
7 Shawn Catholique as a GIS Technician.  
8 And that followed a visit of, I think there  
9 were about twelve (12) Elders to site, in June of 2001.  
10 THE CHAIRPERSON: Thank you. Ms.  
11 Catholique...?  
12 MS. FLORENCE CATHOLIQUE: Marci. In regards  
13 to, which -- which was leading to my next question, in  
14 regards to TK, Lutsel K'e has done that study, which is  
15 correct. There was also some studies that were done with  
16 Winspear.  
17 Some of the studies that were done in -- in  
18 quoting some of -- some of the information that was listed,  
19 we have said in the December -- I think it was in the  
20 December meeting, that some of the -- the way that comments  
21 were -- were taken in -- in regards to TK were just  
22 individual comments.  
23 And, we -- we want to go on record, saying  
24 that those are not TK, and Lutsel K'e wants -- wants that to  
25 be known, and that the studies are not to be taken out of

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1 context, because some -- some of the -- some of the comments

2 were taken out of contexts as -- in regard to that -- those  
3 studies -- those two (2) studies that were done.

4 THE CHAIRPERSON: Thank you, Ms. Catholique.  
5 Do you have many more questions, because I'm looking at a  
6 lunch break, so?

7 MS. FLORENCE CATHOLIQUE: My only other  
8 question that I had was just raised by the Yellowknife  
9 people, was that I wanted to know if the -- in the  
10 reclamation period, in regards to plants, especially in the -  
11 - the North Pile, if they were to be on-going testing in a --  
12 in a monitoring form for metals in the plants?

13 THE CHAIRPERSON: Thank you.

14  
15 (BRIEF PAUSE)

16  
17 MS. SANDY MARKEN: Sandy Marken for -- with  
18 Golder Associates for De Beers. We have a couple of  
19 conditions for that. The half metre of granite cap on the  
20 North Piles is designed to control erosion and dust, but also  
21 limit plant root penetration to the process kimberlite, and  
22 we feel that should be an effective mitigation project.

23 However, we will monitor to see if there is  
24 root penetration to the processed kimberlite. If so, and if  
25 the lead shape is showing to be acidic, although right now,

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1 projections are that it would be neutral, then we would  
2 monitor plant tissue for any kind of metal uptake.

3 MR. ROBIN JOHNSTONE: Just to summarize then,  
4 we're going -- the first step we're going to do is to check  
5 whether the roots actually get down to the kimberlite.

6 If they don't, then we don't identify a need  
7 to continue with that monitoring, because we're using country  
8 rock. If they do get down to that distance, we would then  
9 look at doing that monitoring to look for uptake of metals.

10 THE CHAIRPERSON: Thank you.

11 MS. FLORENCE CATHOLIQUE: Just give me a  
12 minute, please? I just remembered yesterday, my neighbour  
13 here, Rachel, didn't get a chance to ask a question, and she

14 was told that she was given an opportunity, and therefore,  
15 couldn't she ask the question after, and I don't want that to  
16 happen to me.

17 Question, in regards -- in our presentation,  
18 we had two (2) questions, and one (1) was, how will the  
19 proposed project affect caribou coming from the west, the  
20 Bathurst Herd, and their migration towards our community?  
21 How will the proposed project affect caribou  
22 health?

23 THE CHAIRPERSON: Thank you.

24 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
25 Johnstone. Bette Beswick will provide the answer to that. I

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1 just wanted to update on the information we promised we'd  
2 give you.

3 In Appendix 11, Table 11.1-5, the like -- the  
4 basemark -- baseline lichen chemical analysis is provided, in  
5 Section 10.3 of the environmental assessment, there is a  
6 species list, and percentage of cover of those lichens.

7 So, that's Section 10.3 and Appendix 11, Table  
8 11.1-5.

9 MS. BETTE BESWICK: In response to the two  
10 (2) questions, the first question was: How will the proposed  
11 project affect caribou coming from the west in their  
12 migration towards the Lutsel K'e community?

13 We do not believe that the project will affect  
14 how caribou coming from the west will migrate towards the  
15 community because caribou moving south will still move around  
16 MacKay Lake following their traditional routes around Aylmer  
17 and Artillery Lake or west towards Gordan Lake.

18 Second, based on what we see at Diavik and  
19 EKATI, although caribou do tend to walk around the mine, it  
20 doesn't appear to make a difference to their larger movement  
21 patterns across the Slave Geological Province.

22 And the second question was: Will the  
23 proposed project affect caribou health? And the answer to  
24 that is, caribou will not get sick from eating the food or  
25 drinking the water near the mine site because they will have

1 very little exposure to metals and other chemicals that will  
2 make them sick.

3 And that exposure will not be enough to be  
4 above levels we know affect health of animals even when we  
5 deliberately over-estimate the exposure.

6 THE CHAIRPERSON: Thank you.

7 MS. FLORENCE CATHOLIQUE: Maybe the -- our  
8 concern may be a CE concern and maybe it's not -- I'm not  
9 trying to put De Beers in a spot but I know it is a  
10 cumulative effects issue and you just happen to be part of  
11 that -- that part of it.

12 Caribou in Lutsel K'e have not been in the  
13 area for the last three (3) years. Everybody is aware of  
14 that. We've had the Chief commenting on it and we've always  
15 commented that there is an effect there now.

16 And the Bathurst herd from the west has not  
17 migrated to our community and so your project which is right  
18 in their path, you know, there's EKATI, Diavik, and Snap  
19 Lake. Where these two (2) developments that are further  
20 north and to the west may be the cause of this and where Snap  
21 Lake, which is going to be in the south to the east, it is a  
22 barrier to us.

23 Besides the road that has all that traffic  
24 going and will be increasing the traffic on that road when  
25 you're -- you're going to be up and going. And so to say

1 that that's not going to be -- I think I need a better answer  
2 than that.

3 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
4 Johnstone. Mr. Chairman and Members of the Board, I think  
5 this is one (1) area where there is disagreement. I think  
6 there is disagreement among -- around the predictions of

7 science and traditional knowledge.

8 I think that what science says is -- is of the  
9 information available to date we don't see that there will be  
10 an effect from these three (3) projects.

11 And I think that's part of the reason why  
12 we -- why De Beers is committed to playing its part in  
13 monitoring for cumulative effects.

14 THE CHAIRPERSON: Thank you. Is that the end  
15 of your questions, Ms. Catholique?

16 MS. FLORENCE CATHOLIQUE: I will just -- I  
17 won't have any questions and we'll just do what we think in  
18 our presentation.

19 THE CHAIRPERSON: Thank you very much. We'll  
20 adjourn for lunch and we'll reconvene at 1:30. Thank you.

21  
22 --- Upon recessing at 12:15 p.m.

23 --- Upon resuming at 1:34 p.m.

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25 THE CHAIRPERSON: Thank you. Just prior to

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1 recommencing with the presentations, the Board's legal  
2 counsel, Mr. Donihee, has a statement.

3 MR. JOHN DONIHEE: Thank you, Mr. Chairman.  
4 During yesterday's proceedings, there was reference made on  
5 several occasions, to several documents which were provided  
6 to the Board late in the -- in the process, just before the  
7 Hearing, and which weren't filed on the Public Record.

8 Given that there's now been reference to them  
9 and some question and answer with respect to these documents,  
10 I'd like to file them on the record now, and just give the  
11 parties that are here, some notice of that.

12 We did put copies of these documents on  
13 everyone's table, so if there's a strange looking pile of  
14 paper there, I'll just go through and tell you what it is.  
15 And it's our proposal, unless there's some concern, to file  
16 these matters on -- these documents, on the record, now, just  
17 to complete it.

18 The first one (1) is a technical memorandum

19 from Golder Associates to Robin Johnstone from Ken DeVos and  
20 Don Chorley, dated April the 16th. It deals with Snap Lake  
21 Diamond Project mine water assessment diffusion matters.

22 The second one (1) is a memo to Robin  
23 Johnstone from Tom Higgs, and it deals with outstanding  
24 Environment Canada issues, dated March the 13th, 2003.

25 The third one (1) is an April 23rd letter to

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1 Fisheries and Oceans Canada, addressed to Mr. Dave Balint.  
2 The subject is, clarification of issues discussed during  
3 April 14th and 17th conference calls.

4 And the fourth document is a plain language  
5 summary of the participation agreement between Diavik Diamond  
6 Mines Inc., and the Dogrib Treaty 11 Council, dated April the  
7 6th, 2000. This plain language summary is available from the  
8 Diavik Diamond Mine's web site, it's publically available,  
9 but we'd like it filed for the record.

10 So, Mr. Chairman, with your permission,  
11 we'll -- we will do so.

12 THE CHAIRPERSON: Thank you. So entered.

13 The Review Board was informed, following from  
14 the Wildlife Technical Workshop and the pre-hearing  
15 conference, of discussions among De Beers, the Yellowknives  
16 Dene, Lutsel K'e, Dogrib Metis and others, of a Caribou  
17 workshop proposed for mid-May.

18 The Review Board was asked if the results of  
19 the workshop could be filed in the Public Record for these  
20 proceedings. This request creates some difficulties for the  
21 Board.

22 We have indicated that after the close of the  
23 Hearings only transcripts and information resulting from  
24 undertakings given at these Hearings may be filed.

25 The Review Board is of the view that the

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1 proposed Caribou workshop is an important opportunity for the  
2 developer, De Beers, and Aboriginal people, especially Elders  
3 and traditional knowledge holders, and GNWT, to work together  
4 on resolving concerns about the effects of the proposed Snap  
5 Lake Development on Caribou.

6           However, the workshop is independent of the  
7 Board's process. It is happening after our Hearing's  
8 completion, and the Board will not be present at the  
9 workshop.

10           Consequently, the suggestion that the results  
11 of the workshop, whatever their form, be filed in the record  
12 of this proceeding, is problematic, both legally and from a  
13 fairness standpoint and procedurally.

14           The Review Board wrote to the parties to the  
15 EA requesting their positions on the filing of workshop  
16 results and the Public Record. We have now been informed, in  
17 writing, that at least one (1) of the parties is opposed to  
18 the filing of this material.

19           Given the Board's concerns and those expressed  
20 by at least one (1) of the parties, the Review Board has  
21 decided that it will not admit the information which will  
22 result from the workshop. This material will not be filed on  
23 the record of these proceedings.

24           Thank you. Now, just before we go to the next  
25 presentation, the Board has some questions of the proponent,

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1 that we will put through Mr. Anderson, our wildlife  
2 consultant. Mr. Anderson...?

3  
4           (BRIEF PAUSE)

5  
6           MR. ROBERT ANDERSON: Thank you, Mr.  
7 Chairman. Robert Anderson, Gartner Lee. Wildlife expert to  
8 the Board. My first question deals with the assessment for  
9 abundance of wildlife.

10           My question is: What information did De  
11 Beers use to guide their conclusions about population change

12 in relation to natural range of variation?

13

14 (BRIEF PAUSE)

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16 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
17 Johnstone. It would help if, perhaps, the question was more  
18 specific to a species, or is it species in general?

19 THE CHAIRPERSON: Thank you. Mr.  
20 Anderson...?

21 MR. ROBERT ANDERSON: Robert Anderson. I'm  
22 just interested in the general procedures used, and the  
23 information that went into the conclusions that were drawn  
24 concerning population change, and reversibility.

25 Based on concerns that some of the parties

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1 have had with baseline data, I just want to have a better  
2 idea as to what, sort of, went into your process to -- to  
3 make those conclusions?

4

5 (BRIEF PAUSE)

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7 MR. ROBIN JOHNSTONE: De Beers Canada. We're  
8 just formulating an answer to make sure that it's -- is  
9 sufficient as -- as possible, given the very broad extent of  
10 the question that was asked.

11 The general approach is to ensure that we have  
12 appropriate information around population variability in  
13 terms of the available information.

14 MR. ROBERT ANDERSON: What --

15 MR. ROBIN JOHNSTONE: Just one (1) moment  
16 further, please?

17 MR. ROBERT ANDERSON: Robert Anderson. If  
18 you'd prefer to comment just on wolverine, for an example?

19

20 (BRIEF PAUSE)

21

22 MR. JOHN VIRGL: John Virgl, Golder  
23 Associates. Mr. Chair, for wolverine in particular, our

24 estimates of -- of the number of wolverine in the -- that may  
25 use the regional study area really come from the WKSS work,

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1 and other literature on home range size, and also on density  
2 estimates.

3                   Density estimates, for example, in the Yukon  
4 in Alaska is somewhere between, well, one (1) wolverine per  
5 two hundred (200) square kilometres.

6                   Home range size from WKSS are with RWED's work  
7 for females and male wolverines would indicate that perhaps  
8 maybe, fifteen (15) to twenty-five (25) animals would use  
9 that particular regional study area.

10                   The den -- the density estimate of one (1) per  
11 two hundred (200) square kilometres would indicate that  
12 approximately fifteen (15) wolverine would use the regional  
13 study area.

14                   THE CHAIRPERSON:    Thank you, Mr. Virgl.   Mr.  
15 Anderson...?

16                   MR. ROBERT ANDERSON:   Robert Anderson.   So  
17 how, then, did you use that information when you were making  
18 predictions about population level effects, and whether the  
19 expected impacts from the mine would fall within that natural  
20 -- a -- a natural range of variability?

21                   THE CHAIRPERSON:    Thank you.   Mr. Virgl...?

22                   MR. ROBIN JOHNSTONE:   Okay.   Robin Johnstone,  
23 De Beers Canada.   I'll ask John to elaborate.   In -- in brief  
24 the key issue is what is likely effect going to be on a  
25 population?

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1                   The question of that really re -- depends on  
2 what the population dynamics of that -- that's individual  
3 species are, and a lot of that give through to their natural

4 history.

5 We know that grizzly bears are long-lived. We  
6 also know that they have relatively few young. One (1) of  
7 the reasons why we haven't heard many discussions around  
8 wolves in -- in this EA is because they are relatively long-  
9 lived, but they can have many young in a short period.

10 So, I'm going -- that's a pre -- pre-amble,  
11 and I'm going to ask John if he would like to elaborate on  
12 any of those any further.

13 MR. JOHN VIRGL: John Virgl, Golder  
14 Associates. Mr. Chairman, I'm still really unclear on the  
15 question. If he's -- if Robert's asking for a range of  
16 population size of wolverine in the regional study area, the  
17 estimates that I just gave would be suitable for that.

18 If he's asking what the impact of the Snap  
19 Lake Project would be on that, sort of, local population, if  
20 we could assume that the recruitment rate of wolverine would  
21 be somewhere around 6 to 8 percent then that would mean a  
22 recruitment rate of about one (1) wolverine for every two (2)  
23 years for that particular population.

24 So that, as long as the Snap Lake Project did  
25 not take away more than one (1) -- or say half that amount,

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1 we would still fall within the natural variation of the  
2 recruitment rate for wolverine.

3 THE CHAIRPERSON: Thank you. Mr.  
4 Anderson...?

5 MR. ROBERT ANDERSON: Yes. Robert Anderson.  
6 I'm still not sure that that fully answers my question. But  
7 that -- that helps.

8 That, sort of, leads me into a, sort of, a  
9 related question while we're talking about wolverine.  
10 Wolverine are listed as a species of special concern. As  
11 such, long term population viability is a concern for the  
12 government. GNWT has suggested that there is not currently  
13 enough data available to conduct a population viability  
14 analysis for the Slave Geological Province.

15 My question then to De Beers is: In light of

16 this issue and concerns over baseline data for wolverines,  
17 how does De Beers justify their conclusion that residual  
18 impacts on wolverine populations will be reversible in the  
19 short-term?

20 THE CHAIRPERSON: Thank you.

21 Mr. Johnstone...? Mr. Virgl...?

22 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
23 Johnstone. We acknowledge that the GNWT has stated that they  
24 lack sufficient information to do a population variability  
25 model. Part of the quandary here depends on the definition

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1 of population.

2 What we've done is we've looked at the  
3 wolverine that -- that may occur within the study area. John  
4 has outlined whether it's wolverine or grizzly bears, what  
5 the rough number are using estimates of home range from --  
6 from the literature including West Kitikmiot Slave study  
7 information.

8 The -- the question in terms of population  
9 variability on a broader scale of the scale that the  
10 Government of the Northwest Territories is largely interested  
11 in because more problematic. We don't know what that  
12 population boundary, boundary is.

13 So for us to answer that question really gets  
14 to what's the broader -- what is the definition of the  
15 population. I think there are a few facts that are pertinent  
16 to this question regarding the sustainability of -- of  
17 wolverine populations.

18 First of all, mitigation methods work. So, in  
19 the -- in the -- in light of the uncertainty that we've  
20 acknowledged in the environmental assessment around  
21 populations, what we do is we look at measures to make sure  
22 we're limiting our impact. And that's why our waste  
23 management avoiding attraction of wolverines to site is so  
24 critical.

25 So, in that -- with that area of uncertainty,

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1 we're looking at ways to -- to ensure that our impact on the  
2 population, whatever it is, is very low. So that's why we  
3 have a zero mortality target and that's what our waste  
4 management system and wildlife safety plan is based on.

5 THE CHAIRPERSON: Thank you. Next question,  
6 Mr. Anderson...?

7 MR. ROBERT ANDERSON: Robert Anderson. I'll  
8 move on to -- to another issue. I'd like to talk about  
9 caribou just for a couple of minutes.

10 Caribou are a dynamic species. Ranges may  
11 change over the long term as Dr. Gunn suggested is happening  
12 to the Ahiak herd that she mentioned this morning.

13 My first question related to this is: How  
14 confident are you that the radio collar data that you  
15 presented on the screen this morning, is in fact,  
16 representative of the long term pattern of caribou movement,  
17 in and around the regional study area?

18 MR. ROBIN JOHNSTONE: De Beers Canada. I  
19 can't give you a percentage confidence. We regard that the  
20 satellite data provided by RWED is another snapshot in time.

21 You know, we've stated that it goes back, I  
22 think -- is it to 1999? 1996? Something like that. And  
23 that's why we've used different lines of evidence, a weight  
24 of evidence approach. That provides us with one piece of  
25 information.

1 The historic trials, and the comments from  
2 Elders, on which -- on how caribou move -- are likely to move  
3 through the regional area is important.

4 THE CHAIRPERSON: Mr. Anderson...?

5 MR. ROBERT ANDERSON: Robert Anderson. How  
6 much pre-disturbance data is there available for caribou  
7 movements before the development of Lupin, EKATI, and Diavik,  
8 and Snap Lake mines? Are you aware of what that pre-

9 disturbance data would be?

10 MR. ROBIN JOHNSTONE: I person -- Robin  
11 Johnstone, De Beers Canada. I am personally not aware of the  
12 extent of that information back beyond Lupin. And that may  
13 be a question better provided to RWED.

14 However, again, that's why the traditional  
15 knowledge and the caribou trials, which provide a very long  
16 term picture, we don't know how long the land has been  
17 recording the movements of caribou, as we see the tracks,  
18 but, that's why this weight of evidence approach is so  
19 important.

20 THE CHAIRPERSON: I guess, a follow up to that  
21 one then would be, so, in the work that you did, you didn't  
22 go back to see what pre-disturbance material might be out  
23 there, so, you didn't use it in your formulation of EIA?

24 MR. ROBIN JOHNSTONE: De Beers Canada. That's  
25 not correct. We did look for the information. I don't have

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1 the references here. The primary information that is of  
2 importance is -- is the site specific information. And  
3 that's restricted, in terms of the collared information.

4 THE CHAIRPERSON: Thank you. Mr. Anderson...?

5 MR. ROBERT ANDERSON: Robert Anderson. You  
6 also mentioned this morning that made reference to the  
7 scientific data suggesting that the presence of the mines was  
8 not effecting the long term pattern of caribou movements in  
9 the area.

10 And that, in fact, an avoidance analysis had  
11 been conducted that suggest that there was not an effect  
12 on -- on cows and calves from the mine sites.

13 I'm just wondering if you could explain, Dr.  
14 Virgl, if you involved with that, how that analysis has been  
15 conducted. Thanks.

16 MR. JOHN VIRGL: John Virgil, Golder  
17 Associates. Mr. Chair, and Board, that analysis is not  
18 quantitative, by any means.

19 It's -- it's a qualitative view of those --  
20 those satellite collared caribou that have been moving across

21 the landscape for the last six (6) years, plus information  
22 that we've gathered from the EKATI mine in the last six (6)  
23 years, on caribou distribution around that site.

24 MR. ROBERT ANDERSON: Robert Anderson. Thank  
25 you, Mr. Chairman. That's all for my questions.

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1 THE CHAIRPERSON: Thank you. The next  
2 presentation is by the Yellowknives Dene First Nation. Do we  
3 need to move to our seats, Mr. Byers?

4 Okay. Thank you.

5 MR. TIM BYERS: No, we won't have any -- any  
6 visuals for this, but before our presentation, we were  
7 wondering if it's permissible, if we could ask a question of  
8 the Board on the statement that was just read by Mr. Chair,  
9 on the results of the upcoming caribou workshop in May?

10 THE CHAIRPERSON: Go ahead, Mr. Byers.

11 MR. TIM BYERS: Ms. Crapeau, will -- will want  
12 to ask this question.

13 MS. RACHEL CRAPEAU: Rachel Crapeau for the  
14 Yellowknives Dene. I got a letter from the Review Board,  
15 from April the 25th, regarding the elder's Caribou workshop  
16 that's going to be held on May 12th to 15th at Snap Lake.

17 In the letter it says that De Beers indicates  
18 that it will submit to the Review Board the outcomes of the  
19 workshop. And we were okay with that because we were worried  
20 that the outcomes -- the information that is provided at  
21 the -- at the workshop was not going to be submitted.

22 And if we sent people to the workshop and if  
23 they're concerns were not going to be taken from the workshop  
24 and -- and sent to the Board, we were wondering if it was  
25 even worthwhile going to the workshop?

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1 But because of this letter, I felt comfortable  
2 that we were going to be doing the Caribou workshop and  
3 that -- that our Elder's concerns were going to be used. But  
4 just before we started this afternoon, I got the impression  
5 that that's not to be.

6 I just wanted some clarification, that's all.  
7 Thank you.

8 THE CHAIRPERSON: Thank you. Well, as I  
9 stated, the request was made that the results be entered on  
10 the record, however, in order to do so, we have to obtain  
11 permission of all the parties to these proceedings. And we  
12 did not obtain that permission, so as a result, the results  
13 of the workshop will not be entered.

14 Although I would say that, I would encourage  
15 all the parties to continue to meet, not just in May but for  
16 the foreseeable future, because it's going to be important to  
17 the management of the caribou in that area.

18 But unfortunately, I'm bound by procedural  
19 rules and fairness, and because there has been a negative  
20 response from one (1) or more parties to these proceedings,  
21 we cannot enter them in the record. Thank you.

22  
23 (BRIEF PAUSE)

24  
25 MS. RACHEL CRAPEAU: Rachel Crapeau for the

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1 Yellowknives Dene.

2 THE CHAIRPERSON: Ms. Crapeau...?

3 MS. RACHEL CRAPEAU: I was just thinking that  
4 the last time we had a caribou workshop, we had a lot of  
5 Elders there, even Elders from Kugluktuk. And we ended up  
6 working together and telling each other their stories about  
7 the caribou movement in our areas, and what effected them and  
8 what didn't impact on them. And the different ways we worked  
9 with the caribou.

10 It was a really good workshop. And I saw the  
11 late Mr. Lafferty there. I thought, how good, somebody from  
12 the Dogrib community. I was happy to see him there.

13 I later found out that he was representing the  
14 Metis and I thought, okay, where are the Dogribs? Even  
15 though they were not there, the information from that  
16 workshop was so helpful that we -- we as young people, end up  
17 learning a lot from the Elders who were there.

18 J.B. Rabesca was there, too. He told us the  
19 story about how caribou didn't really go to this one (1) lake  
20 because one (1) person built his house right on a caribou's  
21 trail. I thought that was interesting.

22 So if one (1) little house did that to the  
23 caribou migration, what about a mine on the land? This  
24 information we need to look at and have it be considered by  
25 the experts who came to this Hearing.

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1 We cannot look at all the information, alone.  
2 Who will put our concerns forward on caribou? But also, we  
3 need to help out the biologists, the caribou -- I don't know  
4 how do you say it -- Anne Gunn, her -- her title is hard to  
5 say.

6 But these people, the wildlife people, the  
7 managers and the officers, we all need to work with them. So  
8 the workshop and the concerns to be tabled, was sort of  
9 important for the Yellowknives Dene First Nation. This is  
10 what I wanted to say on that subject. Thank you.

11 THE CHAIRPERSON: Thank you, Ms. Crapeau. To  
12 this issue, Ms. Catholique? Go ahead.

13 MS. FLORENCE CATHOLIQUE: In regards to that  
14 issue, I didn't see the letter of April the 25th, which she's  
15 referring to. I did receive a memo from Robin in regards to  
16 the postponement of that workshop, but I'm -- just for the --  
17 those people that are in attendance, Lutsel K'e did try to  
18 assist De Beers in having this workshop.

19 And, just to give the background information  
20 on this, in December, when we had our meeting in the legion,  
21 there was an offer made by De Beers to hold a Caribou  
22 workshop, and NSMA, Bob Turner, led the discussion in -- that  
23 the groups would -- would willing to assist De Beers in doing  
24 a similar workshop that was carried out in Dettah.

25

In 1997, I think it was? I'm not sure of the

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1 exact date, but there was a similar workshop that we wanted  
2 to do. Then, as -- in the other offer that was made by them,  
3 and the MacKenzie Valley Impact Review Board to do workshop  
4 within the community on -- on issues that were of interest to  
5 the -- the communities, Lutsel K'e kept wondering what was  
6 happening to this workshop, and why it wasn't happening,  
7 especially since the public hearings were -- were coming on  
8 really fast.

9 And then, we got a letter from Mr. Robins --  
10 Robin anyway, Papi (phonetic) as we say in Lutsel K'e, came  
11 to -- write us saying -- questioning what was happening.

12 When the matter up the Lutsel K'e Wildlife  
13 Committee, they said, we'll take the -- the issue, and -- and  
14 see if -- if they would allow Lutsel K'e to -- to organize  
15 the workshop, and have it in Lutsel K'e.

16 So, I contacted Ted Blondin of the Treaty 11,  
17 Rachel of the Yellowknives, and Bob Turner of the NSMA ask --  
18 asking their permission, if it was acceptable for those  
19 people -- those groups to -- to have Lutsel K'e organize  
20 this.

21 They were fine with it, and then -- so I -- I  
22 contacted De Beers, and told them that this is what Lutsel  
23 K'e would like to do, and we are willing to -- to work with  
24 them -- with their funds to organize the workshop.

25 And so then, a budget was made, and it was

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1 forwarded to them. We also saw the facilitators, and just  
2 send that information to them.

3 We didn't -- we thought also, that the -- the  
4 findings of the workshop would be included in the EA

5 submission. We didn't -- we didn't think that we would be  
6 doing a workshop, you know, to have information not being  
7 filed in this process.

8 And, I'm a -- a bit surprised that that would  
9 be -- what -- what's happening here, and -- and I want to say  
10 from Lutsel K'e's point of -- of view, that we did not agree  
11 to that.

12 I'm not sure which group of the four (4),  
13 because there's only four (4) groups, which is the 11th,  
14 ourselves, the Yellowknives, and the NSMA.

15 Which group didn't -- did not want to have the  
16 findings of the -- the Caribou workshop not to be filed. I  
17 would like to know that, and I would like to see it in -- in  
18 written form that that was the case.

19 THE CHAIRPERSON: Thank you. The letter will  
20 be filed in a public record, and if we can continue now with  
21 the presentation of the Yellowknives Dene First Nation?

22 MR. TIM BYERS: Thank you, Mr. Chair. Tim  
23 Byers for the Yellowknives Dene. First of all, I'd just like  
24 to point out, we have no visuals, but our -- our presentation  
25 starts with letter C, and I've been asked by a few people

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1 where's A and B.

2 I should point out that this -- this day's  
3 presentation is part of our overall report that we sent to  
4 the review board, and A is simply our presentation of the  
5 first day, and B is our presentation of yesterday, so, today  
6 we're starting off with C, wildlife.

7 So, we'll be covering wildlife, monitoring of  
8 the Esker Quarry, because the Esker Quarry, of course, we  
9 have concerns about the animals that use that quarry.

10 As well, we'll be touching on human health as  
11 it relates to eating of caribou from impacted areas and since  
12 the Winter Road was discussed today, we have a couple of  
13 concerns about the Winter Road and cumulative impacts of the  
14 Winter Road and of mine access roads.

15 So, to begin with caribou, we would like to  
16 state that we share RWED's concerns about the thoroughness

17 and adequacy of the caribou baseline studies for this EA  
18 report. In particular, we note that in the year 2001 the  
19 coverage area for surveys was reduced to 15 percent of the  
20 area, reduced from the previous year's 25 percent of the  
21 study area.

22 And this was due to using narrow transits  
23 according to the wildlife monitoring report. But no  
24 rationale -- no reasons were given for reducing the sampling  
25 intensity by this amount and I'm just wondering what this

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1 rationale would be and how does this reduction from 15  
2 percent of the study area to 25 percent coverage, how does  
3 this affect your estimates of the abundance and distribution  
4 of caribou through the area?

5 Also, we've noted that De Beers uses only two  
6 (2) -- two (2) years of baseline data to determine caribou  
7 natural variability of abundance near the mine site. And  
8 also there doesn't seem to be -- have been much, if any, data  
9 collection on caribou behaviour when encountering mine  
10 infrastructure and roads.

11 Behavioural studies from Ekati and Diavik both  
12 utilised -- sorry, were not utilized to inform the predictive  
13 analysis of the effects of mine and road traffic on caribou  
14 that would encounter the Snap Lake Project.

15 Changes in activity patterns of caribou in the  
16 vicinity of Snap Lake or its access road do not seem to be --  
17 have been analysed. There are, thus, no quantitative  
18 predictions of impact on caribou migration and behaviour.  
19 And, finally, under caribou issues, we -- we note that RWED  
20 has identified problems with the timing of De Beers' aerial  
21 surveys. These surveys did not, apparently, capture the peak  
22 of Spring migration in 1999.

23 If I may be allowed to quote from RWED's  
24 technical report of February 2003 in the matter of timing of  
25 aerial surveys they state

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1 "the collared cows did not migrate until  
2 mid-April or later but the surveys in 1999  
3 were 20 March and 2 April where five (5)  
4 caribou were counted. In comparison BHP  
5 Billiton estimated four thousand (4,000)  
6 caribou in May of 1999. Both the satellite  
7 collars and the log book of camp sightings  
8 suggested caribou were within ten (10)  
9 kilometres of the mine during September  
10 2000 even though no surveys were flown and  
11 in 2001 a single survey was flown on 2  
12 October."

13 Now, I understand that with BHP Billiton's  
14 caribou monitoring they stated a rationale for ending two (2)  
15 behaviour studies was that the sample size of unmixed groups  
16 of caribou, in other words, caribou I believe it is of the  
17 single sex and perhaps single age classes, was too small to  
18 analyse. There just wasn't enough groups to be able to build  
19 a database.

20 And it would be my -- it would be our  
21 contention that if these studies were to continue, these type  
22 of behavioural studies that is, were to continue, even with  
23 reduced yearly baseline, that the -- that the data set would  
24 be enlarge with cumulative multi year data from all of the  
25 mine surveys.

1 So, all these methodological problems create a  
2 high level of uncertainty in; number one (1), the accuracy of  
3 assessment predictions; and number two (2), the ability of De  
4 Beers to measure future changes in the herds land use and  
5 behavior.

6 We believe that these problems should be  
7 rectified before any permission is granted to proceed with  
8 licencing of this development.

9 If we move on to grizzly bears. Some

10 Yellowknives Elders are quite interested in getting  
11 information, as to what may be causing grizzly bears to  
12 emerge from dens earlier than normal in recent years.

13               These observations and reports cause a great  
14 deal of question as to whether there is a natural cause for  
15 this recent phenomenon, or whether there is some kind of  
16 cumulative effect from mines that should be identified.

17               I don't think anybody knows, at this point,  
18 why that is, but we would like to recommend that RWED, with  
19 contributions from De Beers, if their mine is approved, that  
20 they perhaps would like to investigate this matter because  
21 one (1) of the ramifications of this earlier emergence from  
22 dens, is that the possibilities of people on the land  
23 encountering hungry bears at a time of year when these bears  
24 are not expected, may present potential danger to people on  
25 the land, in the area.

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1               In the matter of the EA reports on upland  
2 birds, the EA states, and I quote,

3               "Although noise from facilities and vehicle  
4               and aircraft traffic may change the  
5               movement and behavior of birds, the  
6               magnitude of impact is anticipated to be  
7               low."

8               I would submit, that the magnitude of impact  
9 would be dependent on when the impact was experienced by  
10 birds.

11               If the disturbance from noise and vehicle  
12 traffic causes birds to flush during nesting, then brooding  
13 females may be flushed off their nests too frequently,  
14 causing potential reduced hatching success of their eggs, or  
15 reduced survival of hatch -- hatchlings of the chicks.

16               This would translate into a more significant  
17 impact for the population than would the disturbance  
18 occurring at any other time of the year. This leads to a  
19 question as to the adequacy of the determination of impacts  
20 on birds.

21               Moving on to the esker -- esker quarry.

22 Actually, we just heard a commitment earlier today, from  
23 Robin, that they would be happy to bring Yellowknives Dene on  
24 site for their inspection of the quarry.  
25 And we're happy to hear that commitment.

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1 Rachel may -- Rachel may want to speak to a bit of that just  
2 after I finish.

3 But we also read, in the same document --  
4 sorry, in the EA -- sorry, we also read in the document  
5 overview of project milestones and monitoring and management  
6 programs of De Beers, that De Beers will have site personnel  
7 do regular visual inspections for air quality, stream flows,  
8 and ground settlement in the immediate area of the quarry.

9 We would recommend that, as part of this  
10 inspection, that one (1) of Yellowknives Dene personnel at  
11 the mine site be hired as part of that inspection team.

12 This would connect Yellowknives Dene to the  
13 site monitoring of this esker, serving to assure us that the  
14 excavations are not going to do any significant harm to  
15 vegetation, wildlife, and the land form of the area of the  
16 esker.

17 Moving on to human health as it relates to the  
18 eating of caribou from impacted areas. We read from the EA  
19 report, specifically page 12-159, which states, and I quote,

20 "The importance of traditional foods for  
21 physical and spiritual health of northern  
22 people far outweighs the potential exposure  
23 to chemicals in caribou meat, therefore,  
24 the addition of the Snap Lake Diamond  
25 Project to the chemical burden in caribou

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1 meat is negligible."

2                   We don't think that the evidence of the  
3 nutritional benefits of traditional foods in the presence of  
4 potential contaminants should be part of the argument as to  
5 whether there will be effects of chemicals from the Slave  
6 Geological Province developments on people eating  
7 contaminated food.

8                   People the world over want nutritious food, of  
9 course, but also want to minimize the contaminants that are  
10 in that very same food. Just as an example of food that is  
11 nutritious in building a strong musculature and circulatory  
12 system, giving us strong hearts, et cetera, it might also  
13 contain contaminants that could cause birth defects in the  
14 very same food.

15                  So we want to make sure that the food is  
16 nutritious, from the land, but also has minimal to none  
17 contaminants in it.

18                  Onward to concerns of the winter road, the  
19 Tibbitt-Contwoyto Winter Road. And I think these concerns  
20 also speak to the access road to the mine. And this relates  
21 to fur-bearers, in other words, muskrat and beavers.

22                  As mentioned in our technical report, we have  
23 concerns to the effects of the winter road and the access  
24 road on fur-bearers, on muskrats and beavers. We currently  
25 have no information on whether sub-ice pressure waves created

1 by truck traffic have an effect on fur-bearers in the water  
2 bodies over which the road runs.

3                  A question that can be asked is, whether a  
4 strong enough pressure wave -- sub-ice pressure wave of water  
5 can damage a beaver lodge or a muskrat push up, that is  
6 within the impact zone of the wave. This is something that I  
7 haven't seen dealt with at all, by De Beers.

8                  Also, we would like to know, are there any  
9 sub-ice noises caused by trucks and/or maintenance equipment  
10 of the roads, that could disturb nearby beaver colonies? We  
11 would like to know if De Beers will be investigating whether  
12 they may contribute to these type of potential problems for  
13 muskrat and beaver, on water -- on waterways over which the

14 winter road runs.

15                   Finally, we have concerns about the  
16 possibility of accidental spills on the roads. And these  
17 impacts would be more related to aquatic impacts, but because  
18 we've been discussing winter roads in this session, I felt  
19 it -- it would be good for us to bring these up, now.

20                   A careful reading of the EA report,  
21 specifically pages 13-21 and 13-127, brings two (2) concerns  
22 to mind. Number 1 is the environmental risk assessment of a  
23 diesel spill into small lakes as a result of breaking through  
24 ice, may need to be re-evaluated.

25                   It does not seem to be conservative as a worst

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1 case scenario was not evaluated. That worst case scenario  
2 would be a malfunction of the check valves on trucks that  
3 prevent excessive flow out of the trucks that break through  
4 ice.

5                   A result of this type of worst case scenario  
6 would be much greater diesel spill volumes into the water  
7 body than the EA has evaluated. The risk assessment assumed  
8 diesel spill would release a maximum of two hundred (200)  
9 litres, but incorporating the above worst case scenario, that  
10 is, again, the check valves malfunctioning on the truck,  
11 allowing the entire contents of the truck to spill into a  
12 water body, then you would then have a release of seventy-  
13 five (75) times this two hundred (200) litre figure.

14                   In fact, the March -- March 3rd, 2000 accident  
15 released fifteen thousand (15,000) litres from an overturned  
16 truck, although I don't know that it -- that wasn't a water  
17 body, but that just tells us that this is possible.

18                   This volume, fifteen thousand (15,000) litres,  
19 would increase the maximum concentration of diesel to levels  
20 above aquatic toxicity threshold, thereby increasing the  
21 environmental consequence index from negligible -- a  
22 negligible effect of two hundred (200) litres being spilled,  
23 to a much higher effect of at least low to moderate effect of  
24 fifteen thousand (15,000) litres being spilled into that same  
25 water body.

1           The environmental consequence of spills -- of  
2 spill risks to the twenty (20) fish-bearing water bodies over  
3 which the Winter Road runs, are rated negligible or low,  
4 because concentrations of contaminants are expected to be  
5 well below toxicity thresholds for all but a tiny fraction of  
6 the lake volume.

7           And or, the duration of that spill will be  
8 less than twenty-four (24) hours. In other words, within  
9 twenty-four (24) hours, all that diesel will be cleaned up,  
10 or all that contaminant will be cleaned out, so they will  
11 only be subjected to it for less than twenty-four (24) hours.

12           However, if hydrofluoric acid is spilled into  
13 one (1) of these lakes, it has the potential to affect  
14 hatching of Fall-spawned fish -- or sorry, Fall-spawned fish  
15 eggs, and we are told that in the -- from the report that  
16 total of only one (1) drum of twelve hundred and fifty  
17 (12,050) litres of this acid will be brought to the mine  
18 every year, but all it takes is one (1) spill of this one (1)  
19 to cause a problem.

20           Without knowing where the spawning grounds for  
21 such fish are in affected lake -- lakes over which the road  
22 runs, one (1) cannot predict with certainty that because this  
23 spill has affected only a tiny fraction of the lake, that  
24 this won't result in a far more significant impact to the  
25 fish population in that lake.

1           So, finally, from these two (2) points, of  
2 accidental spill that can be argued that De Beers' assessment  
3 of the environmental impacts from fuel, or chemical spills on  
4 a Tibbitt-Contwoyto Winter road are inadequate, the fragile  
5 nature of the land and water over which the Winter Road runs,  
6 as well as a lack of baseline data for these water bodies,

7 warrants a more conservative risk assessment, and a better  
8 understanding of what impacts on these lakes there could be.

9 MS. RACHEL CRAPEAU: Rachel Crapeau for the  
10 Yellowknives Dene. I want to mention that -- I want to say a  
11 few words in Dogrib. It has to do with our concerns --

12 THE CHAIRPERSON: Ms. Crapeau, just hold on,  
13 the translation's not coming through.

14  
15 (BRIEF PAUSE)

16  
17 (THROUGH DOGRIB INTERPRETER INTO ENGLISH)

18  
19 MS. RACHEL CRAPEAU: In the process of  
20 considering licence. When all the mines -- all the mines are  
21 given licence and some -- and the -- and the licence -- the  
22 water licence to work with are usually given and they're also  
23 given a licence to use explosives to work at the mine and  
24 also to de-water and de-fish the lakes and some of the --  
25 when they're -- in those process the fish -- it affects the

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1 fish and some fish die from that kind of production.

2 And when the -- if the -- if the mine is  
3 developed in that area it is going to affect the caribou  
4 migration. Where are they going to go then?

5 What -- I know that the -- the mine is going  
6 to affect caribou migration. We want to -- we want to gather  
7 a lot more information about caribou migration so that is one  
8 (1) of the reasons we want to have a workshop and we want to  
9 include all the caribou information -- the information about  
10 the caribou.

11 In the winter that -- when the people want to  
12 go caribou hunting from our area we usually -- I usually do  
13 all the preparations for caribou hunts that are going to be  
14 done by the community. We order all kinds of supplies for  
15 the caribou hunt and we -- I'm -- I'm in charge for a lot of  
16 that kind of -- to prepare the hunting expeditions for our  
17 people.

18 We wanted to go on a caribou hunt but the air

19 attendee didn't allow -- we couldn't be -- we weren't allowed  
20 -- we have caribou hunting ground in that area which we use.  
21 In the last two (2) -- in the last two (2)  
22 years in the falls we've been going to -- we used to go  
23 caribou hunting in those areas and -- and -- but in the last  
24 -- but now there's -- the caribou is scarce in that area but  
25 now there is -- the caribou is scarce in that area.

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1 There is a lot of caribou -- there used to be  
2 a lot of -- a large lake in that area. There is no -- they  
3 want to de-water those areas in that -- work on those areas  
4 but now they are going to develop in that area.

5 They want caribou hunting in that area but  
6 last year -- we usually use aeroplanes to go hunting but now  
7 we don't use it because there was an accident. There's all  
8 kinds of things that happen -- there's a lot of caribou that  
9 we can hunt but -- but we couldn't bring the caribou back.  
10 We don't know what's going to happen.

11 It's a long way to hunt from where we are but  
12 we have to go that far in order to hunt for caribou. It is a  
13 harsh weather climate in that area and when we're travelling  
14 by aeroplanes into those areas it's very difficult, you know,  
15 because you have to go there with -- with different harsh  
16 weather conditions and with a plane load of people plus all  
17 the -- all the caribou with -- but -- but these are the  
18 things that we have to do if we have to go hunting into those  
19 areas.

20 But now we have to go into those -- we have to  
21 go to those areas to hunt. We used -- that -- those --  
22 that's the area that we hunt and now the caribou migration  
23 has changed, and they don't go into those areas that we  
24 usually hunt.

25 And the grizzly bears, now there's more

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1 grizzly bears into -- that go into those areas, where they  
2 have never -- used to go, but now -- but now when the people  
3 go hunting to those areas they see a lot more grizzly bears  
4 than before.

5                   Where are they coming from; is it because of  
6 the change of migration? Maybe it's because of a lot of  
7 different activities that's happening in -- in those -- in  
8 those areas.

9                   Last week, Paul Mackenzie (phonetic) went  
10 hunting for us and he came back, and also Jane Sangree  
11 (phonetic) went hunting with him, and they just got back.

12                   And they -- they told us that the bears have  
13 already come out of their dens, which is very unusual.  
14 And -- but now we are also concerned about the wolverine.  
15 They're also changing their habits in those areas.

16                   We are very concerned about the changes in the  
17 animals behavior in those areas because there is some --  
18 there's different things that are happening in those regions  
19 now, that never happened before.

20                   Now, this new development of a mine that is  
21 close to MacKay Lake, which is very close to our hunting  
22 area. We -- we, the Yellowknives Dene, hunt in those areas,  
23 which is going to effect our hunting grounds.

24                   Last fall people didn't hunt because there  
25 weren't very many caribous in those regions and the caribou

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1 didn't migrate at that particular time. The caribou have  
2 changed in those migration -- they're changing their  
3 migration routes.

4                   In September, when they go hunting -- they  
5 usually go hunting in around September, but they decided not  
6 to because the caribou are not going into these regions.

7                   They say that they -- they decided not to go  
8 cari -- to go hunting in that area, and they couldn't go any  
9 further because where the caribous are migrating to because  
10 it's too far, it's further.

11                   Now, the caribou migration route has changed

12 its path towards and above north of snow -- Snare Lake, and  
13 has totally changed their -- their migration route, where  
14 they used to come down towards MacKay Lake, they have changed  
15 it totally.

16 So, even all the people are telling us that  
17 the migration paths are -- have changed dra -- drastically  
18 within the last few years.

19 Before my father passed away, I have -- he  
20 went on caribou hunting with our people, and he wanted to go  
21 hunting with his grandson, so even though he was ill, he went  
22 with them.

23 When he came back in the evening, we asked,  
24 did you get any caribou? He said, no, we didn't get any  
25 caribou, we did not see any caribou at all in that region.

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1 I think -- he said, I think it's because the  
2 caribou, there's too much of the smell of gasoline on the  
3 winter roads for the caribou, which is disturbing -- which is  
4 very disturbing for them.

5 I think that's one of the reasons they're not  
6 going into those area, they said. And towards Dry Bone Lake,  
7 finally they saw -- and around Brown Lake, they finally found  
8 some caribou, pockets of caribou, in that area, but -- but my  
9 father said, maybe you should monitor those roads, those  
10 winter roads, a lot more because I think there's a lot  
11 more -- the smell of gasoline and diesel fuel is affecting  
12 the caribou.

13 And it's -- maybe it's because, after the --  
14 the -- after it melts and the smell of the gasoline could be  
15 effecting all the vegetations for the caribou, which is  
16 making them change their migration.

17 And so those things, I think, you know, you  
18 have to really monitor those kind of areas where there's  
19 winter roads, which is effecting all the plants and  
20 vegetation. Not only the vegetation for the caribou but also  
21 all the lakes and rivers which are going to be effected by  
22 this gasoline, which could melt into all the rivers and  
23 streams.

24                               And we -- and we also used to set nets, and  
25   you said, no.   I asked him if he set a net and he said, yes,

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1   I -- I put a net in but I didn't get any fish in those areas.  
2   But he said, if you were in using a dog team like the -- like  
3   the way we used to travel with the dog team, your dog would  
4   have starved, I said, because there's no -- he didn't catch  
5   any fish, either, in his net.

6                               But that water that I'm talking about, there's  
7   a lot -- a lot of -- of traffic on the Gordan Lake, which is  
8   effecting not only the water and the fish, but it's also  
9   going over portages in different areas, which is effecting  
10  all the vegetations in those areas, which is effecting the  
11  caribou -- caribou.

12                              I think -- and also on the Esker, when they  
13  develop this Snap Lake Mine, they're going to take some of  
14  the gravel from the Esker on the nearby. And I think it  
15  is -- I think it is going to affect a lot of other furbearing  
16  animals which have their dens in those areas. There's -- and  
17  if they don't have anywhere to live, where are they going to  
18  go?

19                              And I think -- and we also have to monitor the  
20  amount of gravel that they use in -- at the mine, because it  
21  is going to affect the Esker. Thank you.

22                              THE CHAIRPERSON:   We'll take a coffee break  
23  now and then we'll come back to presentation by the North  
24  Slave Metis Nation.

25                              I would remind all Intervenors that we have a

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1   limited amount of time, so please keep your presentations  
2   closer to the twenty (20) minutes that were allocated,  
3   please, or else everybody is not going to get a chance to

4 speak. Thank you.

5

6 --- Upon recessing at 2:38 p.m.

7 --- Upon resuming at 2:48 p.m.

8

9 THE CHAIRPERSON: I have some technical  
10 memorandum here that is a response by De Beers to questions  
11 posed by Lutsel K'e Dene First Nation, entitled: Technical  
12 Memorandum dated 1st of May, 2003.

13 We'll file them on the record, and then we  
14 will hand them out. We are now five (5) hours behind in our  
15 schedule. It's obvious that -- that we're going to have to  
16 tighten up these proceedings a little bit if we wish to  
17 finish by tomorrow evening.

18 I have been somewhat giving some leeway to  
19 people in their presentations and in their questions,  
20 however, be advised that that is about to change, and as  
21 such, we will start to tighten up the schedule.

22 The next -- I have from before coffee, we had  
23 a presentation by the Yellowknives. Are there any questions?  
24 Question, Ms. Catholique?

25 MS. FLORENCE CATHOLIQUE: My translator is

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1 not here yet. I wanted to ask the question: Did the  
2 Yellowknives object to filing the caribou workshop findings  
3 with -- with Mackenzie Valley for the EA -- for the De Beers  
4 Project?

5 THE CHAIRPERSON: That question is out of  
6 order. Continue. Further questions? No? Then, we'll move  
7 to the presentation of --

8 MS. FLORENCE CATHOLIQUE: I --

9 THE CHAIRPERSON: Ms. Catholique, I've ruled  
10 the question out of order. Do you have additional questions?

11 MS. FLORENCE CATHOLIQUE: I'm having problems  
12 with my -- the button here.

13 THE CHAIRPERSON: Oh, sorry.

14 MS. FLORENCE CATHOLIQUE: Question. Are the  
15 Yellowknives involved in monitoring on the Winter Road, and

16 if so, how, and where does -- and -- and if there's  
17 monitoring, where there's data collection, where does it go?

18 THE CHAIRPERSON: Are you referring to the  
19 road from -- to Snap Lake?

20 MS. FLORENCE CATHOLIQUE: Both, I guess.

21 THE CHAIRPERSON: Thank you. The question on  
22 monitoring the Winter Road is not relevant to these  
23 proceedings, however if the Yellowknives are involved in  
24 monitoring on the cut-off from the main Winter Road to Snap  
25 Lake, could you please indicate?

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1 MS. RACHEL CRAPEAU: We've been involved with  
2 monitoring of the Winter Road from the end of Ingram  
3 (phonetic) Trail, at Tibbitt Lake, all the way up to Lupin  
4 Mine, and then we've been doing that since 1994, and just our  
5 last couple of months, we started to -- monitoring from Ross  
6 Lake (phonetic) from the cabin, because that's the start of  
7 the road for vehicles going up.

8 We've been collecting data on how many trucks,  
9 how many recreation vehicles, how many hunters, how many site  
10 seers, and -- using the Winter Road.

11 Our hunters and trappers have been noting how  
12 many caribou people have been getting, how many -- if they  
13 got a wolverine, or a wolf, they've been writing all that  
14 information down, and we've been doing it in conjunction with  
15 Ernie Campbell's (phonetic) Office of RWED, at the Forestry  
16 Building, and the information that we collected from previous  
17 years included information all the way up to Lupin Mine  
18 Winter Road.

19 And the information we have is -- is  
20 information in our office, plus also RWED Office probably has  
21 some of that information.

22 THE CHAIRPERSON: Thank you. So, you filed  
23 the information with RWED, but you haven't specifically  
24 monitored the road between Snap Lake and the junction to the  
25 main Winter Road then?

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1 MS. RACHEL CRAPEAU: We did that when that  
2 road was open, but the road hasn't been open the last couple  
3 of years.

4 THE CHAIRPERSON: Thank you. Ms.  
5 Catholique...?

6 MS. FLORENCE CATHOLIQUE: Marci.

7 THE CHAIRPERSON: Thank you. Any additional  
8 questions of the Yellowknives? Mr. O'Reilly...?

9 MR. KEVIN O'REILLY: Thank you. Earlier on  
10 in the -- in the -- in our opening remarks, we made some  
11 comments about the timing of an environmental agreement, and  
12 I believe most of the parties to the proceeding that  
13 responded to the IR on this issue indicated that an  
14 environmental agreement is necessary as a mitigation tool for  
15 the project.

16 Do -- does -- and I'm going to ask this of the  
17 other parties that are likely to be a signatory to the  
18 environmental agreement.

19 Do the Yellowknives have a position on the  
20 timing of an environmental agreement? Should it be concluded  
21 before the public registry closes, so that the Board can  
22 consider it?

23 And, I'm just giving these as examples.  
24 Should it be concluded before construction begins, or is --  
25 is there a timing issue? What is the timing -- do the

1 Yellowknives have a position on the timing of an  
2 environmental agreement? Thank you.

3 THE CHAIRPERSON: Ms. Crapeau...?

4 MS. RACHEL CRAPEAU: From my experience with  
5 working on the BHP environmental agreement, there was no real  
6 timing involved.

7 All I know is that we had to have something  
8 before the water licence was given. On the Diavik one,

9 basically the same thing.

10 In this case, I hope it's not going to have to  
11 be before the public registry is closed because we're just  
12 going to be getting finished with this and then heading into  
13 the -- the Elders Caribou Workshop. I hope that it's going  
14 to be before construction is started. But who knows how  
15 things will go.

16 THE CHAIRPERSON: Thank you, Ms. Crapeau.  
17 Thank you. Okay. Ms. Johnson, do you have a presentation?

18 MS. KRIS JOHNSON: Yes. I do.

19 THE CHAIRPERSON: Thank you.

20 MS. KRIS JOHNSON: And I apologise I don't  
21 have copies to hand out to people.

22 THE CHAIRPERSON: Do you have, at least, a  
23 copy for the Proponent? No? Will you undertake to provide  
24 us with copies? We have copies. Thank you.

25

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1 (BRIEF PAUSE)

2

3 MS. KRIS JOHNSON: Good afternoon. My name  
4 is Kris Johnson. I am here representing the North Slave  
5 Metis Alliance and the outstanding issues they have with  
6 wildlife pertaining to the Snap Lake Diamond Project. You're  
7 going to recognise the format of this presentation.

8 We're going to be examining the three (3)  
9 questions the Board will be seeking to answer. Those being,  
10 is the development likely to have a significant adverse  
11 impact on wildlife; can the impacts be mitigated and does the  
12 development pose significant public concern?

13 The issues we'll be looking at are impact  
14 ratings, cumulative effects, monitoring programs, traditional  
15 knowledge, adaptive management, linking data collection and  
16 impact analysis and the logic of linkage analysis.

17 Issue: De Beers did not provide a clear  
18 understanding of the Company's proposed benchmarks to measure  
19 impact on wildlife. Impact ratings are not supported by the  
20 evidence presented. De Beers has taken a passive approach to

21 collecting baseline information and traditional knowledge in  
22 regards to this issue. No habitat loss compensation has been  
23 proposed.

24 Without this information the North Slave  
25 cannot assess or mitigate the impacts of the Snap Lake

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1 Diamond Project on wildlife or their community. Without this  
2 information, the Board cannot assess the impacts of the Snap  
3 Lake Diamond Project on wildlife or the NSMA community.

4 And, finally, the Board cannot approve the  
5 project without the impacts on wildlife and the NSMA  
6 community until these impacts can be properly assessed and  
7 mitigated.

8 A quote from the De Beers Executive Summary in  
9 relation to cumulative effects:

10 "The ability to detect cumulative effects  
11 for caribou, grizzly bear, wolves and  
12 wolverine populations is very limited"

13 Issue: The concept of cumulative effects  
14 assessment on wildlife is still not clarified. The zone of  
15 influence for the Snap Lake Diamond Project is improperly  
16 defined. The lack of pre-development baseline data and  
17 monitoring plans will make the cumulative effects assessment  
18 and mitigation impossible.

19 Without this information the NSMA cannot  
20 assess or mitigate the impacts of the proposed project on  
21 wildlife or their communities, and the Board cannot assess  
22 the impacts of the proposed project on wildlife or the NSMA  
23 community.

24 And finally, the Board cannot approve the  
25 project until the impacts on wildlife and the NSMA community

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1 can be properly assessed and mitigated.

2 Monitoring programs. No monitoring programs  
3 exist at this time under the ISO 14001, or De Beers  
4 individual proposals. Without full information about what  
5 the proposed monitoring programs are, and without Aboriginal  
6 community's inputs, it is impossible to determine whether  
7 there will be significant environmental impact and if they  
8 can be mitigated.

9 And I'd just like to quote from the Terms of  
10 Reference, line 576:

11 "De Beers shall describe the approach,  
12 objectives, and proposed methodologies that  
13 will be used in any proposed monitoring  
14 programs."

15 The Board cannot properly assess the impacts  
16 of the project prior to monitoring and mitigation measures  
17 being developed.

18 And the Board cannot delegate the assessment  
19 of monitoring and mitigation measures to the Mackenzie Valley  
20 Land and Water Board without serious jeopardizing the  
21 objectives in the Environmental Assessment.

22 Again, a quote from the -- a quote from the  
23 Interim Guide that the Mackenzie Valley has adopted:

24 "It is only when development effects are  
25 known and understood that it is possible to

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1 determine and implement effective  
2 mitigation measures and to make an informed  
3 decision about supporting the development."

4 Without this information, the NSMA cannot  
5 assess or mitigate the impacts of the proposed project on  
6 wildlife or their community. The Board cannot assess the  
7 impacts of the project on wildlife or the NSMA community.

8 And finally, the Board cannot approve the  
9 project until the impacts of wildlife and on the NSMA  
10 community can be properly assessed and mitigated.

11 Traditional knowledge. Traditional knowledge  
12 is supposed to be given full and equal consideration to that

13 of western science. Unfortunately, the regional study area  
14 and zone of influence were determined outside the  
15 considerations of traditional knowledge.

16 De Beers did not take steps early enough in  
17 the process in collecting traditional knowledge, and that's  
18 very apparent today.

19 Without this information, the NSMA cannot  
20 assess or mitigate the impacts of the project on wildlife or  
21 their community. The Board cannot assess the impacts of the  
22 project on wildlife or the NSMA community, and the Board  
23 cannot approve the project until the impacts of wildlife and  
24 the impacts on the NSMA community can be properly assessed  
25 and mitigated.

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1 Adapted management. There is a complete  
2 absence of concrete monitoring plans and insufficient  
3 evidence to demonstrate that De Beers can develop adaptive  
4 management plans.

5 Without complete baseline data, the NSMA  
6 cannot accurately assess the effectiveness of adaptive  
7 management plans to mitigate impacts on wildlife.

8 The Board must be able to assess the  
9 effectiveness of adapted management plans to mitigate impacts  
10 on wildlife, before they can assess the impacts of the  
11 project and necessary mitigation.

12 Linking data collection and impacts analysis.  
13 Without adequate knowledge of wildlife movements, a key  
14 component of the Terms of Reference is unfulfilled. Detailed  
15 traditional knowledge surveys are likely to be more  
16 substantial, more affirmative than current filed surveys and  
17 must be fully integrated in the management plans.

18 Without -- without this information, the NSMA  
19 cannot assess or mitigate the impacts on wildlife or their  
20 community. Without this information, the Board cannot assess  
21 the impacts of the project on wildlife or the NSMA community.

22 And the Board cannot approve the project until  
23 the impacts of wildlife and on the NSMA community can be  
24 properly assessed and mitigated.

1 evident throughout the EAR, but their placement is not easily  
2 understood or clear as required in the Terms of Reference.  
3 Mitigation measures to avoid wildlife mortality must be  
4 demonstrated and not simply assumed.

5 Furthermore, baseline data are often  
6 insufficient to make credible impact predictions. Again,  
7 without this information, the NSMA cannot assess or mitigate  
8 the impact of the Snap Lake Diamond Project on wildlife, or  
9 their community.

10 Without this information the Board cannot  
11 assess the impact of the Snap Lake Diamond Project on  
12 wildlife, or the NSMA community.

13 And finally, the Board cannot approve the  
14 project until the impacts on wildlife and the NSMA community  
15 can be properly assessed and mitigated.

16 What can be done on a further review to remove  
17 the uncertainty surrounding the Snap Lake Diamond Project?  
18 Impact ratings. De Beers needs to define benchmarks that are  
19 measurable, reflecting current available scientific and  
20 traditional knowledge.

21 Government agencies must facilitate access to  
22 information emerging from past and current research conducted  
23 by the government and other entities.

24 Traditional knowledge must be recorded and  
25 assessed. Impact ratings need to be assessed. Habitat loss

1 must be compensated.

2 Compensation must be determined cooperatively  
3 between directly effected parties, relevant government  
4 agencies, and the Proponent.

5 Cumulative effects. De Beers must demonstrate  
6 that a process has been followed by which the current  
7 available information on regional populations has been  
8 gathered.

9 De Beers must initiate and fund traditional  
10 knowledge studies of the cumulative effects on wildlife. De  
11 Beers must demonstrate where information gaps lie, and De  
12 Beers must demonstrate how gaps effect the confidence in  
13 predictions.

14 Monitoring Programs. De Beers will have  
15 sufficient time to establish local monitoring programs in  
16 partnership with directly impacted Aboriginal communities.

17 Government agencies need to provide guidelines  
18 on regional monitoring, in order to integrate the  
19 measurements of effects by various proponents in the region.

20 And De Beers will have time to collaborate  
21 with other proponents, governments, and directly impacted  
22 Aboriginal communities, in developing regional monitoring  
23 programs.

24 Monitoring and mitigation must be developed  
25 before the Board can fully assess the impacts of the project.

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1 Without monitoring programs, there's not enough information  
2 to determine if mitigation is possible.

3 Traditional knowledge. De Beers will have  
4 time to develop a plan to gather traditional knowledge, one  
5 that facilitates and funds communities collaborating, first  
6 among themselves to provide a consensus on TK, then  
7 cooperatively sharing that traditional knowledge with the  
8 Proponent.

9 There needs to be a formal, legal safeguard in  
10 place to protect Aboriginal people's ownership and copyright  
11 over traditional knowledge.

12 Traditional knowledge must be used  
13 consistently where data gaps exist, or Aboriginal communities  
14 express interest in developing TK studies. De Beers must  
15 actively pursue, facilitate, fund, document, and incorporate  
16 traditional knowledge.

17 Government agencies must facilitate and assist  
18 with the funding of this partnership between the Proponent  
19 and aboriginal communities.

20 Adaptive management. De Beers, in partnership  
21 with the directly impacted Aboriginal communities, must  
22 develop, implement, and act upon the adaptive monitoring  
23 programs.

24 Baseline data must be complete before  
25 monitoring and adaptive management can be accurately

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1 developed.

2 The effectiveness of adaptive management plans  
3 to mitigate impacts on wildlife must be assessed before the  
4 Board can determine the impacts of the project.

5 Linking data collection, and impact analysis.  
6 Substantial knowledge of wildlife movements must be  
7 developed. Detailed traditional knowledge surveys must be  
8 fully integrated into management plans.

9 Logic of linkage analysis. Mitigation  
10 measures to avoid the wildlife mortality must be  
11 demonstrated, and not simply assumed. Baseline data must be  
12 sufficient to make credible impact predictions.

13 Is there a significant public concern? The  
14 following organizations have documented outstanding wildlife  
15 issues with the Snap Lake Diamond Project: The North Slave  
16 Metis Alliance, Yellowknives Dene First Nations, Dogrib  
17 Treaty 11 Council, Lutsel K'e -- sorry, that should say First  
18 Nations, Northwest Territory Metis Nation, Canadian Arctic  
19 Resources Committee, the Government of the Northwest  
20 Territories.

21 Is the development likely to have a  
22 significant impact on wildlife? Yes. Can the impacts be  
23 mitigated? No. Insufficient data to mitigate impacts. Does  
24 the development pose significant public concern? Yes.

25 Finally, where there is no sufficient

1 information to determine the impacts of a project on the  
2 environment, the precautionary principle must be applied.  
3 Thank you.

4 THE CHAIRPERSON: Thank you, Ms. Johnson.  
5 With the usual codicil that Ms. Johnson will take questions  
6 of a general nature, but she's not able to provide technical  
7 responses.

8 No questions? Questions for the North Slave  
9 Metis Nation? Okay, thank you. Mr. O'Reilly, similar  
10 question with regards to the environmental launching  
11 agreement?

12 Does the North Slave Metis Nation have a  
13 position on when the environmental launching agreement should  
14 be in place? Ms. Johnson...?

15 MS. KRIS JOHNSON: Kris Johnson for the North  
16 Slave Metis Alliance. The agreements in question should be  
17 on the public record for the Board to assess, otherwise, they  
18 do not have full information to assess the impacts on  
19 Aboriginal communities.

20 THE CHAIRPERSON: Thank you. It should be  
21 noted though, for the record, that -- that both in BHP and  
22 Diavik's case, this was not done, so. Thank you.

23 MS. KRIS JOHNSON: Thank you.

24 THE CHAIRPERSON: The next presentation,  
25 Dogrib Treaty 11? Ms. Teillet...?

1  
2 (BRIEF PAUSE)

3  
4 MS. JEAN TEILLET: Mr. Chair, it's just a map  
5 of the area showing basically the line of development, so I  
6 don't think the Board needs to move their location; I'm not  
7 going to show anything else.

8 THE CHAIRPERSON: Thank you. Just for  
9 information of those who may not know with regards to the

10 question being posed by Mr. O'Reilly, the public record  
11 closes at 5:00 on May 23rd.

12  
13 (BRIEF PAUSE)

14  
15 MS. JEAN TEILLET: Jean Teillet for the  
16 Dogrib Treaty 11 Council. I want to, first of all, convey  
17 the sincere regrets of the Grand Chief Joe Rabesca, who very  
18 much wanted to be here.

19 My understanding is that there's a big Chief's  
20 meeting going on, and matters there are keeping him from  
21 attending this.

22 I'm going to do my very best to, probably  
23 inadequately, take his place, and I have to say that it's --  
24 part of the problem is that the Grand Chief, for those of you  
25 -- and probably most of the people in the room have heard him

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1 speak many times. He doesn't speak from a script. He speaks  
2 from little point notes. So that's what I have are his point  
3 notes. So I will do my very best to try and convey the  
4 material that I know that I had discussed with the  
5 Grand Chief that he wanted to speak to.

6 And we're also going to fill in the gaps from  
7 some of the stories that the Grand Chief would tell with the  
8 Elders this evening who are here this afternoon, Alexi  
9 Arrowmaker and Harry Simpson will be speaking tonight to fill  
10 in the stories.

11 As we stated in the opening statements, the  
12 Snap Lake Project, which is right there, is in what the  
13 Dogrib's refer to as the monwhi gogha de niitlee which is  
14 essentially their traditional territory and that is a large  
15 area. It goes something like that, I'm not pretending to be  
16 absolutely  
17 accurate.

18 And certainly the Dogrib's acknowledge that  
19 there are overlaps with other Aboriginal people who share a  
20 territory and I'm sure it's no surprise to the Board that  
21 since the caribou are crucial to all Aboriginal peoples in

22 the north, everybody accesses wherever the caribou go,  
23 regardless of who's territory they're in. And that's an  
24 accepted way of sharing in this -- in all parts of the north.  
25 I want to say one (1) other thing. People

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1 shouldn't think that the fact that there's overlaps is a bad  
2 thing. In fact, it's a good thing. What it means is that  
3 the land and the resources are rich enough to support all the  
4 Aboriginal people. It's a showing of great wonderful wealth  
5 that everybody relies on.

6 And the Dogrib's, along with all the other  
7 Aboriginal peoples in this area, continue to rely heavily on  
8 the resources of this whole area up here -- actually, well  
9 the whole area, but since we're talking about Snap Lake, in  
10 this area.

11 So, the concern for the Dogribs is about the  
12 developments that are -- the developments that -- we can see  
13 the line developing here. The Winter road coming up through  
14 here, Snap Lake, of course, Diavik, BHP, further up into  
15 Contwoyto here where we get up to Lupin and all the rest.

16 There's talk about a new road coming down from  
17 the Bathurst Inlet that will feed in here. What we're seeing  
18 here is what we're calling the wall. And it's beginning to  
19 be a wall that is -- used to be that it was a kind of a  
20 dotted line that kind of went from there, to there, to there,  
21 to there.

22 And now what we're seeing is that it is  
23 becoming an actual wall that is not a dotted line any more.  
24 It is a continual line of development and the -- the map that  
25 -- the GLOBIO map that Dr. Shelagh Montgomery put up on the

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1 opening day, I thought was a very, very interesting visual of

2 the -- what I'm calling the wall.

3 And it's the wall that the Dogrib want to talk  
4 about here primarily. And, of course, the parts on the wall.  
5 Now, Rae Rock and Colomac are two (2) mines that many people  
6 in this room know about. Colomac is right there and it's  
7 been much in the news lately. Most people know about it.  
8 Rae Rock, I understand, is somewhere around here. It's an  
9 old mine.

10 Rae Rock and Colomac are big symbols to the  
11 Dogribs about what environmental messes and, as far as the  
12 Dogribs are concerned, this Board -- this Board's sole job is  
13 to ensure that Rae Rocks and Colomacs don't happen again.  
14 And that we're all here to do our best to make sure that that  
15 doesn't happen.

16 Now, the Dogribs have a lot of concerns about  
17 the different projects but they were initially very concerned  
18 about the Snap Lake Project when it became a De Beers project  
19 because De Beers hired Golder & Associates and it's our  
20 understanding, we stand to be corrected on this, but it's  
21 certainly our understanding that Golder & Associates designed  
22 Colomac.

23 So, we got some, you know, that raises a big  
24 red flag for the Dogribs. So we're more vigilant, now, to  
25 try and make sure that this project doesn't go the way of

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1 Colomac.

2 Now, I want to talk about the Dogrib's primary  
3 concern with this project. And again, we say this -- it's  
4 this project, but our primary concern, as we said in our  
5 opening statements, is the cumulative effects of the wall, of  
6 which Snap Lake is just another brick in the wall. I'm  
7 starting to sound like Pink Floyd, but.

8 We need to speak about the importance of the  
9 caribou to the Dogrib. And that's because the Dogrib's  
10 believe that of all the animals, the wall has the most effect  
11 on the caribou because of their migration.

12 And I want to speak first of all about  
13 traditional knowledge and what it is. There's been a few

14 statements about it, one (1) of them was that it was just --  
15 first of all, we -- as De Beers said yesterday, that they had  
16 consulted with Aboriginal people, and -- to find out that  
17 there were fish in the lake and that they had gone there.

18 And we had a discussion about that, that  
19 Dogrib -- traditional knowledge was more than that. And  
20 today, there was another statement from De Beers that  
21 traditional knowledge was a -- a -- the old knowledge, the  
22 continuation of knowledge.

23 And we say, again, traditional knowledge is  
24 much more than that. And to that end, I'm going to read a  
25 little quote from a new book that has been published by Marie

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1 Batiste and Suches Henderson (phonetic). And it's called,  
2 'Protecting Indigenous Knowledge and Heritage.' And it's  
3 published by Perich (phonetic).

4 And I'm just going to read a very short little  
5 bit. But the quote, first of all, from the Dene Cultural  
6 Institute in the Northwest Territories. And the quote is  
7 this, this is from Emery (phonetic) in 1997, saying this,

8 "Traditional environmental ecological  
9 knowledge, or TEK, T-E-K, is a body of  
10 knowledge and believes transmitted through  
11 oral tradition and first hand observation.  
12 It includes a system of classification, a  
13 set of empirical observations about the  
14 local environment, a system of self  
15 management that governs resource use --  
16 [sorry] and a system of self management  
17 that governs resource use. Ecological  
18 aspects are closely tied to social and  
19 spiritual aspects of the knowledge system.  
20 The quantity and quality of TEK varies  
21 among community members, depending on  
22 gender, age, social status, intellectual  
23 capability and profession."

24 And in brackets they say, hunter, spiritual  
25 leader, healer, et cetera.

"With its roots firmly in the past, TEK is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socio-economic changes of the present."

I think that's a pretty good definition of TEK, that might be helpful to the Board.

Now, then, Henderson and Batiste go on to say that,

"Traditional, ecological knowledge of indigenous is scientific in the sense that it is empirical, experiential and systematic. It differs in two (2) important respects from western science, however. Traditional ecological knowledge is highly localized and it is social. Its focus is the web of relationships between humans, animals, plants, natural forces, spirits and landforms in a particular locality, as opposed to the discovery of universal laws. It is the original knowledge of indigenous peoples. And indigenous peoples have accumulated extraordinarily complex models of species interactions over centuries, within very

small geographical areas. And they are very reluctant to generalize beyond their direct fields of experience.

Western scientists, by contrast, concentrate on speculating about, and then testing global generalizations. With the

7 result that they know relatively little  
8 about the complexities of specific local  
9 ecosystems.

10 As a consequence of these different  
11 levels of analysis, the indigenous peoples,  
12 who have traditionally lived within  
13 particular ecosystems, can make better  
14 predictions about the consequences of any  
15 physical changes or stresses that they have  
16 previously experienced, than scientists,  
17 who base their forecasts on generalized  
18 models and data, or indicators from  
19 relatively short term field observations."

20 Now, I think that's very, very important to  
21 remember, on the basis of what this Board is looking at right  
22 now.

23 You're looking at scientific data, which Mr.  
24 Virgl told us, did not indicate any changes in caribou  
25 behavior from -- as a result of the BHP data; that has been

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1 contradicted, I believe, by both Lutsel K'e and Yellowknives  
2 Dene.

3 And I'm here to tell you that that's the  
4 primary message that the Grand Chief came with, which was to  
5 tell you that Dogrib observations are also, that the caribou  
6 are changing their behavior and their patterns.

7 And we, the Dogribs, think it's because of the  
8 mines, but what they're really here to tell you is  
9 something's changing out there.

10 Now, what we would like to remind the Board is  
11 that the scientific knowledge is only five (5), or six (6)  
12 years old here. The TEK knowledge is thousands of years old.

13 And this Board has a mandate to consider TEK  
14 knowledge equally with scientific data, and not to prefer one  
15 over the other.

16 Now, having said that. I want to remind  
17 you -- I would like to put before the Board, information --  
18 we had an exchange this morning between, Mr. Virgl and

19 myself, where I asked him about whether the cows with calves  
20 were staying back from the mine.

21 And he said, as I understood it, that --

22 THE CHAIRPERSON: Excuse me, Ms. Teillet,  
23 there's a truck backing up in the road. Continue.

24 MS. JEAN TEILLET: And my understanding was  
25 that Mr. Virgl said that there was no statistical evidence to

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1 show that the caribou with cows -- with calves were changing  
2 their behavior or keeping back from the mine.

3 Now, I had understood from the Independent  
4 Environmental Monitoring Agency, that they had contrary  
5 information.

6 So over lunch time, I tried to go the Agency,  
7 they were closed. So, I got on the phone to a member of the  
8 agency, to Mr. Tony Pierce (phonetic), who I'm sure the Board  
9 recalls. Most of you have seen him before.

10 And he got on the call to Dr. Francois Messier  
11 (phonetic), who is the biologist for the agency, and they  
12 come back with this report to us.

13 They said that the Independent Environmental  
14 Monitoring Agency data shows, in the last year, that there is  
15 a 7 to 8 percent reduction within five (5) kilometers of BHP,  
16 of cows with calves.

17 So, what we say to you is that, that's showing  
18 us that within six (6) years, we have already seen an effect  
19 on the caribou from BHP mine.

20 And that is the data that BHP put forward.  
21 So, now -- and we think that directly contradicts the  
22 statement that came from De Beers this morning.

23 Now, I -- I'm just going to indicate the story  
24 that the Grand Chief is going to tell, but he -- the Grand  
25 Chief told me last week, and he was going to tell you, that

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1 he went hunting with a party, I believe it's a couple of  
2 weeks ago, up in the Colomac area.

3 They went caribou hunting, quite a few Dogrib.  
4 And they saw with their own eyes, caribou eating tailings on  
5 the tailings in Colomac.

6 Now, my understanding from the Grand Chief, is  
7 that there's visible salt around the tailings. And it's --  
8 Colomac has become like one big salt lick. So, the caribou  
9 are very attracted to the area.

10 Now, I understand that there's a lot of talk  
11 with the Government of the Northwest Territories about  
12 fencing it, but that hasn't happened to date.

13 But what the Grand Chief wanted you to know,  
14 is that they saw the caribou eating the tailings. So, that's  
15 of great concern to them.

16 And I mention that not because -- we had asked  
17 this morning about the -- the North Pile, and got some  
18 information about it, which I think probably makes us feel  
19 better about the Pile itself in Snap Lake.

20 But, having said that, we're -- we're talking,  
21 and we take you back again to the fact that we're here about  
22 cumulative effects of development in the MacKenzie Valley,  
23 and Colomac is one (1) of those.

24 Now, the second part of the Grand Chief's  
25 story is this. Now, and I don't have the exact numbers, but

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1 my understanding is that almost half of the caribou that they  
2 shot had to be left behind because they were diseased.

3 Now, that's a shocking statistic. It shocked  
4 the Dogribs and I think it should shock the Board that half,  
5 almost -- and I don't actually think it was 50 percent,  
6 somewhat less than that, but not a lot less.

7 And, I think that would be a -- a horror story  
8 to almost any hunter who went out there right now, to believe  
9 that half -- almost half of your harvest is diseased -- so  
10 badly diseased, and so easily, visibly seemed to be diseased  
11 that they couldn't take it with them.

12                   And again, I -- I want to emphasize that story  
13 again, not because we say that Snap Lake's going to do the  
14 same thing, but for two (2) points; one (1) again, cumulative  
15 effects of the developments in the Mackenzie Valley area, and  
16 secondly, because what is -- what are they supposed to do  
17 about that, you know?

18                   They -- and we come again to our problem of  
19 individual monitoring for each of these little -- no, I  
20 shouldn't say little, each of these developments. Snap Lake  
21 will do its own monitoring, and -- and Diavik does its own,  
22 BHP does its own, what are we to do with that information?

23                   Who do we take that to? Where does it go?  
24 Who's looking after the shop here? And that's the question  
25 that we asked the Board to consider sincerely here on this

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1 issue.

2                   Now, we've already told you that we -- that  
3 the Dogribs say -- are saying -- are confirming, or perhaps  
4 adding their analysis to -- or stories to what Lutsel K'e and  
5 the Yellowknives have already told you, which is that they  
6 see changes in the -- in the Caribou Herd.

7                   Now, as we had understood the data from Snap  
8 Lake, it seemed to show that the -- us -- before we got to  
9 the Hearing, that the -- that -- that De Beers seemed to  
10 think that very few caribou came through their area here.

11                   Although, this morning, Robin Johnstone  
12 assured us that they -- even though they're data shows that  
13 they're -- they're prepared to appreciate the fact that it  
14 could be lots, that it can change, so we're glad to hear  
15 that.

16                   But, the Grand Chief said -- was -- was  
17 telling me the other day, and was going to tell you, so I'm  
18 going to tell you what he said, that in his lifetime, he's  
19 seen thousands of caribou through this area.

20                   So -- and also, that the caribou move, so just  
21 the fact that they haven't been there for the last few years  
22 to the Grand Chief means nothing. They could all be there  
23 tomorrow -- next -- next year.

24 And so, I think that -- but -- but again, we  
25 were glad to hear that De Beers is also aware of the

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1 variability of the numbers.

2 Now, what's the cost to the Dogribs, and --  
3 and we think that's a very important thing to the Dogribs and  
4 to all the Aboriginal peoples of the wall here.

5 We say there's quite few costs. Number one  
6 (1), actually, let me -- let me back up a bit, and go back to  
7 something that I had said at the beginning of our opening  
8 statement, which is from the Alaska Report, and again, we  
9 know there are differences in -- that it was in a calving  
10 grounds, and this is not a caribou calving ground.

11 However, we don't believe, and the Dogribs  
12 don't believe that this area is of any less importance to the  
13 caribou than their calving grounds.

14 In fact, if this is the area where they're  
15 fattening up, and feeding as part of their southern  
16 migration, it's extremely important, because that's where  
17 they get their energy to survive through the winter.

18 So, the Alaska Report, and I'm going to state  
19 what it said, they make findings that:

20 "Avoidance of expanding infrastructure  
21 triggered changes in distribution that  
22 progressed from localized adjustments, to  
23 major shift in the use of habitats."

24 And, the report also makes findings that:

25 "Adverse effects on caribou are likely to

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1 increase with both the density of  
2 infrastructure development and the area  
3 over which it's spread."

4                   So what we say to you is what the BHP data  
5 seems to be indicating are those initial localised  
6 adjustments. Right? That the 7 to 8 percent of the herd is  
7 staying five (5) kilometres outside of the zone. That's for  
8 initial localised adjustment.

9                   Well, the Dogribs are not so worried about the  
10 initial localised adjustment, what they're worried about is  
11 the major shift that might come down the road and what will  
12 that cost be to the Dogribs and to all the other Aboriginal  
13 people who rely on the -- on the caribou.

14                   And we say that that would be an un -- almost  
15 inestimable damages to them. First of all, in the loss -- we  
16 already have loss. The wall itself is a loss. It isn't just  
17 a loss to the caribou habitat. What this is is a reduction  
18 in harvest area to the Aboriginal people. A substantial  
19 reduction in harvest area.

20                   Now, it isn't just the road itself. It's the  
21 road and all the developments in that whole area. So the  
22 loss in the habitat and the harvesting area is because the  
23 hunters just won't go there to hunt any more. That's what --  
24 that's what the result of the wall is.

25                   Not only will the caribou have a hard time

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1 there but the hunters won't go there for, I would say,  
2 personal, aesthetic, and safety reasons. So we have a loss  
3 of habitat. That's one (1) cost to the Dogribs.

4                   We also have, we would suggest to the Board,  
5 we know it doesn't take a rocket scientist, although we're  
6 sitting in a room of scientists maybe I shouldn't talk about  
7 that.

8                   It doesn't take a lot of foresight to know  
9 that there's going to be a lot more development in this area  
10 coming up. So, what we suggest to you is that we're saying  
11 already there is a loss of habitat and harvest area to the  
12 aboriginal people. That that is going to continue. The  
13 reduction of that harvest area is going to continue as the  
14 development spreads.

15                   So -- so now, I just want to get to the point

16 of what -- what it is the Dogribs think we should be doing  
17 about this, okay?

18 First of all, I want to make it clear that the  
19 Dogribs do not believe that the De Beers Snap Lake Project,  
20 in and of itself, is going to have a significant impact on  
21 the caribou. The Dogribs are not of that opinion.

22 However, they do believe that the De Beers  
23 Snap Lake Project, in combination with Diavik, BHP, and the  
24 Winter Road and all the other developments that are there and  
25 in the future to come, are likely to have a significant

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1 adverse impact on caribou and we think you already have the  
2 evidence to show you that from the BHP data and from the  
3 Alaska Report. Enough evidence to take action.

4 So, in other words, we think there's going to  
5 be a cumulative significant adverse impact on caribou that is  
6 foreseeable. So the question then is, is that -- can that be  
7 mitigated?

8 And what we see is right now there are  
9 absolutely no mitigation measures proposed to deal with the  
10 cumulative environmental impact on the caribou. And the  
11 Dogribs wish to say this in big, loud, capital letters,  
12 bolded, underlined, in italics and quotated, monitoring is  
13 not mitigation.

14 I'd like to say that again, monitoring is not  
15 mitigation. Dogribs would like to see that some mitigation  
16 measures be developed because we know and what we say is that  
17 there is going to be a significant adverse impact on caribou  
18 from the cumulative -- on the cumulative effect. So there  
19 needs to be some mitigation measures in place.

20 Now, just because we know that monitoring is  
21 not mitigation doesn't mean that we don't think that there  
22 should be monitoring. So we do believe that monitoring is an  
23 absolute imperative. And the Dogribs would like to see some  
24 kind of regional, independent monitoring agency to monitor  
25 the caribou.

1 Now, we note that there is already plans afoot  
2 to do a Bathurst caribou management committee. But, as we  
3 heard already from Dr. Gunn this morning, we got more than  
4 one (1) caribou herd to deal with here in the Mackenzie  
5 Valley.

6 So it seems to us that one (1) caribou  
7 monitoring management plan for one (1) of herds is not going  
8 to help us and isn't enough.

9 We need something more than that, we need  
10 something that deals with all the caribou. And so that's  
11 what we're saying needs to be put in place and we're asking  
12 the Board -- we will be making recommendations in our  
13 closing, about that. We need a Mackenzie-wide, valley-wide  
14 agency and we want the Board to do that.

15 So, in summation, Mr. Chair, what we say to  
16 you is that we have sufficient information to say that, it's  
17 time to move on the cumulative effects with respect to the  
18 caribou. And I'd just like to say that the Dogribs are --  
19 it's not that we don't think that wolverines and -- and  
20 grizzly bears are important, but we think that the other  
21 statements and analysis on that has been dealt with  
22 thoroughly, we don't want to go into that.

23 But with respect to the caribou, we make very  
24 serious submissions to you, to ask you to do something by way  
25 of implementing the cumulative effects. We think it's time

1 to do something.

2 And we say to the Board, very seriously, that  
3 the health -- we think the health of the caribou, whether  
4 anything's going to happen, this Board has a say in that.  
5 You've got -- you've got a say in what goes on here. And you  
6 have some authority and some power to do something and we ask  
7 you to exercise that. Thank you.

8 THE CHAIRPERSON: Thank you very much, Ms.

9 Teillet. Questions? Mr. McConnell...?

10 MR. JOHN MCCONNELL: I just would like to  
11 clarify one (1) of Ms. Teillet's comments about Golder  
12 Associates.

13 THE CHAIRPERSON: Golder and Colomac?

14 MR. JOHN MCCONNELL: Yes. She is correct  
15 that Golder were involved in some of the design aspects of  
16 the Colomac mine. They did not build the mine, they were  
17 responsible for the design of the tailings pond.

18 Now, that tailings pond was not constructed to  
19 design. And I think our colleagues here from INAC, can  
20 provide further comments on that, but the due diligence  
21 following closure of the mine showed that it had not been  
22 built to design and that if it had, the designs were fine.

23 THE CHAIRPERSON: Thank you. I'll allow that  
24 in but that's the end of it, because we're not getting into  
25 debate. There was a lady living in Washington State that has

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1 a lot to answer for, but that's a whole other different  
2 subject.

3 Other questions of the Treaty 11? Mr. Byers,  
4 and then Mr. O'Reilly.

5 MR. TIM BYERS: Thank you, Mr. Chair. Mr. --  
6 Tim Byers of the Yellowknives Dene. Just one (1) real quick  
7 question, Ms. Teillet, concerning the 50 percent of the  
8 caribou harvest that was diseased.

9 I'm just wondering if you could show us,  
10 again, on the map, roughly where that was? And, Number 2,  
11 the diseased caribou, I'm wondering if you have any  
12 information on how was the disease manifested?

13 Was it heavy parasite loads, lots of parasites  
14 in the caribou? Or was it organs that were discoloured and  
15 soft, if you have that information at all?

16 THE CHAIRPERSON: Thank you. Ms. Teillet...?

17 MS. JEAN TEILLET: Again, I really wish the  
18 Grand Chief was here. Actually, you're getting very second-  
19 hand information.

20 But it's right here, Tim. It's right in the

21 area of the Colomac mine. As I understand it, they were  
22 actually -- now, I don't know if they actually hunted their  
23 caribou right on the mine site, but they were definitely  
24 right in -- on the mine site, to watch the caribou eating the  
25 tailings.

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1 Now -- but I understand that that's where the  
2 hunting party was, was in that area right around Colomac,  
3 which is right between, you know, Snare Lake and Rae Lakes,  
4 sort of area. But they were right in that area.

5 Now, as to what was wrong with the caribou,  
6 I -- I don't know, exactly. My understanding from the Grand  
7 Chief is that when they went to cut the animals open, it was  
8 immediately visible to them that the animals were sick.

9 And the Grand Chief put out the word to all  
10 the hunters to leave those animals behind.

11 Now, my understanding was that it wasn't just  
12 parasites. Certainly, they've dealt with that before. I  
13 think all Aboriginal hunters have dealt with parasites  
14 before, I don't think that would have caused any comment.

15 I think that the fact is that something was  
16 unusual about what they saw and -- and that's the best I can  
17 tell you, I'm sorry.

18 THE CHAIRPERSON: Thank you. Maybe, just to  
19 help the Board, at the back of the room I see Mr. Dean Cluff  
20 who is the Regional Biologist. He may have the answer,  
21 because I had a -- a question as to whether or not the  
22 caribou were brought to RWED for autopsy and if they actually  
23 know about the problem.

24 Mr. Cluff, could you...?

25 MR. DEAN CLUFF: Dean Cluff, biologist, North

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1 Slave region, RWED. I had that very question is -- I was --  
2 there seemed to be some uncertainty when he was actually  
3 there.

4 I was on Indian Lake on March 18th, and I -- I  
5 saw the Dogribs hunting there, and the community hunt, and  
6 including the Grand Chief Rabesca.

7 So, we stopped, and we -- we talked to them.  
8 And I happened to be there with the officer, at the time too,  
9 a wildlife officer, and there was no mention of this.

10 So, maybe it's after March 18th, or something.  
11 So, I -- I would be interested in -- in the date, if it was  
12 that day.

13 And also, I'm -- I'm not aware of any samples  
14 that would have come in. So, I would encourage the lost  
15 samples to come in because that sounds like a -- it's a  
16 significant concern, if you were to leave caribou on the  
17 land, and not take it to eat.

18 THE CHAIRPERSON: Thank you, Mr. Cluff.  
19 Obviously have the answer, but rather than bog down in this,  
20 perhaps, Ms. Teillet, if you could get further information,  
21 you could pass it along to Mr. Cluff. Thank you.

22 MS. JEAN TEILLET: I'll -- I'll undertake  
23 to.

24 THE CHAIRPERSON: Thank you. Mr. O'Reilly, I  
25 take it your question relates to the timing of the

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1 Environmental Monitoring Agreement?

2 MR. KEVIN O'REILLY: Yes, it does. And sorry,  
3 with all due respect, I wanted to point out that under the  
4 rules of procedure for this Environmental Assessment, the  
5 Board can vary the -- shorten or lengthen that the timelines  
6 of it own accord at the request of any party, as well. So,  
7 that's rule 10, in the rules of procedure.

8 But I did want to ask the Dogribs if they have  
9 a position on the timing of an Environmental Agreement,  
10 whether it might be done before the -- the closure of the  
11 public registry, or before construction proceeds, or if  
12 there's any other thoughts about timing?

13 Thank you very much.

14 THE CHAIRPERSON: Thank you. Ms. Teillet...?

15 MS. JEAN TEILLET: Mr. Chair, I think the idea  
16 that this could be done before the closing of public registry  
17 is simply impossible.

18 The timing is way too tight, and these  
19 agreements are -- are complicated and take some work.  
20 However, I think the Dogribs think -- think that these  
21 agreements should be in place before -- before any work  
22 begins.

23 In other words, I think we're talking about  
24 the kind of issue that should be around the Water Board, and  
25 not -- in other words, I don't think we see it as a term and

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1 condition of this Board's mandate to -- to do that.

2 We think they're crucially important. And we  
3 also understand that De Beers has made a commitment to do  
4 this so -- and we're happy about that. And the Dogribs want  
5 to get working on it, but in terms of your mandate, we don't  
6 see it as part of yours.

7 THE CHAIRPERSON: Thank you, Ms. Teillet. And  
8 a couple of questions that -- that you -- one (1) of your  
9 recommendations is probably going to be some kind of regional  
10 caribou monitoring committee, to -- to look at the entire  
11 cumulative effect.

12 I would presume that it's similar to the  
13 Porcupine Caribou Herd Board, the Beverly Camanuak (phonetic)  
14 Board.

15 But, I wonder, do you see it specifically a  
16 Board just to deal with caribou, or do you see the creation  
17 of a Board to deal with cumulative effects of all  
18 environment; environment including people and wildlife?

19 In other words, a regional environmental  
20 monitoring agency of some kind, or do you see, specifically,  
21 a caribou board?

22 MS. JEAN TEILLET: I -- think we're open for  
23 discussions on that, but I -- but I think that if we could  
24 talk about a regional agency, and I mean -- I don't mean a

25 regional agency -- I mean a regional agency that's staffed

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1 with scientific experts and has its own money to do work,  
2 things like that.

3 And then maybe what we -- then we wouldn't be  
4 so concerned about just having specific herds having their  
5 own management because they could feed into the agency.

6 But, without that overall agency, so -- I  
7 guess, your question, if it's going to involve wolverines and  
8 caribou, and grizzly bears and everything, I think we  
9 wouldn't have a problem with that.

10 THE CHAIRPERSON: Okay, thank you. Mr.  
11 Livingstone...?

12 MR. DAVID LIVINGSTONE: Just thought I'd add a  
13 little more information on the Colomac and caribou.

14 THE CHAIRPERSON: No.

15 MR. DAVID LIVINGSTONE: Okay.

16 THE CHAIRPERSON: But we've -- we've past that  
17 point, Mr. Livingstone.

18 MR. DAVID LIVINGSTONE: All right.

19 THE CHAIRPERSON: Thank you. If not, we have  
20 a presentation now from -- I'm sorry, Government of the  
21 Northwest Territories.

22 MR. GAVIN MORE: Gavin More, Government of the  
23 Northwest Territories. Thanks, Mr. Chair. Mr. Chair, we do  
24 have a brief slide presentation.

25 And as we're setting up the slides themselves,

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1 I'll make an introduction to -- to our two (2) presenters  
2 today.

3 The first presenter will be Anne Gunn. Anne  
4 is a very distinguished biologist in Northwest Territories.

5 She obtained her PhD from the University of London in England  
6 in 1973.

7 She's worked in the north since 1979,  
8 including a stint as a caribou biologist from '79 to '83 in  
9 Yellowknife, environmental assessment biologist from '83 to  
10 '84 here in Yellowknife, Kitikmeot regional biologist from  
11 '84 to '93, and then has held the position of Caribou --  
12 Caribou biologist since 1993.

13 Anne has -- Dr. Gunn has a very large number  
14 of publications, of course, on Caribou, and Anne's CV has  
15 been put on the record for those -- for more information.

16 Our second presenter will be Dr. Raymond Case.  
17 Dr. Case is a manager, technical support, wildlife and  
18 fisheries division. Dr. Case received his BSC from the  
19 University of Alberta in Zoology in 1981.

20 He received his PhD from the University of  
21 Alberta in 1994, and Dr. Case has served and lived and worked  
22 as a biologist in Northwest Territories since 1980's, and  
23 again, has a very long list of publications, which has also  
24 been placed on the record. Thank you.

25 THE CHAIRPERSON: Thank you, sir. Just give

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1 us a minute until we move down?

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3 (BRIEF PAUSE)

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5 THE CHAIRPERSON: Thank you. Go ahead.

6 MS. ANNE GUNN: My name is Anne Gunn. I'm  
7 representing Government of the Northwest Territories. Mr.  
8 Wray, members of the Board, ladies and gentlemen, good  
9 afternoon.

10 The Government of the Northwest Territories  
11 shares the concern that has already been expressed,  
12 particularly today, about concerns over the effects of cari--  
13 on caribou from potentially adding another mine, especially  
14 on the post-calving, and summer ranges of the Bathurst  
15 Caribou herd, but also on the winter range of the Ahiak herd.

16 We do agree with De Beers that there will be a

17 measurable response -- behav -- behavioural response of the  
18 caribou to the mine, but we perhaps agree considerably less  
19 about the consequences of those behavioural responses.

20 We do not have a complete confidence that De  
21 Beers has adequately assessed the baseline information. The  
22 resulting uncertainty about the annual variation in caribou  
23 numbers and distribution in Snap Lake, along with concerns  
24 about how cumulative effects were assessed leads us to offer  
25 several recommendations for the Board's consideration.

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1 The inadequacies in the baseline data are a  
2 serious issue, because not only does baseline data describe  
3 what's actually present at the site, but it's also essential  
4 for accurately assessing residual impacts.

5 For example, magnitude of impacts depends on  
6 whether the observed changes exceed the baseline, and the  
7 range of natural conditions, and so, that puts that onus on  
8 assessing the accuracy of the baseline, as well as the range  
9 of natural conditions.

10 This slide shows the base -- some of the  
11 baseline information that was available. This was a WKSS  
12 project, which started in 1996, and it -- we've used anywhere  
13 between six (6) and eighteen (18) satellite collars on  
14 caribou cows, and this is all the movements put together for  
15 the individual cows.

16 It shows a large wintering range. It shows  
17 some clear migration pathways. These are mostly late summer  
18 ones, but migration up to the calving ground, and then it's  
19 almost a counter-clockwise summer movement that takes the  
20 caribou around, or their post-calving summer ranges, then  
21 there's kind of a shuffle along the tree line during the  
22 fall, and then they split up, and spread out. Some years  
23 they're wintering here, here or down in here.

24 De Beers has concluded that relatively few  
25 caribou migrate through the Snap Lake area which is just

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1 about in here. However, it's important to -- to recognize  
2 that relatively few is still an estimated up to almost thirty  
3 thousand (30,000) caribou during any one (1) period.

4 We suggest that the timing of the surveys,  
5 some of the surveys, and the absence of winter surveys may  
6 have contributed to under-estimating both seasonal and annual  
7 distribution of the caribou.

8 The assessment should be updated to include  
9 that Snap Lake is within the winter ranges of the Ahiak as  
10 well as the spring and fall ranges for the Bathurst caribou  
11 herd.

12 We also question De Beers' assumption that the  
13 number and distribution of caribou moving through the Snap  
14 Lake approximates to long-term variation. This is unlikely  
15 given the relatively short timescale that the information was  
16 gathered over.

17 And just for comparison, just a couple of  
18 examples, the BHP, EKATI site in 1997, July 1997, they had a  
19 peak of three hundred thousand (300,000) caribou. This far  
20 exceeded what was -- what was described during their baseline  
21 information.

22 And Diavik, their site, they have summaries  
23 which shows different types of information. It shows the  
24 durations and the dates the caribou were present during  
25 spring migration, summer and fall migration for six (6)

1 years.

2 And the range, so the natural variation for  
3 late summer is between seven (7) and forty-seven (47) days.  
4 And that's useful information for giving the scale of natural  
5 variation that's useful for planning monitoring and  
6 mitigation. And those were just a couple of examples.

7 We certainly agree with the comments made by  
8 De Beers that -- and by other people, that both the aerial  
9 surveys and the collars, it's a snapshot in time. And

10 there's historic trails which would allow us to sample over a  
11 much longer time period. But we contend that insufficient  
12 use was made either in a spacial analysis of distribution of  
13 those trails, they were -- they were shown on a map but there  
14 was no actual analysis.

15 The other use that could have been made of  
16 those trails where they go into the treeline is that there  
17 are -- there is a technique for dating them, for going back,  
18 depending on the age of the trees because some of those  
19 spruce trees are between a hundred (100) and three hundred  
20 (300) years old.

21 Elsewhere, we've documented the use of caribou  
22 trails going back to 1870. So, we suggest that, in fact,  
23 more use could have been made to sample the caribou back  
24 through time as well as making more use of the currently  
25 available information.

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1 It's also unclear how representative the  
2 natural environmental variations, such as weather, is  
3 captured in the baseline information. And, again, just one  
4 (1) example, the spring of 2000 was one of the driest springs  
5 on record. And we just wonder what the implications are of  
6 that for some of the ecology.

7 The terms of reference did specify the full  
8 range of environmental variation including extreme weather  
9 events should be included.

10 One (1) more map using the satellite collar  
11 information. And what this -- what this does is this is a  
12 GIS analysis, and a fairly simple one (1), that just averages  
13 the migration of the individual cows for any one (1) year.

14 And I think this -- this makes a couple of  
15 points. One (1) is it shows the annual variation, both in  
16 spring and summer migration. It's a little hard to see the  
17 arrows and I can provide some more detail later. But the  
18 other thing it shows is at least in one (1) year during post-  
19 calving migration the caribous that went through EKATI and  
20 Diavik also came down into the vicinity of Snap Lake.

21 Doesn't happen every year but it happened one

22 (1) year out of five (5). But I think that certainly  
23 illustrates the possibility of a cumulative effects. The  
24 thing about the satellite collared cows is that WKSS  
25 undertook -- we managed the project for WKSS but it was a

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1 baseline study.  
2           It was not designed to examine or reveal  
3 avoidance or attraction of the mine sites. And the  
4 difficulty with using the information for that is the collars  
5 -- the location is every five (5) days, and that's just to  
6 close of time interval to look at how the caribou were  
7 reacting to any one site over just a few days.  
8           We did undertake an analysis to see if we  
9 could do -- if we could look at the effect of any particular  
10 site on movements, and we came up with no statistical  
11 relationship, but just a couple of hints.  
12           Since then, so, in 2001, we changed the  
13 satellite collars so they're now reporting every day, during  
14 the period of July and early August.  
15           Once we have another year's information, we  
16 will be analyzing it, to look at the probability of the  
17 caribou, and their dispersion around any particular sites.  
18           Okay. Back to -- back to the Environmental  
19 Assessment. De Beers stated that the Environmental  
20 Assessment would analyze, and I emphasize the word analyze,  
21 the linkage between project activities and environmental  
22 effects, then described mitigation, and then analyze, and  
23 again, this is their wording, residual impacts as  
24 qualitatively as possible using statistics, GIS analysis, et  
25 cetera.

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1           This is one (1) example of a GIS analysis,

2 which RWED did, I should add. However, within the -- and,  
3 you know, that sounded great within the assessment, but when  
4 it actually comes down to what was done for caribou,  
5 qualitative analysis are largely lacking. And details on  
6 mitigation, as has been mentioned by other Intervenors, are  
7 lacking.

8 Again, just one (1) example because we're  
9 short of time, but on Page 10 to -- Chapter 10, Page 166, it  
10 lists some mitigations -- some mitigation measures, and it  
11 just simply states, for example:

12 "The use of trucks on the whole road will  
13 be minimized."

14 The GNWT doesn't draw a great deal of comfort  
15 from what -- what that statement really means. And  
16 therefore, it impedes assessing the residual impacts after  
17 the mitigation measures have taken place.

18 We certainly agree with De Beers that caribou  
19 ecology is complex. And assessing what causes changes is not  
20 particularly easy, but we do suggest that De Beers could have  
21 undertaken more analysis.

22 In particular, we feel that it has missed  
23 opportunities, that De Beers did not follow the approaches  
24 developed for the Porcupine Caribou Herd, and applied during  
25 the assessment for Diavik.

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1 We are aware of the dangers of the use of  
2 models, but they also bring considerable advantages in  
3 exploring some of the possibilities, and which helps define  
4 questions for further follow up.

5 In the interest of time, I'm -- I'm trying to  
6 go through this fairly quickly.

7 THE CHAIRPERSON: No, Dr. Gunn, your input is  
8 very valuable, so take as -- take the time that you need to  
9 explain it to us.

10 MS. ANNE GUNN: De Beers has commented that  
11 the Bathurst Caribou Herd varies in size, but it didn't  
12 address the implications of this for measuring, or for  
13 describing impacts.

14                   Currently, in the Bathurst Herd calf survival  
15 is relatively low. This is over the last three (3) years,  
16 compared to the 1990's.

17                   The importance of this, is that herds with low  
18 calf survival are probably less resilient to changes. So,  
19 considerations of herd size, factors that effect herd size,  
20 such as calf survival, change in pregnancy rates, those set  
21 the background for how the effects will take place.

22                   We agree with De Beers that there is a large  
23 amount of uncertainty about cumulative effects. We will go  
24 further than them, and we suggest that the uncertainty is  
25 sufficient that the environmental consequences for caribou

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1 should be rated as moderate, and not as low.

2                   Just before I move on to the recommendations,  
3 I would like to share some information that arose from  
4 discussions this morning.

5                   I'd like to go back to the use of satellite  
6 collars, as this caused quite a bit of interest. As I  
7 mentioned, the satellite collars could be used to investigate  
8 whether caribou are avoiding a particular site.

9                   The question of the representation of the  
10 collars has also come up. We can use the collared cows to  
11 see how representative they are with the other caribou.

12                   We've done this for the calving grounds, we  
13 suggest that De Beers, or the other companies, could have  
14 done it for post-calving, and summer movements.

15                   For the calving grounds, we found the  
16 satellite collars -- few satellite collared cows are  
17 representative of the rest of the cows.

18                   I don't want to dwell on the Colomac, but I  
19 was there last week. We certainly agree with Grand Chief  
20 Rabesca's observations about the attractions of the Caribou  
21 to the tailings pond, and it's based on their normal  
22 behaviour.

23                   Caribou, or particularly pregnant cows are  
24 really quite attracted to salt, particularly sodium and  
25 calcium, plus also sulphate. This is why it's quite common

1 to see them cratering on lakes where there's been overflow,  
2 to get at the salt.

3 This means their natural behaviour can also  
4 attract them to areas where they could be picking up less  
5 desirable minerals.

6 It relates to the concerns that have been  
7 repeatedly raised about dust having cumulative effects.  
8 We've heard this over a number of years, and the Department  
9 is now working with stakeholders to try and come up with some  
10 more definitive information on the effects of -- of dust, and  
11 the relationship is that the dust lands on the caribou  
12 forage, and particularly lichens, are very efficient at  
13 savaging metals, so we'll be investigating this further.

14 We simply recognize the concern, and the need  
15 for extremely stringent measures in mitigation the effects of  
16 dust.

17 Another that -- that's come up quite  
18 frequently, and it's sliding into credibility of its solar  
19 core, which I don't think is backed by much science, and  
20 that's about the zone of influence.

21 I don't think the zone of influence is really  
22 a well-understood concept in the terms of Caribou  
23 perceptions. The relationship between area, in other words,  
24 the shape, or the size, whether it's roads, or a concentrated  
25 mine, the level of activity, and the responses to the Caribou

1 is not clear; it hasn't been well investigated.

2 It's unlikely that it's a linear response.  
3 It's unlikely that the Caribou responds, gets a little bit  
4 more strong, more intense, each time the area gets a bit  
5 larger. There are probably threshold effects.

6 The Caribou don't respond, and then, that's

7 when it accumulates in their mind's eye of what's happening,  
8 and then their response is correspondingly stronger.

9           So, I don't think we should draw a whole level  
10 of comfort about using the term, the zone of influence. I  
11 think a considerable more understanding is required. It's a  
12 technical gap that contributes to uncertainty.

13           Comments have been raised about the central  
14 arctic, where the caribou herds are on the Prudo (phonetic),  
15 and associated oilfields.

16           When an oilfield, in some respects, differ in  
17 the levels of activity, the types -- types of activity from a  
18 series of mines. It's important to remember that it's  
19 occurring -- there are similarities with the caribou, because  
20 it's occurring on post-calving and summer ranges, and as  
21 already we mentioned, those are the critical times the sort  
22 of, energetic bottleneck for the Caribou to cope with biting  
23 insects, to accumulate enough fat so that they will conceive  
24 in the Fall.

25           Moving on to recommendations. We suggest that

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1 some of these recommendations would help address the  
2 inadequacies of the baseline information, and the analyses of  
3 the effects.

4           Monitoring and mitigation as specified in an  
5 environmental agreement, could compensate by collecting and  
6 analyse the information, and doing some more analyses.

7           I should just -- I can't resist but add the  
8 graph you see in front of you. It shows a cow and her calf.  
9 One (1) side it shows -- it shows the relationship between  
10 pregnancy and the body weight of the cow, and over the  
11 average body weight you -- somewhere between a eighty (80)  
12 and one hundred (100) kilograms for a, you know, kind of a  
13 nicely plump cow.

14           There's a very tight relationship. It doesn't  
15 take much of a change in body weight for their to be a change  
16 in the probability of a cow conceiving.

17           So, this is what I refer to as the energetic  
18 bottleneck that occurs on post-calving and Summer ranges.

19 What it means, is it doesn't take much interruption to  
20 foraging time for there to be an effect on an individual  
21 cow's probability of being pregnant, and it doesn't take much  
22 to raise that to what will happen to the herd's rate of  
23 increase, or decrease.

24                   The monitoring data from BHP Billiton and  
25 Diavik sites and other information including RWED's could be

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1 analysed to enhance the baseline information. It would  
2 reveal much about the scale of annual variations in the  
3 abundance and distribution as well as the role of natural  
4 variation in the weather.

5                   We, again, suggest that De Beers uses analysis  
6 and modelling while recognising some of the shortcomings of  
7 modelling to describe potential effects. Especially  
8 cumulative effects under a range of natural conditions, for  
9 example, like imaging the game, the time spent foraging, body  
10 weight and pregnancy rates.

11                  If those analyses are done, even after the  
12 fact, they would be very helpful in formulating questions, or  
13 at least questions is just another way of saying hypotheses,  
14 which then could be speedily addressed through well-designed  
15 monitoring programs.

16                  Another example would be to address the  
17 question of whether there's local avoidance by caribou,  
18 particularly cows and calves, of sites such as BHP Billiton,  
19 Diavik or Snap Lake. It would take not just the aerial  
20 surveys that have been done, but a particular configuration  
21 of aerial surveys to reveal those sort of effects.

22                  If we -- so what I'm saying is if we took  
23 another look at the baseline information they would help us  
24 formulate exactly the right question and then we could come  
25 up with a right design to test some of those.

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1 Further recommendations include the need for  
2 detailed mitigation. In particular, we would like to see how  
3 mitigation will be scaled to deals with tens, thousands or  
4 tens of thousands of caribou. An example would be to draw  
5 from the experience of Diavik who they have established  
6 thresholds of caribou presence that triggers increasing  
7 levels of mitigation.

8 We also recommend what I've called contingency  
9 planning which is to deal with events such as influx of large  
10 numbers of caribou that we already know have been exposed in  
11 that one (1) particular summer to the -- to the other mines,  
12 kind of, up the line, so Lupin, Jericho (phonetic), BHP and  
13 Diavik.

14 This would take communication, prompt  
15 communication between RWED, between the mines, to alert  
16 De Beers that caribou have passed through the mines, they are  
17 heading this way. What it -- what I mean by contingency  
18 under those conditions then, it would be enhanced mitigation  
19 to deal with those particular circumstances to reduce the  
20 potential for cumulative effects.

21 We also recommend contingency planning, again,  
22 in enhanced -- in the sense of enhanced or down-stepped  
23 mitigation. If the Bathurst -- Bathurst caribou herd's  
24 resilience declined -- so, in other words, if the herd itself  
25 starts to decline or we see indications of decline such as

1 low pregnancy rates, reduced calf survival, it's reasonable  
2 to assume that the herd is less resilient so it would take  
3 more mitigation to reduce potential effects.

4 We, RWED, would commit to working with the  
5 mining companies to establish the criteria, such as reduced  
6 calf survival or pregnancy rates, that would kick in this  
7 contingency, this enhanced mitigation.

8 Finally, we recommend a long-term commitment  
9 to describing caribou movements. It is clear in caribou  
10 ecology that space is the -- the ecological key to caribou  
11 survival. That is the space that the caribou need to find

12 food and to avoid their enemies such as wolves and bears.  
13 We have to recognize that we don't fully  
14 understand the caribou's perception of space and when they  
15 perceive human activity as too much human activity. And with  
16 that, I'll hand it over to Ray to talk about the animals that  
17 kill the caribou.

18 MR. RAY CASE: Yes, Ray Case with Wildlife  
19 and Fisheries Division, RWED. And thanks for talking so  
20 eloquently about bear and wolverine food.

21 In Canada, the Committee on the Status of  
22 Endangered Wildlife in Canada, has determined that wolverine  
23 and grisly bear populations are of special concern. And as  
24 such, they've identified these populations and these species  
25 as ones that require closer management attention.

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1 Within the NWT, we've classed -- ranked both  
2 these species as sensitive, also reflecting the caution that  
3 must be taken in managing these species.

4 First a few comments regarding factors  
5 influencing grisly bear and wolverine populations. It's  
6 well -- been well documented in other parts of their range,  
7 across Canada and North America, around the world, that  
8 grisly bear and wolverine populations are vulnerable to  
9 increasing levels of human activity. This is reflected in  
10 the special concern classification that I mentioned that  
11 COSEWC has given them.

12 The central barrens has been, until quite  
13 recently, a vast relatively pristine habitat, or refugia for  
14 carnivores. However, with increasing interest in mineral  
15 resources of this region, in combination with the other  
16 activities, carnivore populations are likely to feel the  
17 incremental impacts of our activities.

18 The question, of course, is, how much and how  
19 soon? The easy answer is, clearly that the more activity,  
20 the sooner the impacts will show up. Historically, we, the  
21 human race, have not demonstrated an ability to undertake our  
22 various activities within the ranges of these carnivores,  
23 without having some level of impact. In fact, even in areas

24 where we've set areas specifically aside to conserve  
25 carnivores, such as parks, our activities have had impacts.

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1 Part of the problem is that our understanding  
2 of how these species respond to various forms of disturbance,  
3 the various forms of our activities, is limited. Both  
4 species occupy large home ranges and require vast areas of  
5 undisturbed habitat and they are relatively intolerant of  
6 human activities.

7 This need for space and the potential for them  
8 to reduce the use of parts of their ranges because of human  
9 activities, may, over time, result in population level  
10 impacts.

11 Since grizzly bears can only sustain low  
12 levels of human caused mortality, the cumulative number of  
13 bear deaths, at the regional level, which in this case is the  
14 entire central Arctic, must be closely managed. But we also  
15 need to recognize that the Aboriginal people in this area  
16 have harvesting rights, and their -- their access to harvest  
17 these animals needs to be recognized.

18 The ability of bear populations to adjust or  
19 to recover from excessive mortality rates is poor. They live  
20 a long time but they produce relatively few young and it may  
21 take -- an adult female may have to live to sixteen (16)  
22 years old, in this area, in order to replace herself in the  
23 population. She would have to live for another four (4)  
24 years to -- to -- or more years, to actually add to the  
25 population.

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1 This illustrates the low biological resilience  
2 of these populations, have to -- to over harvest. And as a  
3 result, and over harvest made over a year or two (2), can

4 result in a population level effect that lasts for ten (10)  
5 or more years.

6               Studies conducted with the support of WKSS,  
7 and -- and -- on grizzly bear and wolverine in the 1990's  
8 indicate that the productivity and the fate of carnivore  
9 populations, on the central barrens, are largely dependent on  
10 the well being of the caribou herds in the area. Without  
11 access to caribou, it may not be possible for a population to  
12 recover from over harvest, at all.

13               In the technical sessions, and technical  
14 reports, the GNWT identified several concerns with the  
15 environmental assessment related to grizzly bears and  
16 wolverine.

17               One (1) concern, as was mentioned for caribou,  
18 was the baseline data provided in the environmental  
19 assessment was insufficient to make clear predictions on  
20 impacts, or upon which to test these impacts -- or test for  
21 impacts.

22               For example, without a reliable estimate of  
23 how many grizzly bears and wolverine currently make use of  
24 the regional study area, it's quite difficult to make sound  
25 predictions about how many bears will potentially be

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1 influenced by a development.

2               It is also not possible to use the data to  
3 detect if things have changed from baseline at some point in  
4 the future.

5               We were also concerned with the impact  
6 assessment analysis conducted, particularly in terms of  
7 behavioural responses. Responses to noise, vehicle traffic,  
8 and other aspects of the mine footprint.

9               We indicated that we felt further modelling,  
10 and more analysis and -- and use of a zone of influence could  
11 have been conducted.

12               We also indicated that some of the  
13 quantitative analysis carried out on grizzly bear  
14 demographics could have been in a way that the conclusions  
15 were more conservative, and reflected the uncertainty in the

16 available data.

17                   And finally, we express concern that the  
18 details of the waste management plan, and mitigation strategy  
19 were not provided, and therefore, we were unable to come to  
20 our own conclusions regarding the effectiveness.

21                   In our technical presentations, and our  
22 technical reports, the GNWT indicated that these concerns  
23 could be addressed by De Beers, incorporating additional  
24 information, undertaking additional analysis, and  
25 reevaluating their conclusions to reflect weak baseline data,

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1 and the uncertainty.

2                   De Beers has done some additional analysis,  
3 which is appreciated, but has not revisited their assessment,  
4 or reevaluated their conclusions.

5                   The GNWT feels this is unfortunate in that we  
6 felt it would have given weight to the uncertainties  
7 surrounding any conclusions that we might -- be drawn, based  
8 on the available information.

9                   And, it would have also helped ensure that we  
10 were cautious, not to put too much faith in -- faith in the  
11 impact predictions.

12                   The GNWT feels that we can still take a  
13 cautious approach. Within an environmental agreement, it  
14 should be possible to develop clearly stated, and testable  
15 impact hypotheses.

16                   Additional data and analysis would be  
17 considered in the development of these impact hypotheses, and  
18 they'd also be necessary to refine, or even enhance some of  
19 the baseline data, in order to make the impact hypotheses  
20 testable.

21                   For example, an improved estimate of relative  
22 wolverine population abundance in the regional study area may  
23 be necessary to address -- develop a test impact hypotheses,  
24 about the potential impacts of this development on wolverine.

25                   The protocols for testing the impact

1 hypotheses also need to be designed and implemented as part  
2 of a monitoring plan.

3           This monitoring plan needs to be coordinated  
4 with other wildlife effects monitoring programs being  
5 conducted at BHP Billington, and Diavik Diamond Mines, to  
6 help address regional cumulative issues.

7           And, as mentioned, a comprehensive waste  
8 management plan as required to deal with all phases of  
9 construction, staff training, and a method to assess the  
10 effectiveness of waste management practices.

11           Development of a comprehensive plan should  
12 involve the active participation of GNWT staff, who have  
13 direct experience in dealing with problems, and quotes,  
14 "carnivores".

15           In conclusion, the GNWT feels that we need to  
16 take a cautious approach to the conclusions reached in the  
17 environmental assessment.

18           This can be accomplished through the  
19 negotiation and the implementation of an environmental  
20 agreement.

21           Within this agreement, a process would be  
22 established to develop and test rigorous impact hypotheses.  
23 These hypothesis would make use of additional data, analysis,  
24 and models, and would recognize the uncertainty in the  
25 current -- De Beers' current impact predictions.

1           The agreement allows to design and implement  
2 site specific and regional monitoring programs necessary to  
3 test these impact hypotheses.

4           These programs would link to the regional  
5 programs, and to those at other mines, as necessary to  
6 address regional issues.

7           The agreement would also allow us to ensure  
8 effective waste management procedures, that would eliminate

9 potential attractants to carnivorous.

10 The GNWT is prepared to work with De Beers, to  
11 develop sound impact hypotheses, to develop and enhance  
12 wildlife monitoring programs, to cooperate on regional  
13 cumulative effects issues, and to develop a comprehensive  
14 waste management plan.

15 We also look forward to working with other  
16 stakeholders in -- in an environmental agreement. And I just  
17 wanted to mention that the Bathurst Caribou Management  
18 Planning Committee, in their deliberations, have looked very  
19 closely at regional monitoring needs.

20 And we feel that the work of this Committee  
21 could also be of great use in the development of an  
22 environmental agreement. Thank you. Marci.

23 THE CHAIRPERSON: Thank you, sir.

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25 (BRIEF PAUSE)

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1 Thank you. Mr. Johnstone...?

2 MR. ROBIN JOHNSTONE: We have one (1)  
3 question, Mr. Chairman, and Members of the Board. Thank you  
4 very much for your presentation, Ray and Anne.

5 One thing was -- was -- I'm really quite  
6 curious about though, with the -- Anne discussed her concerns  
7 around, not understanding the threshold effects with regards  
8 to a zone of influence.

9 So, is it a, you know, you noted that it may  
10 not be size. So, the -- the scale between BHP and De Beers,  
11 we may not see a smaller zone of influence because of the  
12 mine.

13 I presume then, that that could also go down  
14 to, well, does it make a difference whether it's a hunting  
15 camp, or a tourist lodge, in the scale of things also.

16 And I noted on the GLOBIO cumulative impacts  
17 analysis, that Dr. Montgomery and Mr. O'Reilly presented on  
18 the wall on Monday, that the zones of influence around, they  
19 were unidentified, but I suspect that a number of them may  
20 have been hunting camps, were really quite large.

21 Now, so this not complete understanding out  
22 there, do you -- when you talk about monitoring cumulative  
23 effects, generally your discussion is around the three (3)  
24 mines.

25 Now, you know, I can understand one (1) of the

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1 reasons why, but I wonder perhaps if there is more  
2 recognition that cumulative effects, impact assessment and  
3 monitoring, needs to be much broader than three (3) projects  
4 that take up something like sixty-four (64) square kilometres  
5 in an area of two hundred thousand (200,000) square  
6 kilometres.

7 And that the wall of development, the wall of,  
8 so called, development as a lot of dots all over the  
9 landscape, three (3) of which are diamond mines.

10 The question was: Would the GNWT please  
11 elaborate on who should be involved in cumulative effects  
12 assessment?

13 And I presume that the GNWT does not just  
14 presume that it should strictly be three (3) mining  
15 Companies.

16 THE CHAIRPERSON: Thank you. Mr. Case...?

17 MR. RAY CASE: Yes. We -- we concur that the  
18 cumulative effects on wildlife in this area go beyond the  
19 three (3) mining companies.

20 THE CHAIRPERSON: Thank you. Questions of  
21 the GNWT, Mr. Byers?

22 MR. TIM BYERS: Thank you, Mr. Chair.  
23 Tim Byers for the Yellowknives Dene. I appreciate your --  
24 what you're saying, Anne, about inadequacies in the baseline  
25 data, that's a concern of ours as well as we've already said.

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1                   We also agree with -- with your -- your  
2 comments on -- rather on your recommendations. Further to  
3 the recommendations, I think the -- Rachel Crapeau's  
4 committee would want me to ask, Anne, do you see any role for  
5 aboriginal groups in enhancing baseline information and in  
6 contingency planning and monitoring for regional cumulative  
7 effects?

8                   THE CHAIRPERSON:   Mr. Case...? Anne...?

9                   MS. ANNE GUNN:    Anne Gunn, Government of the  
10 Northwest Territories. It's inconceivable to us how we could  
11 proceed without the input of the aboriginal people and I  
12 think that was covered by Ray's final point as well.

13                  THE CHAIRPERSON:   Thank you. Mr.  
14 O'Reilly...?

15                  MR. KEVIN O'REILLY:   Thanks. Kevin O'Reilly  
16 with CARC. My favourite question of the day: I'd like to  
17 know if the Government of the Northwest Territories has a  
18 position or a preference on the timing of an environmental  
19 agreement?

20                         Is it something that should happen before the  
21 public registry closes or perhaps even extending the closure  
22 of the public registry so that we have some certainty around  
23 mitigation measures?

24                         Or is it something that should be put in place  
25 before construction proceeds. Is there any preference or

1 position on the timing of an environmental agreement? Thank  
2 you.

3                   THE CHAIRPERSON:   Thank you. Mr. More...?

4                   MR. GAVIN MORE:    Gavin More, Government of  
5 Northwest Territories. The response to the question, I'll  
6 focus in on the -- trying to -- doing the EA before the  
7 closing of the public registry, basically the EA will be a  
8 complicated document and we do not believe that there is  
9 sufficient time to do that before the -- the existing  
10 published date for closure.

11                  THE CHAIRPERSON:   Mr. O'Reilly...?

12                  MR. KEVIN O'REILLY:   Thanks. Does the

13 Government of the Northwest Territories have a position on  
14 whether the environmental agreement should be in place before  
15 construction proceeds on this project or before it goes into  
16 operation?

17 THE CHAIRPERSON: Thank you. Mr. More...?

18 MR. GAVIN MORE: Actually there's -- there's  
19 -- before I -- well, I'll answer my -- my version of -- of  
20 the response but I would also suggest that we do need to  
21 bring DIAND into this -- this discussion.

22 Basically, they're -- the -- the idea of doing  
23 an environmental agreement is very important to us. There  
24 are a number of issues that we know could be identified that  
25 could be worked on in the short-term. We're not necessarily

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1 believing that we actually have to have a final agreement in  
2 order to get started on some of the ideas that De Beers is  
3 committed to and that we know that we can get started on.

4 We do believe in the long run that  
5 environmental agreements are very worthwhile, particularly to  
6 start putting into place what I would call minimum  
7 approaches. The thing that we have to bear in mind is that  
8 these are long-term situations in terms of the life of the  
9 mines.

10 We do realize that things will become  
11 complicated over time with additional projects that will be  
12 recommended and we do believe that one (1) of the real  
13 benefits of a -- of a very well-constructed environmental  
14 agreement is that we can work collaboratively with both  
15 De Beers but also other industry and communities to adapt to  
16 new situations that may arise over time that aren't  
17 necessarily predicted at this point.

18 We do believe that for many things, if the  
19 industry has the right approach and the right attitude that  
20 these things will flow naturally as we work in collaboration.  
21 We don't necessarily believe that we do have to try to  
22 itemize every single thing and lock it in place in an  
23 environmental agreement if there's the right attitude on the  
24 part of industry in the broad sense and the communities and

25 government.

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1 THE CHAIRPERSON: Thank you. Perhaps,  
2 although INAC did not make a presentation, I do have the  
3 ability to ask them a question. And this is all prefaced by  
4 assuming that the project gets permission to proceed. But  
5 does INAC have a position on where an EMA should be  
6 negotiated or finalized prior to closure of the Environmental  
7 Assessment process, prior to the beginning of the regulatory  
8 process, or prior to the commencement of construction?

9 Mr. Livingstone...?

10 MR. DAVID LIVINGSTONE: David Livingstone  
11 with DIAND. I'll answer that question, but first I want to  
12 talk about Colomac.

13 THE CHAIRPERSON: You and I have talked about  
14 Colomac for eight (8) years, Mr. Livingstone.

15 MR. DAVID LIVINGSTONE: Past practice, and I  
16 don't see any reason why it would change this time around, is  
17 to conclude the Environmental Agreement before the project  
18 proceeds, before it -- before operation, before construction,  
19 even.

20 We can start discussions on the Environmental  
21 Agreement, anytime. We can conclude it prior to other  
22 instruments being concluded, but I think it would be wise to  
23 review the Environmental Agreement, once the other  
24 instruments have been finalized, just to make sure that  
25 nothing has slipped between the cracks.

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1 And that's basically the process we used with  
2 Diavik.

3 THE CHAIRPERSON: Thank you, sir. Now, I  
4 have one (1) more question for you. And all day today, we've

5 heard talk of the regional cumulative effects of this  
6 project.

7                   What is the status of the regional cumulative  
8 effects framework mentioned by CARC? If you could just give  
9 us a little bit on that, sir?

10                   MR. DAVID LIVINGSTONE: Sure. David  
11 Livingstone. The -- the discussions have been, essentially,  
12 complete on the -- the framework. That has taken a couple of  
13 years to -- to work through the details, so what we -- what  
14 we did following the Diavik review was -- was develop an  
15 ideal conceptual cumulative effects framework, and then  
16 compared it to the situation in the NWT, identified gaps in  
17 the current situation, weak linkage, work that needed to be  
18 done.

19                   And we put forward a number of documents,  
20 including the broad framework supporting documents. They're  
21 all on a web site called CEAMF.ca. And then we've developed  
22 a blueprint, a strategy, for implementing that -- that  
23 framework.

24                   We've identified the additional work that  
25 needs to be done, the parties that are -- are responsible for

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1 that -- that work, in our view. And -- and the resources, to  
2 a degree, that -- that we feel these parties would need to  
3 complete the work that we feel is necessary.

4                   We've developed a draft action plan for the  
5 Slave Geological Province. One (1) of the recommendations in  
6 that action plan is the creation of a regional monitoring  
7 agency. I don't think anybody wants to see more project  
8 specific agencies.

9                   More recently there have been discussions  
10 about the -- the benefits of an NWT-wide monitoring agency  
11 that would include, in its mandate, Slave Provinces, or at  
12 least the NWT portion of the Slave Provinces.

13                   And finally, I guess, I think it's May 13th  
14 and 14th, we're having a -- a major workshop to discuss the  
15 implementation of this cumulative effects framework. And I  
16 believe the invitations have gone out and most of the parties

17 here have -- have probably heard about it and received some  
18 sort of notice.

19 So I think we've made a lot of progress.  
20 We've developed what we consider the -- the tool kit. But it  
21 wasn't the mandate of the committee to -- to do the -- the  
22 more specific work. The mandate of the committee was to  
23 identify what needed to be done, to identify who was best  
24 position to do that work and provide some advice and  
25 assistance as to the -- the work that -- that those agencies

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1 would need to do and the collaboration that's required in  
2 doing it.

3 THE CHAIRPERSON: Thank you, sir. The NWT-  
4 wide monitoring agency, I'm aware of some discussions. But  
5 would it be, for example, something perhaps modelled on the  
6 Alberta Research Council model, an independent type  
7 scientific institution that does research and is -- is  
8 privately run?

9 MR. DAVID LIVINGSTONE: David Livingstone,  
10 DIAND. Yes, the -- those discussions are in the very early  
11 stages, but the idea is that we -- we could create an arms-  
12 length Crown Corporation kind of entity that would  
13 incorporate the environmental sciences, the traditional  
14 knowledge work required to support sound decision making in  
15 the NWT.

16 It would be a centre that would potentially  
17 incorporate the -- the cumulative impact monitoring program  
18 required under the MVRMA part of the -- the water resources  
19 component of -- of my director to potentially other existing  
20 organizations in the NWT that have expertise that -- that is  
21 now scattered -- disseminated -- dispersed, rather, across  
22 the NWT, put in -- in one (1) -- one (1) location, or at  
23 least one (1) -- under one (1) umbrella, probably not one (1)  
24 location, and -- and enable that agency to provide scientific  
25 and traditional knowledge to support their range of other

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1 bodies, give it some independence, give it a -- a budget.

2           The Alberta Research Council approach is -- is  
3 one (1) model. I think their lesson was learned in the  
4 Alberta Research Consult case that we could apply here, may  
5 not, if this -- if this concept perceived in the NWT, it may  
6 not look exactly like the Alberta Research Council; it  
7 probably wouldn't.

8           The Alberta Research Council, just for the  
9 interest of folks here, has a core budget of about 25 million  
10 from the Alberta Government, but in fact, its -- its actual  
11 budget is closer to 90 million.

12           The -- the difference is made up by the  
13 Alberta Research Council's selling its services to various  
14 parties, including Government, including Universities, and so  
15 on.

16           So, it's -- the -- the idea is that it -- that  
17 we could create an NWT wide research and monitoring agency,  
18 make it arm's length, make it independent, give it some  
19 financial independence, enable it to -- to contract out its  
20 services.

21           And -- and in doing so, create a -- a centre  
22 of excellence that could stimulate a lot of growth, and a --  
23 and a lot of confidence in Northern science.

24           THE CHAIRPERSON: Thank you, sir. Sorry, Mr.  
25 O'Reilly. I went -- any further questions for the GNWT?

1           MR. KEVIN O'REILLY: Not for GNWT, but your  
2 line of questioning, if I could just so if you could bear  
3 with me, I'm wondering if Mr. Livingstone might be able to  
4 comment on the status of the funding for the cumulative  
5 effects assessment, and management framework for this year,  
6 and in the future? Thank you.

7           THE CHAIRPERSON: Mr. Livingstone...?

8           MR. DAVID LIVINGSTONE: David Livingstone,  
9 DIAND. Unfortunately, I can't confirm what funding we'll

10 have for the balance of the year. I haven't been told what  
11 my budget is for this year. And not in just -- not in that  
12 area alone, I would add.

13 THE CHAIRPERSON: Thank you. Dr.  
14 Montgomery...?

15 MS. SHELAGH MONTGOMERY: Shelagh Montgomery,  
16 CARC. Just a quick question to GNWT. This is in the last --  
17 the last line on the presentation, so perhaps directed to  
18 Ray, but in general, the -- the slide referred to an  
19 environmental agreement requirements for an environmental  
20 agreement.

21 Two (2) of the components being, develop and  
22 test rigorous impact hypotheses, and ensure effective  
23 mitigation and management.

24 I'm just wondering if you feel that those two  
25 (2) components, should they not be better served in the

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1 environmental assessment, rather than going -- coming after  
2 the project has potentially been approved?

3 THE CHAIRPERSON: Thank you. Mr. Case...?

4 MR. RAY CASE: We, in -- in looking at how  
5 best to address our concerns, we felt that this was an -- an  
6 appropriate way to -- that we could address the concerns that  
7 -- that we had.

8 Our experience with the previous projects,  
9 have highlighted to us the -- the importance of rigorous  
10 impact hypotheses as part of environmental agreements, and we  
11 were looking to have those developed, and we also saw those  
12 -- would see those as an opportunity to bring in not only some  
13 of the data we thought was missing from EA, but as important,  
14 some of the information that actually has been collected  
15 since the EA was put out.

16 So, it allows us to -- to make the -- develop  
17 the best hypotheses possible.

18  
19 (BRIEF PAUSE)

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21 MR. TOMASZ WLODARCZYK: Tom Wlodarczyk,

22 representing the Board. Question to the Northwest  
23 Territories Government.  
24 Does the GNWT consider the Canadian Wildlife  
25 Services Energetics model, at tested model that is likely to

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1 provide reliable results regarding cumulative effects on  
2 caribou movement?  
3 THE CHAIRPERSON: Ms. Gunn...?  
4 MS. ANNE GUNN: Anne Gunn, Government of the  
5 Northwest Territories. The -- I hesitate to say that the  
6 word has been tested because that, to me, would be a fairly  
7 rigorous approach.  
8 The model is constructed with information  
9 that's all -- there's strong relationships that are well  
10 backed by data. It's -- it's been through quite -- quite a  
11 lot of validation, looking at different scenarios, putting in  
12 different data.  
13 The -- its results, its input is consistent  
14 with what is observed in the field. And that's probably as  
15 close as I would say that the model's been rigorously tested.  
16 It does produce result consistent with what's  
17 observed under field conditions. It's -- it's been put  
18 together over a number of years. It's involved Alaska Fish  
19 and Game, the US Fish and Wildlife Service. It's -- it's  
20 more than just Canadian Wildlife Services, it's just  
21 convenient to refer to it as their model.  
22 In terms of the Bathurst Caribou Herd, it was  
23 applied to the Bathurst Caribou Herd for Diavik. And we, at  
24 the time, noted that we -- we used Porcupine data because we  
25 didn't have the Bathurst data.

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1 Now we have more information on the Bathurst

2 Herd, it just increases the validity of taking that approach.  
3 So, I guess that a long way around saying, kind of, a yes.  
4 MR. TOMASZ WLODARCZYK: Thank you.  
5 THE CHAIRPERSON: Thank you. Ms. Teillet...?  
6 MS. JEAN TEILLET: I'm sorry. Are you making  
7 the rounds of asking questions, or...?  
8 THE CHAIRPERSON: Yes, I'm -- that was my next  
9 question. Any additional questions for the GNWT?  
10 Ms. Teillet...?  
11 MS. JEAN TEILLET: Thank you. Just a point of  
12 clarification. There's another -- a name of another caribou  
13 herd that keeps coming up, and I am not familiar with the  
14 name that you keep repeating, Ms. Gunn.  
15 Could please, sort of, spell it out for us?  
16 And could you tell me, is that the Beverly Herd, under  
17 another name, or are we talking about a third herd here?  
18 THE CHAIRPERSON: Thank you. Ms. Gunn...?  
19 MS. ANNE GUNN: Anne Gunn, Government of the  
20 Northwest Territories. The caribou herd I'm referring to was  
21 originally called Queenmore (phonetic) Gulf because that's  
22 the area where it calves.  
23 Then, because it's largely in Nunavut, the  
24 Kitikmiot Assoc -- the Kitikmiot Herd and Trappers  
25 Association changed the name to Ahiak, which is Nutstuk

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1 (phonetic) for Queenmore Gulf.  
2 It's a separate caribou herd. It's  
3 genetically distinct from the Beverly Herd, it has a  
4 different patterns of movements as well.  
5 It's has a different -- different calving  
6 ground, different running distribution, based on satellite  
7 symmetry from the Bathurst Herd.  
8 It's -- I suspect, it's the least known herd,  
9 the least amount of work has been done on it, but I suspect  
10 it's a large herd, you know, that is in excess of two hundred  
11 thousand (200,000) caribou in 1996, which was the only time  
12 when we did a very rough estimate on size.  
13 It overlaps its winter distribution now, with

14 the Bathurst Herd, and with the Beverly Herd. And we -- we  
15 only have, probably, had no more than five (5) satellite  
16 collars to base this on, but it's certainly a herd that  
17 switches between wintering on the barrens, and wintering  
18 within the treed areas.

19 So, when we heard about caribou at Snap Lake  
20 in March, 2001, we looked at those caribou and we put a  
21 collar very close to there, and it was in a Ahiak caribou,  
22 hence my assertion that Snap Lake is within the winter range  
23 of the Ahiak herd.

24 Again, a long winded answer to your question.

25 MS. JEAN TEILLET: Thank you. Appreciate the

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1 lesson. So my understanding then is that the Beverly herd  
2 Spring can be -- in Springtime can be in the Snap Lake area  
3 or at some time, I won't narrow it to Spring then, but the  
4 Beverley herd -- certainly that's a map I saw on the Internet  
5 when I went on to their little thing it showed that this -- I  
6 think it's the Spring migration map showed that there's an  
7 arm that goes into right where Snap Lake is.

8 And then the Bathurst and then this Ahiak, is  
9 that your understanding? All three (3) of them.

10 THE CHAIRPERSON: Thank you. Ms. Gunn...?

11 MS. ANNE GUNN: Anne Gunn, Government of the  
12 Northwest Territories. The map that I think you have is --  
13 is a map put together by the Beverley and Qamanirjuaq Caribou  
14 Board. And it uses data from the 1950's I suspect to  
15 present.

16 MS. JEAN TEILLET: 1957 to 1990 is this map.

17 MS. ANNE GUNN: Okay. Our understanding of  
18 Winter distribution has -- has changed with technology. It's  
19 also changed because the caribou herds have increased and  
20 decreased and so their use of space has changed.

21 It's not totally clear to us now whether it  
22 was -- whether when people would, in the late '50's, were  
23 describing caribou north of Lutsel K'e up towards MacKay  
24 Lake, whether, in fact, that would be Bathurst or Beverley.

25 We haven't gotten support from the communities

1 in Northern Saskatchewan to work through the -- the BQ Board  
2 about putting satellite collars on the Beverly herd which, if  
3 we had them on the same time as the Bathurst and the Ahiak  
4 herd would allow us to narrow down exactly which herds are  
5 overlapping in distribution with Snap Lake.

6 So I would -- I guess, I would summarise all  
7 that by saying that there's current data based on the  
8 satellite collared cows that Snap Lane is in an area used by  
9 both the Bathurst herd and the Ahiak herd. I think there's a  
10 level of uncertainty as to about whether it should be  
11 included in the current Winter range, Spring migration range  
12 for the Beverly herd.

13 I would just leave it as a level of  
14 uncertainty about that.

15 MS. JEAN TEILLET: And I'm just wondering if  
16 you're aware that there was correspondence that came, I  
17 believe, to the Board, I'm not actually sure who it went to,  
18 during the course of the last couple of months from the  
19 Beverly management board, I guess, saying that this was  
20 within the Beverley herd range. That was my understanding of  
21 a piece of some correspondence that was -- is on the record  
22 in this Environmental Assessment. Go ahead.

23 THE CHAIRPERSON: We'll have to check it out.

24 MR. ROBIN JOHNSTONE: I can provide  
25 clarification, Mr. Chair. Actually, the analysis was by the

1 MVIRB back to the Qamanirjuaq herd that based on the map  
2 available on their website that it was the -- the Board's  
3 understanding that the Snap Lake Project lay within the  
4 boundaries as depicted by the satellite map available on the  
5 website.

6 MS. JEAN TEILLET: And that was not confirmed

7 by the Beverly management?

8 MR. ROBIN JOHNSTONE: I have not seen any  
9 correspondence to that fact but I may not be privy to it.

10 THE CHAIRPERSON: We can check and we'll get  
11 back to you, Ms. Teillet.

12 MS. JEAN TEILLET: That's fine. My only  
13 point is that it seems to me that the numbers that we could  
14 be dealing with here are significantly larger than what we  
15 were talking about originally.

16 If we were talking originally about just the  
17 Bathurst herd which is what, three hundred and fifty (350) to  
18 four hundred thousand (400,000) and now we've got another two  
19 hundred thousand (200,000) and then potentially some of the  
20 Beverly herd here, we've got a much larger issue than we  
21 thought we had to deal with.

22 And which to me merely highlights the  
23 importance of this. Now, Ms. Gunn the -- you -- I thought  
24 that -- I had asked De Beers a question this morning about  
25 the consistency of their methodology in their gathering of

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1 data. And Mr. Johnstone, as I had understood it, had assured  
2 me that they were working in a consistent methodology with  
3 Diavik and De Beers and I think he said, specifically, so  
4 that we could be looking at apples and apples and not apples  
5 and oranges and we accepted that this morning.

6 My understanding though was that you made a  
7 comment this afternoon that indicated to me that perhaps  
8 that's not so. You expressed, I thought, some disappointment  
9 that they had chosen a particular method, that sounded to me  
10 like it was different from what was going on before.

11 Is -- do you have a concern about the  
12 different ways that the mines are gathering information? And  
13 if so, is there a -- a -- could you give us some guidance on  
14 how we could work with this problem in the future, if it  
15 exists?

16 THE CHAIRPERSON: Thank you. Anne...?

17 MS. ANNE GUNN: Anne Gunn, Government of the  
18 Northwest Territories. Within the aerial surveys, to

19 describe the abundance and distribution of caribou in the  
20 vicinity of this size, with minor variations, it's pretty  
21 much a similar approach as -- as Robin mentioned.

22 With some of the other analysis of baseline  
23 information, there are -- there are differences, if nothing  
24 else, because a lot of analyses haven't been done, and that  
25 was my main point.

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1 In -- in the future, with the likelihood of  
2 caribou passing through one (1) mine or one (1) camp, there  
3 will be a need to ensure that the monitoring is -- is  
4 standardized, and that the exchange of information occurs  
5 very rapidly, over days, because that's how fast the caribou  
6 can move.

7 And I -- I suspect that's maybe what you're  
8 referring to, is the point I was trying to make, is that,  
9 when you've got caribou moving through camps, as well as  
10 mines, that there needs to be a rapid transfer of  
11 information, so where they're heading is alerted to the fact  
12 that they're coming. You see where I'm getting at?

13 In terms of the necessary behavioural studies,  
14 if we develop research hypothesis such as projected through  
15 some of the modelling exercises, some of the enhanced  
16 baseline, then, again, there would be a requirement for the  
17 methodology to be standardized between the different  
18 stakeholders involved.

19 And it would -- it would apply to, for  
20 example, to ourselves as well as some of the Aboriginal  
21 groups that were collecting information in the same way.

22 THE CHAIRPERSON: Thank you. Any further  
23 questions for the Government of the Northwest Territories,  
24 before we move to Lutsel K'e. Ms. Teillet...?

25 MS. JEAN TEILLET: Ms. Gunn, have you had an

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1 opportunity to look at the data that the independent  
2 environmental monitoring agency has put out? I -- I gather  
3 it's not based on the radio collared information.  
4 And -- and I'm particularly -- in particular,  
5 I'd be interested in, if you have had a chance to look at  
6 that data, does it indicate to you -- or -- or do you have a  
7 comment on the -- what I had reported that came via Dr.  
8 Messier (phonetic), with respect to the 7 to 8 percent change  
9 in the cows and calves staying five (5) kilometres away.  
10 Are you aware of it? Do you have any comment  
11 on it? Do you see that as a pattern or something that we  
12 should be paying attention to?  
13 MS. ANNE GUNN: Anne Gunn, Government of the  
14 Northwest Territories. It would certainly be the sort of  
15 thing we would predict, based on the experience of Red Dog  
16 Mine in Alaska, based on the response of the caribou to the  
17 oil fields. We would expect to see cows and calves, kind of,  
18 disburse away from a site of activity. So it's an expected  
19 effect.  
20 I was unaware of Dr. Messier's analysis and I  
21 haven't seen it, so I can't comment on it. It's also, I  
22 would true -- it's a sort of focussed question that requires  
23 its own survey design to address it thoroughly.  
24 And I think perhaps this is one (1) of the  
25 points that -- that was raised this morning, about it's -- it

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1 -- earlier, the possibility had been raised, that it was  
2 occurring in EKATI. But there was no statistical analysis to  
3 back it and it might have been the way that the data was  
4 collected.  
5 It's -- it's a complicated thing to design a  
6 project specifically to examine, and yet that's what needs to  
7 be done. It can't be done, sort of, added on to a  
8 generalized aerial survey. Does that help you?  
9 MS. JEAN TEILLET: Yes, I guess -- I just --  
10 I just thought, from Dr. Messier's statement was that there  
11 was statistic -- that he regarded that as statistical

12 evidence.

13 MS. ANNE GUNN: He may have pre-analysed the  
14 data. I -- I haven't seen his analysis so I don't want to  
15 say anything.

16 THE CHAIRPERSON: Thank you, Dr. Gunn.

17 MS. JEAN TEILLET: I appreciate that. Thank  
18 you. Now, one (1) final question with respect to the Alaska  
19 Report.

20 Just, first of all, if it -- if you're  
21 familiar with it, and the forty (40) year study, and with  
22 respect to the caribou only, and the part that I was  
23 referring to, which say that first there's sort of localized  
24 adjustments, and then that they saw major shifts.

25 And, is that what you're saying when you say,

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1 this is the kind of behaviour we expect when we look at Red  
2 Dog, and we look together. Is that what you're referring to?

3 THE CHAIRPERSON: Thank you. Ms. Gunn...?

4 MS. ANNE GUNN: Anne Gunn, Government of the  
5 Northwest Territories. What I'm referring to is -- is the  
6 local shifts as the first phase is both what we would -- we  
7 would predict in both waters being observed.

8 A more regionalised movement away, I -- I've  
9 seen the Alaskan report. I've -- over, I mean, it took about  
10 fifteen (15) years for the effects to be first apparent.  
11 There was considerable controversy, both because it became a,  
12 sort of, a very adversarial situation between the oil  
13 companies and their consultants, and the Government  
14 biologists and their consultants.

15 So, to some extent, the issue was -- because  
16 it was controversial, it wasn't worth the clarification one  
17 (1) would have wished for, but also, it took fifteen (15)  
18 years for it -- for the effects to become at the level where  
19 they were measurable.

20 So, you know, we -- we don't necessarily see  
21 caribou respond quickly. The change is accumulated, and then  
22 it comes to level where they're measurable.

23 So, it -- it -- both Red Dog and the Alaskan

24 Report support the local effect that caribou -- cows with  
25 calves, not the bulls, but cows with calves will keep

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1 themselves anywhere between three (3) to eight (8) kilometres  
2 away from the site of activity.

3                   The more regional one (1), I would have to  
4 take another look at their analyses, because it -- at that  
5 time, the caribou herd for the Central Arctic Herd, was --  
6 was, first of all, it didn't increase very much in the size,  
7 and then it did increase, and that was related more to some  
8 of the things that were happening in the natural environment  
9 place, succession of years, when the insects were -- were  
10 bad, like mosquitoes, and a succession of years when they  
11 weren't bad.

12                   So, there was a lot of natural things  
13 happening at the same time. There was reduced Wolf  
14 predation, which of course, encouraged calf survival.

15                   So, to relate the change in range use at a  
16 more regional level, to just the effects of the oilfields,  
17 you know, I -- I'd want to take a much harder look at what  
18 they presented.

19                   THE CHAIRPERSON:     Thank you very much, Ms.  
20 Gunn.

21                   MS. JEAN TEILLET:     Okay -- okay, one (1)  
22 final, final?

23                   THE CHAIRPERSON:     Ms. Teillet, I really have  
24 to move on --

25                   MS. JEAN TEILLET:     Yeah, but --

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1                   THE CHAIRPERSON:     -- Lutsel K'e has very  
2 patiently waited since 1:30 this afternoon to make their  
3 presentation. It's now 5:00. We have to reconvene at 6:30

4 for a three (3) hour meeting tonight, so I really would like  
5 to move along and -- and now ask Lutsel K'e to make their  
6 presentation. Thank you.

7  
8 (BRIEF PAUSE)

9  
10 MS. FLORENCE CATHOLIQUE: Good afternoon,  
11 everybody. I want to introduce August Enzoe, who has had  
12 many years of experience on a caribou issue. He's also a  
13 Board Member for the QB Board, which is the Camanuak Beverly  
14 caribou Herd, and also in the -- the Bathurst Planning  
15 Committee, which, it's not a Board.

16 I will do the -- the reading in the -- the  
17 written submission presentation, and then August will speak,  
18 and then the youth will speak.

19 Etten, the caribou. Etten are very culturally  
20 and ecologically important to the Denesoline. We have always  
21 depended on the caribou for almost every aspect of our daily  
22 life.

23 Caribou meat has always been, and remains  
24 today the main source of protein in the diet. The caribou is  
25 also the basis for the communities social and cultural well

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1 being, tying families and extended families together in  
2 traditional activities that date back thousands of years.

3 The fall caribou harvest, at the treeline,  
4 holds particular significance to the Denesoline of Lutsel  
5 K'e. After many years without car -- after many months  
6 without caribou meat, the fall harvest has always been  
7 associated with great celebration.

8 The proposed De Beers' projects have created  
9 two (2) major concerns with respect to the caribou. How will  
10 the proposed project effect caribou coming from the west, the  
11 Bathurst, and their migrations towards our community? How  
12 will the proposed project effect caribou health?

13 Caribou migration. Elders have raised  
14 concerns that the proposed mining activity will effect the  
15 caribou migration from the west, the Bathurst Herd.

16 In particular, they have raised concerns about  
17 the roads, planes, and blasting, will effect their movements.  
18 Quoted from an Elder,  
19 "In a few years, the caribou will change  
20 their routes again. They will go a  
21 different way. They will be disturbed by  
22 the winter roads, planes, and blasting. We  
23 will see these changes in two (2) to three  
24 (3) years from now."  
25 Roads are of particular concern to Elders.

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1 They are perceived as unnatural barriers to caribou  
2 movements. Quote by an Elder, regarding the winter road,  
3 "If you make a road, you cannot make it too  
4 high; it's too hard for the caribou to get  
5 over, it should be lower. The caribou  
6 won't just pass through a little pathway  
7 you make. They go all over. The road  
8 needs to be fixed."

9 Other concerns relating to the overall health  
10 of the herd, and how mining operations include, waste,  
11 spillage, and contaminants may affect them.

12 Quote from an Elder,  
13 "The caribou around that place, I am  
14 concerned about. If they, the caribou,  
15 start eating food around the mining area.  
16 Anything that spills on the ground is taken  
17 up by the plants. There is muskeg in that  
18 area too. The spills will stay in that  
19 area. Someone said they would put up a  
20 fence in that area, but we haven't -- they  
21 haven't done anything yet. If they put a  
22 fence in that area, we wouldn't worry about  
23 the caribou. It's not good to have caribou  
24 in that mine area."

25 In the Sas Cho, the grizzly bears. The Sas --

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1 the grizzly bears are also an important species to the  
2 Denesoline. Oral histories of the Denesoline describes the  
3 grizzly as having spiritual powers. He can be nurturing.

4 The Denesoline legend describes how a young  
5 man was carried by a grizzly bear, after being lost in the  
6 winter blizzard.

7 Although he may act as a protector, the  
8 grizzly can also be very dangerous. Camps, including mining  
9 camps, in the Na Yaghe Kue area, may be at risk to grizzly  
10 bears that are used to this area as part of their natural  
11 habitat.

12 In some cases, the bears need to be shot with  
13 venom, to prevent them from harming people. It is for this  
14 reason that Elders have raised concern about the impact of  
15 mining camps on grizzly bears.

16 De Beers Canada must develop an approach to  
17 preventing grizzly bears from being attracted to the area and  
18 keep mining workers in a safe area.

19 Some ideas include: keeping the area clean of  
20 waste that might attract the bears, developing grizzly bear  
21 safety policies for the mine workers.

22 The Naghai, the wolverine and other fur  
23 bearers. Wolverine and other fur bearing species are also  
24 very important to the Denesoline.

25 The Denesoline have traditionally trapped in

1 the region of the Na Yaghe Kue, and depend on the wolverine,  
2 as well as, white fox and wolves for fur.

3 Fur-bearing animals also pose risks for  
4 people. The proposed De Beers diamond mining camp may be  
5 visited often by animals who view this area as their home or  
6 natural habitat.

7 De Beers Canada must develop an approach to  
8 dealing with fur bearing animals on site. Some preventative

9 tactics include keeping the area clean of waste that might  
10 attract the animals, developing safety policies for the mine  
11 workers.

12 And now I have August to say his portion.

13 MR. AUGUST ENZOE: Marci. I'm going to say  
14 it in my language. Keep the translator busy.

15  
16 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

17  
18 MR. AUGUST ENZOE: Thank you very much. I've  
19 listened to the comments of everybody. I work with most of  
20 these people, here. We are talking about the caribou, I've  
21 got just caribou, caribou in my head, all day.

22 So when we talk about the caribou, we live off  
23 the caribou. And even some of the white people that were in  
24 our land, they all lived off the caribou. The caribou is the  
25 main source of our diet and we have to respect these -- the

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1 animals because live off these animals.

2 On the south side of our area, there has no --  
3 been no caribou for two (2) years, even 'til today, I  
4 can't -- I don't know why we haven't got caribou on that  
5 side. There's -- we used to get Bathurst herd and Beverly  
6 herds and how there's nothing out there in our area, for two  
7 (2) years.

8 This is really amazing to me. It's the first  
9 time it ever happened. Maybe some day we'll find the cause  
10 of why the caribou wouldn't go on our side of the -- to the  
11 south.

12 We -- the people that live in south side,  
13 there is -- there is a saying, you go a very long way to get  
14 your caribou. And us, too, that's what we're doing. In the  
15 past that they had travelled for about three hundred (300)  
16 miles, just using their dog team, but nowadays, even three  
17 hundred (300) miles away, the caribou you can get there in  
18 the same day. And that's on the north side of that -- of the  
19 caribou.

20 There is no satellite collars on these

21 caribou, so this is -- well, we don't know why the caribou  
22 does not even going there anymore. The thing I really don't  
23 understand is, when there was a lot of caribou, Bathurst  
24 caribou that were travelling towards our area, and when then  
25 reached McLeod Bay, they turned back and they went on this

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1 side.

2 And then there was another caribou, when I was  
3 travelling on the plane looking for caribou, so we were  
4 spotting for caribou when we seen these caribou that they  
5 were travelling towards our -- our area.

6 And I don't know where the Beverly herd is  
7 right now. And I'm -- and I'm the Board member and I've been  
8 on that Board for six (6) years. And as people from south  
9 too, they had come into community and they don't know where  
10 the caribous are.

11 So we had asked them to put a satellite  
12 collars on those, but they have to agree with us. But this  
13 is what we had suggested to them. This way we can monitor  
14 where the caribous are. And the Bathurst herd, we know where  
15 they are at all times. So I don't even have to go out of my  
16 house, I know where they are.

17 And this is what we -- the way we monitor the  
18 caribou. They're around Snare Lake and close to Bear Lake  
19 right now, the last time. And now I ask a lot about -- I  
20 heard questions about the satellite collars.

21 Even if there's a few satellite collars, and  
22 when you see that on the caribou, and would -- nobody would  
23 know how much caribou in that herd it is, it could be lots,  
24 it could be less, or just could be one (1) we don't know.

25 So -- so, the burden on those have to watch

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1 closely at all times of -- where the caribou are, or if BHP  
2 agree to -- to monitor the caribou.

3 I have seen a lot of caribou limping, and  
4 their legs were swollen, and these here, I wonder who would  
5 know what happened to these caribou.

6 What I say is -- is on account of the roads;  
7 there's big boulders -- boulders on that road where the  
8 caribou pass, and sometimes they may step into these  
9 boulders, and these -- they've cut their hooves on these  
10 sharp rocks. I have seen a lot of the caribou that have  
11 suffered this way.

12 There is a lot -- some of the Elders too from  
13 my -- from Lutsel K'e have seen it. I know there is some  
14 scientists here that had worked on -- with the caribou.  
15 Maybe if they didn't see it, they are saying that we're just  
16 lying.

17 So, when the caribou reach a -- are pretty  
18 close to any mining site, they should be monitored very well.

19 So, I wonder, migrating back into the north,  
20 they should be monitored, and when they're coming over this  
21 way, in Fall time, that's when the -- they -- they should  
22 just monitor it really good.

23 I went to the -- Mr. Cav (phonetic), and BHP  
24 one (1) -- one (1) morning I woke up and there was a big  
25 garage there, and there was -- there was about five (5)

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1 caribou laying right in that garage, and this is really  
2 ridiculous to me it -- it -- I asked someone if there were  
3 releasing any Reindeers around that area, because really,  
4 they were acting -- they were like acting like Reindeers had  
5 raised up my people

6 And, this is really ridiculous to me, because  
7 it's the first I have -- I have ever seen this.

8 I don't know what happened to the -- to the  
9 caribou, because they're usually really scared, and the next  
10 day, we went back there, and there was not even one (1)  
11 caribou left there.

12 So, the sense of what -- so, around Snap Lake,

13 and I went spotting for caribou, but since lately I have  
14 never went there for a while.

15               We went and -- and -- in a chopper to spot  
16 these caribous. I've seen caribou on land, walking and going  
17 on by plane. When we call that name, Na Yaghe Kue, it means  
18 where there is a lot of boulders where the caribou have  
19 scarcely go in that area, because it's too rough terrain.

20               And, Snap Lake is different. In a path where  
21 there's -- the ground is very good, and rich with nutrient,  
22 that's where the caribou will calve, and it's still like  
23 that, and there is a lot of old caribou trails that we have  
24 seen, it's from paths.

25               Now, at MacKay lake, there is a lot of caribou

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1 -- there use to be a lot of caribou at -- at one (1) time,  
2 but now you hardly see any caribou out there.

3               Two (2) weeks from now, they're going to have  
4 a workshop at Diavik, so I guess maybe then we'll have a  
5 chance of see caribou around -- around the Snap Lake area.

6               I went there on Snap Lake to -- there were --  
7 where there was -- around that area this is caribou laying  
8 down all over, and there was lots of arctic hare, and ground  
9 squirrels too.

10              And, the other thing is about the wolverine.  
11 What we people that travel, we know the -- how the animal  
12 behaves. One thing they -- that they are really good at is  
13 stealing everything from you if they had a chance.

14              When you catch other fur bearing animals, they  
15 would steal all the animals off your trap, and cache them  
16 some place where they would get it back later on. And they  
17 travel on the long -- a lot of terrain, and even in the day.

18              And I don't really about the grizzlies, so I  
19 have -- I have nothing to say. And this is all what I have  
20 to say. Mari, for listening to me.

21              MR. JOSH NATAWAY: Recommendations regarding  
22 Wildlife. De Beers Canada has said that their project an  
23 insignificant impact on the wildlife in the Na Yaghe Kue  
24 region.

1 can be guaranteed. We therefore recommend wildlife  
2 monitoring and management based on traditional knowledge of  
3 the project and its effects on wildlife be carried out.

4 A comprehensive proceed for monitoring and  
5 impact of disturbance in the Na Yaghe Kue Region, on the  
6 health of wildlife needs to be developed.

7 The system should be based on traditional  
8 knowledge of the Denesoline people.

9 MS. FLORENCE CATHOLIQUE: Okay. And  
10 continuing on that, the Denesoline have their own ways of  
11 monitoring caribou by watching, listening, learning, and  
12 understanding the caribou.

13 Using Denesoline strategies of caribou  
14 monitoring during the fall hunt, it may be possible to design  
15 a regional monitoring system to track impacts of the  
16 development.

17 Such a system would not only examine the  
18 effects of individual roads, but also the cumulative impact  
19 of a number of mines.

20 These -- their associated roads and other  
21 resource developments along the range of the caribou herd.  
22 Monitoring caribou crossing over all winter roads, and winter  
23 road -- weather roads.

24 Elders may be able to predict potential change  
25 in the migration in the winter range. Such traditional

1 systems of monitoring can be -- can help address community  
2 concerns over new uncertainties.

3 They also have the potential to compliment  
4 scientific methods, to help understand how the proposed De

5 Beers project, and other mining activities, in the region may  
6 be impacting the caribou.

7 Some other issues that needs to be addressed  
8 include: caribou population and movement studies. The  
9 information baseline data that the De Beers have collected  
10 suggest that there are very few caribou migrating through the  
11 Na Yaghe Kue area.

12 However, the studies done by De Beers Canada  
13 Limited, have been short termed in nature. More studies,  
14 including, long term monitoring of the caribou population and  
15 movement through the Na Yaghe Kue areas are needed.

16 More studies are required to determine the  
17 total loss of the grizzly bear habitat that may result from  
18 the proposed De Beers project.

19 And what impacts will this proposed project  
20 that the -- the DD -- the DDMI and the EKATI Diamond mine  
21 have on the grizzly bear, in associations with the Snap Lake.

22 In the waste management plans, prevention and  
23 protection of wildlife on site. A waste management plan  
24 needs to be developed, based on the traditional knowledge, as  
25 well as western science.

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1 This waste management plan is important for  
2 ensuring that the grizzly bears and furbearers are not  
3 attracted to the site.

4 What other plans does De Beers Canada Limited  
5 have for preventing and managing wildlife on site? Can De  
6 Beers Canada Limited guarantee that no wildlife will be  
7 destroyed as a result of the project?

8 And that the -- that's it for us. Marci.

9 THE CHAIRPERSON: Thank you very much, Ms.  
10 Catholique.

11 Questions -- questions for Lutsel K'e...?

12 Ms. Montgomery...?

13 MS. SHELAGH MONTGOMERY: This will be a quick  
14 question. It's the -- to finish up the questions that Kevin  
15 was asking, just about the environmental agreements.

16 So, the question to Lutsel K'e is: What

17 timing do they feel should be in place, in terms of having a  
18 signed environmental agreement; should it be before a  
19 decision is made about this project, before construction, or  
20 at what -- what time?

21 THE CHAIRPERSON: Thank you. Ms.  
22 Catholique...?

23 MS. FLORENCE CATHOLIQUE: Marci. In regards  
24 to the timing of when the EA should be completed, is that the  
25 question?

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1 THE CHAIRPERSON: No, the question is, the  
2 Environmental Monitoring Agreement, should it be completed  
3 prior to the finish of the EA process, prior to the  
4 regulatory phase, or prior to construction? What -- what  
5 would your position be on the timing of the Environmental  
6 Monitoring Agreement?

7 MS. FLORENCE CATHOLIQUE: Lutsel K'e also  
8 says EA when it says the Environmental Agreement.

9 THE CHAIRPERSON: Sorry, I meant  
10 Environmental Assessment.

11 MS. FLORENCE CATHOLIQUE: I think that, for  
12 us, timing is very important. And if it is in the discretion  
13 of the Board to -- to delay things so that these things can  
14 be done, I would recommend to the Board that you extend the  
15 time for the closing of the registry.

16 And I think that that should be -- I think  
17 that the Environmental Agreement should be done before that  
18 registry is closed. I understand that some people don't feel  
19 that it's the discretion of the Board to take that into  
20 consideration. But I think that it is an element that is  
21 very important, taking into consideration the discussion that  
22 has been carried out this week, in regards to the monitoring  
23 plans.

24 And I don't really feel assured that  
25 traditional knowledge is -- is given the same consideration,

1 as in regards to the development and the design of the  
2 monitoring program and so because of that, I think the way  
3 that I do.

4 But I also know that there are other bodies of  
5 regulatory processes that are going to kick in. And those  
6 also relate to the -- the Environmental Agreement.

7 In other process -- in other similar processes  
8 that we were involved in, we had kind of -- it was kind of  
9 funny, that the regulatory bodies sometimes were under one  
10 (1) representative of the Federal Government, and sometimes  
11 they were there representing themselves.

12 But there didn't seem to be any kind of  
13 coordination between the Federal agencies in how they were to  
14 partake into the Environmental Agreement. And so what  
15 happens is that, when the agreement, though it's signed by  
16 the Canadian Government, it is not usually acknowledged or  
17 enforceable within those various departments. And so there  
18 is some things that have to be done in that part.

19 THE CHAIRPERSON: Thank you very much, Ms.  
20 Catholique.

21 Okay, we'll break for supper. And the Board  
22 is back at 6:30. And tonight we'll be listening to the  
23 Elders. Thank you.

24  
25 --- Upon recessing at 5:30 p.m.

1 --- Upon resuming at 6:45 p.m.

2  
3  
4 THE CHAIRPERSON: Okay, we'll reconvene.  
5 Tonight's session is somewhat more informal inasmuch as that  
6 we set aside a couple of hours just to listen to the Elders  
7 and get their views and viewpoint. More like a town hall, I  
8 guess, so to speak, as opposed to questions and answers and  
9 positions.

10 And so I'll start with the North Slave Metis.  
 11 And then from there I'll move to Dogrib Treaty 11. Ms.  
 12 Johnson?

13 MS. KRIS JOHNSON: Thank you. I would like  
 14 to introduce Alice Lafferty and Edward Lessard, they're  
 15 respected Elders in the North Slave Metis community. And  
 16 they have a few questions for you, tonight.

17 MS. ALICE LAFFERTY: It's Alice Lafferty  
 18 speaking, here. I heard the news about the fish, and they  
 19 said they put the net in the lake, and now when they said the  
 20 fish was just not like before, just soft.

21 And then when they opened the fish, they said  
 22 the guts, they were so small, not like before, they said,  
 23 that's why nobody wants to eat them fish now. Maybe they --  
 24 they got something in the fish down at Diavik.

25 And ETAKI, that's the one (1) they're talking

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1 about, they said they had to camp for long time. They go  
 2 trapping there and now, they went there trapping and they put  
 3 the nets in the lake.

4 And when they got fish, whitefish,  
 5 everything, they said the whitefish was so soft, you can't  
 6 even eat. And when they open it they said the guts, it was  
 7 small, not like before, it's not fat, nothing, they said.

8 That's why, they said people talking about  
 9 that, De Beers do something with that, we're saying.

10 Yes, the fish to eat -- when they cook the  
 11 fish on the fire, they said it was not like the same. They  
 12 don't taste the same, like it used to be before, they said.

13 Yes, and the caribou, too. They said the  
 14 passing that was there. Some caribou, they're getting really  
 15 skinny, they said. When they go hunting for caribou, some,  
 16 they're fat, some they're skinny. They said, not like  
 17 before.

18 And now, we don't feel like eating them  
 19 caribou, they said, and fish. That's the one that was raised  
 20 with the fish and the caribou. Now the people, they don't  
 21 know if they're going to put some more nets in the water,

22 they said.

23                               And now, it's still the same, now, and they're  
24 going to talk about that. I heard lots of stories, people  
25 was talking to us. Okay.

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1                               MS. KRIS JOHNSON: Thank you, Alice.

2                               THE CHAIRPERSON: Thank you. Ms. Teillet...?

3                               MS. JEAN TEILLET: Thank you, Mr. Chair. I  
4 have Dogrib Elder, Harry Simpson and Jimmy B. Rabesca, here.  
5 And they both wanted to say some words to you about the land  
6 and the caribou and the fish. And I'll let them talk. And  
7 maybe Harry will go first? Okay.

8                               THE CHAIRPERSON: Thank you. Mr. Simpson...?

9                               MR. HARRY SIMPSON: Massi cho.

10

11                               (THROUGH DOGRIB INTERPRETER INTO ENGLISH)

12

13                               MR. HARRY SIMPSON: Thank you. It's been four  
14 (4) days we've been here at the meeting. There's a lot of  
15 very important issues that we're discussing. The land is the  
16 most important and also the animals, the wildlife. It's what  
17 we survive by, in the Territories. We survive by -- by  
18 caribou.

19                               We, the Dene people, when we kill caribou, we  
20 use every part of the caribou. We use the hide for clothing.  
21 So when we discuss caribou, when you think about it, and are  
22 very aware, like, we -- it's very important to us, the  
23 caribou.

24                               It's not only for the Dene people, but people  
25 who live here, other people from other areas that come to

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1 settle here, do make use of the caribou as well. And that's

2 how we live together and that's how we work together.

3 I understand -- I've been with land claim work  
4 for thirteen (13) years. It's -- I don't understand how to  
5 speak English or write, but I've lived and worked on the land  
6 by -- by boat and dog team.

7 And near ETAKI, around 1954, we were living  
8 around the area of Rae Rock. About the month of August, we  
9 were looking for caribou, we were carrying a twenty (20) foot  
10 caribou -- I mean, twenty (20) foot canoe across portages,  
11 looking for caribou.

12 So when we do arrive at our campsite for  
13 caribou, we collect and make dry meat for the fall. And  
14 we're working with the natural forces, like wind. And even  
15 today, we're using all the natural forces of the land.

16 The mine at EKATI, now, like right now, I'm  
17 sixty-six (66) years old. I've travelled around that whole  
18 area, around the EKATI mine, and so I know a lot of the  
19 ground and the knowledge of the land.

20 Everything has its own place in this world and  
21 that's what my Elders taught me. And now, when I hear all  
22 your information, I'm very interested in all the information  
23 that -- that you're sharing, together. By not informing each  
24 other of information, we are not very informed about  
25 anything.

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1 But even though I don't speak English, I can  
2 understand how your answering questions back and forth and  
3 sharing information. Because we're talking about such an  
4 important issue, we're talking about the future generations.

5 If we don't make a plan for the future  
6 generation, what is going to happen if we die and our family  
7 is not looked after? That's a basic knowledge that -- that  
8 our traditional knowledge gave us, basic laws to -- to live  
9 by.

10 So when you're talking about some traditional  
11 knowledge, I'm glad that you're able to understand some.  
12 There's many things that I'm talking about, now. It's not  
13 written anywhere, but because I've been to many meetings like

14 this in the past, I've also supported many important issues  
15 that had to be dealt with.

16 But we're talking about the mine being  
17 developed in our area. Even the people from the Snowdrift  
18 area are related to us, as well as the people in Dettah and  
19 N'Dilo. So if there's going to be any development in -- in  
20 the area of Snap Lake, I've been up in that area -- no.

21 Around May 15, when I've been to that area,  
22 there hasn't been much snow. And we know how the animals  
23 roam around the barren land. And the area that you're  
24 talking about developing, we've had a little bit of a meeting  
25 with them. We've had a lunch meeting.

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1 Because I'm a traditional Dene man, I've  
2 worked on the land, I know exactly what kind of animal walks  
3 where and how its behaviour and I know the animal, itself.  
4 So that's how we know.

5 I know that, also, around the area of Snap  
6 Lake that there's boulders. There's things like fox,  
7 wolverine, it looks like an area where -- it's heath-boulder  
8 area that the specific animals are living around that area.  
9 And you're looking at the area of those kind of foxes and  
10 wolverines.

11 So when I think of it, eventually, even in the  
12 future, far in the future, we're going to continue to talk  
13 about mining developments. But if you're going to do any  
14 kind of development, you have to really ask permission and  
15 also gain permission from our people that live in the  
16 Territories and also their knowledge of the land and  
17 knowledge of the people.

18 So if you're going to be developing in the  
19 area, we have to respect each other and work together,  
20 somehow. Maybe if there's a way that you ask in a way where  
21 it's going to be okay, that people will be employed.

22 And also, right now, if people are trying to  
23 gain some kind of money from trapping, they cannot gain any  
24 money because nobody is really trapping anymore. But  
25 sometimes, also, I also travel from my area, from Rae Lakes

1 up to the north towards Shatu area. So I'm trapping around  
2 that area.

3 And we all understand that there's decline in  
4 animals, here. Different animals. And we can't always  
5 expect to have one (1) good trapping season. And it's the  
6 same for fish and also birds, ducks.

7 Sometimes the birds would go to another area  
8 where they would not go the next year. And so that's just  
9 the movement and understanding of the animal.

10 But the fish is the one (1) that works  
11 hardest, the most, because I understand it. I've travelled  
12 and studied in different areas with other people who have  
13 been in the fishing -- biologist. So around EKATI, around  
14 Rae Lakes there's a lake called Faber Lake. That lake is  
15 really big.

16 And so we have found that, in the fish, we  
17 have studied fish from Faber Lake all the way up to the  
18 barren land area. And so -- it's quite a big area. So we,  
19 as the Dene people, know our land and our land areas, because  
20 we work them.

21 The animals are just like humans, the animals,  
22 sometimes, like, decline in one (1) year and then in a few  
23 years later, they would -- the population would become  
24 greater and so that's how nature is with the animals.

25 Last year there was no muskrat around the Rae

1 area, but this spring, all of a sudden, for some reason, we  
2 have an abundance of muskrat. So if we have to understand  
3 why this is happening, we should learn about it.

4 All I'm telling you, I'm telling you no lie,  
5 because I have experience. Where -- where they've shown maps  
6 about the different areas in between the two (2) big lakes in

7 the Territories, I've travelled there before, I've been  
8 there.

9 And so when I -- when I -- when we are  
10 planning to make a trip to go to distant areas by canoe, we  
11 can do that so easily, today, where there is programs. So  
12 now that you're talking about hoping to develop a mine, we  
13 really have to understand each other very well.

14 We have to understand that, as a traditional  
15 Dene person, you also have to respect our area and our  
16 knowledge. We also want to protect our language. We have to  
17 protect our knowledge as well. How my Elders have taught me  
18 to speak, this is the way I think.

19 So I really think that we have to work  
20 together. If we don't work together, the people in the  
21 future, the young generation, will not benefit from anything.  
22 And I'm hoping that, if I don't do anything good in my  
23 lifetime about the future generation, what am I going to be  
24 any use for?

25 The lady that's sitting here, she's a lawyer.

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1 And even though we don't understand each other by language,  
2 we seem to know each other but we trust each other.

3 Like, for now, I want to tell you that I'm  
4 very grateful to be in a meeting. It just seemed like I can  
5 understand what you're talking about, because when you're  
6 talking about stuff and I'm comparing your knowledge to our  
7 knowledge, to what extent you have to make observations to  
8 get to a point, is very -- not the same.

9 When you look at communities like Wha Ti, Rae,  
10 Rae Lakes, I think that if we can ask Elders from, maybe a  
11 couple of Elders from each community and invite them to  
12 meetings such as this or any kind of workshop, even though it  
13 may cost a little bit of money, the benefit and knowledge  
14 that you can get from the Elders today is so great that it  
15 wouldn't compare for the cost.

16 Our knowledge -- our traditional knowledge  
17 concepts are very, very complex and hard to understand so if  
18 there's anything that you need to know, we are available and

19 here. And we'll also have to think about our leadership  
20 because when you're talking about big decisions that have to  
21 be made, we have to return to him and let him know what kind  
22 of questions are being asked in order to reach a decision.  
23 So, I'm very glad to be part of this meeting  
24 and I want you to thank the Chairman too. Through the  
25 Chairman, the meeting proceeds very well.

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1 And now we're looking at the wildlife. How  
2 many wildlife are suffering from all kinds of development  
3 happening?  
4 So when you're comparing the difference, like  
5 the different kind of animals and different things that are  
6 affected, I just want you to know that I will share my  
7 information and try to support whatever kind of decision that  
8 needs to be reached.  
9 I come from an area where we come from a large  
10 family and so I'm expected to be responsible for -- for them  
11 in the future and they always look to me for -- for important  
12 things that have to be done. So right now, as we're sitting  
13 here, we're going to continue to listen to your -- to listen  
14 to the Hearing.  
15 I'm very grateful that you're able to let me  
16 speak. Because the development of the mine, they're talking  
17 about big concepts and sometimes we do get some traditional  
18 knowledge concepts across but I just let you know that I'm  
19 here listening. I want to say thank you to the Chairman.  
20 We're going to be here all day tomorrow as well. So, today,  
21 we're going to also have a meeting tomorrow.  
22 Sometimes there's funny cracks people make and  
23 it's nice to keep it light and flowing so that, you know, it  
24 makes us understand and enjoy this meeting. Thank you very  
25 much.

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1 MS. JEAN TEILLET: Jimmy Rabesca wants to say  
2 something.

3  
4 (THROUGH DOGRIB INTERPRETER INTO ENGLISH)

5  
6 MR. JIMMY RABESCA: When you're talking about  
7 wildlife you can't -- you have to take a good look at  
8 wildlife when you're talking about -- you can't talk about  
9 something that you can't see. You have to see what you're  
10 looking at.

11 When something is sick, like an animal, it  
12 could affect humans. We can't not -- we can't just discard  
13 it. It's very important to take that issue and try to figure  
14 out what's happened. The people, no matter who you are, you  
15 live off meat, fish and the vegetation of this earth.

16 This is what you live by. And -- and also  
17 people that are trappers make money to live. The people work  
18 at trapping with their hands. They have to fix their furs in  
19 order to sell their fur; that is their income. That is the  
20 people's way of life.

21 My mother was married before and she married  
22 the second time and we are the second -- we are the children  
23 of the second marriage and she died when she was over a  
24 hundred (100) years old. Even though she was a woman, she  
25 worked on the land.

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1 When I talk about my mother it will -- two  
2 (2), three (3) days will be nothing because she's done a lot  
3 of work in her time on earth. My father was -- my father  
4 died when he was eighty-seven (87).

5 When I was six (6) years old, I remember we  
6 used to travel the land with -- with a dog team. He used to  
7 take me on the land and taught me how to work the land. How  
8 to hunt, how to trap with dog team and with canoe. I  
9 travelled and hunted and trapped with my father. And we  
10 travelled through all different areas where there were other  
11 mines.

12                   And in -- in Contwoyto Lake near Coppermine  
13 where there was -- there used to be a mine there we -- we  
14 travelled to there -- to those areas and other mines that  
15 have been there in -- on our -- in our lands. I've taken a  
16 look at all the other old mines and I've seen a lot of  
17 animals who have suffered because of these mines that were  
18 developed.

19                   When the animal suffers it really upsets me  
20 because I know that it will affect me in some way -- in some  
21 way or form that it's going to affect me and other people.

22                   All people here, we all -- all the people here  
23 who are married and whether -- and have children, all live by  
24 food like meat and all I'm saying is that take good care of  
25 the animals because we have to use them -- we need them to

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1 survive and to live.

2                   We, as Dene people, make dry meat and we make  
3 dry fish that's -- that's why it is important for us. We  
4 make dry meat in order to preserve it. That's our way of  
5 preserving it so that we can use it in the future.

6                   When you think about all the other areas --  
7 people from all the other areas such as Shatu and -- and  
8 North Slave, we're all families. We're all inter-related.  
9 We all share our food with each other when we meet each  
10 other.

11                   So, when we -- when we share food -- because  
12 we share food with our people, we don't want to be -- we  
13 don't want to give any -- any kind of food that has been  
14 contaminated. So we have to be very careful. I treat the  
15 animals just like a human. I have very good -- I have very  
16 high respect for animals because I know I need them to  
17 survive.

18                   I have seen a lot of things in my time. The  
19 Chief has said a lot of things and he's right. Like the --  
20 our lady friend -- our lady lawyer here has spoke on behalf  
21 which he has told her to say which is important.

22                   Now, in our land there's a lot of -- of  
23 development and -- such as mines, different type of mines all

24 over the place. All these mines have to consider all the  
25 wildlife in the -- in those regions so that nothing happens.

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1 We have to take care of it. That is, like,  
2 our backyard. It's not only for us. We're not only saying  
3 it is for us Dene, but it's for everybody. Our family -- we  
4 have to provide for our family. We always have to remember  
5 that.

6 So, we, the treaty people, that is how we --  
7 we take care of each other. We have to look out for each  
8 other and share our -- our -- our food and our knowledge. I  
9 don't -- I'm not saying that any development such as the  
10 mining companies are all bad. They are -- they are here to  
11 live with us. We have -- all I'm saying is that we want the  
12 mining companies to be very aware of the land and the  
13 animals.

14 We also get something in return from the  
15 mining development because we -- we have our people employed  
16 and we make money but we also have to make them aware of all  
17 the -- the wildlife that is on the land. We have to think  
18 about that first. We have to make sure that these things are  
19 -- are well taken care.

20 Because we need these animals to survive, we  
21 have to also take care -- we also have to monitor the  
22 wildlife when we hunt too because it is part of our -- it is  
23 part also up to us Dene in order to make sure that when we  
24 hunt we have to take a look at the animals when we are  
25 butchering the animals to make sure that all parts of the

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1 animals are healthy.

2 Those are sometimes -- that's are some -- up  
3 to us too to make sure that -- that's part of our job too, to

4 make sure that the animals are okay in that way and if not we  
5 have to make sure that it is known that it is not.

6 I'm not -- I'm not going to say these people  
7 are better or -- or anything like. All the people that live  
8 together I think need each other in order to survive. So,  
9 today I've been listening to you for the last four (4) days  
10 and I'm enjoying the information that is translated.

11 We may not understand or speak English but  
12 through -- through interpreters we understand what is  
13 happening in the meeting and we -- we're listening. We  
14 understand who is talking about what and who is concerned  
15 about what.

16 And I -- I don't -- I'm not -- I don't read  
17 and write in English but -- but I can understand. I'm sure a  
18 lot of people here are wondering what I'm -- I'm concerned  
19 about.

20 I'm concerned about people also working  
21 together in order to understand that in order to have  
22 development we have to be able to support each other in --  
23 through sharing all the information.

24 And it's not only for us now, but also for  
25 future generations for, not only the people, but for the

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1 mining companies to come. Massi.

2 MS. JEAN TEILLET: Massi, Jimmy. Mr. Chair,  
3 I think both Harry and Jimmy would be open to questions if  
4 people wanted to ask them something about whatever you think  
5 you might like to ask. So I don't know. If you want to move  
6 on to other people or how you want to handle this?

7 THE CHAIRPERSON: Well, perhaps we'll move on  
8 just in case some of the Elders don't want to stay around too  
9 long.

10 MS. JEAN TEILLET: Sure.

11 THE CHAIRPERSON: So we'll move on. Rachel,  
12 do your Elders wish to make a presentation and perhaps maybe  
13 afterwards, if there was questions we could come back. Yes,  
14 go ahead.

15 MS. RACHEL CRAPEAU: This is Michel Paper for

16 -- from Dettah and he's one of our Elders who's been working  
17 with our Land and Environment Committee for about five (5)  
18 years now.

19 THE CHAIRPERSON: Thank you.

20 MR. MICHEL PAPER: Hello. I'm just getting  
21 tired, you know. But this chair here is good anyway, you  
22 know. But I just tell you a story of what -- what is my  
23 start in Yellowknife, you know. I just want to tell you,  
24 anyway.

25 In 1934 before -- no white man here in

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1 Yellowknife, all is treaty Indian but, you know, I should  
2 talk my language anyway  
3

4 (THROUGH DOGRIB INTERPRETER INTO ENGLISH)  
5

6 MR. MICHEL PAPER: Before 1934 there was no  
7 white people around the Yellowknife area. There was just the  
8 Dene people. And our Elders on the land were very great and  
9 they were powerful. They knew everything. The mine here in  
10 Yellowknife we mined -- I mean, we fished around here.

11 And so if -- if we weren't able to run in  
12 front of a dog team and make a trail, it would be hard for  
13 the dog to travel in such depths of snow and also there's  
14 many little lakes, ponds that all have names. We all have  
15 our own traditional Dene names, place names.

16 So, sometime when two (2) strangers would  
17 meet, two (2) people would meet they would ask each other  
18 from what lake are you from. That's how you would identify  
19 what kind of people were from what area.

20 So our traditional Elders lived and worked  
21 very hard in order to survive because there were no such  
22 things as weapons like guns, axe, knife. They only used such  
23 things like bow and arrows. Even though they managed to  
24 survive, they were strong and powerful people.

25 At the time that I'm talking about, that time

1 they used medicine -- medicine power which -- people had  
2 medicine power and at the time there was no such thing as  
3 sickness. The water was pure, the fishing was good. And so  
4 the Elders would say, if you light a fire you make sure that  
5 you put it out by completely dowsing it with water and it's  
6 out.

7 Because they loved their land so much, they  
8 had all these different precautionary to -- to look after the  
9 land because everybody loved the land.

10 Wherever you travelled we -- we were like  
11 caribou. Like, we roamed after the caribou. So from the  
12 time that we get up in the morning until we go to sleep our  
13 day was full of activity because we had to keep busy in order  
14 to survive.

15 But now, today, it's a different lifestyle for  
16 the young people. So when you think about it, we can't go  
17 back to that way of life but we have to understand and  
18 remember to keep their basic laws of life.

19 Because we are treaty people and also our  
20 leadership had taken and made some kind of -- they had taken  
21 treaty with the Government and since then the Indian Agent,  
22 when they shook hands on taking treaty with the Government  
23 they're saying, I'm giving you this money for nothing. It's  
24 just -- because it's a friendship kind of -- to give them  
25 money. We took the money.

1 And so understanding that we did make a treaty  
2 with the Government, it's not the money that we were  
3 concerned about but that -- but that was the understanding  
4 that we have. But now, since Yellowknife has mine, giant  
5 mine as well as Con Mine and Discovery Mine there were many  
6 different other mines in the Yellowknife area.

7 The information that you're sharing is very  
8 useful because Giant Mine and Con Mine, how they built their

9 mine, how development happened, there was no information  
10 between the Dene and the mine companies.

11 They had said that no one would live in this  
12 area, especially in this area where the Yellowknife City is  
13 and towards the airport because they had said that the white  
14 -- the Dene people told their people not to be in this area  
15 and that's what -- that's why none of the Dene people live in  
16 this area.

17 In 1934, that's when the development started  
18 and white people came to the Yellowknife area, so what the  
19 people are saying -- what the development people are saying  
20 in 1934 when they arrived here, there was nobody living here.  
21 And that is something that's not true.

22 I was born in the area of Yellowknife. My  
23 father and his father and his father, that is how many of my  
24 ancestors have lived around the Yellowknife area. It's just  
25 not me but it's like that for all the other people that live

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1 in this area.

2 Because I was born in Yellowknife, right now  
3 I'm going to be ninety (90) years old, pretty soon. I love  
4 my land. I love living here.

5 Even if you come from another land, I'm sure  
6 you go back to your land, you love your land. That's where  
7 you come from, and you also have -- have ruined the land --  
8 disappointed the land, and take example, Giant Mine, and  
9 Colomac Mines.

10 A lot of things have been contaminated, as  
11 well as there's -- at Giant Mine, there's a problem with the  
12 arsenic, and it's been underground for many years; we've been  
13 meeting with them.

14 What are we going to do? How are we going to  
15 fix the problem? And, maybe what you should do is just cover  
16 it up with cement. Maybe it's possible that the contaminants  
17 would not get out, but then also, they're saying that it's  
18 hard to do that, so the Giant Mines, the whole mine area, the  
19 whole area that the Giant Mine has developed over, no one (1)  
20 has -- it's ruined a lot of the area.

21                   And also, the fish, and -- and even though  
22 it's ruined the area, and the fish -- and there's been no  
23 compensation, or no talk of compensation about anything.  
24                   Some time, if somebody gets hurt on the job,  
25 if there's some kind of accident, there's always

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1 compensation, where you're assessed by a Doctor, and -- and  
2 so forth, and it goes through a process, but when you compare  
3 things like the land, and the animal, and our area where our  
4 hunting or our trapping area has been -- our land, we have  
5 been deprived of the use of the area, but it's never been  
6 compensated.

7                   There a lot of youths today, there's lots of  
8 youths, the young people, and also, there's lots of little  
9 children. Later on into the future, maybe thirty (30) years,  
10 around that time, how are they going to be living? What is  
11 their lifestyle going to be like?

12                   That's what I wonder about. I'm not concerned  
13 so much about myself. I'm concerned about the young  
14 generation that -- what is their future going to be like? If  
15 there's a lot of contaminant areas in our land with regard to  
16 animal and land, I'm concerned about them.

17                   If we look -- drive through Giant Mine, and  
18 you see little creeks, and -- and little areas where there's  
19 good -- and good blueberry picking areas, I wonder what  
20 happened to all that, and that's where my Grandmother used to  
21 pick berries, and we used to dip -- attempt to get water and  
22 drink from it, but now, it's all contaminated.

23                   The area is not safe to drink. Maybe from --  
24 for the radius of thirty (30) mile zone, it could be that the  
25 water's not safe.

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1                   If you're going to develop the mine, and if  
2 you set your mine onto it, even though we -- we are not in  
3 agreement to it, maybe if you are determined to build the  
4 mine, you have to really make a good compensation to build  
5 that mine.

6                   Eventually, the land will get contaminated  
7 with -- from development, and -- and when you think about it,  
8 if you look at all the little lakes and areas, our land is  
9 continually being developed -- over-developed, and from that,  
10 there's a lot of areas where we cannot use the water, and the  
11 area of land anymore.

12                  And, there's lakes and streams that go to each  
13 other, where it connects to lakes, and streams. And so,  
14 sometime, if you're going to be mining, like, how are you  
15 going to be treating the fish? And sometime, when you look  
16 at it, there's -- there's no water that's safe, even for the  
17 fish anymore.

18                  And so, as you're working with water, and  
19 mining with water, you're making the water not safe for  
20 drinking or for any kind of wildlife survival.

21                  All wildlife -- people don't grow wildlife.  
22 The wildlife grow themselves, that's the natural way of  
23 living up here. It's like that for the fish. What lives in  
24 the water survives by itself in the water.

25                  If you take one (1) fish out of the water, it

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1 definitely going to die, because it needs water to -- to live  
2 by. So, if the water's contaminated, the fish is not going  
3 to feel good, and you -- if you ate the fish, you're going to  
4 end up getting sick.

5                  So, if you're going to develop in the  
6 Territories, you have to look at everything and make sure  
7 that as long as the water is safe, because you also have to  
8 survive by water. We all need to eat and drink water. If  
9 something's contaminated, we have to be concerned about it.

10                  By sharing information, by sharing knowledge,  
11 that's the only way we will ever get anywhere. If we don't  
12 share information, we won't go ahead.

13                   You, as white people, are very important  
14 people to us as well. Con Mine, Gold Mine may be if they've  
15 been in operation for fifty (50), sixty (60) years, and the  
16 same with Giant Mine, and now, Diavik Mines is -- it's  
17 happening. But what are we going to do?

18                   Many -- for many, many years, we have been  
19 sleeping, and walking, and travelling over all the diamonds.  
20 We never knew it, but you're the one's that are -- the one's  
21 that are going to dig it out, and find it, and try to develop  
22 it.

23                   When you're working on other people's land,  
24 and you see a poor person, you surely have to help them,  
25 because it's on their land that they're poor, and so, if

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1 we -- even if Dene people see a white man who's struggling up  
2 on our land, we have to help him. We can't leave each other.  
3 That's why we're up here in the area where we have to live  
4 and work together.

5                   When I'm at meetings, and I'm talking, I  
6 always say, don't criticize each other, because when you're  
7 criticizing, when you're putting each other down, you  
8 can't -- you can't get anything done.

9                   You have to work well together. Sometimes  
10 you're trying to make an election for somebody who's going to  
11 be into leadership, but other parties would get involved, and  
12 bad-mouth about another, and nothing gets done.

13                   So, it's been like almost five (5) days that  
14 you've been sharing information. All the information is on  
15 the table now. It's in the open, and I'm sure I respect that  
16 you do work well, and you try to gather as much information  
17 as you can, and you analyse all the information.

18                   This information is good. When the mine first  
19 developed in 1934, we never knew that -- we never seen white  
20 people, never known anything about mining. It's just like we  
21 were asleep when all this kind of development happened, but  
22 today, it's not like that no more.

23                   Today, now the youths are also getting  
24 involved in how mining is -- the concepts of mining. They're

25 learning, and training.

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1 So, I was in a Dettah meeting in Dettah as  
2 well, running here back and forth, but I'm glad to be here.  
3 Sometimes I'm asked to speak, so I do speak sometime, because  
4 I can't speak here alone, there are other speakers here.

5 THE CHAIRPERSON: Thank you.

6  
7 (BRIEF PAUSE)

8  
9 MS. RACHEL CRAPEAU: This is Isadore Tsetta.  
10 He was a former Chief in Dettah, and he's been working with  
11 the Land Environment Committee as well, for -- since '94, I  
12 think, when we started the Land Environment Committee.

13  
14 (THROUGH DOGRIB INTERPRETER INTO ENGLISH)

15  
16 MR. ISADORE TSETTA: He already said  
17 everything that I was going to say, and he is a lot older  
18 than me, so he took the floor, and he thinks a lot further  
19 and faster than me, but he's a -- a lot older than me, so.  
20 I understand what he's talking about, but us  
21 Elders, we understand a lot of what he's talking about. We  
22 came here last week -- I mean, this week, we started meeting  
23 in Dettah, and now we came back -- now we're in this meeting.  
24 When you're an Elder, you can't sit very --  
25 too long on -- on these chairs, but we -- and also, we get

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1 tired too, but when you're talking about your -- your own  
2 land, it's very important, so we have to -- we're -- that's  
3 one (1) of the reasons we will sit in these hard chairs.  
4 But I want you guys also to support me --

5 support us -- us too, when -- if we're going to support you,  
6 you will have to support us. We have to -- we have to work  
7 together like that.

8 We have to support each other in order to --  
9 to develop a strong industry. We understand a lot of our  
10 region. We understand, especially those area where you want  
11 to develop.

12 Although we disagree -- if you're determined  
13 to develop these mine, it will happen, but if we -- if we say  
14 no, we're not -- we're not going to get anything.

15 When we agree to work together, we are going  
16 to get something in return. That is the way it is today.  
17 So, caribou, fish, all the wildlife, fur-bearing animals, we  
18 want -- we want -- we will mention all these animals which  
19 are important to us, because we want them to be taken care  
20 of.

21 When -- when the water is not deep, the water  
22 will be -- quickly contaminated, and if it's deep, it won't  
23 be as quickly contaminated, as you should know.

24 That mine -- in twenty (20) years from now, we  
25 will know whether it -- how -- how much contamination it will

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1 be in that -- in that lake. In twenty (20) years from now,  
2 maybe not today, but in twenty (20) years we will.

3 But -- but in the process of -- of that, in  
4 the next four (4) to eight (8) years, we will know what the  
5 water will look like.

6 In -- all the natural resources is here for us  
7 to use now, and that is the way it is today. As you know,  
8 that you've been talking, there's a lot of scientists here,  
9 biologists, geologists, you -- you understand what I'm  
10 talking about.

11 There's a lot of resources here that you want  
12 to mine, and develop, but you have to be careful about the  
13 contaminations through -- while you're developing, because  
14 the land will never be returned to its natural state ever  
15 again.

16 So, we have to be careful through the

17 development. Once it is contaminated and disturbed, it will  
18 not -- it will always be the same, although you try -- even  
19 though on -- when -- on the surface, it may look okay, it  
20 will not -- not be back to its original state.

21 And the animals -- the wildlife feed  
22 themselves. The animals don't think, oh, that plant, or  
23 vegetation, or animal is contaminated, so I should not eat  
24 it. Animals don't think like that. They wander into these  
25 land, or water or -- or their areas and eat what they eat in

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1 their -- in those areas.

2 The -- the people don't take care and feed the  
3 wildlife. They manage them themselves on the land. They --  
4 they take care of themselves on the land. So, they're not  
5 like humans, where they, you know, they -- they can take care  
6 of themselves, and think, and say, this is contaminated, or  
7 this water's no good, so I won't do this, so, it's different.

8 So, right now, there's -- in different mining  
9 companies that are in our regions, there's a lot of other  
10 animals, like caribou, that wander through the mining areas,  
11 and eat the vegetation that grow in those areas.

12 So, when I was fifteen (15) years old, I  
13 remember tramping through up in those areas, when I was  
14 fifteen (15). Since then -- and then, coming back to --  
15 coming back home with a dog team.

16 I -- I know all the lakes and rivers. It's  
17 like a highway to us. I remember there's a lot of small  
18 lakes and rivers that we have to travel through, and the  
19 native people use the waterways in order to -- like a  
20 highway, and travel, and hunt, and trap through by the river  
21 system.

22 So, we understand a lot of rivers and lakes.  
23 All of the people that have lived in this area, even if they  
24 come from Lutsel K'e lands, snowdrift, they all know these  
25 areas.

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1           Some people say that, oh, we have work in this  
2 area. I was born in 1925, so I -- and some people say we  
3 were here, and we lived here, and we've worked on this land.  
4 Maybe, but I didn't see them in those areas.

5           But, we're kind of challenging each other,  
6 saying maybe they were, maybe they're not, but we're all  
7 after the same thing. We have to be able to work together,  
8 and support each other.

9           We can't say, this is my land, or this is my  
10 -- this is mine. We have made that decision not to say that  
11 among us Dene people. We said we're -- we have said that we  
12 are going to support one (1) another. Whatever happens --  
13 kind of development that happens.

14           We want to be able to support what each other,  
15 as Dene, in order to support each other through development  
16 that will be happening.

17           I remember in the past, when the Burwash Mine  
18 was developed, I was a young child then. Since then, the  
19 mining companies have been coming in, and we have never  
20 benefit from anything from it, and they never told us what  
21 kind of chemicals they would be using in the mine; nothing.

22           It just seems like they -- they just kind of  
23 ignored us, and -- and at -- at that time, sometimes at that  
24 time too, some people worked for very low wages, such as five  
25 (5) cents an hour at that time.

1           But at that time, there was -- it -- that was  
2 good for us, because the cost of living was not that high --  
3 as high as it is today, but today -- but today, there's a lot  
4 of development, and mining companies all over the Northwest  
5 Territ -- in the north, and not only for gold, but other  
6 precious metals that -- that they're looking for now.

7           And, because of that, there's all different  
8 kind of contaminants in -- in different areas. We just came  
9 out of the meeting in Dettah, and we're then talking about

10 all the development that's happening in our -- in -- in the  
11 north, and in our regions, and we know that there's a lot of  
12 minerals that people want to develop.

13 And we're now -- what we're saying now, we,  
14 the Dene, are trying to support each other with the -- all  
15 the mining companies, and thinking, what can we, as Dene, get  
16 -- get out of it, and how can we, as Dene, support each other  
17 with all these activities are happening in the north.

18 The Dene people now want to make money. They  
19 -- everybody needs money in order to -- to live. In the  
20 past, it was very difficult to make a living, because that  
21 was different time. A lot of time, then, too, people were  
22 very poor, and even -- the -- the people that made money  
23 through trapping used to support the poor people, so that  
24 they -- so that that -- they were taken care of that way.

25 And, the people back then didn't have housing.

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1 They had to use canvas tent in ord -- year round, so I'm just  
2 kind of wandering here, because I've been in a meeting that  
3 -- in Dettah all day. So, all I'm going to say is that we --  
4 we want to support the industry, the mining companies, but we  
5 -- we also want them to support us in different kinds of  
6 issues that we want help in.

7 So, I know that there's the -- the John  
8 McConnell, with the blue shirt, is De Beers' head person.  
9 So, I'm just saying, I just want you to support us.

10 When were talking about land, water, fish, and  
11 wildlife, we want you to support our concerns, and we will  
12 support you with your development. Massi.

13 RACHEL CARPEAU: This is Alfred Baillargeon.  
14 He's a coun -- councillor for Dettah, on the Yellowknives  
15 Dene First Nation Council.

16 He's been working with the Land and  
17 Environment Committee as well, for -- since 1995. And he's  
18 also worked out on -- out in the land with young people, as  
19 well as teaching the young people the trails, the traditional  
20 -- the ecological trails and everything.

21 And he's just going to say a few words on

22 behalf of our -- our First Nation. I'd just like to say,  
23 thank you very much for waiting for us to bring these people  
24 here. I wasn't sure if they were going to come tonight  
25 because they were going to be very tired.

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1 THE CHAIRPERSON: And it's been a very, very  
2 long day for people. And the Elders, like us, have been in  
3 meetings all day, and there's just only so much of it you can  
4 take, and you have to go home.

5 So, thanks very much. Go ahead, sir.

6  
7 (THROUGH DOGRIB INTERPRETER INTO ENGLISH)

8  
9 MR. ALFRED BAILLARGEON: Thank you, my friend.  
10 In 1934, these two (2) old gentleman had lots of girlfriends.

11  
12 (BRIEF PAUSE)

13  
14 MR. ALFRED BAILLARGEON: Just to lighten up  
15 the -- it's very good that we learn some good information  
16 from the Elders.

17 The information, like caribou, everybody seems  
18 to be concerned about it, that's the big issue today. The  
19 also moose, rabbits, ducks, ptarmigans, grouse. All that is  
20 our food. Fish, all -- all mammals that live in the water.

21 So, when you have mining development  
22 happening, and mining is happening; all that, there's a  
23 change in -- there's a change happen somewhere to them.

24 The young people know, and still work on the  
25 land. You have to select these kind of people who are

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1 experienced on the land, but if you continue to observe and

2 collect data, and continue to monitor on you -- monitor on  
3 your own, you won't get that far, as much as you would with  
4 our people behind you.

5 In 1934, I worked in EKATI in -- for fisheries  
6 for one (1) month and a half. At the time, they were going  
7 to monitor the fish.

8 So, we took the employees to where all the  
9 fishing areas are. We showed them what areas were good  
10 fishing, what areas of lake they need to know about.

11 So, the next year, they worked alone on that  
12 program. Sometimes, depending on how you're doing -- you're  
13 doing lab work with the fish, you're -- you're cutting it up  
14 and you're tagging it.

15 I asked them questions about why are you doing  
16 it, why are you cutting up fish. I asked them, and so -- so,  
17 when I told them that I came -- where I will go back to my  
18 community and let them know what kind of work you're doing up  
19 here. I'm going to talk about it because it was something  
20 that the people in the communities were not aware of.

21 Those kind of abuse to wildlife, like cutting  
22 up fish and taking parts of it, was something that was new to  
23 us and also, right now, we're talking about caribou. The  
24 caribou -- the concern about the healthy caribou.

25 I -- Paul Baillargeon, he works at the EKATI,

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1 my son, Paul Baillargeon. So, even though there's testing  
2 and studies going on, there's a lot of times that we don't  
3 get the results of some test and studies that are being done.

4 Because we need to know, that's our food  
5 chain, we need to know if the foods are healthy. If there's  
6 studies being done, and there's no results back to us, and  
7 that may cause some kind of health concern for us.

8 We -- we have to be aware of it. So, if  
9 you're going to be developing a mine in the territories,  
10 you're going to have to observe all the different changes in  
11 fish, and other wildlife.

12 We know our area, like you can see also the  
13 terrain in our area. In the past we've never had mines, but

14 we used to be able to travel by dog team from one (1)  
15 community to the next.

16 And we've travelled many, many miles. I was  
17 born in 1935. I'm going to be 67, pretty soon. But even  
18 though I'm 67, I still enjoy going on the land. And I still  
19 enjoy packing one (1) whole caribou on my back. And it's  
20 going to be hard to say that you would be able to do that.

21 And when our parents taught us about our  
22 traditional lifestyle, and our traditional upbringing, we had  
23 basic laws to live by; and those are the understanding that  
24 they taught us.

25 So, when our Elders have told us many basic

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1 understanding of our Dene ways, we knew that -- also, my  
2 grandfather would tell us such things like, they use caribou  
3 for clothing, for pants, for shoes.

4 At the time, because there was no underwear,  
5 they even made underwear out of caribou hide. That is how  
6 the Dene people lived because the caribou was the only form  
7 of clothing that they used. So, that is why it's very  
8 important that we respect the caribou, and take care of it  
9 accordingly.

10 Today there's many changes. For example,  
11 they're talking about a recent sickness in Canada, and all  
12 over. It's probably, when I think about it, it's probably  
13 SARS, that kind of new sickness that's come into -- to the  
14 country.

15 It's -- it's attacking people. So, if it's  
16 attacking people, is it possible that it may eventually  
17 attack the health of wildlife?

18 Everything that breathes eventually becomes  
19 sick or diseased. So, when you are -- when you eat diseased  
20 food -- so, before that happens, we have to really share  
21 information, and try to visualize that what is it going to  
22 look like in the future.

23 My grandmother is a Chipewyan Dene woman. And  
24 my father is a Lafferty. That's my aunty over there. She's  
25 like my -- she's like my sister.

1                   And when I talk about my grandfather, he's  
2 half Dogrib and he's half Shatu Dene. So, it's like a  
3 mixture of three (3) Dene -- three (3) people.  
4                   Some -- half, I'm kind of white, or Metis and  
5 Dogrib, and Dene. That's just the way it is. And it's the  
6 way, like, it is for all people as well.  
7                   I've never been educated in -- in a school,  
8 but I've had the opportunity to live and learn off the land.  
9 So, all the wildlife is all mine.  
10                  So, if anybody grows up on the land, and  
11 learns from the land, they own the land and animals. So --  
12 and when I was a young man, I used to travel great distances  
13 by dog team.  
14                  Today, the Elders all have their own life work  
15 experience. They all worked on the land, even though,  
16 sometimes it's bitterly cold.  
17                  Sometime by distances, would go to Manyahha  
18 (phonetic) Lake, even though it's cold, but even though it's  
19 cold, we managed always to make it back.  
20                  Sometimes we would even travel on the land by  
21 snowshoe, looking and looking, and also trapping as -- as we  
22 moved around and worked on the land.  
23                  That's just the way our people lived. And our  
24 people, our ancestors had such a hard time to live in this  
25 cold land, but they managed, they survived. And that's the

1 history and so, that's how our Dene people lived and worked.  
2                   But today, as I'm telling you, when you  
3 build -- when you build the mine, we're going to have to have  
4 another meeting about -- about this.  
5                   We're going to have several meetings. You're  
6 going to have to compensate for -- the people for the

7 development that's happening.

8 If you do not try to contribute to  
9 compensating the Dene people, they will not be happy. And  
10 there's -- that's what -- that's what the story is.

11 I can't talk to you all evening. Sometime I  
12 speak at different meetings, today, I'm sure that we're going  
13 to have further meetings, and we're going to have to share  
14 further factual information.

15 We're not just playing games. Because it's  
16 our land, we have to be truthful, and put everything that's  
17 important; in regard to water, how you're going to develop  
18 the mine, we're going to have put everything on the table and  
19 discuss it.

20 The area where you're going to develop Snap --  
21 is in the area of Snap Lake. And I've been to that area, the  
22 mine area, twice in the past.

23 And I'm just grateful to be here. If I was  
24 going to speak in English, I would say that you're giving me  
25 an opportunity to speak. Thank you, my friend.

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1 THE CHAIRPERSON: Thank you very much. As  
2 it's been mentioned. It's been a very long day, and we're  
3 extremely please to have heard from the Elders.

4 I can give you this one (1) promise, that this  
5 Board will treat equally, the traditional knowledge and the,  
6 so called, scientific knowledge, in our own minds.

7 There will be -- it will be given equal  
8 weight. And that is one (1) guarantee that I can give you.  
9 And that the input from yourselves, and from the communities,  
10 is something that is very valuable to us because it's the  
11 information that we need to help us all make good decisions,  
12 and to work together.

13 So, thank you very much for coming tonight. I  
14 know it's been a very long day for everybody. Have a good  
15 night. Thank you.

16 And we'll see everybody here again tomorrow  
17 morning at nine o'clock. And we'll be starting with socio-  
18 economic. Thank you.

19 MS. KRIS JOHNSON: Excuse me, Mr. Chair, we  
20 actually had two (2) more people that wanted to make some  
21 comments that --  
22 THE CHAIRPERSON: Oh, I'm sorry.  
23 MS. KRIS JOHNSON: -- just arrived, sorry.  
24 THE CHAIRPERSON: Well, maybe we'll let the -  
25 - some of the Elders go that want to go, and we'll take five

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1 (5) minutes and then we'll -- we'll come back. I'm sorry.  
2 MS. KRIS JOHNSON: Sounds good.  
3  
4 --- Upon recessing at 7:55 p.m.  
5 --- Upon resuming at 8:05 p.m.  
6  
7 THE CHAIRPERSON: If we could come back to  
8 order please? Thank you, Ms. Johnson, would you...  
9 MS. KRIS JOHNSON: Thank you, I'd like to  
10 introduce Ron Balsillie, he has a few questions and comments.  
11 Ron...?  
12 THE CHAIRPERSON: Thank you, Mr. Balsillie  
13 MR. RON BALSILLIE: Hi. Okay, I've got the  
14 button on. I have a copy of the Snap Lake Dene project,  
15 economic impact assessment here, and I was looking at some of  
16 the graphs, and I notice that all the graphs end at the year  
17 2002, and from my experience, things like this have projected  
18 income over the next X number of years, normally show those  
19 projected incomes on these type of graphs, either dotted  
20 lines or whatever. I was wondering if you have such  
21 available?  
22 THE CHAIRPERSON: I'm not quite sure what  
23 you're referring to, sir.  
24 MR. RON BALSILLIE: Okay, if you're expecting  
25 this project to last twenty (20) years, then I would think

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1 that you'd have somewhere, a graph showing these economic  
2 indicators to the year 2022, with the years between 2002 and  
3 2022, shown in dotted lines, to show what the expected  
4 revenue is and what not, are over those coming years.

5 THE CHAIRPERSON: Thank you, there are records  
6 on the public registry, which I believe show through to the  
7 year 2030.

8 MR. RON BALSILLIE: Okay.

9 THE CHAIRPERSON: If my memory serves me  
10 correct.

11 MR. RON BALSILLIE: And those are available  
12 then?

13 THE CHAIRPERSON: Yes, sir.

14 MR. RON BALSILLIE: Okay, thank you. Question  
15 2 of 2. What is the present value of your existing Discovery  
16 Dam and Reserves on an undiscounted before tax basis?

17 THE CHAIRPERSON: Okay, I'll have to refer  
18 that question to DeBeers. Mr. Johnson...?

19 MR. ROBIN JOHNSTONE: DeBeers Canada would be  
20 very happy to respond to that first thing tomorrow morning,  
21 but I'm afraid we're short of an economic specialist at this  
22 minute. He had actually just left like a quarter of an hour  
23 ago.

24 THE CHAIRPERSON: Okay, Ms. Johnstone, well,  
25 that's perhaps a question you could raise in the morning, and

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1 DeBeers will have people present that can answer it.

2 MR. ROBIN JOHNSTONE: The numbers are in the  
3 environmental assessment, in the Socio-Economic section.

4 MS. KRIS JOHNSON: Thank you, I will ask that  
5 question tomorrow. I have Fred Turner here, who would also  
6 like to make some comments and questions. Fred...?

7 MR. FRED TURNER: Anyone will do, can you hear  
8 me.

9 THE CHAIRPERSON: Thank you, Mr. Turner.

10 MR. FRED TURNER: Well, I'm not one of those  
11 specialists that are paid, so I haven't been here, and I'm

12 not really on top of everything. I -- so I'll just kind of  
13 -- kind of speak a little bit casually about some concerns  
14 that we sometimes have the opportunity like now to -- to  
15 raise. I appreciate that opportunity.

16 Along with not having gone over a lot of this  
17 stuff, we -- we have a lot of other issues, and many of you  
18 have heard about even -- even the -- the election that we're  
19 presently involved in, and so we get some distractions that  
20 -- that kind of keep us making life interesting, anyway and  
21 I've been, though, to a lot of these type of meetings and --  
22 and more so in recent years and we didn't have too much  
23 before.

24 This question I raised, I remember, at one of  
25 the BHP Hearings and I didn't see anything done about it.

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1 Not visibly, anyway. So I'll just raise it again. Whenever  
2 I have the opportunity, I just bring these things out because  
3 I -- I believe they're -- they're of concern to me and they  
4 affect people.

5 I happened to be living around the Arctic  
6 Circle area when they were conducting a lot of the Mackenzie  
7 Valley impact stuff that was going on and they were getting  
8 -- I mean, eventually, it did get approval for some  
9 development there at Norman Wells.

10 And shortly after that development, there was  
11 problems with some of the fish downstream from that  
12 development and the rivers were getting big and this kind of  
13 thing and a large number of people, a lot, especially around  
14 the Fort Good Hope area, stopped eating those fish.

15 So -- and I knew those people. I used to  
16 visit them along the -- the river and -- so they were  
17 impacted by this development but Imperial Oil, of course, is  
18 not going to acknowledge that they are responsible and th --  
19 how does a little fisherman on -- on -- on the river, you  
20 know, go to court with Imperial Oil to prove that they were  
21 responsible for this effect and impact that was not there  
22 prior to development.

23 So my reason for bringing that out, as I did

24 at the BHP Hearing -- on one (1) occasion I had a chance to  
25 speak for a few moments and I suggested that there be some

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1 sort of a fund set up from big companies, like De Beers, BHP  
2 and Diavik or other big development impacts that take place  
3 in the Territories.

4 It would be nice if there was a fund  
5 established so that people that are affected, like fishermen  
6 along the Mackenzie river downstream from development  
7 wouldn't have to go to court because they can't anyway.

8 They would die before it ever reached any kind  
9 of resolution in -- in -- in our courts. I know how long it  
10 can be. I've been in -- involved for twenty (20) years in  
11 court.

12 But anyway, my suggestion and it's one of  
13 those things -- I'll just take this opportunity again, I  
14 recommend that some sort of a fund be established, maybe  
15 taken out of some of these bigger projects put there where  
16 people would have access to it. That's one (1) of the  
17 comments I have -- a concern.

18 There has also been a lot of chatter about the  
19 impact of these mines. I firmly believe that one of the best  
20 things you can do for somebody is to give them a job. It's  
21 really great. We need work. We all do and people might feel  
22 better especially if they are able to provide for their  
23 families.

24 In these remote areas where -- where people  
25 are -- go in and spend two (2) weeks and in and come back

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1 into town. There's often a lot of disruption in the home and  
2 in the community.

3 I know that there has been some sort of

4 attempts to address that, but I -- I'm not that impressed  
5 about the way that it's administered or the way that the  
6 social impacts are addressed in those particular areas of  
7 family disruption and stresses on the -- on the -- on the  
8 family.

9                   Here in Yellowknife we've had our situations  
10 with young people bored with life and sometimes in -- in  
11 recent -- in a few years past, anyway, they used to form  
12 little gangs and -- and get into mischief and -- and really  
13 injure some people wandering out of the bar late or alone  
14 somewhere out or sometimes attacked very viciously.

15                   And -- and there was some conc -- concerns  
16 about that in our community here and -- and there was  
17 attempts, I suppose, to address that and then as quickly  
18 forgotten. There's a drop-in centre here, now, in town that  
19 was kind of established but now it's closed again because  
20 they have no funds to run it.

21                   And these big mines that are taking place and  
22 -- and -- and De Beers, in particular, as -- I consider them  
23 as one of the bigger players. I'm not too sure why these  
24 other ones are dropping out.

25                   I don't know if it's bad publicity or whatever

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1 it is, but it seems to me that this is an area that really  
2 shouldn't be lacking. It's an area that concerns our  
3 community, our homes. There's kids walking around on this  
4 street and probably every community. Yellowknife should not  
5 be without a -- sort of a drop-in centre or areas that could  
6 take them off the streets and -- and help with this impact.

7                   I think I could probably talk for quite f --  
8 quite a few issues but I'll just touch on them a bit and it  
9 gives you a bit of a snapshot as to what my concerns are and  
10 where I'm coming from and I think they should be looked at.

11                   They're -- they're legitimate concerns that we  
12 have and they're -- they're raised, perhaps, in -- in  
13 different ways. I'm saying it rather bluntly, I guess, but I  
14 want you to understand where I'm coming from and what our  
15 concerns are.

16 I -- I have concerns about the transportation  
17 and the -- the effects that development have here in our  
18 community. We see BHP and -- and De Beers are -- not -- or  
19 Diavik have come and they've got permission to do certain  
20 things and they've started mining.

21 And if you are not directly working for or  
22 connected in some way with these bigger mines, I -- I suspect  
23 that my cost of living probably goes up and increases because  
24 of them being here. People working for the mine get a better  
25 airfare and they get a better deal at the -- at the bulk

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1 station for their fuel and I think my costs go up.

2 What I would like to see is some lasting  
3 benefits left behind by big projects and unfortunately, we've  
4 missed our opportunity in the past by allowing corporate  
5 planning to take place. Corporations go to the federal  
6 government somewhere in Ottawa, I want to do this and they  
7 say, go ahead and do it.

8 And we've missed opportunities with hydro  
9 development that took place -- that could have took place  
10 right beside big development and \$70 million that was spent  
11 on -- on the hydro plant right beside the -- or the -- the  
12 generators by Colomac mine was very, very close to a power  
13 dam.

14 Add that \$70 million gone into the dam, it  
15 would reduce our power rates across the Territories. The  
16 mine could have had their power for the same price or -- what  
17 I'm saying is I think we should, perhaps, take a real good  
18 look at -- at big developments and seeing how they can  
19 incorporate into some long term benefits.

20 When I hear of a bridge going up across the  
21 Mackenzie River and -- and I heard it from one of the people  
22 from BHP. We don't really want to pay five (5) dollars a  
23 tonne to go across that river. It wasn't -- it was less than  
24 a month later that it was in the news that, oh, they were  
25 actually moved it up already to six dollars (\$6) a tonne and

---

1 who knows, by the time it's built it may be ten dollars (\$10)  
2 a tonne.

3 I've been looking forward to a bridge across  
4 that Mackenzie river since I worked on that road. In 1960 it  
5 first opened up and they were going to build a bridge the  
6 following year but -- and talked about it probably every year  
7 since.

8 It's unfortunate that -- that we see private  
9 development coming in and taking the -- these areas where who  
10 knows what we're going to end up having to pay for our  
11 freight to go across the river. It's going to impact our  
12 cost of living.

13 I'm not sure if it's because of De Beers  
14 coming on stream or the extra stress or whatever it is that  
15 -- that causes our highways to -- to demand this bridge now.

16 I'm glad for a bridge but I'm pretty nervous  
17 about that aspect of what are we going to have to pay because  
18 corporations look at one thing, they want profits and the  
19 more the better, basically.

20 And it's unfortunately that sometimes private  
21 development is -- has this situation where we have no choice  
22 and -- and they're able to just charge whatever the market  
23 will bear, basically. It's unfortunately that -- that the  
24 governments here in the Territories and the people that live  
25 here have not taken some from these larger corporations to

1 finance the bridge.

2 It is costing us and it's cost -- cost the  
3 taxpayers more money for the use of the road. There's more  
4 maintenance but I don't think that BHP and -- and Diavik have  
5 contributed that much towards using the existing roads that  
6 were built here and the -- and the extra maintenance that's  
7 required for them.

8 I'm not sure how much consideration is taken

9 into that but -- or what kind of a mandate this organization  
10 has but it -- I -- I vent these ideas whenever I think  
11 there's listening ears that might make a difference.

12 I -- I didn't think I was going to be talking  
13 this long and I don't want to keep you guys up -- I realize  
14 that you were late and -- and actually expected to go home  
15 just before the break but I want to thank you for -- for  
16 listening to us and hopefully some of these areas and  
17 concerns that we have, maybe we could learn to work together.

18 We don't want to be fighting each other. I  
19 was impressed with Billy Diamond (phonetic) over there and he  
20 had come here a minute, spoke to a lot of the Chiefs and the  
21 leaders about how he used to fight about -- over the -- the  
22 dam in James Bay and -- and the government there and then he  
23 decided he would cooperate and they seem to be a lot happier  
24 and the -- the area where they're about to work out deals  
25 together instead of fighting each other in courts and the

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1 media.

2 It's not good for the health. I don't mind a  
3 good fight, I don't turn it down but sometimes it's a lot --  
4 lot -- a lot better if we can work together and develop these  
5 ideas.

6 So, I thank you for your time and  
7 consideration. Hopefully some of these thoughts that I've  
8 shared with you will have some merit. Thank you very much.

9 THE CHAIRPERSON: Thank you very much, sir.  
10 Thank you. Okay. Nine o'clock tomorrow morning, socio-  
11 economic. The Hearing is adjourned. Thank you.

12  
13 --- Upon adjourning at 8:22 p.m.

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16 Certified Correct,

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21 Wendy Warnock, Ms.

22 Court Reporter

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4 MACKENZIE VALLEY ENVIRONMENTAL  
5 IMPACT REVIEW BOARD  
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9 HELD BEFORE:

10 Board Chairperson Gordon Wray  
11 Board Member Danny Bayha  
12 Board Member Frank Pope  
13 Board Member John Stevenson  
14 Board Member Charlie Snowshoe  
15  
16  
17

18 HELD AT:

19 Northern United Place  
20 Yellowknife, NT  
21  
22

23 May 2nd, 2003  
24 Volume 5  
25

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1 APPEARANCES

2 John Donihee ) Board Counsel  
3  
4 Robin Johnstone ) De Beers Canada Mining  
5 John McConnell ) Ltd.  
6 Eric Groody )  
7  
8 Yvonne MacNeil ) Department of Justice

9 (GNWT)  
10  
11 Chief Archie Catholique ) Lutsel K'e Dene First  
12 Florence Catholique ) Nation  
13  
14 Kris Johnson ) North Slave Metis  
15 Robert Turner ) Alliance  
16  
17 David Livingstone ) Indian and Northern  
18 Sevn Bohnet ) Affairs Canada (INAC)  
19  
20 Gavin More ) Government of Northwest  
21 Doug Doan ) Territories (GNWT)  
22  
23 John Ramsey ) Natural Resources  
24 Canada  
25

1 APPEARANCES (Cont'd)  
2  
3 Julie Dahl ) Fisheries and Oceans  
4 Canada  
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6 Mark Dahl ) Environmental Canada  
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8 Rachel Crapeau ) Yellowknives Dene First  
9 Tim Byers ) Nation  
10  
11 Jean Teillet ) Dogrib Treaty 11  
12 Council  
13  
14 Kevin O'Reilly ) Canadian Arctic  
15 Resources Committee  
16  
17 Mike Vaydik ) NWT and Nunavut Chamber  
18 of Mines  
19  
20 Jason Lepine ) Northwest Territory

21 Metis Nation  
22  
23  
24  
25

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## Certificate of Reporter

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## EXHIBIT LIST

## EXHIBIT NO.

## DESCRIPTION

1

Opening Statement on the De Beers Snap Lake  
Project to the Mackenzie Valley Environmental  
Impact Review Board by The Canadian Arctic  
Resources Committee

2

Environmental Agreement, BHP Billiton ETAKI  
Diamond Project. Effective January 6, 1997,  
Addendum April 14, 2003

3

Environmental Agreement, Diavik Diamond  
Project. Effective March 8, 2000

4

Air, Waste and Abandonment & Reclamation

13		Statement by De Beers Canada Mining Inc.
14	5	TDS versus Depth in Snap Lake
15	6	Boreholes drilled during the Advanced
16		Exploration Program
17	7	Revised (minor edits) PowerPoint Presentations
18		- NSMA Public Hearing Presentations for the
19		De Beers Snap Lake Diamond Project:
20		- Air, Waste and Abandonment & Reclamation
21		Issues
22		- Hydrogeology Issues
23		- Surface Water Quality and Aquatic
24		Resources Issues
25		- Wildlife Issues

1		EXHIBIT LIST (cont'd)
2	EXHIBIT NO.	DESCRIPTION
3	8	Denesoline Recommendations on Na Yaghe Kue
4		(Snap Lake) by Lutsel K'e Dene First Nation -
5		PowerPoint presentation
6	9	Denesoline Perspectives and Issues About the
7		Proposed De Beers Canada Diamond Mine at Na
8		Yaghe Kue by Lutsel K'e Dene First Nation -
9		Revised written presentation
10	10	Intervention on the Snap Lake Project
11		Environmental Assessment by Environment Canada
12		- PowerPoint presentation
13	11	Snap Lake Water Quality: Sources, Effects and
14		Impacts by INAC - PowerPoint Presentation
15	12	Government of Northwest Territories: Wildlife
16		presentation Caribou, grizzly bears and
17		wolverine by RWED - PowerPoint Presentation
18	13	Question Presented at the De Beers Technical
19		Sessions in regards to the use of Royalties
20		by the Government of the Northwest
21		Territories. Letter to Kevin O'Reilly, CARC
22		from Gavin MORE, GNWT, April 28, 2003 letter.
23	14	Destratification in Snap Lake - Response to
24		INAC's presentation titled "Surface Water

1		EXHIBIT LIST (cont'd)
2	EXHIBIT NO.	DESCRIPTION
3		Letter to MVEIRB from De Beers, April 29,
4		2003.
5	15	Department of Fisheries and Oceans (DFO)
6		Public Hearing Presentation on the Proposed
7		Snap Lake Diamond Project - Revised PowerPoint
8		presentation.
9	16	De Beers' Snap Lake Project Public Hearings:
10		Issue Presentation, GNWT Department of Health
11		and Social Services - PowerPoint Presentation.
12	17	A Time of Rapid & Fundamental Change:
13		Business Driving the NWT Economy Today &
14		Tomorrow, Investment and Economic Analysis,
15		RWED - PowerPoint Presentation.
16	18	Response to Lutsel K'e's Questions submitted
17		to the MVEIRB for the Snap lake Diamond
18		Project Public Hearing. Technical Memorandum
19		submitted to Lutsel K'e Dene First Nation by
20		De Beers, May 1, 2003.
21	19	Response to YKDFN's Questions submitted to the
22		MVEIRB for the Snap Lake Diamond Project
23		Public Hearing. Technical Memorandum
24		submitted to Yellowknives Dene First Nation by
25		De Beers, May 1, 2003.

1		LIST OF EXHIBITS (cont'd)
2	EXHIBIT NO.	DESCRIPTION
3	20	Plain Language Summary of: Participation
4		Agreement between Diavik Diamond Mines Inc.

5 and Dogrib Treaty 11 Council, April 6, 2000  
6 21 Outstanding Environment Canada Issues - March  
7 13, 2003. Memo to Robin Johnstone, De Beers  
8 from Tom Higgs, AMEC, April 16, 2003  
9 22 Snap Lake Diamond Project Mine Water  
10 Assessment - Diffusion. Technical Memorandum  
11 to Robin Johnstone, De Beers from Ken DeVos  
12 and Don Chorley, Golder Associates, April 16,  
13 2003.  
14 23 Clarification of Issues Discussed During April  
15 14th and 17th conference calls. Letter to  
16 Dave Balint, DFO from Robin Johnstone, De  
17 Beers, April 23, 2003  
18  
19  
20  
21  
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1 --- Upon commencing at 9:02 a.m.  
2

3 THE CHAIRPERSON: Good morning. Today we'll  
4 continue on with the Social, Cultural and Economic phase of  
5 the Hearing.

6 As most of you are aware, we are running about  
7 a half day behind schedule, so I would ask all presenters and  
8 questioners to keep that in mind. We do not have the room  
9 after 5:30 tonight, it's been booked for another function.  
10 So we need to bear down today, if we intend to finish.

11 And I would also remind those who are in the  
12 front of the agenda, that there are people to make  
13 presentations at the end. And it's a long day, and if -- if  
14 people bog us down in lots of questions, then the people who  
15 are making the presentations at the end of the day are  
16 disadvantaged. So I would ask you to keep your -- your

17 colleagues in mind.

18 I have one (1) document to file on the record.  
19 It's a technical memorandum dated the 1st of May, 2003. And  
20 it's submitted to the Yellowknives Dene First Nation from De  
21 Beers Canada in response to some of the questions raised at  
22 the Hearing.

23 I'd also now call on De Beers Canada to make  
24 their presentation. Mr. McConnell...?

25 MR. JOHN MCCONNELL: Thank you, Mr. Chairman.

11

1 We have two (2) presentations this morning related to socio-  
2 economic impacts.

3 Our first presenter will be Dr. Andy  
4 Swiderski. Andy is the Managing Principal of Terriplan  
5 Consultants, based here in Yellowknife. He brings over  
6 twenty-five (25) years of inter-disciplinary research,  
7 planning and management in both the private and public  
8 sectors across Canada.

9 Andy has project experience in areas of  
10 strategic planning, development, planning and economics and  
11 impact assessment and modelling in both the public and  
12 private sectors. Andy is a member of the Canadian Institute  
13 of Planners in Alberta, NWT and Ontario. Andy was the  
14 Project Team Leader for the Economic Impact Assessment  
15 component of Snap Lake.

16 Our second speaker this morning will be Dr.  
17 Peter Homenuck. He's the founding partner of IER. He has  
18 more than thirty (30) years' experience in the design and  
19 implementation social impact assessment programs and public  
20 consultation programs for a wide range of environmental  
21 projects. His clients include public agencies, private  
22 corporations, communities in First Nations.

23 Peter is often retained in a peer review  
24 capacity. In addition, he has written social impact  
25 guidelines for a number of government agencies. Until 2001,

1 Dr. Homenuck was a Professor of Environmental Studies at York  
2 University where he taught social impact assessment and First  
3 Nations relations.

4 He's also taught environmental assessment at  
5 the Centre for Indigenous Environmental Resources in  
6 Winnipeg, and he was retained by DIAND to review the social  
7 impact analysis for the Diavik Project.

8 We'll start with Andy this morning, and then  
9 move on to Dr. Homenuck.

10 THE CHAIRPERSON: Thank you. If you'd just  
11 give us a minute?

12  
13 (BRIEF PAUSE)

14  
15 MR. ANDY SWIDERSKI: Good morning, Mr.  
16 Chairman, Members of the Review Board, respected Elders and  
17 other contributors to this Hearing.

18 This presentation will cover the following  
19 areas: We will place the NWT economy in perspective and  
20 illustrate how the Snap Lake Project has and will contribute  
21 to the economy of communities and the NWT economy overall.

22 We will present some highlights and findings  
23 from our Regional Labour Market Analysis that was undertaken  
24 as part of our modelling work. We will summarize, briefly,  
25 the modelling approach, highlight a few of the key

1 assumptions, and also reflect on the projections that are  
2 contained there. Importantly, we will present key economic  
3 facts and fiscal impacts.

4 The NWT economic priorities and direction have  
5 emerged from and are outlined in a number of key strategic  
6 documents. They include legislative assemblies' vision of  
7 towards a better tomorrow, common ground, the Premier's  
8 economic strategy panel, and the last several annual budget  
9 addresses by the Minister of Finance.

10                   The GNWT's economic framework reflects, in  
11 part, the values and priorities of communities as well as the  
12 Territory overall, and strives for a balanced, diversified  
13 and vibrant economy. The framework provides guidance through  
14 key principles, factors and considerations, but what does  
15 this economic direction mean for communities and developers?

16                   Fundamentally, it helps us to recognize and  
17 work with the Territories' environmental, cultural and  
18 economic future, something that a number of the Elders spoke  
19 to during yesterday's evening session, for those of you who  
20 were here, and has been expressed eloquently by GNWT during  
21 this week.

22                   This economic direction tells us that non-  
23 renewable resource development, especially diamond mining,  
24 oil and gas, is critical to the development of the NWT  
25 economy. Resource development needs to strike a balance

14

1 between economic benefits, social impacts and, importantly,  
2 environmental protection.

3                   It also makes a fundamental point about the  
4 importance and potential of their renewable resources sector  
5 and it needs to be recognised and respected. Particularly,  
6 the essential role of the traditional economy and the  
7 cultural and economic lives of communities and aboriginal  
8 people.

9                   Diamond mining plays, and will continue to  
10 play for the foreseeable future, a key role in creating new  
11 and long-term business and employment development  
12 opportunities. Through our respectful, long-term commitment  
13 to a partnership with communities and governments, De Beers  
14 will contribute through the creation of opportunities and  
15 choices at the individual, family and community level, to the  
16 creation of wealth through employment, investment and  
17 business opportunities.

18                   And critically, a wider distribution and  
19 sharing of those opportunities and wealth across all  
20 communities by industry and by government; a key message  
21 clearly heard from communities and Elders.

22 De Beers has already invested some  
23 \$100 million into the Snap Lake Project to bring it to this  
24 point. De Beers is not merely investing to continue the  
25 momentum in the economy, De Beers is investing in people,

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15

1 both through its own efforts and by building on the work of  
2 communities and many government agencies.

3 Mr. Chairman, from an economic impact  
4 assessment perspective, there are over one hundred (100)  
5 individual indicators that we could put forward. From a  
6 practical perspective, there are bundles of indicators that  
7 are published through government and public sources and are,  
8 importantly, generally agreed upon.

9 Taken together, these indicators assist in  
10 addressing key economic impact questions. One (1), what are  
11 the economic benefits? And, two (2), from an economic  
12 perspective, are individuals, families, communities and  
13 governments better off?

14 In view of the volumes of information that has  
15 been submitted, with respect to the Board, we have put  
16 together, in summary format, to -- to begin our presentation  
17 the key indicators which we feel we would like to offer for  
18 the Board's consideration.

19 GDP, that is the Gross Domestic Product, is a  
20 measure of total economic activities. The trend is one (1)  
21 of growing. Investment continues to grow. Retail trade is  
22 growing. Employment is growing. Importantly, unemployment  
23 is decreasing, social assistance is decreasing and,  
24 fundamentally, inflation continues to be low and stable.

25 In the most straightforward terms, the NWT

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16

1 economy is robust and growing. Over the last few, the NWT

economy has been among the strongest in Canada. This impressive growth is even more remarkable in light of continuing low inflation rates.

The Snap Lake Diamond Project will contribute to maintaining the momentum in the economy of individual communities and the Territory overall. To assist the Board and participants to more fully understand how events can influence the economy, the following figures identify the timing of construction and operation phases of two (2) existing mines along the bottom of the graph that you will see momentarily.

The next series of slides are primarily intended to illustrate important patterns and trends rather than detailed statistical discussion. All the statistical data and economic data are either on the public record or available through government publications.

The gross domestic product for the NWT, which is the total value of economic activity and is generally accepted as the most meaningful measure of the economy, the economy grew from some 1.9 billion in 1998 to approximately 3 billion in 2001. The preliminary estimate for the gross domestic product for the year past, is 2002, is roughly 3.1 billion.

In 2000, the NWT economy grew by almost

17

10 percent. The following year by almost 19 percent. The increased rate of growth is about three point three (3.3) for the year just finishing as the major construction activity of existing operations come to a close.

The largest industry in the NWT is mining, oil, and gas extraction, representing nearly one-quarter (1/4) of the total economic activity. The diamond sector alone accounts for nearly 20 percent.

Before proceeding with the next few slides, there is one (1) idea that -- that I would like to share about economic cycles and momentum, and how things are linked.

In some ways, the economies of individual

14 communities and a territory behave like the natural world of  
15 animals. There are relationship cycles and dependencies,  
16 just like the dependence of lynx on the hare, the abundance  
17 or scarcity of hare determines the well-being of lynx.

18           The cycles move together and natural  
19 relationships of dependence. Similarly, economic growth or  
20 decline in one (1) sector or area influences the well-being  
21 in other sectors and areas.

22           There are cycles of growth, when investment is  
23 made. More people work, they have increased choices, they  
24 invest and they spend, which contributes to continued  
25 economic activity. This momentum is self-generating.

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18

1           Conversely, there are cycles of decline. When  
2 investment declines, less people work, they have fewer  
3 choices to meet their needs and aspirations, they spend and  
4 invest less, which takes away confidence and momentum from  
5 the economy.

6           The next slide, which is the private capital  
7 expenditures, as you -- as you can clearly see. Capital  
8 investment is an important trigger to the economy. It's  
9 important from two (2) critical views; it adds directly to  
10 the economy, and it starts momentum in confidence in other  
11 individuals, sectors of the economy and businesses.

12           Private capital expenditure is largely through  
13 industrial development the last few years show this increased  
14 level of investment and confidence in the economy.

15           The next slides will show this momentum with  
16 relationship and dependencies in the economy. Retail trade  
17 simply shows a corresponding growth with -- in its simple  
18 terms, when people have disposable income, they spend and  
19 invest which creates additional opportunities for others,  
20 local businesses in particular.

21           Manufacturing shipments have changed over  
22 time, increasing in the mid-nineties, with a slow down in the  
23 some of the industrial activity, and since 1999, continue to  
24 grow.

25           The value of diamond shipments starting

1 effectively in 1998, continue to increase. This figure will  
2 increase further once Diavik goes into full production, and  
3 will increase once again should the Snap Lake Project be  
4 approved.

5 Another important indicator is the industrial  
6 employment continues to show strong growth during this  
7 period. There are important relationships within and across  
8 the economy. When investment increases, there is more  
9 employment, spending, and higher income.

10 Employment in the goods-producing NWT has  
11 shown steady growth during the period. Employment and  
12 service-producing industries shows moderate growth and  
13 stability during the period as well.

14 Of particular importance, the Board is looking  
15 at what has happened with respect to personal income. What  
16 has been the effect? What will be the effect?

17 For the Board's consideration, we have  
18 presented the following slides, both from two (2)  
19 perspectives. One (1) in the primary communities as  
20 represented in the project submission as a group, and also  
21 the smaller communities with Yellowknife excluded.

22 I will start -- first start with personal  
23 income in a primary community -- communities. Overall,  
24 personal income shows steady growth in all of the primary  
25 communities. More people are working, average incomes from

1 taxation data show an important trend.

2 Personal incomes continue to increase since  
3 1995/'96 in real terms. As you can see for yourself, the --  
4 the growth has been substantial but within -- within  
5 manageable scope.

6 Between '96 and the year 2000, there's been an

7 increase in average income of some 6 percent.

8 But what is equally important is what is  
9 happening in the smaller communities. During that same  
10 period, personal incomes show a steady growth in the smaller  
11 communities. Families are increasing their economic  
12 independence.

13 To illustrate, the income in 1996, just over  
14 the 18,000 mark, has grown to just under 20,000 in 1999, and  
15 just under 23,000 in 2001. What that means in -- in  
16 practical terms, Mr. Chairman, Members of the Board, is that  
17 while there -- there are clearly income gaps between the  
18 larger and smaller communities, the gap has closed during  
19 that period. The average increase during that period, in  
20 smaller communities, has been over 21 percent.

21 Corresponding relationship, as I talked about,  
22 the hare and the lynx, income support payments continue to  
23 show a steady decline. There's been a reduction from the  
24 high of almost \$6.7 million in 1995, to about 4.3 in 2002.  
25 That's roughly a 40 percent decline. While it's a net

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21

1 savings to government, the most important benefit is of  
2 increasing self reliance and people's confidence.

3 Looking at the same figure for the primary  
4 communities, smaller communities, excluding Yellowknife,  
5 income support payments continue to show the same pattern,  
6 reduced income support payments enable limited public  
7 resources to be targeted to areas of investment and need in  
8 communities.

9 Corresponding relationship, as you would  
10 expect, is there is a -- a supporting decline in a number of  
11 cases of income support payments, both in all the primary  
12 communities and in the smaller communities.

13 The relationship cycle of income support  
14 payment cases is one of simply more people working, there is  
15 less reliance on income support, which shows up in fewer  
16 cases, decreased income support payments and fewer total  
17 people dependent on government funding.

18 The number of beneficiaries, that is, the

19 number of families with dependents, shows a corresponding  
20 decline during that same period. The number of beneficiaries  
21 continues to decline during that period from a high of almost  
22 18,050 in 1995 to just over nine hundred and seventy (970) in  
23 2002. This is -- this is almost a 50 percent decrease during  
24 that period.

25 The corresponding change in income support

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22

1 beneficiaries in the smaller communities follows a similar  
2 pattern, it's been a reduction of nearly half.

3 Mr. Chairman, I will now move to the next  
4 component of our presentation which is looking at the  
5 regional labour market of very important questions.

6 De Beers completed a regional labour market  
7 cumulative impact analysis to support the modelling and  
8 projection work. The analysis fundamentally addressed  
9 whether there was sufficient regional labour supply to meet  
10 the projected annual labour requirements, both from the  
11 proposed Snap Lake Project, as well as the demand from EKATI  
12 and Diavik.

13 The regional labour market analysis  
14 information is based on the most current and valid data  
15 available, and includes not only those persons who are  
16 identified officially or defined as unemployed, but those who  
17 expressed a willingness to work, particularly vocational  
18 work.

19 The analysis has excluded the anticipated  
20 additional contribution to the skilled labour market through  
21 the comprehensive human resource development strategy,  
22 including literacy and apprentice initiatives that De Beers,  
23 in partnership with communities, government and learning  
24 institutions, is putting in place.

25 The conclusion, Mr. Chairman, of the regional

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23

1 labour market analysis is that the labour supply is  
2 sufficient to meet the cumulative labour demand for direct  
3 mine jobs. It is also sufficient to meet the cumulative  
4 total labour demand of the three (3) mines, particularly for  
5 the period ending in 2011.

6 I will now move to the economic and tax  
7 models. To ensure the greatest degree of confidence in the  
8 economic models that have been put forward, the decision was  
9 made early to work with proven models that are used and  
10 recognised by government.

11 To that effect, the input, output models from  
12 the Bureau of Statistics and Statistics Canada formed the  
13 cornerstone of the analysis. As well as the Department of  
14 Finance own tax and fiscal impact models. Essentially, we  
15 wanted to work with the best tools that were available and  
16 bring forward the key project information and assumptions.

17 The economic and tax impact models, the  
18 details were submitted on the public record, initially with  
19 the original submission as well as subsequent information  
20 rounds and technical sessions. The impacts were reviewed and  
21 assessed by project phase.

22 They looked at the impact on employment, gross  
23 domestic product and labour income. They looked at the  
24 impact on Canada and the NWT as well as the tax and fiscal  
25 impacts on the Government of Canada and the Government of

24

1 NWT.

2 Before I present those key findings,  
3 Mr. Chairman, I will just spend a moment on model assumptions  
4 and key projections. Local labour, by project phase, was  
5 built on the assumption that construction would comprise  
6 40 percent, the operation and closure would be at 60 percent.

7 Resident workers, those who would -- are  
8 either currently resident of the NWT or who would move to  
9 take employment and reside in to the NWT, were estimated to  
10 form about 50 percent of that local labour estimate.

11 I will now move to some key observations with

12 respect to the economic impacts on Canada which include the  
13 NWT. Mr. Chairman, this slide summarises the Canada impacts  
14 which includes the NWT, although I will present it separately  
15 in subsequent slides. The impacts are for total impacts  
16 which include direct, indirect and induced.

17 As -- as is evident on the chart, the total  
18 estimated number of -- of jobs during the construction period  
19 is roughly thirty-one hundred (3100). I will round these off  
20 simply because I think you've had more than your fill of  
21 numbers this week.

22 Gross domestic product will be roughly  
23 261 million during the construction and labour income will be  
24 roughly 188 million. Importantly, on the annual -- that is  
25 the yearly impact, for Canada, roughly sixteen hundred and

25

1 fifty (1650) jobs, about 140 million in gross domestic  
2 product and some 107 million in labour income.

3 To conclude the mine closure phase is about  
4 three hundred and sixty (360) jobs, roughly twenty-nine  
5 thousand (29,000) -- 29.6 million in gross domestic product  
6 and about 23 million in labour income.

7 The economic impact on the NWT during  
8 construction roughly eleven hundred (1100) jobs, gross  
9 domestic product approximately 127 million, and labour income  
10 of 101 million. Again, these are just for the direct,  
11 indirect and induced.

12 Construction annually for that, about nine  
13 hundred and fifty (950) jobs, some 90 million in gross  
14 domestic product, and about 76 million in labour income.

15 During the mine closure phase about a hundred  
16 and seventy-five (175) jobs, about 19 million in gross  
17 domestic product, and some 16 million in labour income.

18 The economic impacts on operations which is  
19 perhaps the most critical area because of its sustained  
20 length, during the operations phase on the NWT, it will  
21 realise benefits in the employment of about seven hundred and  
22 thirty (730) jobs, which represent about two-thirds of all  
23 the jobs.

24 Gross domestic product is about 68 million,  
25 representing above 72 percent of all -- all the benefits

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1 during the operations.  
2 Similarly, labour income is about 63 million,  
3 representing some 78 percent of the total impacts.  
4 The economic impacts on Canada, for a  
5 cumulative perspective, again I'm highlighting the operations  
6 phase alone, on direct, and indirect, this -- this excludes  
7 the induced, is about 15,300 jobs, which represent about 67  
8 percent.  
9 Gross domestic product is about 1.4 billion  
10 and labour income is about 1.3 billion.  
11 Moving to the last series of slides. If you  
12 look at tax and fiscal impacts first for Canada. During the  
13 construction phase, net revenues are approximately 40 million  
14 annually. There's approximately 26 million, and during  
15 closure, is about 5 million.  
16 The tax and fiscal impacts on the GNWT are  
17 approximately 1.2 million during -- that is net revenues,  
18 during the construction, approximately 1.1 million annually  
19 during the twenty-two (22) years of operations and .14  
20 million during the closure phase.  
21 The total cumulative tax and fiscal impact on  
22 Canada, in terms of corporate income tax, is approximately  
23 156 million. The Federal surtax of 3.5 million. Other  
24 taxes, which include personal income tax, fuel tax, GST,  
25 property tax, things of that nature, account for another 493

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1 million.  
2 There is a corresponding saving on the --  
3 savings on the NWT grant of 138 million, and mineral

4 royalties of roughly 80 million for net revenues to Canada of  
5 872 million over the life of the project.

6 To conclude, the total cumulative in tax  
7 fiscal impact on the NWT during that same period. Corporate  
8 income tax is approximately 43.8 million. Other taxes again,  
9 in terms of personal taxes, fuel taxes, tobacco taxes, is  
10 about 128 million.

11 There is a corresponding grant reduction of  
12 138 million under the funding formula with Canada for net  
13 revenues of about 34.6 million.

14 Then if you add the per capita grant estimate  
15 of about 84.5 million, the cumulative tax and fiscal impacts  
16 on the -- the GNWT is roughly 119 million.

17 In conclusion, Mr. Chairman, and members of  
18 the Board, I'll conclude this presentation by returning to  
19 the two (2) fundamental questions from an economic  
20 perspective assessment that we started with.

21 One (1), what are the economic benefits? We  
22 submit that the evidence indicates that there are substantial  
23 economic benefits through employment, business opportunities,  
24 tax and fiscal payments, and these benefits will last some  
25 twenty-five (25) years.

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1 From an economic view, are individuals,  
2 families and communities, and governments better off? We  
3 submit that based on the evidence presented that individuals,  
4 families, communities, and governments will be better off  
5 through the direct, and indirect and induced contributions,  
6 and benefits for the Snap Lake Project.

7 Thank you, Mr. Chairman, and members of the  
8 Board, and in particular, a note of appreciation for the fine  
9 work of the interpreters in communicating some of this  
10 complex language. Thank you.

11 THE CHAIRPERSON: Thank you, Mr. Swiderski.  
12 Mr. Homenuck...?

13 MR. PETER HOMENUCK: Thank you, Mr. Chairman,  
14 Board members. I appreciate the opportunity to talk with you  
15 about the socio-economic impact assessment.

16                   The first slide identifies three (3) questions  
17 that we asked ourselves, and these -- answering these  
18 questions is the basis for the socio-economic impact  
19 assessment.

20                   We seek to understand how a project is  
21 expected to impact individuals, families and communities in  
22 terms of their social, economic, and cultural well-being.

23                   And in addition, we look at the impact on the  
24 NWT and Canada as a whole from the economic perspective, as  
25 Andy has just concluded.

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1                   This slide identifies what we consider to be  
2 the four (4) key issues to address in this session. And  
3 we'll focus on -- on these four (4).

4                   I will note that there were a number of issues  
5 noted in the Board listing of issues, and many of them dealt  
6 with data availability -- availability and clarification of  
7 methodology. Our presentation, however, will focus on these  
8 four (4) outstanding issues.

9                   This slide identifies the steps that we took  
10 to understand the social and economic current conditions in  
11 communities, and how people felt about, or feel about,  
12 similar projects.

13                   The methodology that we followed focused  
14 heavily on local understanding and experiences. The Socio-  
15 economic Impact Assessment is, to a large extent, based on  
16 the information collected through community interviews and  
17 meetings.

18                   This was accomplished by multiple visits, many  
19 of them of two (2) to five (5) days' duration in the primary  
20 communities.

21                   Most communities were visited three (3) to  
22 four (4) times during the eighteen (18) month period of the  
23 social impact work being undertaken.

24                   Prior to community visits, our staff would  
25 review existing reports and information. And our first visits

1 were to -- to have interviews and meetings with a cross-  
2 section of community representatives, community members, to  
3 have a good understanding of the profiles of the communities,  
4 and to identify issues and concerns that people had with the  
5 Snap Lake project.

6 Second, through these visits and interviews,  
7 we gathered information on people's experiences of the  
8 impacts with BHP and Diavik, as people have now had a few  
9 years experience with those two (2) projects.

10 At the same time, we gathered information on  
11 other similar projects, Cogema and Cominco in Saskatchewan,  
12 being two (2) where we also had visits and discussions with  
13 people and communities.

14 And third, relying on our professional  
15 experience from a number of socio-economic impact  
16 assessments, we also developed two (2) possible scenarios: a  
17 best case, and a worst case.

18 To understand the situation in the NWT is a  
19 fundamental requirement of impact assessment. Since 1990,  
20 there have been a lot of significant changes occurring in the  
21 territory.

22 Land claim settlement, new regulatory  
23 processes, growth in Northern and Aboriginal businesses being  
24 some of them.

25 The population has grown by over 6 percent

1 since 1996. Andy talked about employment rates and income,  
2 in addition, there's been a decline in some of the  
3 traditional land use practices over time.

4 However, it's clear that the traditional  
5 economy is still relatively strong, and it's an important  
6 cornerstone of lifestyle and culture.

7 Over three-quarters of the people in the NWT  
8 consume harvested meat and fish, and this was echoed by the

9 Elders last night.

10 It's also important to understand the  
11 government's perspective. And as a result, we carried out  
12 reviews of government policies, plans, and programs, and Andy  
13 mentioned some of those as well.

14 I want to emphasize that the documents that we  
15 looked at, in them the GNWT has advocated for and committed  
16 to, working in partnerships with aboriginal groups, industry,  
17 other governments, and business, to improve living standards  
18 and quality of life for northern residents.

19 And towards a better tomorrow, the GNWT has  
20 committed to ensure that income and employment from resource  
21 development projects are realized by aboriginal and northern  
22 residents.

23 Likewise, the various business plans have  
24 identified partnerships to share the benefits of non-  
25 renewable resource development as a top priority.

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1 In addition, the primary communities and  
2 aboriginal organizations have also indicated support for and  
3 commitment to working in partnership. And I think this was  
4 mentioned by every Elder in their presentations last night.

5 These commitments are also the same  
6 commitments that De Beers has made to partnerships. All of  
7 the key players are agreed that partnerships play a major  
8 role in the economic and social development in the NWT. And  
9 I think that that's a good sign that everyone is on the same  
10 page with regard to partnerships.

11 I'll add that the Board's Consultant, Richard  
12 Roberts, noted in the pre-hearing conference that  
13 partnerships take a lot -- lot of commitment and hard work to  
14 put in place. But once they're put in place, they work  
15 extremely well. And I would point out that our own  
16 observation and experience support that view.

17 Now, the emphasis in our analysis in the  
18 Environmental Assessment has been on the primary communities.  
19 And I'll just mention them so people are aware of what we're  
20 talking about, Lutsel K', Wha Ti, Wekweti, Rae-Edzo, Gameti,

21 N'Dilo, Dettah, the North Slave Metis Alliance and  
22 Yellowknife.

23 In almost all of these primary communities,  
24 there has been growth in educational attainment. In 1989,  
25 less than half the majority -- less than half the community

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1 members had Grade 9. By 1999, a majority of community  
2 members had more than Grade 9.

3 The level of participation in traditional  
4 activities over this period has fluctuated in the primary  
5 communities. For example, in Lutsel K'e, hunting and fishing  
6 rate was at about 53 percent in 1988. It fell to 32 percent  
7 in 1993 but then increased again to 74 percent in 1998. The  
8 consumption of harvested meat and fish in the primary  
9 communities is well over 90 percent.

10 Now, in any socio-economic impact assessment,  
11 community views and information are extremely important,  
12 that's why it plays a central role in the work that we  
13 undertook. The objectives of our community visits were  
14 several, it was to obtain and verify information, to confirm  
15 and validate our analysis as we carried out our work. And  
16 thirdly, to engage in discussion of how impact management  
17 measures that were being proposed could best be implemented  
18 to meet the needs of the various communities.

19 We visited the communities several times to  
20 confirm the information we had was accurate, that our  
21 analysis, as we proceeded, was also considered to be accurate  
22 and relevant. In the later rounds of meetings, we began  
23 discussing the impact management measures and whether or not  
24 they might address the concerns and issues that were raised.

25 The meetings that we held, the interviews we

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1 held, were with community leaders, that is, Elders, Chief and  
2 Council, Band Staff, and importantly, those people that have  
3 had experiences with the existing mines and what the  
4 implications have been for them and their families.

5 The bottom line is that we held about a  
6 hundred (100) interviews and thirty-nine (39) community  
7 meetings during an eighteen (18) month period of doing the EA  
8 work. And approximately two hundred (200) person days were  
9 spent in the primary communities.

10 Since the technical sessions in late November,  
11 early December of 2002, we've had another approximately fifty  
12 (50) interviews and meetings with key people in the primary  
13 communities to discuss the impact management measure that are  
14 being developed and refined.

15 This next slide identifies the key social,  
16 economic issues and concerns. We've grouped them into nine  
17 (9) major categories. And in those discussions in  
18 communities, people shared their experiences with us, around  
19 the existing mine activity and what it has meant, as well as  
20 broader societal conditions with which families and  
21 communities are coping. All of this is input to carrying out  
22 the impact assessment analysis and the development of  
23 measures -- impact management measures.

24 We also, based on our experience and the  
25 information generated, described two (2) scenarios, which are

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1 in the appendices to the EA. A best case, where all the  
2 impact management measure are effectively implemented, and a  
3 worst case, where they are not.

4 The best case scenario assumes that the  
5 partnerships are developed and implemented, consistent with  
6 the stated objectives and commitments of all the parties.  
7 The worst case, based on our experience, we consider to be  
8 highly improbable but we described it anyway.

9 Why do we consider it to be improbable?  
10 Because development and implementation of impact management  
11 measures is something that De Beers is committed to.

12 However, if some of the partnerships are not

13 fully developed, then the achievements that we talk about in  
14 the EA report could be less than predicted.

15 This next slide provides the framework that  
16 shows the relationship between the project, our analysis of  
17 the predicted impacts and the responses to those predicted  
18 impacts. I'm going to deal with these in some detail as we  
19 go through the presentation but I want to take a minute just  
20 to explain this slide.

21 Obviously the proposal is the Snap Lake  
22 Diamond Project which is in front of the Board. The analysis  
23 is of predicted impacts is our analysis in the documents in  
24 the Environmental Assessment. And as part of that analysis  
25 to deal with the positive impacts, that is maximising them,

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1 to deal with the negative effects, to minimise them or  
2 prevent them, we've identified a range of impact management  
3 measures. Things that need to be done.

4 Who will do what deals with De Beers'  
5 responsibilities and also roles and responsibilities that  
6 others have to play in dealing with the broad range of  
7 impacts that we have identified. How will it be done? Some  
8 De Beers is directly responsible for and will do. Others  
9 will emerge as a result of partnerships and still others will  
10 be identified and be part of formal negotiated agreements.

11 When is all this going to happen? Well,  
12 Mr. Chairman, Board Members, as you know, the environmental  
13 assessment processes from the beginning of a project through  
14 to implementation take a lot of time. But some of them are  
15 being done now. De Beers had made commitments to  
16 implementing various impact management measures over the  
17 project life, and still others will be accomplished when the  
18 various agreements and partnerships are negotiated.

19 In our analysis, we focussed on considering  
20 the conditions required to maximise the positive effects. We  
21 also considered the pre-existing social conditions that  
22 community members described to us, such as substance abuse  
23 problems, lower education and life skills, levels and  
24 pressure on aboriginal cultures.

1 development of impact management measures to do three (3)  
2 things: To maximise the range of positive effects, to work  
3 towards addressing negative effects, and to deal with  
4 community stated issues and concerned.

5 And also there needs to be monitoring to  
6 demonstrate that the impact management measures are, in fact,  
7 meeting the needs and to provide the information necessary to  
8 make changes as might be required during the life of the  
9 project.

10 This next slide deals with some of the major  
11 direct impacts. These are the ones that result from the  
12 actual mine construction and operation. And our analysis,  
13 and Andy mentioned this as well, identified a number of  
14 direct impacts including the increased employment for  
15 aboriginal northern residents for a more than twenty-five  
16 (25) year period.

17 There will be increased employment training  
18 opportunities which will assist in developing skills and  
19 capacity. And some individuals and families will have the  
20 benefit of consistent wage employment and the positive things  
21 that that may bring, in addition to the tax revenue that Andy  
22 has discussed as part of the direct impacts.

23 In addition, we looked at indirect impacts.  
24 That is, some of the things that can happen because Snap Lake  
25 Diamond Mine is built and operating. There are some impact

1 management measures that were described which can contribute  
2 to the longer term community economic sustainability and  
3 diversity through supporting existing and encouraging new  
4 northern business.

5 That is, to help create employment  
6 opportunities that are not directly related to the Snap Lake  
7 Diamond Project but are related to providing services and  
8 supporting people who do benefit directly from Snap Lake.

9 In addition, support services to contribute to  
10 addressing some of the underlying social concerns, and assist  
11 individuals and families in communities, to ensure that  
12 people benefit broadly from the Snap Lake project have been  
13 identified, and finally, support for activities to help  
14 promote cultural well-being.

15 Another requirement of impact assessment work  
16 is to look at cumulative effects, and in our discussions in  
17 communities, the issues of cumulative effects were rolled up  
18 into the issues related to Snap Lake Diamond Project  
19 proposal.

20 The cumulative effects were generally  
21 discussed by references to experiences with BHP and Diavik,  
22 and asking questions like, what differences might a third  
23 mine make?

24 Carrying out socio-economic cumulative impact  
25 is a challenging process, because the BHP and Diavik

1 experiences are also part of the background that we address  
2 in looking the Snap Lake site-specific analysis.

3 In other words, there's overlap. The two (2)  
4 blend into each other, so it's not possible to clearly  
5 differentiate the effects from BHP and Diavik, from the  
6 predicted impacts for the Snap Lake project.

7 However, there is the benefit of having BHP  
8 and Diavik as relevant local case studies, and that  
9 contributes to some understanding of the cumulative impacts.

10 Now, the approach we used, we took the issues  
11 and concerns -- if you remember back to the slide, I think we  
12 had nine (9) issues and concerns, and we tried to group them  
13 into five (5) broad categories, and then to describe what  
14 those cumulative effects could be.

15 The categories we looked at dealt with -- or  
16 the themes were employment and income levels, the increased

17 demand for labour, regional economic development, changes in  
18 social capacity, and changes in cultural practices and  
19 traditions.

20 Our analysis involved the review of all the  
21 available information that we had, in terms of the issues and  
22 concerns, our reference to scenarios that we developed, the  
23 current experiences from the BHP and Diavik projects, and  
24 from other similar projects.

25 All of these helped increase understanding of

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1 cumulative effects.

2 We also discussed our analysis with a cross-  
3 section of community res -- or, representatives. We applied  
4 a reasoning process utilizing this information and our  
5 professional experience to describe the anticipated  
6 cumulative effects.

7 And then, that information was used by us in  
8 developing impact management measures for the Snap Lake  
9 Diamond project, but developing them in such a way that they  
10 also can address cumulative effects.

11 What -- what will be done? What will we do?  
12 The socio-economic component of the EA has described fourteen  
13 (14) impact management measures, broad categories to address  
14 the three (3) areas you see in front of you.

15 These impact management measures are intended  
16 to get the most out of a positive effects, and to prevent, or  
17 reduce any negative effects.

18 I'll deal with each of those in a moment, in a  
19 little more detail.

20 The other point I would draw to your attention  
21 is that in identifying the impact management measures, we  
22 designed them also to compliment each other. That is, one  
23 (1) measure sometimes builds on another, or feeds into  
24 another.

25 Many of these impact management measures

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1 include actions that are solely the responsibility of De  
2 Beers. Others, are ones where De Beers has a role to play in  
3 partnership with Government agencies and communities.

4 For example, De Beers will partner with others  
5 to provide social and community support, or educational  
6 upgrading and training.

7 These impact management measures will be  
8 implemented either directly by De Beers, or through a number  
9 of agreements, which include the impact benefit agreements  
10 being negotiated with communities, the socio-economic  
11 agreement, and the range of activities that will comprise the  
12 human resources development plan.

13 Now, Mr. Chairman, and Board members, as you  
14 know, the EA was submitted in February 2002, and since that  
15 time, considerable work has been undertaken to further  
16 develop some of these impact management measures.

17 This slide makes reference to the impact  
18 management measures for recruitment training and employment.  
19 There are five (5) impact management measure categories, but  
20 within them there are multiple program activities, and some  
21 of them have been identified there.

22 I will make reference to one (1) that's  
23 currently underway, and that is the pre-apprenticeship  
24 training program, which has twenty-seven (27) participants.

25 It may interest the Board to know that more

1 than seventy (70) people applied for this program, and so De  
2 Beers doubled the size of the class to twenty-seven (27) to  
3 accommodate all those who were qualified. And of those  
4 twenty-seven (27) participants, fifty-five (55) (sic) are  
5 Aboriginal.

6 With respect to health and wellness, there are  
7 seven (7) impact management measures. In these measures, De  
8 Beers has already made major commitments to community liaison  
9 personnel to ensure that there is flow of information on a

10 consistent basis between the primary communities and the  
11 Company.

12 And also, De Beers has committed to ensuring  
13 that transportation to the site will be directly from the  
14 primary communities.

15 In both of these instances, these are in  
16 direct response to issues and concerns that we heard loud and  
17 clear from our meetings with community residents.

18 And with other impact management measures, De  
19 Beers has recognized they have a role to play in helping to  
20 promote cultural awareness, traditional practices, family,  
21 and community support systems.

22 There are two (2) major impact management  
23 measures with respect to economic development. And these are  
24 to assist northern and Aboriginal business, to obtain  
25 contracts, and provide services.

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1 To date, several northern firms, and  
2 Aboriginal firms, have had contracts for the Snap Lake  
3 Diamond Project.

4 By providing opportunities for northern and  
5 Aboriginal business, De Beers will be helping northern  
6 communities to diversify over time.

7 One of the activities that has been  
8 implemented has been the hiring of a business development  
9 coordinator to work with aboriginal and northern businesses.  
10 And I expect that some people in the room have had meeting  
11 with Mike Padula in that regard.

12 This slide -- who's going to do what? Well,  
13 as mentioned before, De Beers will carry out activities by  
14 themselves, to implant -- implement impact management  
15 measures. I've just provided a few examples.

16 Others will be developed in partnerships, and  
17 some of those partnerships might be between De Beers, and one  
18 (1) of the other potential partners listed. Other activities  
19 may involve many partners.

20 How will this be done? Work has begun. In  
21 the technical sessions, De Beers provided a draft report on

22 developing human resources for the Snap Lake Diamond Project.  
23 Additional work has been undertaken since then  
24 to develop some of the activities. De Beers has also had  
25 meetings around partnerships with some government agencies

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1 and communities.  
2 A number of examples are provided on that  
3 slide. I'll just mention one (1). The Career and Technical  
4 Centre, which was recently announced, is a partnership  
5 between De Beers, the GNWT Education Culture and Employment  
6 Department, and the Yellowknife Catholic Schools.  
7 In addition to partnerships that would be  
8 developed in that manner, there will clearly be more formal  
9 agreements, such as the Socio-economic Agreement.  
10 When is all of this going to happen? Some are  
11 already underway, there's other activities that are underway.  
12 An example is the Mine Management Training Committee; a  
13 partnership of the GNWT, industry, the communities, and the  
14 NWT and Nunavut Chamber of Mines. Their objective is to  
15 identify how to meet the broad training needs of the mining  
16 industry.  
17 The IBA negotiations, which will spell out the  
18 relationship between De Beers and primary communities, are  
19 underway.  
20 It's important to note that other partnership  
21 discussions will be undertaken. However, as the Board, I'm  
22 sure is aware, development of partnerships emerge from  
23 negotiations between various parties, and they take time.  
24 However, it's that it's desirable to have  
25 these concluded as quickly as possible so the benefits can be

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1 realized earlier.

2 Socio-economic monitoring is an integral part  
3 of environmental assessment. It's undertaken to confirm  
4 predictions of impact and to evaluate the effectiveness of  
5 impact management measures.

6 The socio-economic impacts will change over  
7 time as the Snap Lake Project evolves, and the impact  
8 management measures are implemented. Likewise, over the life  
9 of the mine, the impacts could vary from community to  
10 community.

11 Therefore, it is important that the trends be  
12 monitored on a regular basis, to ensure that impact  
13 management measures are appropriate, and to provide  
14 opportunities to adapt or modify them as conditions warrant.

15 For example, I fully expect that measures to  
16 provide educational upgrading may diminish over time, while  
17 measures to provide specialized training will increase.

18 Likewise, measures to provide money management  
19 may decrease over time.

20 One (1) of the values of looking at case  
21 studies is that you can see what has happened in similar  
22 circumstances. And the -- the issues I've mentioned is  
23 basically the pattern that has occurred over some twenty (20)  
24 years experience with Cominco and Cogema.

25 Now, the socio-economic monitoring agreement

1 is currently being discussed, and there are three (3) main  
2 constituencies involved in that negotiation. Each of those  
3 constituencies brings with it a view of the -- what the  
4 agreement should contain and how it could be managed.

5 They're currently engaged in some discussions,  
6 just trying to seek accommodation with all of their  
7 respective views. And this is an ongoing process that will  
8 continue until an agreement is reached.

9 The broad categories -- among the broad  
10 categories being discussed that would be part of such an  
11 agreement are training and education, employment, business,  
12 health and wellness and the overall protocols for monitoring.

13 The next few slides come to the end of my

14 presentation and summarize. How will people in communities  
15 be affected? With the development of the Snap Lake Diamond  
16 Project, and the implementation of the impact management  
17 measures, we see a number of key benefits.

18           These are in the area of employment, with long  
19 term sustained wage employment, skills and capacity  
20 development because of increased education and skill level  
21 training, community development, which would include  
22 increased northern and Aboriginal business development,  
23 improving quality of life for families and communities, and  
24 some reduction in some of the underlying social conditions,  
25 and the tax revenue.

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1           De Beers has indicated a commitment to take  
2 responsibility for helping put the right conditions in place  
3 to ensure that the positive impacts are maximized, negative  
4 impacts, minimized.

5           One (1) of the questions might be, do we have  
6 enough information? We have considerable amount of  
7 information coming directly from the communities, the case  
8 studies. And it's our view that we have more than sufficient  
9 information for our analysis and to predict potential socio-  
10 economic impacts.

11           The analysis we have is based on recent and  
12 real experience, and the research and interaction with the  
13 communities has identified the ways in which De Beers can  
14 ensure that the positive socio-economic impacts are maximized  
15 and the negative minimized.

16           How sure are we of our analysis? We have a  
17 very high degree of confidence because it is based on  
18 extensive research in the primary communities. It is based  
19 on relevant, recent experience, discussion with government  
20 officials and review of similar projects.

21           And throughout our approach to the socio-  
22 economic impact assessment, we drew on the inputs and  
23 insights of Elders and other key people in the communities,  
24 their insight based on experience with BHP and Diavik, their  
25 insights based on experience with government programs. And

1 we used this information to identify appropriate impact  
2 management measures.

3 In addition, we have De Beers commitments to  
4 the impact management measures, to the monitoring and to a  
5 flexible and adaptive approach to impact management.

6 As with all prediction of social and economic  
7 impacts, there is some level of uncertainty, and that  
8 uncertainty comes from a number of trends and influences.

9 For example, society can be affected by a lot  
10 of factors outside the control of a territory or community  
11 such as international monetary changes, global markets,  
12 exposure to global communication. Likewise, government  
13 policies can not necessarily be predicted for long periods of  
14 time.

15 Further, all societies and cultures have a  
16 dynamic nature to them and they, themselves, change over time  
17 by reacting and adapting to a range of influences.

18 Finally, individuals, families and communities  
19 will react or adapt differently to projected changes and  
20 influences. Some may gravitate to the changes and build on  
21 them. Others may not.

22 However, Mr. Chairman and Board Members, the  
23 objectives are clear. The objectives are to maximize the  
24 positive impacts and minimize the negative impacts over the  
25 twenty-five (25) year life of this project.

1 So this means, regardless of what changing  
2 influences occur over the next twenty-five (25) years, we  
3 need to keep focussed on those objectives to maximize the  
4 positive and minimize the negative and as we go along, make  
5 the changes necessary to ensure we meet those objectives.  
6 The way to do that is to have an effective process of

7 monitoring and adaptive management.

8 De Beers is committed to fourteen (14) impact  
9 management measures as noted and are currently doing a number  
10 of activities and I believe Robin Johnstone mentioned the  
11 activities that he's doing in 2003 and the commitments  
12 they've made to date.

13 My final slide. Are these socio-economic  
14 impacts acceptable? In our judgment, the overall socio-  
15 economic impacts are acceptable. The basic question one has  
16 to ask is: With the approval of the Snap Lake Diamond  
17 Project, will people be better off as individuals, families,  
18 and communities?

19 It is possible that there may be some adverse  
20 impacts for some individuals and some families. This is  
21 precisely why the impact management measures have been  
22 designed to minimize these adverse impacts by creating  
23 support systems to help individuals and to encourage them to  
24 take advantage of some of the opportunities that will arise  
25 because of this project.

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1 With the implementation of the impact  
2 management measures and the monitoring for -- program for the  
3 Snap Lake Diamond Project, we believe there will be many  
4 socio-economic benefits beyond mine employment. And these  
5 include an increase in socio-economic sustainable  
6 development, efforts -- additional efforts to address  
7 outstanding pre-existing social conditions, support for  
8 traditional values, increased individual capacities and  
9 increased community capacities.

10 But, Mr. Chairman, Board Members, in  
11 conclusion, in the context of my summary, I say we are  
12 confident that the overall socio-economic impacts from the  
13 Snap Lake Diamond Project will support the objectives of the  
14 GNWT and bring benefits to the primary and catchment  
15 communities. Thank you.

16 THE CHAIRPERSON: Thank you, Mr. Homenuck.  
17 Thank you. Questions for De Beers, Yellowknives Dene...?

18 MR. TIME BYER: Thank you, Mr. Chair. Yes.

19 We have one (1) for Mr. Swiderski. Andy, you said that one  
20 (1) of the important benefits of -- of mine developments is,  
21 of course, increased income for community members and, of  
22 course, from that you have reduced welfare payments.  
23 Now, the benefit of having reduced welfare  
24 payments is that it frees up, in your opinion, Government  
25 money that can be put back into social and education programs

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1 into the community.  
2 I'm wondering, do you have any information at  
3 all, and I know you're not a -- a Government person, but do  
4 you have any information at all as to whether, in fact,  
5 freed-up monies do go back into community programs, or would  
6 those monies go back into general revenues of Government to  
7 be redistributed to God knows what Government programs?  
8 THE CHAIRPERSON: Thank you, Mr. Byers. I  
9 think that that's a question that the Proponent can't answer,  
10 however, the Government of the Northwest Territories will be  
11 making a presentation, and I think probably, they'll be in a  
12 position to answer that question.  
13 Ms. Crapeau...?  
14 MS. RACHEL CRAPEAU: Rachel Crapeau,  
15 Yellowknives Dene. I have a question for Mr. Homenuck.  
16 Slide number 19, on the impact management measures, he talked  
17 about a program that people applied to for training, and I  
18 was wondering which program that he was talking about, where  
19 at least seventy (70) people applied.  
20 Was that on the site learning centre, or the  
21 literacy programs? I couldn't catch which one it was?  
22 THE CHAIRPERSON: Thank you. Mr.  
23 McConnell...?  
24 MR. JOHN MCCONNELL: Mr. Chairman, I'll ask  
25 John Simpson of Genesis Group to respond to that question.

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1 THE CHAIRPERSON: Thank you. Mr. Simpson...?  
2 MR. JOHN SIMPSON: John Simpson, Genesis  
3 Group. It's the trades entrance study tutorial program.  
4 It's happening next door at the College right now, and it's  
5 to prepare people to pass the trades entrance exam.  
6 MS. RACHEL CRAPEAU: Trades entrance and  
7 tutorial training at Arctic College?  
8 MR. JOHN SIMPSON: It's a De Beers program,  
9 and it's in partnership with the college. Trades entrance  
10 study tutorial, it's called the TEST program. It's sort of  
11 -- to prepare people for the test, the trades entrance exam,  
12 so they can go in -- go on to be apprentices and journeymen.  
13 THE CHAIRPERSON: Thank you.  
14 MS. RACHEL CRAPEAU: Just one (1) more  
15 question, please?  
16 THE CHAIRPERSON: Go ahead, Ms. Crapeau.  
17 MS. RACHEL CRAPEAU: For Mr. Homenuck's  
18 presentation. In the second last slide, how sure are we,  
19 that one. It -- it says, in these measures -- in part, these  
20 measures would -- will also be implemented through IBA  
21 negotiations, socio-economic agreements, and the third one  
22 (1), I'm interested in, the socio-economic monitoring  
23 program.  
24 The monitoring program, is it designed so that  
25 people from the communities can be part of that monitoring

1 program?  
2 THE CHAIRPERSON: Mr. McConnell...?  
3 MR. JOHN MCCONNELL: John McConnell with De  
4 Beers. Mr. Chairman, we recognize that there's certainly a  
5 need for community involvement in the socio-economic  
6 monitoring program, and those -- those negotiations with the  
7 GNWT, and the primary communities are ongoing right now, and  
8 would form a component of a socio-economic agreement.  
9 THE CHAIRPERSON: Thank you, sir. Indian and  
10 Northern Affairs Canada?  
11 NWT and Nunavut Chamber of Mines? No.

12 Northwest Territory Metis Nation? No.  
13 North Slave Metis Alliance. Ms. Johnson,  
14 there was a question from last night, and I believe De Beers  
15 now has somebody available to answer that question that was  
16 asked last night?  
17 MS. KRIS JOHNSON: I'm just going to wait for  
18 Ron to come back, and -- Kris Johnson for the North Slave  
19 Metis Alliance -- I just have a few questions.  
20 You mentioned that there would be growth in  
21 directly affected communities, and you had a graph on the  
22 first presentation. I'm just wondering if that growth's  
23 uniform for all Aboriginal communities?  
24 THE CHAIRPERSON: Mr. Swiderski...?  
25 MR. ANDY SWIDERSKI: Andy Swiderski with

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1 Terriplan. Mr. Chairman, the -- the figure that was  
2 presented, were actuals not -- not projected estimates, and  
3 they are for the -- the primary communities.  
4 I think it would be fair -- fair to say that  
5 your conclusion is correct.  
6 THE CHAIRPERSON: Ms. Johnson...?  
7 MS. KRIS JOHNSON: Kris Johnson from the  
8 North Slave Metis Alliance. I have another question. You  
9 mentioned that if the agreements that are being developed are  
10 not as predicted that the impact on communities will not be  
11 as defined in the EA.  
12 Would you be of the opinion that it would be  
13 safe to say that these agreements should be before the Board,  
14 before they can make their assessment?  
15 THE CHAIRPERSON: Mr. McConnell...?  
16 MR. JOHN MCCONNELL: John McConnell, De Beers  
17 Canada. I think we've -- we've made a commitment to  
18 negotiate these agreements with communities and the GNWT  
19 Government.  
20 The Board is aware of the components of these  
21 agreements, and what are involved. There is the past  
22 precedence of the EKATI Mine, and Diavik.  
23 So, I think the Board can take some comfort in

24 understanding the commitments that are contained in these  
25 agreements, and that it's not necessary that they be

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1 concluded before the Environmental Assessment process is  
2 complete.

3 THE CHAIRPERSON: Thank you. Ms. Johnson...?

4 MS. KRIS JOHNSON: One more question for  
5 clarification. Kris Johnson, from the North Slave Metis  
6 Alliance.

7 You mentioned that in some of your graphs you  
8 took out Yellowknife to get a more accurate example of what  
9 the directly effected communities would look like.

10 Did that include taking out the North Slave  
11 Metis?

12 THE CHAIRPERSON: Thank you. Mr.  
13 Swiderski...?

14 Mr. McConnell...?

15 MR. JOHN MCCONNELL: John McConnell, De Beers.  
16 It's our understanding that the North Slave Metis Alliance  
17 represents Metis in communities, including Yellowknife and  
18 Rae-Edzo.

19 So, I guess you could say that, in part, some  
20 would be taken out in that analysis, and some would still be  
21 in.

22 THE CHAIRPERSON: Thank you. Ms. Johnson...?

23 MS. KRIS JOHNSON: I'm going to pass it off to  
24 Ron Balsillie, for his questions.

25 THE CHAIRPERSON: Thank you. Mr.

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1 Balsillie...?

2 MR. RON BALSILLIE: Right. I just have one  
3 (1) question that wasn't answered last night. And could you

4 tell us, please, what is the present value of your existing  
5 discovered diamond reserves, on an undiscounted and before  
6 tax basis?

7 THE CHAIRPERSON: Thank you. Mr.  
8 McConnell...?

9 MR. JOHN MCCONNELL: Mr. Swiderski will  
10 answer.

11 THE CHAIRPERSON: Thank you. Mr.  
12 Swiderski...?

13 MR. ANDY SWIDERSKI: Thank you, Mr. Chairman.  
14 Andy Swiderski, with Terriplan. The -- the estimated total  
15 resource life of the mine is 32.34 million karats, with an  
16 estimated current market prices, approximate value of 3.913  
17 million, Mr. Chairman.

18 MR. RON BALSILLIE: Thank you, that's it.

19 THE CHAIRPERSON: 3.193 billion. Thank you.  
20 Thank you, Mr. Balsillie.  
21 Fisheries and Oceans Canada...?  
22 Dogrib Treaty 11...?  
23 Canadian Arctic Resources Committee, Mr.  
24 O'Reilly...?

25 MR. KEVIN O'REILLY: Thank you. A couple of

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1 questions. The first one is with regard to a technical  
2 memorandum that De Beers submitted to the Board on February  
3 the 28th, it's titled, Overview of Project Milestones and  
4 Monitoring and Management Programs for the Snap Lake Diamond  
5 Project.

6 Table 1, indicates that De Beers anticipates  
7 completing negotiations on a socio-economic agreement by June  
8 the 3rd, and finalizing the Impact and Benefit Agreements on  
9 the same date.

10 I'm just wondering, are these dates still good  
11 for De Beers, is that what they anticipate?

12 THE CHAIRPERSON: Thank you. Mr.  
13 McConnell...?

14 MR. JOHN MCCONNELL: Thank you. John  
15 McConnell, with De Beers. We still think those dates are

16 goals, however, one of the biggest problems has been  
17 capacity, in both government and the Aboriginal communities.  
18 And just the ability to get people together to  
19 meet to carry out these discussions and finalize things. So,  
20 they're probably now stretched targets, in terms of  
21 concluding agreements by those dates, but we still are  
22 committed to completing them prior to moving the project to  
23 construction.  
24 THE CHAIRPERSON: Thank you. Mr.  
25 O'Reilly...?

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1 MR. KEVIN O'REILLY: Thank you. I do have a  
2 couple of other -- a few other questions, here. In Mr.  
3 Swiderski's presentation, on the 6th slide, he indicates that  
4 De Beers has already invested some \$100 million into the Snap  
5 Lake Diamond Project.  
6 I assume this is the investment after the  
7 purchase? And what was the purchase price for the property,  
8 or is that something that can be disclosed?  
9 THE CHAIRPERSON: Mr. McConnell...?  
10 MR. JOHN MCCONNELL: John McConnell with De  
11 Beers. This is the actual investment in the exploration  
12 process, to date. It does not include the purchase price.  
13 However, I don't think the purchase price is  
14 confidential. The purchase of Winspear and Aber's (phonetic)  
15 share in the project was something in the order of \$500  
16 million.  
17 THE CHAIRPERSON: Thank you. So, with the  
18 five hundred (500) plus the hundred (100), then, the total  
19 expenditures to date has been approximately 600 million?  
20 MR. JOHN MCCONNELL: That's correct.  
21 THE CHAIRPERSON: Thank you. Mr.  
22 O'Reilly...?  
23 MR. KEVIN O'REILLY: Thank you. Further on  
24 in Mr. Swiderski's slides, there's so many I don't know  
25 which -- I guess it's at the top of page 4, this is the two

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1 (2) graphs showing -- bar graphs, showing the decline in  
2 income support payments in primary communities, and then  
3 another one (1) with primary communities excluding  
4 Yellowknife.

5 And I'm just wondering whether these bar  
6 graphs include -- it's my understanding that the Government  
7 of the Northwest Territories claws back or reduces social  
8 assistance payments by the equivalent amount of impact and  
9 benefit agreement payments that may be made to Aboriginal  
10 communities.

11 So does this -- how does -- does this bar  
12 graph actually account for that?

13 THE CHAIRPERSON: Mr. Swirderski...?

14 MR. ANDREW SWIRDERSKI: Thank you, Mr.  
15 Chairman. Andy Swirderski with Terriplan. The information  
16 that is projected in our presentation is from published  
17 sources, from the GNWT. I do not have any information with  
18 respect to whether that includes or excludes claw backs.

19 THE CHAIRPERSON: Thank you, Mr. Swirderski.  
20 Perhaps you could put that to the Government of the Northwest  
21 Territories when they make their presentation, Mr. O'Reilly?

22 MR. KEVIN O'REILLY: Yes, thank you. There's  
23 another slide that I wanted to ask a question about, this is  
24 at the top of -- it's the first one (1) on page 6. And the  
25 title of the slide is, 'Model Assumptions and Projections.'

1 And it talks about local labour, and that the  
2 assumptions that were used in the modelling, and it says:  
3 "Construction, 40 percent, operations and  
4 closure at 60 percent."

5 Are these targets, then, that De Beers is  
6 prepared to commit to in a socio-economic agreement?

7 THE CHAIRPERSON: Mr. McConnell...?

8 MR. JOHN MCCONNELL: Thank you, Mr. Chairman.

9 I guess much has been made, both by the GNWT and others,  
 10 certainly in the technical session and in opening  
 11 presentations this week, about De Beers willingness to --  
 12 willingness or unwillingness to commit to employment targets.

13 I think, to a certain extent, we've taken a  
 14 different approach on employment targets, and that's based on  
 15 a -- a number of things. First, is my experience at  
 16 Nanasivik (phonetic), that targets can sometimes become  
 17 stumbling blocks if they're un -- unrealistic. And they can  
 18 become dis-incentives in striving for higher levels.

19 Second, targets, on their own, can have a  
 20 negative impact of they're not managed properly.

21 For example, we hear in the communities now,  
 22 that, don't be hiring kids that are in Grade 10 and 11.  
 23 Don't come into our community and offer them jobs as truck  
 24 drivers. We want them to finish high school.

25 So that is a possible negative impact of

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1 imposing targets on an industrial operation.

2 And third, I guess part of our reluctance has  
 3 been that we haven't understood, really well, what the  
 4 employment capacity would be in the area post-Diavik  
 5 construction.

6 Now, this all said, in the -- Mr. O'Reilly's  
 7 correct, in our economic analysis we did make projections of  
 8 40, 60, 60 percent northerner employment during construction,  
 9 operation and closure.

10 I guess, based on the more recent information  
 11 such as the capacity analysis carried out by Terriplan, the  
 12 announced closure of the Miramar Con Mine in 2005 and, kind  
 13 of, anecdotal evidence of the success of our recent  
 14 apprenticeship bridging program, you know, we are -- we feel  
 15 that those estimates that we've made in the economic analysis  
 16 can be met and are willing to commit to those targets.

17 But, you know, we have gone a step further, we  
 18 think, with the HRD strategy that we've put together. We  
 19 feel that this is a real opportunity to move forward with and  
 20 ensure that there are -- that we can surpass those goals and

21 that there are both northerner and Aboriginal participation  
22 in the project at all operational and management levels  
23 throughout the twenty-five (25) year life of the mine.  
24 THE CHAIRPERSON: Mr. O'Reilly...?  
25 MR. KEVIN O'REILLY: Sorry, I guess I wasn't

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1 quite sure. Was that a yes or a no then?  
2 THE CHAIRPERSON: Up to you to make up your  
3 mind, Mr. O'Reilly.  
4 MR. KEVIN O'REILLY: Okay. Maybe I'll ask it  
5 again then: Is De Beers then prepared to commit to these  
6 targets in a socio-economic agreement?  
7 THE CHAIRPERSON: Mr. McConnell...?  
8 MR. JOHN MCCONNELL: John McConnell with  
9 De Beers. Yes. We feel very comfortable that we can meet  
10 those estimates.  
11 THE CHAIRPERSON: Thank you.  
12 Mr. O'Reilly...?  
13 MR. KEVIN O'REILLY: I'm very pleased to hear  
14 that and I think that's the first time we have that  
15 commitment from the Company.  
16 One (1) further question on the last set of  
17 slides -- the set of slides from Mr. Swiderski, the very last  
18 slide shows, I think it's corporate income tax from the  
19 Government of the Northwest Territories -- or that would  
20 accrue to the Government of the Northwest Territories, and  
21 does that figure reflect, I believe, last year in June the  
22 territorial government reduced the corporate tax rate, if I  
23 remember correctly I think it was from 12 to 10 percent which  
24 is about a 7 percent drop cumulatively.  
25 But does this figure actually reflect that

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1 drop in the corporate tax rate?  
2 THE CHAIRPERSON: Mr. Swiderski...?  
3 MR. ANDY SWIDERSKI: Mr. Chairman, Andy  
4 Swiderski with Terriplan Consultants. The change in the  
5 GNWT's corporate tax structure was from 14 to 12 percent and  
6 second, the adjustments to this figure do not include that --  
7 that minor reduction.  
8 THE CHAIRPERSON: Thank you.  
9 Mr. O'Reilly...?  
10 MR. KEVIN O'REILLY: Thanks. I guess it's  
11 more than just a minor reduction although the marginal rate  
12 was from fourteen (14) to twelve (12) that's actually a  
13 7 percent decrease in the -- in the rate but we won't quibble  
14 about that.  
15 I did want to ask one (1) other question of  
16 De Beers and it relates to the handout that we've got from  
17 the Government of the Northwest Territories on their socio-  
18 economic presentation and maybe I'm jumping the gun a bit,  
19 but I'm afraid that if my colleagues at the territorial  
20 government don't ask this question, it may not get asked.  
21 So, on their over -- or their PowerPoint  
22 presentation there's some discussion of energy sources for  
23 the Snap Lake mine and it mentions in here that De Beers  
24 utilised low sulphur fuel in its air emission predictions and  
25 that, I guess, was the basis for their modelling.

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1 Is De Beers actually going to use low sulphur  
2 fuel at the site?  
3 THE CHAIRPERSON: Mr. McConnell...?  
4  
5 (BRIEF PAUSE)  
6  
7 MR. JOHN MCCONNELL: John McConnell with De  
8 Beers. I -- I guess I'm not exactly sure, but I will find  
9 out, and get back to the Board with the answer to that  
10 question later in the day.  
11 THE CHAIRPERSON: Thank you, Mr. McConnell.  
12 Mr. O'Reilly...?

13 MR. KEVIN O'REILLY: Okay, yeah, I'd -- I'd  
14 appreciate the hearing back, and if they will prepare to make  
15 that commitment, I think it would be a helpful one (1).  
16 I think my colleague just had a few questions  
17 as well. Thank you.  
18 THE CHAIRPERSON: Okay, that being the case  
19 then, we will take a coffee break. It's now 10:30.  
20  
21 --- Upon recessing at 10:30 a.m.  
22 --- Upon resuming at 10:43 a.m.  
23  
24 THE CHAIRPERSON: Okay, we'll now resume the  
25 Hearing. And we had questions from CARC for the proponent?

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1 (BRIEF PAUSE)  
2  
3 THE CHAIRPERSON: Thank you. Dr.  
4 Montgomery...?  
5 MS. SHELAGH MONTGOMERY: Thank you. Shelagh  
6 Montgomery, CARC. I have a quick question, it's based on  
7 some of the information presented during Andy Swiderski's  
8 talk, specifically page 6, the slide in the top right corner,  
9 'Canada Impacts'.  
10 And I'm just curious, in the annual operations  
11 column we have a value for average annual expenditure of  
12 about 120.7 million. Total expenditure, just above that,  
13 over the twenty-two (22) years of anticipated operations is  
14 indicated as not available or not applicable.  
15 I'm just curious would that value simply not  
16 be simply more or less twenty-two (22) times a hundred and  
17 twenty point seven (120.7)?  
18 THE CHAIRPERSON: Mr. Swiderski...?  
19 MR. ANDY SWIDERSKI: Thank you, Mr. Chairman.  
20 Andy Swiderski with Terriplan. The -- the figure that  
21 Dr. Montgomery refers to is that -- it's not applicable in  
22 the sense that the intent of the 120.7 million in annual  
23 operating costs generally will -- will be a consistent  
24 pattern over the twenty-two (22) years.

1 figure available, I will provide that momentarily, Mr.  
2 Chairman. The basis equation is, as Dr. Montgomery outlined,  
3 it is a factor of about twenty-two (22) years but there are  
4 some adjustments depending on what part of the year  
5 construction and operations start. But generally that is the  
6 pattern. And it is contained in the full EA submission.

7 MS. SHEILA MONTGOMERY: Okay. Sheila  
8 Montgomery, CARC. So the follow up then to that is, if it's  
9 approximately one-twenty point seven (120.7) times twenty-two  
10 (22) that's about 2.7 billion over twenty-two (22) years.

11 We heard that the estimated -- the value of  
12 what's anticipated to be mined at De Beers over its lifetime  
13 is about 3.9 billion so the anticipated -- and that doesn't  
14 even include taxes and other, sort of, deductions from that  
15 amount.

16 That ends up with a positive amount of about  
17 1.2 billion over twenty-two (22) years, is that what's  
18 anticipated, that would be about 5 million per year?

19 THE CHAIRPERSON: Thank you.  
20 Mr. Swiderski...?

21 MR. ANDY SWIDERSKI: Thank you, Mr. Chairman.  
22 The -- the point with regards to what's left over is a rather  
23 complicated accounting question and I am not -- I am not  
24 qualified as an accountant to address that.

25 But, essentially, once -- once you take a look

1 at the operating costs, take -- take off corporate taxes,  
2 mineral royalties, depreciation on the operations, that is  
3 essentially what you're left with, Mr. Chairman.

4 THE CHAIRPERSON: Thank you. Okay. Next up,

5 Government of Northwest Territories, any questions for the  
6 Proponent?

7 MR. GAVIN MORE: Gavin More, Northwest  
8 Territories. We have no questions. But I would -- we would  
9 like to make one (1) remark for the record and I'd like to  
10 introduce Lesley Allen, Deputy Minister for Education,  
11 Culture and Employment.

12 THE CHAIRPERSON: Okay. Keep it short  
13 please. Thank you.

14 MS. LESLEY ALLEN: Thank you,  
15 Mr. Chairperson. As -- as they said, I'm Lesley Allen from  
16 the GNWT. Just a point of clarification.

17 We are relieved that there is now a commitment  
18 by De Beers to employment targets. This is the first time we  
19 have heard this and we are looking forward to confirming this  
20 through the socio-economic process. Thank you.

21 THE CHAIRPERSON: Thank you. Lutsel K'e Dene  
22 First Nation, Ms. Catholique...?

23 MS. FLORENCE CATHOLIQUE: Massi. I have  
24 several questions. First question was -- was -- there was  
25 mention of the increase in income in the affected communities

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1 and I was just wondering is the data that was used to show  
2 this for our community depicted the total membership of the  
3 First Nation at home or also membership that were living  
4 elsewhere?

5 THE CHAIRPERSON: Mr. Swiderski...?

6 MR. ANDY SWIDERSKI: Thank you, Mr. Chairman.  
7 Andy Swiderski with Terriplan. Ms. Catholique's question is  
8 a fairly straightforward response. The information which --  
9 which we submitted to the Board was based on tax filings, and  
10 tax filings are rooted to the permanent address of the filee.

11 So, the question is the income that's  
12 attributed to the community of Lutsel K'e is for those who  
13 are resident there, Mr. Chairman.

14 THE CHAIRPERSON: Thank you. Ms.  
15 Catholique...?

16 MS. FLORENCE CATHOLIQUE: Also, the -- the

17 next -- thank you, Mr. Chairman. The next question is, when  
18 did the representatives of De Beers come to visit our  
19 community to collect the data that has been presented on --  
20 on our community, and -- and what type of -- what type of  
21 data was collected, and who -- who is the person that was met  
22 with?

23 THE CHAIRPERSON: Thank you. Mr.  
24 Swiderski...?

25 MR. PETER HOMENUCK: Mr. Chairman, Peter

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1 Homenuck. The -- that information is outlined in the  
2 environmental assessment, and we can provide full details,  
3 but I would just mention that I have just in front of me,  
4 records of about eight (8) meetings, and we met with a number  
5 of people, that's Chief, and Council members, Band Staff,  
6 Elders, had a community meeting, and I can provide all the  
7 dates.

8 THE CHAIRPERSON: Thank you. Ms.  
9 Catholique...?

10 MS. FLORENCE CATHOLIQUE: Just on that  
11 question, was that for the socio-economic specifically, or  
12 was it just meetings in general of other sources?

13 THE CHAIRPERSON: Mr. Homenuck...?

14 MR. PETER HOMENUCK: Yes, Peter Homenuck.  
15 The meetings I'm referring to, all but one (1) were with  
16 respect to the socio-economic information gathering  
17 information, information checking, verification.

18 THE CHAIRPERSON: Thank you. Ms.  
19 Cathlolique...?

20 MS. FLORENCE CATHOLIQUE: Okay. Next  
21 question. There is also mentioned in your presentation the  
22 -- the continuation of the -- our culture, and I just want to  
23 know, how does De Beers see how they're going to be doing  
24 that?

25 THE CHAIRPERSON: Mr. Homenuck...?

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1 MR. PETER HOMENUCK: Yes, Peter Homenuck. De  
2 Beers will contribute it to promoting traditional values and  
3 culture in a number of ways. They've made commitments to,  
4 for example, providing country food at the site.

5 They've made commitments to ensure that there  
6 is cross-cultural training. They've indicated they will en  
7 -- engage in assisting with providing information to school  
8 systems, as that might be appropriate, and in -- in effect,  
9 what they will discuss in IBA negotiations with communities.

10 THE CHAIRPERSON: Thank you. Ms.  
11 Catholique...?

12 MS. FLORENCE CATHOLIQUE: There was also, in  
13 your presentation, that provisions would be made in -- as an  
14 indirect effect of the development on our -- on the social  
15 services, leading towards healthy families, and I was kind of  
16 wondering, how that was going to lead to healthy families,  
17 because in our community, we know that social service does  
18 not lead to healthy families.

19 It's only a band-aid to -- to not going  
20 anywhere, and I -- I don't really understand how -- of what  
21 you -- what you're -- what -- what it is that you're talking  
22 to in regards to social services.

23 I would have thought it would have been better  
24 to -- to say -- lead to healthy families would have been  
25 education, support. So, just a clarity of that -- that one

1 (1), please?

2 THE CHAIRPERSON: Thank you. Mr.  
3 McConnell...?

4 MR. JOHN MCCONNELL: Thank you, Mr. Chairman.  
5 I -- I don't think there was a question there. It was more  
6 of a comment, or statement.

7 THE CHAIRPERSON: Ms. Catholique, would you  
8 like to try again...?

9 MS. FLORENCE CATHOLIQUE: I don't know which

10 slide that is, but there is a slide there that mentions, I  
11 guess, it was in Peter Homenuck's presentation of -- fourteen  
12 (14), slide 14.

13 "Analysis indirect impacts with  
14 implementation of the impact measures --  
15 impact management measures, indirect  
16 impacts on people and communities will  
17 include provisions of social support  
18 services leading to healthy individuals,  
19 families and communities."

20 And I'm -- I'm just wondering, what does the  
21 provisions of social support service mean?

22 THE CHAIRPERSON: Thank you. Mr.  
23 Homenuck...?

24 MR. PETER HOMENUCK: Yes, Peter Homenuck.  
25 The point that's being referred to is that, there's a

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1 recognition that community support services are things that  
2 are needed in the primary communities. This was raised in  
3 the various meetings that we had.

4 We fully recognize that that's a primary  
5 responsibility of government, but De Beers is prepared to  
6 assist in any way they can with respect to providing  
7 counselling, for example, for mine employees, of employee  
8 families, and counselling at the site.

9 But another element is clear recognition. And  
10 your point about education, in terms of broad healthy  
11 individuals and communities, there's a range of educational  
12 activities that could be undertaken. And a whole series of  
13 wellness initiatives have been identified for consideration  
14 and for discussion with the communities.

15 THE CHAIRPERSON: Thank you. Ms.  
16 Catholique...?

17 MS. FLORENCE CATHOLIQUE: Marci, Mr.  
18 Chairman. There was also mention in your presentation a  
19 liaison person? I want to know if that liaison person is  
20 going to be something similar to the liaison person that we  
21 had for BHP, which is only one (1) person? And in the

22 Diavik one (1), it was a person that was hired before the --  
23 our IBA implementations could be done, and that person did  
24 not -- either of them did not speak our language.  
25 And I -- will the person -- will it just be

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1 one (1) liaison person, or will it be a liaison person for  
2 each of the Aboriginal groups that have a specific language?

3 THE CHAIRPERSON: Thank you. Mr.  
4 McConnell...?

5 MR. JOHN MCCONNELL: John McConnell with De  
6 Beers, Mr. Chairman. We've committed to two (2) liaison  
7 personnel. We are faced with the problem of human resources  
8 in terms of what languages they'll be -- they'll speak.

9 However, it is certainly our preference that,  
10 of the two (2), one (1) would be fluent in Chipewyan and one  
11 (1) would be fluent in Dogrib.

12 THE CHAIRPERSON: Thank you. Ms.  
13 Catholique...?

14 MS. FLORENCE CATHOLIQUE: Last question.  
15 There was also mentioned in the presentations that some  
16 contracts have been led. And I -- I just want to know if any  
17 of those contracts are held with Lutsel K'e and which ones  
18 are they?

19 THE CHAIRPERSON: Mr. McConnell...?

20 MR. JOHN MCCONNELL: John McConnell. The  
21 contracts referred to were during the advanced exploration  
22 program, which concluded in August of 2001. So there are no  
23 outstanding or ongoing contracts right now.

24 But the contracts that were in place with  
25 Aboriginal groups during the AEP included EKATI Site

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1 Services, Dogrib Development Corporation, and a joint venture

2 -- help me out here, Nahanni Construction.  
3 THE CHAIRPERSON: Thank you.  
4 MS. FLORENCE CATHOLIQUE: Marci. That's all  
5 I have.  
6 THE CHAIRPERSON: Thank you. Before we move  
7 to the next presentation, which is by the Yellowknives Dene,  
8 I have a number of questions from the Board.  
9 There is a lot of talk about employment, Mr.  
10 McConnell. And for the record, the Board would like to know  
11 if De Beers will be paying transportation costs for employees  
12 who are living outside of the Northwest Territories, to and  
13 from pickup points in the Northwest Territories? And if  
14 there are going to be exceptions for the criteria?  
15 MR. JOHN MCCONNELL: John McConnell with  
16 De Beers. No. We won't be paying transportation costs  
17 outside of the NWT. Point of hires will be within the NWT.  
18 THE CHAIRPERSON: Thank you, sir. I  
19 understand that there was a list of community meetings in the  
20 EIA, have De Beers updated this list since the filing of the  
21 EIA and if you haven't, would you be prepared to do so?  
22 MR. JOHN MCCONNELL: We have updated it.  
23 There has been ongoing meetings and we would be quite happy  
24 to file that with the Board.  
25 THE CHAIRPERSON: Thank you, sir. The Board

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1 understands that you're presently negotiation IBA's with  
2 affected communities and while the contents of those IBA's  
3 are private, could the Proponent please advise the status of  
4 the negotiations?  
5 MR. JOHN MCCONNELL: John McConnell with  
6 De Beers. I guess, status is always a difficult thing in  
7 terms of gauging it, say, from zero (0) to ten (10). But  
8 you're correct, we are in active negotiations with Dogrib  
9 Treaty 11 Council, the Yellowknives Dene representing N'Dilo  
10 and Dettah, Lutsel K'e First Nation and the North Slave Metis  
11 Alliance.  
12 I'll start with the Dogrib Treaty 11 Council.  
13 We've had negotiations with the Dogrib, actually going back

14 to my days with Winspear. So back to 1999. A lot of  
15 discussions around Dogrib being involved as an equity partner  
16 in the project and there's been various meetings up until, I  
17 guess, the end of 2002.

18 Presently, we have had very few discussions  
19 with them. As you can understand, they've been very focussed  
20 on their land claim negotiations which are far more important  
21 to them than focussing on discussions on a diamond mine  
22 development.

23 However, those negotiations are coming to a  
24 close with the Government of Canada so there has been  
25 indications that -- from the Dogrib that they would like to

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1 get back to the table and we would, as I said earlier, hope  
2 to wrap those negotiations up with a -- an agreement as soon  
3 as possible.

4 Similarly, with the North Slave Metis  
5 Alliance, we've made very good progress on negotiations of an  
6 IBA with them. Up until early this year, I think as people  
7 know, there is a new election for a new board and officers  
8 this weekend.

9 It was at the request of their legal counsel  
10 that we suspended negotiations in November until the new  
11 board of directors was put in place. So we'd anticipate that  
12 negotiations there will pick up once the new board and  
13 officers are in place.

14 The Yellowknives Dene, we, I guess, if you  
15 were, as I said, measuring it from one (1) to ten (10), I  
16 would characterise it as maybe being around seven (7) to  
17 eight (8) in terms of negotiation.

18 There are a number of components of these  
19 negotiations as we've discussed in the past, financial,  
20 training, employment, business opportunities and many of  
21 those aspects have been finalized, particularly wording of an  
22 agreement has been finalized.

23 However, we are down to the most difficult  
24 area which is always the financial component and we have a  
25 number of meetings scheduled over the course of the next two

1 (2) months and we would hope to address those concerns there  
2 and hopefully reach agreement.

3 Lutsel K'e, following very similar format to  
4 that of the Yellowknives Dene in terms of the agreement.  
5 And, I guess, again, characterising it from one (1) to ten  
6 (10) we're probably around five (5). And -- we have agreed  
7 on a number of areas, but there's a lot of work to be done  
8 there yet.

9 And, again, we have a number of meetings  
10 scheduled over the next couple of months and we would hope to  
11 conclude those as soon as possible.

12 THE CHAIRPERSON: Thank you, sir. For Mr.  
13 Swiderski, in your slide presentation, on page 28, titled,  
14 Regional Labour Market, you say:

15 "Labour market conclusion: regional labour  
16 supply sufficient to meet cumulative  
17 demand, sufficient to meet cumulative total  
18 labour demands, sufficient to meet  
19 cumulative demand for both total and direct  
20 mine jobs. The analysis further validates  
21 the modelling labour assumptions and  
22 projections."

23 On page 31, it says:

24 "Of the percentage estimated to be resident  
25 in the Northwest Territories, one half

1 (1/2) are likely to be recruited from  
2 outside the NWT, given the current  
3 challenging labour force supply shortage."

4 How do you reconcile those two (2) statements,  
5 Mr. Swiderski? On one (1) hand, you seem to be saying  
6 there's enough, and two (2) pages later, you say there's a

7 shortage?

8 MR. ANDY SWIDERSKI: Thank you, Mr. Chairman,  
9 Andy Swiderski. The -- the approach that -- that was taken  
10 towards the regional labour market analysis was a very  
11 conservative one (1).

12 What was tabled, Mr. Chairman, was basically a  
13 numerical analysis. The -- the practical reality is that  
14 while the numbers and bodies numerically are there, there --  
15 there will always be some -- some sense of -- of maximizing  
16 recruitment, and retention.

17 Just because we have bodies, does not -- does  
18 not necessarily translate into everybody wanting to work in  
19 this type of industry, or allied industries.

20 So, it's -- it's an attempt to try and  
21 communicate that while the numbers are there, it is -- it is  
22 not to be taken for granted, which again, is part of the  
23 strategy to -- to have ancillary training, and human resource  
24 development programs.

25 THE CHAIRPERSON: Thank you, sir. Mr.

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1 McConnell, could you provide the Board with a prediction of  
2 the -- the dollar value, and the percentage of total contract  
3 spending by De Beers that they propose to do in the Northwest  
4 Territories for construction operation and closure phases?

5  
6 (BRIEF PAUSE)

7  
8 THE CHAIRPERSON: This question, by the way,  
9 is a follow-up to your written response, that you would  
10 provide that information at the Hearing.

11 MR. JOHN McCONNELL: Thank you, Mr. Chairman.  
12 In our EA, we committed to maximizing purchasing goods and  
13 services -- services that, you know, can be reasonably, and  
14 competitively sourced in the NWT.

15 Now, our projections are that during  
16 construction, those -- those dollar values will be  
17 approximately 35 to 45 percent of the projected construction  
18 costs.

19 And, during the operations phase, those  
20 numbers would be between 50 and 60 percent of the annual  
21 operating costs.

22 Now, we think one (1) of the advantages of a  
23 third diamond mine is that it does bring more business to the  
24 NWT, because now with three (3) operating diamond mines in  
25 the area, it makes more sense for some of the smaller

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1 contracting outfits to relocate here.

2 So, those numbers could increase over the life  
3 of the mine, and certainly, you know, we will be making every  
4 effort to increase that through a number of avenues,  
5 including having a resident business development manager that  
6 is there, not only to communicate what the opportunities are  
7 with De Beers, but to be there to assist, particularly  
8 Aboriginal companies in, you know, how to bid on contracts,  
9 how to put business plans together, so that they're  
10 encouraged to participate in the business opportunities  
11 provided by the ongoing operation.

12 THE CHAIRPERSON: Thank you, sir. Could you  
13 give us a dollar value for those two (2) numbers, and with  
14 the understanding that it's a prediction.

15 MR. JOHN MCCONNELL: The -- it'll be -- that  
16 percentage will be in relation to, during construction, 269  
17 million, operations, 120 million, annually. And at closure,  
18 25 to 35 million annually.

19 THE CHAIRPERSON: Thank you, sir. And I only  
20 have one (1) final question before we proceed to Yellowknives  
21 Dene. I'm somewhat surprised nobody asked it, but I will.

22 Could you please state for the record, De  
23 Beers position on the supply of rough diamonds to the  
24 Northwest Territories market?

25 MR. JOHN MCCONNELL: John McConnell with De

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1 Beers. During the technical sessions we made the commitment  
2 to try and work with the GNWT to come up with a facility for  
3 the provision of rough, to one (1) or more NWT cutters and  
4 polishers. So that commitment stands. And we're presently  
5 working with the GNWT to sign an agreement with that regard.

6 THE CHAIRPERSON: Thank you, sir. We'll now  
7 move on to the Yellowknives Dene First Nation.

8  
9 (BRIEF PAUSE)

10  
11 MS. RACHEL CRAPEAU: My name is Rachel  
12 Crapeau, Manager of Land Environment Program for the  
13 Yellowknives Dene First Nation.

14 I approached our Health and Social Services  
15 Development Program at the Yellowknives Dene First Nation in  
16 November and December, during the technical sessions, and  
17 asked them to put together a paper towards the Public  
18 Hearing. And they did put something together.

19 Also, from the Land Environment office, we  
20 provided information to the Board regarding our comments on  
21 health and social impacts. And therefore, we're going to  
22 start with Tim Byers, whose going to present our Land  
23 Environment issues.

24 With me at the table I have Sharon Thomas, she  
25 works with our Health and Social Program. And with her,

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1 beside her, is Celine Charlo, she works with the Health and  
2 Social Program by dealing with the cultural issues for the  
3 community.

4 She helps young people and older people go out  
5 on the land and -- and provide cultural activities, learning,  
6 training in that -- in those areas. And that's Celine's part  
7 of the work.

8 The other person for our community is Alice  
9 Abel, who is a counsellor. And she worked at the Nachiseque  
10 (phonetic) Centre in Hay River in the past. And we're happy  
11 to have her working with our First Nation because she's a

12 member of our First Nation. And I remember growing up with  
13 her in Wool Bay.

14 And she's worked and helped a lot of the  
15 people in our communities, counselling services and she's  
16 been facilitating and implementing and helping the young  
17 people get help, over the years.

18 So we'll start off with Tim Byers and then  
19 we'll go to our report that we -- we prepared for you, today.  
20 And I passed around to you and put it in your table. Thank  
21 you.

22 THE CHAIRPERSON: Thank you, Ms. Crapeau.  
23 Mr. Byers...?

24 MR. TIM BYERS: Tim Byers for Yellowknives  
25 Dene. The Mackenzie Valley Resource Management Act

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1 provision 115(b) calls for the protection of not only the  
2 economy of northerners but also their social and cultural  
3 well being.

4 Employment training and social programs are  
5 important benefits to the Yellowknives Dene from development  
6 but just as important are the safeguarding of the present  
7 quality of life in our communities.

8 Yellowknives Dene relatively -- their  
9 relatively peaceful existence and community values could come  
10 under indirect pressure from the same development that  
11 contributes to the local economy.

12 An important factor in this proposed mine that  
13 could possibly impact Yellowknives Dene quality of life is  
14 uncontrolled migration of many more people into Akaitcho  
15 lands.

16 The GNWT wants De Beers to encourage southern  
17 employees to remain in the north and I would refer you to the  
18 GNWT technical report of February 2003 on that. This  
19 technical report of the GNWT's also quoted from the Bureau of  
20 Statistics' predictions that the NWT will require a total of  
21 about fourteen hundred and sixty-eight (1468) new houses or  
22 apartments by the year 2008, just five (5) years from now.

23 There is no estimate provided of what

24 percentage of these housing units will be in Yellowknife and  
25 area. However, if we consider that about two-thirds of these

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1 homes would be needed in Yellowknife, given De Beers  
2 examination of GNWT and Stats Canada's data that shows  
3 Yellowknife received 60 percent of all migration into the NWT  
4 in recent years, then housing would be needed for about nine  
5 hundred and eighty (980) more families than presently live  
6 here.

7 De Beers predicts that their contribution to  
8 this total immigration will be 10 percent. So, in other  
9 words, ninety (90) to one hundred and five (105) new jobs  
10 during operation will be taken by people who migrate into  
11 Yellowknife and subsequently live here.

12 De Beers also anticipates significant  
13 immigration into the Northwest Territories and I quote  
14 "The GNWT may receive \$84.5 million from  
15 per capita funding through increased  
16 population from migration into the NWT over  
17 the life of the Snap Lake Diamond Project."

18 Cumulative social impacts contributed by this  
19 development and others have not been adequately evaluated.  
20 The foreseeable negative impacts on Akaitcho lands and  
21 communities from immigration of many new workers and their  
22 families are unknown.

23 We know that increasing population, especially  
24 within a short time period, being new land use challenges.  
25 We would assume, for instance, that many or most new

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1 residents into the area will have or soon acquire their own  
2 snowmobiles. Most, as well, may want to hunt.

3 So, will the land and wildlife in Akaitcho

4 areas be able to withstand the added pressures of increased  
5 snowmobile traffic on existing trails or will new trails have  
6 to be created? Will there be increased hunting pressure from  
7 numerous additional hunters on our lands?

8 There's anxiety based on previous experiences  
9 over some social pressures arising from a larger workforce  
10 entering the communities. Some Aboriginal people from other  
11 northern communities who will work at Snap Lake may not feel  
12 entirely comfortable in Yellowknife due to its size or  
13 cultural differences.

14 Consequently, these workers may go to smaller  
15 nearby communities of N'Dilo and Dettah to spend all or part  
16 of their time off. Since these communities lack the  
17 resources to accommodate many new visitors, there is pressure  
18 to house these people in -- in community homes. This can  
19 create certain strains for community members.

20 Thus, we strongly recommend that De Beers  
21 investigate A, whether Aboriginal communities have the  
22 ability and infrastructure needed to absorb an influx of new  
23 residents, and B, whether an increase in the local human  
24 population will put any new pressures on the land's renewable  
25 resources, and wildlife.

1 Yellowknives Dene cannot support the  
2 construction of Snap Lake project before these cumulative  
3 effects on the communities are assessed.

4 In the realm of increasing income gaps between  
5 rich and poor, one (1) cumulative impact of big developments  
6 like mines, is that the sudden larger incomes of mine  
7 employees cannot be shared by everyone in the community.

8 This results in a larger gap between rich and  
9 poor families. During the economic boom times, the people  
10 who aren't receiving the higher incomes will suffer  
11 economically, due to inflation of the cost of goods and  
12 services that only the people with good paying jobs may be  
13 able to afford.

14 This is not a problem that is unique to the  
15 north. Widening gaps between rich and poor are experienced

16 wherever there are new sources of high incomes that only part  
17 of the population can benefit from.

18 And finally, from my portion of our  
19 presentation, the disruption of education. Another impact  
20 from the mines is that young people feel increased pressure  
21 to leave school and get a job with the mine, rather than  
22 completing their education.

23 Intelligent and talented young people who  
24 could follow such career paths, as medicine, biology, social  
25 work, law, these young people will often be lured away from

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1 the dreams of college by big money offered by mines.

2 So, once all the mines have shut down, will  
3 the people trained in the new mining technology, they seem to  
4 have two (2) choices awaiting them. Either continue their  
5 education where they left off before their mining career, or  
6 leave the NWT to pursue mining jobs elsewhere once these  
7 mines shut down.

8 Thank you very much for your time.

9 THE CHAIRPERSON: Thank you. Ms. Crapeau...?

10 MS. RACHEL CRAPEAU: This paper was put  
11 together by Health and Social Development Program for  
12 communities.

13 In our paper, in the needs assessment, the  
14 Yellowknives Dene First Nations members and leaders are  
15 concerned about the impacts the mines have had on the health  
16 of its members working at the mines, and their families.

17 The Yellowknives Dene First Nations population  
18 is approximately at eleven hundred (1100) members, and the  
19 social issues in these communities are many, and include the  
20 following.

21 In my paper, I've got a list of twenty-one  
22 (21) items, starting with financial problems, unemployment,  
23 gambling, drugs and alcohol problems, family violence, mental  
24 health issues, child abuse and neglect, lack of affordable  
25 housing, high STD rates, criminal activity and violent

1 crimes, high level of suicide ideation, issues on residential  
2 schools, loss of culture and language, grief and loss issues  
3 with FAS/FAE and NAS/NAE, child witnessing violence,  
4 dysfunctional relationships, teen drop-outs at schools,  
5 sexual assault and abuse in -- and incest, teen pregnancies,  
6 and homelessness.

7           These are items that we identified as items  
8 that needed work, but the diamond mines, you know, although  
9 they provide employment for many of our members, have led to  
10 exacerbation of many of these social problems. And we're  
11 talking about other mines in the past too.

12           Members now have access to large sums of  
13 money, but in most cases, not -- they are not educated in  
14 financial planning.

15           Large amount of money are avail -- readily  
16 available, and some of our members have serious problem, not  
17 only with alcohol, but other easily accessible illegal drugs,  
18 such as cocaine, crack, and other addictive narcotics.

19           Gambling is also a major problem with our  
20 members. There is no intervention available for those  
21 members who have a gambling addiction.

22           This area for counseling is seriously under-  
23 funded, and this paper addresses the need for those members  
24 who need counseling and treatment in this area.

25           The increased alcohol and drug use, the

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1 increased gambling, and the two (2) week schedules of being  
2 in and out of the communities can -- can negatively effect  
3 spousal and family relationships.

4           The increased workload for the family member  
5 not working at the mines has, in many cases, led to  
6 frustration and fatigue for the spouse.

7           When the working spouse returns to the home,  
8 dramatic shifts are required in the dy -- in the dynamics of

9 the family.

10 Many of our members have a difficult time  
11 adjusting to these necessary changes. And in some cases,  
12 this results in increased family violence, and abuse of  
13 alcohol and other drugs.

14 This interruption also results in the loss of  
15 culture and language, if there is no concerted effort to  
16 maintain these when they return home.

17 Other problems created by employment at the  
18 mines include daycare arrangements, especially if both  
19 parents work at the mine, or children are in the care of a  
20 single parent who works at the mines.

21 According to Les Harrison, some of the  
22 children in care with Health and Social Services are placed  
23 in care, this because of lack of daycare planning and  
24 provisions.

25 In summary, it is our belief that in order for

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1 people to heal, they need to reconnect with their culture,  
2 and heal from their wounds from within.

3 Many people drink to escape their feelings of  
4 shame, inadequacy, and guilt. The most difficult aspect of  
5 programming is to convince the people in need to access  
6 services that are available.

7 Providing counseling services in N'Dilo and  
8 Dettah, and at the mine sites, would allow far more  
9 integrated approach with referral services to other agencies  
10 and organizations located in Yellowknife.

11 On the land, healing and treatment programs  
12 have been shown to be effective, and would allow for  
13 integration of services in a culturally relevant environment.

14 In the last few years, our statistics have  
15 shown an increase in the number of people utilizing our  
16 services.

17 It is our belief that our members are more  
18 likely to benefit from services provide -- provided in a  
19 culturally appropriate set -- setting.

20 It is our goal to provide, safe, responsive,

21 and relevant programs in order to the meet the needs of the  
22 Yellowknives Dene First Nation members, including those  
23 members effected by resource development.

24                   Programs to target these -- those effected  
25 people who work in the mining industry, need to be planned

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1 and implemented included -- including on-site counselling and  
2 support programs.

3                   A lack of the resources has prevented us from  
4 implementing these needed programs, and thus reaching this  
5 target population.

6                   It is our belief that we need to have  
7 programs, including counselling programs, available in the  
8 communities of N'Dilo, Dettah, and on-site at the mine so  
9 that the Yellowknives Dene First Nation members and effected  
10 people can be encouraged to access these services.

11                   An integrated and adaptive approach. The  
12 Yellowknives Dene First Nation Health and Social Development  
13 program has provided health and social programs since 1994.

14                   It has been obvious for a number of years that  
15 the mining industry has negatively impacted our people.

16                   Although the mines provide needed employment  
17 opportunities, but many social and health programs occur due  
18 to lack of -- lack of or poor financial planning and other  
19 life skills, needing enhancement.

20                   Other health and social programs already  
21 existing in our communities lead to many of our members  
22 lacking skills to either work at the mines or continue their  
23 employment once hired on by the mines.

24                   One (1) of the main issues our members in the  
25 community, including those working at the mines are dealing

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1 with, are issues related to family members who attended  
2 residential schools.

3 Problems such as loss of culture and language  
4 has resulted in a sense of belonging, which can result in  
5 excessive alcohol and drug abuse, unemployment, relationship  
6 and family problems, violence, abuse, homelessness, et  
7 cetera. Cultural programs for re-establishing this feeling  
8 of belonging should become a priority for all community  
9 programs dealing with Aboriginal populations.

10 I think I made a typo. Anyway, our last and  
11 final comment on this. Therefore, it is our belief the  
12 Yellowknives Dene First Nation health and social development  
13 program can be adaptive, creative and planned for counselling  
14 services to be provided for the communities of N'Dilo, Dettah  
15 and on site at the mine.

16 This is what I worked on until 2:30 last night  
17 and I know there's some writing mistakes, but I think the  
18 message is clear. That we can try and do some helpful  
19 services and -- and be -- be there for our people who work in  
20 the mines and for other people who we can help like we've  
21 been doing.

22 And we did not have this kind of employment  
23 assistance programming that we could provide for people in  
24 the 1930's, '40's, during the years of Giant and Con Mines,  
25 during the years of all the other mines in the past.

1 And therefore, we realize, I -- I believe,  
2 now, that we could do something about the problems that we  
3 know -- we seem to know a lot about. I also remember one (1)  
4 Elder woman telling me that, we've been dealing with alcohol  
5 problems ever since Giant Mine started, ever since people  
6 started working in mines.

7 We -- we seem to know more about how to deal  
8 with our young people who -- who are having problems and we  
9 can talk to them and they'll listen to us because we are a  
10 family, we are related. Even though a son is not my son,  
11 he'll recognize me as an auntie and I could talk to the young  
12 person and give words of advice. And just a few words might

13 turn the person around.

14 We now have people from the community working  
15 in our health and social services program who probably could  
16 do the same thing, today. We didn't have that kind of  
17 program before.

18 And I remember being a young person in Grade 8  
19 in St. Pat's (phonetic), one (1) year, thinking that this --  
20 alcohol problems that were affecting the families was not  
21 something that I wanted to deal with all my life. But I used  
22 to wonder, where does one (1) person go to, to talk to about  
23 how to deal with these kinds of problems?

24 I never did know it back then, in -- in Grade  
25 8, but I do know, now, that if I had a problem, I would have

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1 to go to our counsellors at health and social program, and  
2 they can direct me in the right place.

3 It's nice to know that we can help each other  
4 this way, whereas before, the young person was at a loss and  
5 didn't know where to turn to. But it's not all doom and  
6 gloom and I believe that we can provide services and be  
7 helpful.

8 And Sharon is here sitting with me to answer  
9 questions. Also Alice is here as counsellor to answer  
10 questions if you have any questions. And I'll leave it to  
11 them. Thank you.

12 THE CHAIRPERSON: Thank you, Ms. Crapeau.  
13 Questions, Mr. McConnell...?

14 MR. JOHN MCCONNELL: Just have one (1)  
15 question for Rachel and her team, Mr. Chairman. You know,  
16 Rachel's outlined a number of areas of negative impacts that  
17 are also addressed in our Environmental Assessment.

18 I think programs related to these areas are  
19 all the responsibility of GNWT and in our EA we've outlined  
20 some areas where we think we can enhance these programs to  
21 hopefully mitigate the negative impacts.

22 I guess my question for Rachel would be: You  
23 know, what other areas, other than those outlined, would  
24 Rachel and her team see De Beers being able to assist with?

1 that we have to all work together to assist each other. So,  
2 you know, we're looking at, you know, we've made a big deal  
3 about partnering, it's kind of those opportunities we would  
4 like to hear from Rachel.

5 THE CHAIRPERSON: Thank you, Mr. McConnell.  
6 Ms. Crapeau...?

7 MS. RACHEL CRAPEAU: What we're looking at  
8 and what we were talking about during the technical sessions  
9 back in December was that all companies have available  
10 counselling services through an employee assistance program.  
11 We would like to be considered to do this type of work for  
12 your company.

13 This way we could also be available in the  
14 communities for the people who work for the mines to provide  
15 that type of services. And I know that when I worked for CBC  
16 a long time ago when people had problems there was employee  
17 assistance program that one can access counselling services  
18 through a type of program that the company offered.

19 THE CHAIRPERSON: Mr. McConnell...?

20 MR. JOHN MCCONNELL: No further questions.

21 THE CHAIRPERSON: Thank you. Questions from  
22 other Intervenors for Yellowknives Dene? Mr. O'Reilly...?

23 MR. KEVIN O'REILLY: Thank you, Mr. Wray.  
24 Similar to the questions that -- the question I had yesterday  
25 in terms of the timing of environmental agreements, I want to

1 ask the parties that are here that are likely to be involved  
2 in the socio-economic agreements and perhaps impact and  
3 benefit agreements if they have any views or positions on the  
4 timing of those agreements?

5                   Should they be completed before the close of  
6 the public registration? Should they be completed before  
7 construction starts and I'll ask the same question of all the  
8 parties. I think it'll benefit the Board in terms of  
9 formulating some of the recommendations you may have to make.

10                   THE CHAIRPERSON: Thank you. Ms. Crapeau...?

11                   MS. RACHEL CRAPEAU: The socio-economic  
12 agreement, from my experience, it didn't matter if it was  
13 done before construction -- by construction is fine. I would  
14 rather not push it and try to have it done before May 24th.  
15 Thank you.

16                   THE CHAIRPERSON: Thank you. Okay, if no  
17 more questions, thank you very much, Ms. Crapeau. Oh,  
18 Mr. Vaydik...?

19                   MR. MIKE VAYDIK: Mike Vaydik, Northwest  
20 Territories and Nunavut Chamber of Mines. My question is for  
21 Rachel.

22                   Your statement that mining has had a negative  
23 effect on the Yellowknives Dene, I wonder in that statement  
24 if you've taken into account mining's contribution to  
25 community infrastructure in terms of the development of

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1 roads, the barge system, the development of the hydro plant  
2 that provides us with electricity from both Snare and the Con  
3 Hydro? And the development of early community housing in  
4 Yellowknife?

5                   The very real contribution into community  
6 recreation facilities, such as the fact that Giant Mine  
7 contributed the lumber when Jerry (phonetic) Murphy Area  
8 burned down.

9                   So, I -- I just wonder if -- if you considered  
10 those secondary impacts of the mining industry on community  
11 infrastructure in -- in your community? Thank you.

12                   THE CHAIRPERSON: Thank you. Ms. Crapeau...?

13                   MS. RACHEL CRAPEAU: Thank you. I appreciate  
14 these types of questions, because it makes community people  
15 wonder about what good does a mine do for the Dene community.

16                   We got our road to Dettah because our Chief,

17 the late former Chief, Joe Embry (phonetic), had a chance to  
18 meet the Queen in 1969, or 1967, when she came to visit, and  
19 I remember that visit very well, because my brother in-law,  
20 the late Joe Tobie (phonetic) was the translator for him.

21 The Chief asked the Queen if they could make a  
22 road to Dettah, for our community, and the white people who  
23 were there did not want the Chief asking that kind of  
24 question of the Queen, but the Queen allowed the question  
25 anyways, and said that she would talk to the Chief about his

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1 request.

2 After talking to Joe Embry, she said that she  
3 was going to check into it, and look into a road for our  
4 people in Dettah, because on windy days, if it was -- there  
5 was an emergency, or anything, it would be really hard to  
6 travel by boat to town.

7 People would be risking their life to drive  
8 into Yellowknife for emergency help, and we only had an old-  
9 fashioned type of -- really old bush radio for communication.

10 Sometimes that was not really working very  
11 well, and we did have an emergency one (1) day in July when a  
12 man fell down, and people didn't know what happened to him.

13 I -- I suppose he had a heart attack, but I  
14 can remember either Alfred (phonetic) or Jonas Fishbone  
15 (phonetic) back then, they said that they had to take a boat  
16 out to cross the lake, and try and get to Dr. Stanton  
17 (phonetic).

18 Because of things like this, Joe Embry asked  
19 the Queen for help to get a road, and the Queen helped the  
20 Chief, and we got our road. It was not because of the mines.

21 1971 was when we finally got power in our  
22 communities. When Giant Mine started in the six (6) --  
23 thirties and forties, we didn't not get power to our  
24 community then, so it was not a benefit.

25 And, the -- all the food and everything that

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1 goes to the community here, we had access to eventually, but  
2 also, building materials or anything from the mines, I don't  
3 really believe we were presented with gifts from the mines,  
4 with free lumber or anything.

5 All I remember is some people from our  
6 community, where their dog teams providing wood to the mines,  
7 because they needed fuel. They were burning wood, and they  
8 did not make that much money for their one (1) cord of wood  
9 back then.

10 And, my late teacher, who used to teach in St.  
11 Pat's school, and she lived at Giant Mine, she said she  
12 remembers meeting with hunters and trappers in the evening to  
13 buy caribou meat and moose meat from the people, because the  
14 mine company officials did not allow them to provide that  
15 source of -- and nutritious diet for their families on the  
16 mine site.

17 So, maybe -- maybe, some people make some  
18 little bit of money back then too, but I don't think it was  
19 really that much.

20 So, when we think about the benefit to our  
21 communities over the years, that's why the Elders were  
22 talking the way they did yesterday.

23 We didn't see a lot of it. Thank you.

24 THE CHAIRPERSON: Thank you. Any further  
25 questions? Okay. If not, thank you very much, Ms. Crapeau,

1 Ms. Thomas, and Ms. Able, and Ms. Charlo.

2 The next presentation, and we will -- it's  
3 11:45. Mr. Vaydik, timing on your presentation; 20 minutes?

4 Okay. Well we'll do the NWT and Nunavut  
5 Chamber of Mines presentation, and then we'll adjourn for  
6 lunch, and then we'll come back after lunch for questions of  
7 the Chamber, if there are any. Thank you.

8 MR. MIKE VAYDIK: Hi. Thank you. Thank you,  
9 Mr. Chairman, and Members of the Board. I'm Mike Vaydik, the

10 general manager of the Northwest Territories and Nunavut  
11 Chamber of Mines.

12 I was born in Yellowknife. I've worked in the  
13 oil and gas, and mining exploration industry as a geological  
14 technician.

15 Subsequent to that, I spent over twenty-five  
16 (25) years in government in many departments. I've lived in  
17 every region of the Northwest Territories and Nunavut.

18 I've been involved in construction projects,  
19 regional planning, community management, and government  
20 management and regional development, in that times.

21 For the last seven (7) years, I've been with  
22 the Chamber of Mines, as the general manager. I should also  
23 point out that I've served as a Chair of the Keewatin  
24 (phonetic) Health Board.

25 And I've served many communities in -- in the

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1 Northwest Territories and Nunavut as a JP and coroner, over  
2 the years.

3 The Chamber of Mines that I represent,  
4 represents over six hundred (600) members who are involved in  
5 producing, exploring for minerals, and supply and associated  
6 consulting companies who serve that industry. And also,  
7 prospectors and individuals who are interested in the mineral  
8 industry of the Northwest Territories and Nunavut.

9 Today I'm not going to talk about Snap Lake,  
10 I'm going to talk about what's been going on in our industry  
11 for the last ten (10) years, or twelve (12) years, and try  
12 and give you an idea of the incredible opportunity that's  
13 been presented because of diamond mining, and how Aboriginal  
14 communities, in particular, are participating.

15 The mining has been the mainstay of the  
16 north's economy since the days of the fur trade.

17 MS. JEAN TEILLET: Excuse me, Mr. Chair. I  
18 hate to interrupt, but we're having a translation on the  
19 headset to Dogrib problem.

20 THE CHAIRPERSON: Oh, I'm sorry.

21 MR. MIKE VAYDIK: Am I -- am I going to fast?

22 MS. JEAN TEILLET: No, we're not getting you  
23 at all. And -- oh, are we getting you now. We weren't  
24 getting you at all in Dogrib, so...  
25 MR. MIKE VAYDIK: Is it okay now?

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1 MS. JEAN TEILLET: Is it fixed now? Okay.  
2 Thank you. I'm sorry to interrupt.  
3 THE CHAIRPERSON: Thank you.  
4 MR. MIKE VAYDIK: Okay. Thank you. The --  
5 mining's contribution to the NWT's gross domestic product,  
6 GDP, has varied between 25 to 35 percent, over the past few  
7 years.  
8 And we are currently experiencing the best GDP  
9 that the NWT has ever experienced. Over \$3 billion dollars,  
10 according to the figures that I got on Monday, in real GDP.  
11 For the first time in history, we are  
12 approaching the GDP of a province. And even though it's only  
13 PEI, we -- we're getting -- we're getting there.  
14 So, what -- what does this mean, in terms of  
15 the mining industry? The growth has been driven, by and  
16 large, by the diamond mining sector over the past few years,  
17 and by construction related to the diamond mining sector.  
18 Those are reported separately, so, it's  
19 important to know the -- the relationship as -- as mines were  
20 constructed.  
21 I'd like to just move on to what we found out  
22 about the population when -- when this study was done. Over  
23 the period 1990 to 2001, our population grew by 13 percent to  
24 about 41,000. About 50 percent are Aboriginal persons.  
25 The growth in the Aboriginal population

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1 parallels the total population growth in the Northwest

2 Territories. Now, one (1) is probably by -- by birth and one  
3 (1) by -- in migration. But that was a bit surprising to  
4 some people who read that statistic.

5 Another key statistic is the total number of  
6 people from twenty-five (25) to forty-four (44) years old  
7 grew by more than 50 percent. And that represents the gross  
8 age range of people entering the labour force. So that's a  
9 very key statistic.

10 What we found about is that 66 percent of our  
11 population have completed high school and about half of the  
12 1,400 students currently receiving funding for post-secondary  
13 education are Aboriginal. So that's a -- an increase over  
14 the past -- what's happened over the past. And currently, 6  
15 percent of -- of our population work in the mining industry.

16 I wanted to draw one (1) conclusion from one  
17 (1) community, about the impact of the new opportunities in  
18 employment. In Rae-Edzo, four (4) years ago, there were  
19 about three (3) people in post-secondary school. This year,  
20 there are about a hundred and thirty (130) people in post-  
21 secondary school from that community.

22 It's an incredible increase, any way you want  
23 to measure it. And I place that -- I -- I credit that to  
24 three (3) things. Community leadership, we have the Chief,  
25 has been very vocal in telling his people that they need an

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1 education in order to participate fully in the modern  
2 economy.

3 We also have an education system that is in  
4 tune with the local community and seems to be fairly  
5 responsive to its needs. And I think the third thing is that  
6 there's now, among the young people in that community, a real  
7 expectation that they can get a real job, and that's  
8 important.

9 I know, Members of the Board, communities  
10 we've lived in over the years, we -- we've been engaged in --  
11 in revolving door training, where we train people for  
12 opportunities that don't materialize. And it's so much more  
13 helpful when you can actually say, when a guy gets a

14 certificate, you get a job. And that's what we're  
15 experiencing now.

16 I skipped a couple of slides because of the  
17 time constraints. I wanted to focus a bit on  
18 entrepreneurship. What -- what we're seeing is that,  
19 communities are involved, now, at all stages of project  
20 description and -- and implementation.

21 The communities demand and are getting  
22 consultation at the very early exploration stage, during the  
23 environmental assessment, as we're doing here, through the  
24 mine development and operation, including ongoing  
25 environmental and social impact monitoring, and through to

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1 closure and reclamation.

2 We believe that the key to this has been early  
3 engagement and continuous engagement in consultation efforts.  
4 And I think environmental agreements and environmental  
5 agencies are -- are an example of that continuing commitment  
6 to consult.

7 The other thing that we think has made -- made  
8 a major impact on how mining companies and particularly  
9 Aboriginal communities interact, is the fact that land claims  
10 are settled in the main. There are three (3) claims settled  
11 and three (3) on the way, agreements -- interim agreements  
12 have been signed.

13 And that provides companies and the community  
14 itself with some certainty over what the rules are, who the  
15 landlord is and how you're expected to operate.

16 The other major change has been the  
17 implementation of the Mackenzie Valley Resource Management  
18 Act, and I don't have to tell the Board about that. But  
19 that's a -- another key element of -- of Aboriginal  
20 commitment to and involvement in our business.

21 Mining exploration generally in Canada, we've  
22 been seen as a world leader in, and certainly have led  
23 Canadian jurisdictions, in terms of exploration expenditures  
24 over the past few years.

25 Most of that exploration expenditure has been

1 for diamonds and that exploration results, in itself, whether  
2 you find anything or not, it -- it implies benefits for  
3 northern business, Aboriginal businesses in terms of supply  
4 of services and -- and employment opportunities.

5 Just to give you one (1) example of that is  
6 EKATI services. A local Aboriginal owned company. It  
7 started out catering to about a twelve (12) man exploration  
8 camp at the Diavik site.

9 That company has grown over several years to  
10 now, at the peak of Diavik's construction, they provide a  
11 catering service to about thirteen hundred (1300) people and  
12 now at the operation phase they've scaled back to -- to five  
13 hundred (500) people.

14 But you can imagine the impact of that kind of  
15 volume of business to a small company.

16 They've learned a lot. They've -- they've  
17 participated in a very real way in the development of that  
18 project.

19 I wanted to talk a bit about sustainable  
20 development because I know that's where we're all going.  
21 This slide attempts to show the relationships between  
22 communities, governments and industry that are so necessary  
23 to bring sustainable development about.

24 The government really is the supporter of the  
25 development. They have a mandate to develop people and

1 provide for their needs and this can mean providing funds and  
2 programs to support that development.

3 And one (1) of the very real ways that  
4 government has supported some of our efforts is contribution  
5 by, particularly DIAND and the Government of the Northwest  
6 Territories into supporting our mine training committee which

7 is a group of industry, Aboriginal, government  
8 representatives and the training institutions that have been  
9 engaged in providing over three hundred (300) training  
10 opportunities for northerners and I'll speak a little bit  
11 more about that later.

12 Communities have become partners and  
13 beneficiaries and facilitators of a lot of the activities in  
14 communities. Again, the leadership shown in some communities  
15 by -- by leadership to encourage people to participate in --  
16 in partnership agreements has been key to the success in that  
17 area.

18 Industry -- industry brings a technical  
19 background, experience and the investment to make mining  
20 happen and it's a very key element of that.

21 What barriers did we face? As -- as you've  
22 heard several times, the shift from traditional lifestyles to  
23 a wage economy, very real problem of time away from community  
24 and family, seasonal preferences related to subsistence  
25 harvesting, unfamiliar workplaces and cultures, lack of

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1 necessary skills and experience and relevant training to mine  
2 site work and little support or longer term incentive to take  
3 on other than lower wage and lower skilled jobs.

4 What -- what we've found over the past while  
5 is that Aboriginal communities have provided leadership and  
6 vision, a local workforce, traditional knowledge and an  
7 understanding of the land and resources and their capacity on  
8 co-management boards.

9 Governments have provided funding and some  
10 expertise, access to markets, GNWT has been developing  
11 performance standards to assist us in developing training  
12 programs. In some degrees, some scientific expertise and  
13 transfer of best practices.

14 Industry has provided the technology and  
15 experience, the capital investment and the business  
16 experience at the mining business.

17 What we've found is that by engaging  
18 communities as active participants, it has led to a shared

19 commitment to maximize those opportunities and benefits and  
20 to support the development of business in individual  
21 capacities.

22 And, in view of time, I'm going to skip this  
23 next series.

24 Some of the key successes were early  
25 engagement, open and on-going communication, monitoring

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1 committees to ensure transparency, credibility, and  
2 understanding of our performance, the recruitment of  
3 Aboriginal liaison officers, who -- who are on-site, and in  
4 the communities, flexible employment benefits and programs.

5 These probably aren't as flexible as everybody  
6 would like them, but there is, certainly, an attempt by  
7 communities to -- or by mining companies to be as flexible as  
8 possible in their shift scheduling, etc.

9 Numerous training and support programs. I  
10 think anyone's who's visited the diamond mines would  
11 understand immediately there's a considerable, on-going, on-  
12 site effort to allow people, to encourage people to upgrade  
13 their skills, not only for the job they have now, but so they  
14 can progress through the -- through the -- the ranks, and --  
15 and become supervisors and managers.

16 There is cross-cultural training and  
17 awareness, and this goes both ways, both for non-Aboriginal  
18 people, and for Aboriginal people. This -- there is a major  
19 shift between communities, and a -- and a work site -- a  
20 remote work site.

21 And my conversations with counsellors at -- at  
22 sites say that the most successful workers, are the people  
23 who -- who understand that, and make that shift, who have  
24 their family organized at home, so that -- that when they  
25 leave, their family knows that the bills are paid, and -- and

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1 that they'll -- they'll be looked after, and the guy then,  
2 can get up to the site, or the woman can get up to the site,  
3 and perform well at the job, without worrying about what's  
4 going home.

5 And, I know from -- from my talking to people  
6 who've been involved in human resources, so it -- at remote  
7 mine sites over many years, that they will tell you that over  
8 90 percent of the people who quit the job at remote mine  
9 sites, don't quit it over the job. They quit it over social  
10 issues, and over the fact that they miss their home, or their  
11 home misses them.

12 So, it is a major challenge, and it's one (1)  
13 we're trying to deal with. We -- we -- in our mine training  
14 curriculum, we try to build in, well, in fact, we do build  
15 into every course, a life skills training component that  
16 tells people what to expect on rotational work.

17 It tells them how to try and manage some of  
18 those -- those issues, and be able to participate fully and  
19 successfully in a -- in an on-site job.

20 I just wanted to -- to lay out some of the  
21 results that have been achieved -- achieved. In 2001,  
22 revenue from the EKATI Mine to northern Aboriginal business  
23 increased to \$105 million. That's \$105 million that wasn't  
24 around before EKATI came.

25 Ten (10) percent of -- up to 10 percent of

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1 diamond production from EKATI is purchased by local cutters  
2 and polishers. Kete Whii, a Dogrib, Yellowknives Akaitcho  
3 trucking joint venture hold a nine (9) year, three hundred  
4 mil -- three (3) -- \$30 million contract that's created at  
5 least twenty (20) full time jobs.

6 Those long term contracts are -- are key too,  
7 because it allows that join venture to capitalize it's  
8 investment in equipment, and to sketch out a -- a long term  
9 training plan for its staff.

10 The NSR employment solutions are -- a Rae  
11 company has a contract for employee recruitment, so we're

12 seeing these companies get into some of the soft services.  
13 It's not just driving trucks, and hauling -- hauling ore.  
14 If we look at the Diavik û Diavik project,  
15 when we did our report, almost half a billion dollars  
16 representing 50 percent of the total expenditures was awarded  
17 to Aboriginal joint venture businesses.  
18 EKATI services, the Yellowknives Dene joint  
19 venture holds a 5 million -- \$4.6 million contract to supply  
20 labour and materials, food and accommodation, and camp  
21 management to Diavik.  
22 Lac De Gras Constructors, an Inuit joint  
23 venture, hold a \$262 million contract for mine -- earth  
24 works.  
25 Tlicho Logistics, a Dogrib joint venture --

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1 sorry, I didn't -- I didn't change the slide. Thank you.  
2 A Dogrib joint venture delivers freight to the  
3 mine site, maintains the water treatment plan, and the  
4 airstrip.  
5 Several other joint venture companies -- I  
6 wish I could say this, and I'll -- I'll probably be  
7 corrected. A Lutsel K'e Dene company works on core sampling  
8 and other engineering services, and North Slave Metis,  
9 Metcon, has -- had a contract to install piping.  
10 So, what we're seeing is that the resource  
11 development, not only mining and mining exploration, but oil  
12 and gas, forestry, hydro-electricity, transportation.  
13 It -- the resource development is providing  
14 opportunities in all this sector.  
15 Aboriginal participation has incurred -- has  
16 occurred, and is occurring in virtually every -- every facet  
17 of -- of the mining business, contracting and employment,  
18 joint venture businesses, training and skills development,  
19 technology transfer, and long term commitments that have  
20 enabled that to happen.  
21 And long term information sharing, which is  
22 allowed Aboriginal business to participate at a very low risk  
23 because companies have been forthcoming with information

24 about the company's business.

25 Community benefits: stronger, more reliant

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1 people, increased resources in infrastructure, secure and  
2 stable demand for the local workforce over the mine life, and  
3 diverse skills and capacity within the community.

4 And I -- I tell this to -- to high school  
5 classes that I meet with, is that the EKATI, or the Diavik  
6 mine, in many ways is like your home community.

7 They need almost all the services that -- that  
8 home community requires. So, any skill that you gain to work  
9 on a mine site, will also help you in your home community.

10 Obviously the volume of jobs aren't there, but  
11 the skills that you develop to work at a mine are  
12 transferable.

13 And when you -- when you are trained, if  
14 you're trained in a apprenticeship program, and you get your  
15 red seal, you can work anywhere in Canada. And by -- by  
16 extension, anywhere in the world.

17 We -- what our experience has been over the  
18 past while, is that aboriginal business corporations are the  
19 primary building blocks of the -- of the northern economy.

20 The training and skills of aboriginal people  
21 continues to increase and diversify. Construction and  
22 operating costs of the mines are well managed, and we hope  
23 that -- that indicates that there will be successful  
24 management of those projects, right out to completion and  
25 closure.

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1 We believe that performance of the existing  
2 operations against financial, environmental, social targets  
3 has exceeded exp -- expectations.

4                   And there are some important issues that have  
5 been identified, and we've heard some of them today, but we  
6 believe that those issues are being addressed in a  
7 cooperative, open, and adaptive management style that  
8 will -- will help us form the partnerships we need to deal  
9 with those issues.

10                  And one of the things that stands out, is that  
11 Aboriginal people have demonstrated their willingness and  
12 capacity to welcome the mining industry as partners in the  
13 future of the Northwest Territories.

14                  I wanted to -- no, I skipped a slide. It's  
15 all right. I'll read it from my -- from my notes. I wanted  
16 to -- to read into the record a quote from Joe -- Chief --  
17 Grand Chief Joe Rabesca, of the Dogrib Nation.

18                  And this occurred about four (4) years ago at  
19 a joint industry Aboriginal resource development forum, which  
20 was attended by about sixty (60) people from Aboriginal  
21 groups, from as far away as Baffin Region, and virtually  
22 everyone in the Northwest Territories.

23                  Chief Rabesca said:

24                         "The future of our people depends on the  
25                         development of our resources and our land.

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1                   More and more young people are becoming  
2 better educated as time goes on, and we  
3 can't expect them to have a good living off  
4 trapping. We need to focus on developments  
5 which have the opportunity to create long  
6 term wealth for our people. We believe the  
7 mining industry is one (1) of the ways that  
8 we will do that, and we welcome future --  
9 future and -- and further participation by  
10 De Beers."

11                  I did want to speak, very briefly, about our  
12 Mine Training Committee. I -- this committee is, as I say, a  
13 fairly loose coalition of -- of people from the mining  
14 industry, Aboriginal groups, training institutions.

15                  And I wanted to indicate a few of our success

16 stories. We -- we embraced a set of principles, early on,  
17 that we weren't going to train people to go onto future  
18 training courses. We were going to train people for real  
19 jobs in an industry.

20           So one (1) of our principles is that the  
21 training programs are industry driven, that the industry  
22 identifies what jobs are needed and sets up the training  
23 programs with the institutions, so that people can access  
24 those opportunities.

25           We've also tried to make our communities --

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1 our training programs community based as much as possible.  
2 We've had training opportunities provided in communities  
3 where people told us that we couldn't do it because there  
4 weren't any facilities.

5           Well, it's amazing what you can do with a  
6 little partnership and a little help. And if you go to the  
7 Chief and say, look, we need a shop for six (6) weeks to put  
8 on a course, is there any way you can help us?

9           And it's amazing, if you get the political  
10 people involved at the community level, and they understand  
11 that this is benefit to their people, it's amazing what you  
12 can do. And we've had several success stories.

13           We've -- we've put things like modern welding  
14 equipment on wheels so that we can take it around to  
15 communities, instead of trying to build a shop in -- in one  
16 (1) training centre and fly people into the training centres.  
17 We've taken the -- the shop on the road, as it were.

18           We've -- the -- the other thing that I -- I  
19 alluded to before, is that our -- our training programs are  
20 based on job assurances. The assurance being that if you get  
21 through this course, you have a reasonable expectation of  
22 getting a job in a reasonable level of time.

23           And I -- I want to focus on just one (1).  
24 This was a -- a mill operator training program that we held  
25 in Fort Smith. We operated it much as a -- as a mine job, we

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1 took people from as far away as Kugluktuk and Cambridge Bay,  
2 from all over -- from all over the Northwest Territories and  
3 we flew them into Fort Smith, two (2) weeks in, two (2) weeks  
4 out.

5 And the educators at the time said, oh, you  
6 can't do that, because you'll -- and we tried to work them  
7 twelve (12) hours a day, too. And everybody said, well, you  
8 can't learn for twelve (12) hours a day, it just won't work.

9 Well, we said, let me -- let us try it,  
10 because half of the day is practical, half of it's in the  
11 classroom. So we want to try this. What we found out is  
12 that, because we had two (2) weeks in and two (2) weeks out,  
13 the -- the students were competing against their cross-shift.  
14 They were trying to do better than the guys that were on when  
15 they were off.

16 And we had guys in -- in the classroom at 6:30  
17 in the morning, working on projects, working on computer  
18 studies. So interesting things happen if you just keep an  
19 open mind and -- and try some real partnerships.

20 And we -- we think we've been very successful  
21 in trying to seize on those partnerships. And -- and the  
22 mining industry has -- has responded extremely well, to  
23 trying to set up those.

24 I should point out that we've done most of  
25 this with pilot funding from the Department of Indian

1 Affairs. We now have a -- a strategic plan before HRDC  
2 Canada which we hope to get ongoing multi-year funding for  
3 this initiative, and we hope that we'll hear very soon that  
4 we've been successful.

5 That concludes my remarks, thank you very  
6 much.

7 THE CHAIRPERSON: Thank you very much, Mr.  
8 Vaydik. We'll now take a break for lunch and we'll reconvene

9 at 1:30. Thank you.

10

11 --- Upon recessing at 12:15 p.m.

12 --- Upon resuming at 1:40 p.m.

13

14 THE CHAIRPERSON: Thank you. We'll get  
15 underway now.

16 A little bit of housekeeping. Later on this  
17 afternoon, Ms. Fratton, one (1) of the Board staff, will hand  
18 out an updated list of exhibits.

19 Okay, we had -- we were at the question phase.  
20 Any questions for the NWT and Nunavut Chamber of Mines.

21 Mr. McConnell...?

22 Any questions of a general nature from other  
23 intervenors for the NWT Chamber?

24 Okay. The next presentation that we have is  
25 the North Slave Metis Nation, Ms. Johnson?

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1 Oh, I'm sorry, I'm sorry, the North Slave  
2 Metis Alliance.

3

4 (BRIEF PAUSE)

5

6 MS. KRIS JOHNSON: I have some copies of the  
7 presentation for anybody who hasn't received one.

8

9 (BRIEF PAUSE)

10

11 MS. KRIS JOHNSON: Good afternoon, my name is  
12 Kris Johnson. I will presenting the socio-economic and  
13 cultural issues that are still outstanding at the Snap Lake  
14 Diamond Project for the North Slave Metis Alliance.

15 We will be examining these issues as they  
16 relate to the questions the Board will be answering. Is the  
17 development likely to have a significant adverse impact on  
18 the NSMA community? Can the impacts be mitigated? Does the  
19 development pose significant public concern?

20 The issues we'll be examining are, cultural

21 and heritage resources, facilitation and collection of  
22 traditional knowledge, existing subsistence economy, North  
23 Slave Metis economy, housing, mine production rate,  
24 infrastructure, language use, resource use, spacial  
25 boundaries, and cumulative effects.

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1 Cultural and heritage resources. De Beers has  
2 not considered potential impacts of the project on Metis  
3 archeological resources. The NSMA requested De Beers survey  
4 the area for Metis historic sites and heritage resources.

5 De Beers has not consulted with the NSMA about  
6 the impacts of the project on Metis cultural and heritage  
7 resources. De Beers later committed to re-analyse  
8 artifacts. Re-analysis has yet to be done.

9 Without this information, the NSMA cannot  
10 assess or mitigate the impacts of the Snap Lake Diamond  
11 Project on their culture and heritage resources. Without  
12 this information, the Board cannot assess the impacts of the  
13 Snap Lake Diamond Project on the NSMA cultural and heritage  
14 resources. Thus the Board cannot approve the project until  
15 the impacts on the North Slave Metis Alliance community can  
16 be properly assessed and mitigated.

17 Facilitation and collection of North Slave  
18 Metis Alliance traditional knowledge. De Beers has not  
19 facilitated the collection of North Slave Metis traditional  
20 knowledge to aid in understanding and mitigation of impacts.

21 The NSMA, in collaboration with Mackenzie  
22 Valley Environmental Impact Review Board, identified the need  
23 for an NSMA TK study. De Beers has had ample opportunity to  
24 work with communities to incorporate TK, and they have not  
25 fulfilled this commitment.

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1                   Without this information, the North Slave  
2 cannot adequately assess or mitigate the impacts of the Snap  
3 Lake Diamond Project on their community.

4                   Without this information, the Board cannot  
5 assess the impacts of the Snap Lake Diamond Project on NSMA  
6 community or the environment.

7                   Thus the Board cannot approve the project  
8 until it is fully assessed, using traditional knowledge to  
9 ensure all impacts are mitigated.

10                  De Beers did not make an effort to provide,  
11 analyse, or monitor traditional land use, and subsistence  
12 economy in the NSMA community.

13                  The NSMA have a strong subsistence economy and  
14 traditional land use they would like to see protected. And I  
15 just have some figures here. Eighty-eight (88) percent of  
16 the sampled NSMA reported participated in traditional land  
17 use activities throughout a single year.

18                  Forty-two (42) percent of the sample reported  
19 spending over two (2) months on the land during a year, and  
20 62 percent of the sample reported over one (1) month of land  
21 use during a year.

22                  And then I just have a graph here, at the end  
23 of NSMA's reliance on their traditional economy, by  
24 percentage of the community population. I'm not going to go  
25 through all these graphs, just to cut down on time. They're

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1 there for your reference later.

2                   In the De Beers EAR executive summary, it  
3 states:

4                   "Is unclear how opportunities and a wage  
5 economy will affect traditional  
6 lifestyles."

7                   The impact of the wage based rotational work  
8 schedules on subsistence economic activity is uncertain.

9                   De Beers has not analysed, or tried to  
10 understand the NSMA traditional economy, and its link to  
11 community health and wellness.

12                  De Beers provides no concrete plan on how to

13 work with the NSMA to ensure that its subsistence economy is  
14 enhanced and protected from negative impacts.

15 Failure to understand the North -- the Metis  
16 traditional economy could lead to impacts on cultural  
17 survival, individual health, stresses on wage economy, and  
18 social cohesion in the community.

19 Without this information, the North Slave  
20 cannot assess, or mitigate the impact of the Snap Lake  
21 Diamond Project on their community.

22 Without this information, the Board cannot  
23 assess the impacts of the Snap Lake Diamond Project on the  
24 North Slave Metis Community.

25 Thus the Board cannot approve the project

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1 until the impacts on the North Slave Metis Community can be  
2 properly assessed and mitigated.

3 NSMA's economy. De Beers has not described  
4 the North Slave Metis Alliance's existing economy, skills,  
5 education levels and barriers to employment, and I just have  
6 a graph here, that shows the difference between the  
7 unemployment rates of Yellowknife and the affected  
8 communities, and you can see the NSMA is far higher than  
9 Yellowknife, so it can't be lumped in with the Yellowknife  
10 data.

11 Why is this important? To ensure a  
12 recruitment program is developed specific to the NSMA, thus  
13 creating certainty over the numbers of members qualified for  
14 employment.

15 To ensure training and education programs be  
16 developed for members so they are skilled and qualified for  
17 employment before trained southerners are sought for  
18 employment.

19 To ensure a baseline of current employment  
20 education and skill levels exist so changes in the baseline  
21 economic conditions can be traced over time.

22 The NSMA requested De Beers conduct a survey  
23 to identify who would be interested in working in underground  
24 mining and then train them. De Beers committed comprehensive

25 recruitment and training programs are being developed.

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1 The NSMA informed De Beers many of our people  
2 want to work for you, De Beers need a more aggressive  
3 training program so we can compete with southerners.

4 Training should be started during, and as part  
5 of the operation phase. Sorry, that should say, during  
6 construction and planning, as part of the operation phase.  
7 And then I have a graph here that shows the current education  
8 levels for the sample of NSMA. Again, De Beers confirmed it  
9 was developing recruitment and training programs.

10 De Beers has acknow -- acknowledged the NSMA's  
11 concern expressed about youth becoming involved in the  
12 project in terms of education, training and employment.

13 De Beers committed to work with the NSMA on  
14 these education and training needs. And I have a graph here  
15 that just shows what's summarized at the bottom here, that  
16 20 per -- 26 percent of the NSMA membership is under the age  
17 fifteen (15), and 28 percent of the NSMA membership is  
18 between the ages of sixteen (16) and twenty-nine (29).

19 Two (2) years later, De Beers has not  
20 described the existing wage economy, skills and barriers to  
21 the employment of the NSMA.

22 De Beers has not surveyed members' skills,  
23 education, and employment potential. Two (2) years of  
24 potential training for NSMA members has been wasted.

25 The NSMA has provided De Beers with community

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1 based economic data. The data reveals the NSMA's economic  
2 environment differs from other aboriginal communities.

3 Generic recruitment and training programs not  
4 specific to the NSMA community, do not address these

5 fundamental differences.

6 Again, in De Beers EAR executive summary, it  
7 states:

8 "De Beers recognizes that a key component  
9 of priority hiring strategy is a training  
10 program. De Beers will tailor training  
11 programs to take advantage of employment  
12 opportunities at Snap Lake."

13 Without community specific programs, the NSMA  
14 cannot assess or mitigate the impact of the Snap Lake project  
15 on their community.

16 Without this information, the Board cannot  
17 assess the impact of the Snap Lake Diamond Project on the  
18 NSMA community.

19 Thus the Board cannot provide -- approve the  
20 project until the impacts on the NSMA community can be  
21 properly assessed and mitigated.

22 NSMA housing. De Beers has not described the  
23 NSMA's existing housing environments. There are chronic  
24 housing shortages and high levels of overcrowding in  
25 aboriginal communities.

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1 Housing conditions are linked to individual  
2 and community health and wellness. Housing upgrades and more  
3 housing units are required within affected communities.

4 Without this information, the NSMA cannot  
5 assess or mitigate the impacts of the Snap Lake Diamond  
6 projects on their community.

7 Without this information, the Board cannot  
8 assess the impact of the Snap Lake Diamond Project on the  
9 NSMA community.

10 And finally, the Board can not approve the  
11 project until the impacts on the North Slave Metis Alliance  
12 community can be properly assessed and mitigated.

13 Mine Production Rate: Any potential for De  
14 Beers to change mine production rates during production  
15 jeopardizes all predictions and mitigation measures in the  
16 EAR. The NSM -- NSMA agree with Gartner Lee when they say

17 changes to the production rate have impacts on the mine life,  
18 social economics of the project, and the proposed mine site  
19 facilities.

20 The Board must set a non-negotiable mine  
21 production rate, for if the mine production rate changes, all  
22 predicted impacts and proposed mitigation measures are made  
23 invalid. The production rate can not change at all without  
24 further application.

25 NSMA Infrastructure: De Beers has not

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1 described the NSMA's existing infrastructure environment.  
2 The NSMA represent an indigenous Metis community that  
3 delivers services and holds the same governmental  
4 responsibilities as other Aboriginal communities in the NWT.  
5 Unlike other communities, the NSMA receive no core funding  
6 from the government.

7 It is uncertain whether the NSMA will be able  
8 to adapt to changes on the same plane as other communities  
9 because it does not possess the same resources and  
10 infrastructure. The impacts of the Snap Lake diamond project  
11 can not be assessed until the impact benefit agreements,  
12 socio-economic agreements and environmental agreements are  
13 finalized.

14 Without this information, the North Slave  
15 Metis can not assess or mitigate the impacts of the Snap Lake  
16 diamond project on their community. Without this  
17 information, the Board can not assess the impacts on the  
18 Metis community, thus the Board can not approve the project  
19 until the impacts on the North Slave Metis community can be  
20 properly assessed and mitigated.

21 NSMA Language Use: De Beers reached no  
22 conclusions about anticipated or possible changes to the  
23 NSMA's use of their indigenous Metis language, Michief.  
24 Michief is an endangered language in all Metis households  
25 across Canada. Michief is well known and spoken by Metis

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1 elders.

2                   The language is not being passed on to young  
3 Metis generations. 15 percent of the sample of NSMA members  
4 speak Michief. The majority of NSMA mem -- an -- NSMA  
5 members indicated a strong desire to learn Michief.

6                   Without this information, the NSMA can not  
7 assess or mitigate the impacts of the Snap Lake diamond  
8 project on their culture and their community.

9                   Without this information the Board can not  
10 assess the impacts of the Snap Lake diamond project on the  
11 NSMA community. Thus the Board can not approve the project  
12 until the impacts on the NSMA community can be properly  
13 assessed and mitigated.

14                   Resource Use, Spacial Boundaries and  
15 Cumulative Effects: In the overview, the project milestones  
16 and monitoring and management programs provided by De Beers  
17 states traditional land use, no monitoring identified.

18                   De Beers has not properly established the  
19 maximum zone of influence of the Snap Lake Diamond Project on  
20 Metis fisheries. There is evidence that the mine's  
21 development will negatively affect Metis fisheries outside  
22 the regional study area.

23                   Negative impacts to the fisheries will result  
24 in corresponding effects on Metis culture, land use, economy,  
25 health, Aboriginal rights, and spiritual and cultural

1 practices.

2                   Without this information, the North Slave  
3 Metis Alliance cannot assess or mitigate the impacts of the  
4 Snap Lake Diamond Project on their community. Without this  
5 information, the Board cannot assess the impact of the Snap  
6 Lake Diamond Project on the NSMA community.

7                   Thus, the Board cannot approve the project  
8 until the impacts on the North Slave Metis community can be  
9 properly assessed and mitigated.

10 What can be done in a further review to remove  
 11 the uncertainty surrounding the Snap Lake Diamond Project?  
 12 Cultural and heritage resources. De Beers  
 13 must re-analyse artifacts for Metis heritage in order for the  
 14 NSMA and the Mackenzie Valley Environmental Impact Review  
 15 Board to properly assess the impact of the Snap Lake Diamond  
 16 Project on Metis cultural and heritage resources.  
 17 Mine production rate. One (1) of the  
 18 conditions the Board has a responsibility to determine is the  
 19 scope of the project. The mine production rate has a  
 20 significant impact on the results of this EA.  
 21 The Board must impose a condition on approval,  
 22 that De Beers commit to the production rate as 3,000 TPD in  
 23 order to ensure a mine life of twenty-five (25) years.  
 24 Traditional knowledge. De Beers needs to  
 25 incorporate traditional knowledge into the development,

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1 monitoring and mitigation of the Snap Lake Diamond Project.  
 2 De Beers must implement its commitment to facilitate and fund  
 3 the NSMA's collection of traditional knowledge.  
 4 Traditional economy. De Beers needs to  
 5 conduct further analysis on available community data to  
 6 establish certainty that the wage economy will not negatively  
 7 impact the NSMA's traditional economy, social cohesion and  
 8 individual health and wellness.  
 9 De Beers possesses sufficient information on  
 10 the traditional activities of many Aboriginal Nations and now  
 11 must analyse it, predict impacts, propose mitigation measures  
 12 and establish monitoring protocols to assess the change in  
 13 Aboriginal economies over time.  
 14 NSMA economy. De Beers must survey the NSMA  
 15 for existing skills, education levels and employment  
 16 potential. De Beers must describe the existing wage economy,  
 17 skills and barriers to employment of the NSMA.  
 18 De Beers must develop community specific  
 19 recruitment and training programs that reflect the NSMA's  
 20 economic environment.  
 21 De Beers must use the NSMA's community-based

22 data to develop the necessary training, education, and  
23 recruitment programs that meet the specific needs of the  
24 community.

25 De Beers must work with the NSMA to ensure

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1 proper baseline data is in place and monitoring protocols are  
2 developed before the project is approved, so that deviations  
3 in the NSMA economic baseline can be traced over time and  
4 mitigated, if necessary.

5 Housing. De Beers needs to work with the NSMA  
6 to develop baseline data on the adequacy of housing and  
7 levels of over-crowding in the community to determine what  
8 adverse impacts on housing conditions will be, to monitor and  
9 mitigate changes to the NSMA housing environment, to ensure  
10 predictions about impacts on individual and community health  
11 and wellness are possible.

12 For it to ensure -- yeah -- to ensure  
13 predictions on impacts on individual community health and  
14 wellness are possible.

15 NSMA infrastructure environments. De Beers  
16 must subscribe the existing NSMA infrastructure environment,  
17 determine how the capacity of the NSMA community can be  
18 equalized to other communities to ensure the NSMA have the  
19 same resilience and ability to adapt to change.

20 Inadequacies in infrastructure must be  
21 mitigated. Impact benefit agreements, socio-economic  
22 agreements, and environmental agreements must be finalized  
23 before the Board can accurately assess the impacts of the  
24 project on Aboriginal communities.

25 NSMA language use. De Beers must determine an

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1 an -- the anticipated and possible changes to the NSMA's use

2 of Michief as a result of the Snap Lake Diamond Project.  
3 De Beers, and the NSMA must develop a Michief  
4 language program as part of the De Beers mitigation  
5 protocols.  
6 Resource use, spatial boundaries, and  
7 cumulative effects. De Beers must assess the resource use of  
8 the NSMA. De Beers must determine the maximum zone of  
9 influence of its workforce on local fisheries.  
10 De Beers must determine the direct and  
11 cumulative effects of the project's workforce on local  
12 fisheries.  
13 De Beers must develop mitigation measures with  
14 the NSMA to reduce any impacts on Metis fisheries. Again, I  
15 have a quote from the Interim Guide adopted by the MacKenzie  
16 Valley Environmental Impact Review Board:  
17 "It is only when a development's effects  
18 are known and understood that it is  
19 possible to determine and implement  
20 effective mitigation measures and to make  
21 an informed decision about supporting the  
22 development."  
23 Is there is significant public concern  
24 regarding socio-economic and cultural issues? The following  
25 organizations have documented outstanding socio-economic and

1 cultural issues with the Snap Lake Diamond Project:  
2 The North Slave Metis Alliance, Yellowknives  
3 Dene First Nations, Northwest Territory Metis Nation, Lutsel  
4 K'e Dene First Nation, Dogrib Treaty 11, Government of the  
5 Northwest Territories.  
6 Is the development likely to have a  
7 significant adverse impact on the North Slave Metis Alliance  
8 community? Yes.  
9 Can the impacts be mitigated? No. Community  
10 specific monitoring or mitigation has not been developed.  
11 Does the development pose significant public concern? Yes.  
12 Finally, again, where there's no sufficient  
13 information to determine the impacts of a project on the

14 environment, the precautionary principle must be applied.

15 Thank you.

16 THE CHAIRPERSON: Thank you, Ms. Johnson.

17 Questions? Mr. Johnstone...?

18 MR. ROBIN JOHNSTONE: De Beers Canada, Robin  
19 Johnstone. The North Slave Metis raised concerns that their  
20 document Can't live without work was not considered in the  
21 EA.

22 De Beers has responded several times during  
23 the information request process, but this information was  
24 specifically included in the research for the Environmental  
25 Assessment.

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1 In IR, 3.11.1, De Beers refers directly to the  
2 concerns and recommendations included in Can't live without  
3 work, and notes that many of those are addressed in whole or  
4 in part by the Impact Management measures discussed in  
5 Section 5.3.4 of the EA.

6 In fact, counting them up, approximately fifty  
7 (50) of the eighty (80) recommendations around socio-economic  
8 concerns are addressed.

9 What information does the North Slave Metis  
10 have that supports their claim that it is not -- this  
11 document is not being considered by De Beers in the  
12 Environmental Assessment?

13 THE CHAIRPERSON: Thank you. Ms. Johnson...?

14 MS. KRIS JOHNSON: Again, I'm going based on  
15 information submitted by the North Slave Metis' experts, and  
16 their request that that question be submitted to us in  
17 writing, and we'll get back to you on that.

18 THE CHAIRPERSON: Thank you. We'll note, for  
19 the record that there was no answer. Thank you.

20 Additional questions?

21 Thank you very much, Ms. Johnson.

22 MS. KRIS JOHNSON: Thank you.

23 THE CHAIRPERSON: We -- moving on, we now have  
24 a presentation from the Dogrib Treaty 11 Council.

25 Ms. Teillet...?

1 MS. JEAN TEILLET: Thank you, Mr. Chair.

2 THE CHAIRPERSON: And I note that this is not  
3 a written presentation.

4 MS. JEAN TEILLET: No, it's -- it is not.  
5 That's correct. We have no powerpoints, no slides, and no --  
6 but we do have a very important member of the Dogrib  
7 community here.

8 One of the Elders, Dogrib Elders, Alexi  
9 Arrowmaker, who is from Wekweti, which is one of the small  
10 Dogrib communities, very much wishes to speak to the Board,  
11 to the Government, and to the Proponent, about the social  
12 economic effects that he sees in the small communities.

13 And Elder -- this Elder has been waiting for a  
14 long time to say his words at this hearing. So, he's  
15 going -- he's -- he's also aware that we're under time  
16 constraints so he's going to make his comments brief, but he  
17 has some things he wants you to hear.

18 THE CHAIRPERSON: Thank you, Ms. Teillet.  
19 Could you, for the record, identify the presenter?

20 MS. JEAN TEILLET: The presenter is Alexi  
21 Arrowmaker.

22 THE CHAIRPERSON: Good day, sir.

23  
24 (THROUGH DOGRIB INTERPRETER INTO ENGLISH)  
25

1 MR. ALEXI ARROWMAKER: Thank you. I would  
2 like to also present some of my concerns at this public  
3 hearing. When you -- when you're in a public meeting, you're  
4 here to express concerns. We are not only speak -- we're not  
5 only speaking for ourselves as an individual but we're  
6 speaking on behalf of our people and our community which

7 wh -- where we come from.

8                   So when you become an -- when you become an  
9 elder, you don't always remember everything. Right now I am  
10 over eighty (80) years old and I might just forget a few  
11 things that I want to express. I'm not -- I don't have any  
12 written presentation and so I'm -- I'm going to speak from  
13 what I want to say. I don't want to --

14  
15                   (BRIEF PAUSE)

16  
17                   If you want to do -- if you want to do  
18 something, you have to say what you -- what you want to say,  
19 but a lot of people are kind of afraid to really express  
20 their concerns, I think.

21                   I've been involved in a lot of meetings for  
22 the past thirty (30) year -- over thirty (30) years and --  
23 but I've been involved in a lot of meetings, even though I'm  
24 -- I'm -- I don't read or write in English or understand or  
25 speak English, but if you don't say anything or express your

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1 concern, nothing will be done or nothing will be changed.

2                   So sometimes you're afraid to ex -- really ex  
3 -- express your concerns about a lot of things that are  
4 happening and then nothing will change if that happens. If  
5 you -- if it's -- if you don't say what you want to say.

6                   I want to be able to change some things but  
7 I'm -- I'm not in any political position but I'm an elder and  
8 I want to express my view as an elder. We don't have our  
9 Chief at our meetings right now but at the end, it's going to  
10 be the political leaders in our communities who are going to  
11 make a decision on what happens with this project but we, as  
12 elders, have to express our concerns and our views on this  
13 project before it is developed.

14                   So I want to talk about the social impacts on  
15 this project and I'm very concerned about it. I'm also  
16 concerned about the -- the government Social Services  
17 program. Are they -- are they really helping the people in  
18 the north? I will -- I will explain to you what I'm s --

19 talking about.

20                   It seems like they're not really -- they --  
21 they're not helping people. They're ac -- actually hindering  
22 the people in the way that they're working with people.

23                   We who come from small communities, it seems  
24 like all the develop -- the -- the government is -- the  
25 government -- the Social Services are helping the people in

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1 our communities to relocate into bigger communities or cities  
2 like Yellowknife, and also people don't leave our communities  
3 not only for the jobs, but they're here because of social  
4 problems in the communities and Social Services helped them  
5 to relocate into Yellowknife and live in -- in buildings like  
6 this.

7                   If I don't talk about the pro -- these  
8 problems, nothing is going to be done about it. So -- but  
9 we're supposed to be only talking about the environmental  
10 effects. Wh -- in the past, we only talk about the -- the  
11 land, the wildlife and the water but that's not only what it  
12 -- the -- the mining development does not only affect those.

13                   It also affects people and affects the  
14 community family structures and social structures of the  
15 community.

16                   So when -- when there's a development such as  
17 a mine like this, there's a lot of problems that go with it.  
18 It's -- I want to say what I'm concerned about about this  
19 development.

20                   The mining companies should look at the people  
21 that are going to be working in the mines, because the kind  
22 of person that they hire, a person that is not -- does not  
23 have drug and alcohol problems, who can hold onto their job.

24                   And -- and if the family -- if a wife and  
25 husband are also working for the mining companies, both

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1 working for a mining company, then who is going to take care  
2 of their children? And if there's also marital problems  
3 within that, because of the -- the work -- because of the  
4 work that they -- that work, then what's going to happen to  
5 the -- the community fabric -- of social fabric in the  
6 community?

7 I think we have to also think about all those  
8 kinds of social issues that we're faced with because of other  
9 mining companies. If I was in a -- a -- if I was a leader, I  
10 would look at those -- the drug and alcohol program that is  
11 facing our people today because of the development.

12 This alcohol and drug problem is a big issue  
13 in a community. And I think we should really deal with  
14 those, but nobody wants to deal with it because -- and also  
15 the government is kind of afraid to bring out all those kind  
16 of issues that are -- that the people are dealing with.

17 And now they want the -- now the mining  
18 companies want to develop this mine. But even the government  
19 knows there's a lot of social problems and they don't want to  
20 talk about those kinds of issues because they think that the  
21 mining companies may not develop the mines if they -- if they  
22 bring those kind of issues.

23 But we have to bring them up because we're not  
24 the only communities that are dealing with those kind of  
25 problems. There's a lot of problems because of this two (2)

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1 weeks in, two (2) weeks out, that the people are dealing with  
2 in the communities. And there's a lot of problems -- family  
3 problems because of that.

4 Today, our whole life is changing. We are now  
5 living in the west -- more of a western society lifestyle.  
6 And -- because now, that's the way it is. Most of the -- the  
7 western lifestyle where a woman and -- and man, both husband  
8 and wife work and their children go to school. And that's  
9 how the native communities are now changing and it's not like  
10 it was before.

11 So those are all the changes that's happening

12 in the communities. But what about if the family all work  
13 for the communities, who is going to take care of their  
14 families? Who is going to check up on the -- on the children  
15 when they come home from after school to make sure that they  
16 are going to school and they are -- they're being well cared  
17 for?

18 That is not our lifestyle, but -- but today,  
19 everybody wants to make money. So our whole lifestyle is  
20 changing. So you guys are probably wondering what I'm  
21 saying. We all are inter-related somehow, we all have to  
22 live on this Earth together.

23 We can't live alone in our own societies  
24 either. So we -- we want to be able to solve some of those  
25 problems so that we can work together and live together.

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1 If I was -- if I was in a leadership -- a  
2 leader, I would -- I would really take a -- a look at this  
3 drug and alcohol issue which is facing a lot of communities  
4 today. And if we do that, only then can we have harmony in a  
5 community and with the mining companies.

6 But -- but now, it -- it seems like there's so  
7 much problems and social services helping all the people to  
8 re -- those kind of people with problems to relocate in  
9 Yellowknife and live in a building like this.

10 So I'm -- I'm really -- I think that social --  
11 social services in the North is really not helping the  
12 people, because they are separating the families and -- and  
13 taking their children away from them.

14 But it's -- I have a family of my own, if you  
15 want to be taken care of by social services, just sit there,  
16 and you just -- or you don't do anything, you just let them  
17 do all the work, and it's -- it seems like the -- the social  
18 services program has disrupted a lot of people's lives --  
19 lives in the Dene communities, because of the way that they  
20 have made the -- the people depend on them.

21 And so -- so today, I -- I really wanted to  
22 talk about a lot of accumulative effects on the development,  
23 but it's -- this is the last day, and some -- sometimes, that

24 -- there's a lot of other things to be said, but it's -- it's  
25 -- the time -- we're limited with time today.

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1 But there's a lot of -- our Band Council and  
2 Chiefs -- and maybe they don't agree with what I'm saying,  
3 but these are my concerns from the development, and I'm  
4 talking for my community, so I'm going to mention all of  
5 these things that people really don't want to talk about.  
6 I want -- I want to be able to make sure that  
7 the -- the mining companies know these -- what kind of  
8 affects it's having right now in a community, and the -- the  
9 native people in the community want to work, but also want to  
10 have a good family homes, and good families too, but this --  
11 drug and alcohol is really affecting the whole family  
12 structure in the communities, which is my -- which is the  
13 biggest concern that we have as Elders.  
14 But we have to think -- we have to make these  
15 tough decisions for our people in -- in the future, so that  
16 our children's children can have -- can live a better life.  
17 And not only for the mining companies, but for  
18 the Government, and for the Aboriginal Government, and for  
19 the mining companies so that we can have a better working  
20 relationship in the future.  
21 And -- but -- but we may not agree with  
22 everything each other, but sometimes when you see the people  
23 -- homeless people, or poor people, we feel sorry for them,  
24 especially the -- the young children whose families are away  
25 at work, and they're -- almost like they're on their own.

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1 We want to take -- and as soon as those social  
2 services sees them, they should be able to help those kind of  
3 people, but they're -- they're not doing it in the right way.

4                   They're taking them away -- out of the  
5 community, and replacing them, and putting another burden,  
6 another problem into the bigger populated communities.

7                   From Fort Smith to Inuvik, that -- that vast  
8 area in the Mackenzie Valley, we all experience alcohol and  
9 drug problems. Whoever is Government employees, if you can  
10 plan and listen to the people, and observe what's happening  
11 in the community, maybe you can make better decisions for the  
12 community people.

13                   There's times when we have to deal with  
14 unexpected deaths as well, so you as Government employees  
15 have to plan and -- and observe the communities so that if  
16 there's any need of help in a community, I'm sure the people  
17 will be very grateful for any kind of programs or -- or kind  
18 of work that you can make the communities feel -- make a  
19 healthy and well-being of the people.

20                   So -- but if you do not look into these kinds  
21 of problems, with alcohol, with all the money that's being  
22 generated through employment, there'll be a lot more unhappy  
23 people in the communities, as well as individuals will be  
24 suffering from all this unnecessary stress.

25                   Because you're going to be wrapping up the

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1 meeting soon, I needed to say something. I wanted a chance  
2 to speak twice during this hearing, but I wasn't able to, and  
3 I'm not speaking from any notes, but I'm talking to you  
4 because I'm very concerned about my family, my immediate  
5 family, my three (3) boys that live with me.

6                   Because I feel saddened by some of their  
7 inabilities to maybe -- maybe work. Maybe if it's  
8 employment, we can -- we can't fix anything overnight, but we  
9 need to be aware of what is it like out there.

10                   If I was a leader, I would shut down all  
11 alcoholism and drugs, but we can't control the drug problem,  
12 but it's alcohol that we can't shut down.

13                   For example, sometimes, like, if you look  
14 around the community, why are the convenient stores open 'til  
15 two o'clock in the morning? Is it necessary that, like, is

16 it because people are buying groceries at two o'clock in the  
17 morning, that these kind of convenient stores are open?

18 Is it right to keep these kind of things like  
19 this operating in -- in the community? That's all I have to  
20 say for now.

21 THE CHAIRPERSON: Thank you very much, sir.

22 The next presentation is from the Government  
23 of the Northwest Territories. And I believe there are two  
24 (2) or three (3) presentations. Mr. More, do you want to  
25 introduce your...?

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1 MR. GAVIN MORE: Gavin More, Government of the  
2 Northwest Territories. Thank you, Mr. Chair. Yes, actually  
3 we have five (5) speakers, and I'll just introduce them  
4 briefly. They will speak through PowerPoint presentations.

5 The first speaker will be Cathy Praamsma, the  
6 Assistant Deputy Min -- Minister with Health and Social  
7 Services, followed by Lesley Allen, Assistant Deputy Minister  
8 for Education Culture and Employment, followed by Martin  
9 Irving, Diamond Project of RWED. Then Pietro DeBastiani,  
10 Energy Secretary of RWED. And our last presentation will be  
11 Dan Westman, Economic Planning of RWED.

12  
13 (BRIEF PAUSE)

14  
15 MS. CATHY PRAAMSMA: Mr. Chair, we are ready  
16 to proceed.

17 THE CHAIRPERSON: Thank you. Go ahead.

18 MS. CATHY PRAAMSMA: Good afternoon. My name  
19 is Cathy Praamsma, and I'm the assistant deputy minister for  
20 the Department of Health and Social Services, in the  
21 Government of the Northwest Territories.

22 My role today is to speak briefly to the  
23 potential impacts of the Snap Lake Project on the people and  
24 families in the impacted region.

25 Our view is consistent with the message given

1 earlier in the week by the GNWT in our opening presentation  
2 related to this proposed project.

3 The project has the potential to offer many  
4 positive benefits to the people of the NWT, however, it is  
5 anticipated that there will also be negative impacts on  
6 family structure. I'll provide a bit of background in this  
7 area and make comments on areas where we believe greater  
8 certainty is required.

9 The GNWT has a direct responsibility to  
10 maintain a healthy balance between industrial development and  
11 social health and wellness. Joint efforts from government,  
12 industry and communities are required to prepare for and to  
13 mitigate these potential negative impacts.

14 This slide highlights possible areas for  
15 negative impacts from industrial development projects.  
16 Several regions of the NWT has seen a steady increase in the  
17 development activity over the past few years with existing  
18 diamond mines, as well as continued diamond and oil and gas  
19 exploration.

20 In some communities, we have ser -- we have  
21 observed increases in such areas as children in care, patient  
22 visits at healthcare centres and utilization of family  
23 violence shelters. De Beers has acknowledged in their  
24 environmental assessment report that their proposed project  
25 has the potential to result in similar social impacts.

1 De Beers has proposed a number of measures to  
2 offset the anticipated negative social impacts under the  
3 headings of Sustainable Social Development, Substance Abuse  
4 Prevention and Treatment, and Family Support Services. For  
5 our part, the GNWT is fully prepared to establish joint  
6 arrangements with communities and the proponent to prepare  
7 for potential impacts on northern families.

8 The GNWT currently invests approximately 24

9 percent of its overall budget to providing health and social  
10 services for the people of the Northwest Territories. We  
11 have also launched two (2) major program initiatives directly  
12 related to addressing the social impacts of development.

13 The first is a major review and changes to the  
14 mental health and addiction services. This is a multi-year  
15 project and will be a prime candidate for extension and  
16 expansion through partnership.

17 We have all re -- also recently launched a  
18 call for community-based wellness projects for impacted  
19 communities. We agree that there is a need for partnership  
20 and we are open to establishing partnerships with industry  
21 and communities on these and other related projects.

22 We are committed to negotiating a socio-  
23 economic agreement with De Beers to formalize these proposed  
24 partnerships. We see this as a primary process in gaining  
25 commitment from De Beers to mitigate potential impacts.

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1 To date, -- to date, De Beers has not yet  
2 provided information as to what they will bring to these  
3 partnerships, such as dollars, people and facilities nor has  
4 De Beers stated explicitly what it expects in terms of  
5 contribution from government and community partners.

6 To close, Mr. Chairman, we are seeking  
7 certainty from the proponent to their commitment to share in  
8 the responsibility for preparing for anticipated impacts.

9 We look forward to successful negotiation of a  
10 full socio-economic agreement which includes details on how  
11 the proponent will contribute their resources to these  
12 efforts. And I'd like to turn this over to my colleague from  
13 Education.

14  
15 (BRIEF PAUSE)

16  
17 MS. LESLEY ALLEN: Good afternoon. I'm Lesley  
18 Allen, assistant deputy minister for the Department of  
19 Education, Culture and Employment. I'm going to speak with  
20 you today about northern employment. As part of our mandate

21 to protect the interests and well-being of all the residents  
22 of the NWT, we feel it's necessary for De Beers to address  
23 northern employment up front through a socio-economic  
24 agreement.

25                   Employment Targets: As was mentioned by Doug

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1 Doan from the GNWT, on the first day of these Hearings, De  
2 Beers must set employment targets. We were relieved, today,  
3 to hear that they -- they have indicated that they will set  
4 these targets, because we need certainty that northerners are  
5 going to be hired.

6                   We expect that these targets will be for the  
7 contractors and subcontractors as well. This commitment  
8 needs to be made to the socio-economic agreement process, to  
9 ensure this project will provide benefit to the NWT.

10                   NWT Labour Force. You've heard a lot and  
11 you've seen a lot of statistics so I'm going to go through  
12 this section fairly quickly. The information we have -- the  
13 information we have is based on the NWT Bureau of Statistics,  
14 2002.

15                   There are approximately 42,000 in the  
16 Northwest Territories. Of the total population, 29,400 are  
17 working age fifteen (15) years and older, 21,000 are  
18 employed. We are currently -- we currently have 7,100  
19 residents not participating in the labour force.

20                   Current labour force activity in the NWT shows  
21 that the employment rates are high and the unemployment rates  
22 are low. That being said, there are 1,300 unemployed persons  
23 and 5,700 persons between the ages of fifteen (15) and sixty-  
24 four (64), who are not currently in the workforce, that have  
25 the potential to serve as an available workforce.

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1                   Along with the population that is currently  
2 not working every year, we have approximately two hundred and  
3 sixty (260) Grade 12 graduates in the Northwest Territories.  
4 This presents an invaluable opportunity to engage these  
5 people in the world of work.

6                   Now that there has been a commitment made  
7 regarding employment targets, we will need to ensure that  
8 there are mitigation measures in place as well.

9                   Inclusion of all NWT communities. In order to  
10 build capacity, De Beers needs to expand the catchment area.  
11 De Beers will be recruiting staff from communities that are  
12 already party of the Diavik and EKATI catchment area.

13                   It is critical to expand the catchment area to  
14 include other parts of the NWT, such as the Deh Cho and the  
15 Sahtu. There are areas in the Northwest Territories that  
16 experience high unemployment and could provide -- or could  
17 prove to be a valuable source of potential employees.

18                   In the primary communities, there are seven  
19 hundred and ninety (790) employment insurance clients. And  
20 of these seven hundred and ninety (790), three hundred and  
21 twenty (320) have trades related experience. Employment  
22 insurance clients are clients that have worked in the past  
23 and are looking for work.

24                   In our catchment communities, there are four  
25 hundred and eighty (480) employment insurance clients. Two

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1 hundred and ten (210) of these have trades related  
2 experience. From all of these regions, we can see that by  
3 increasing the catchment area to the entire Northwest  
4 Territories, we were able to increase the potential labour  
5 pool.

6                   Promoting the North. The Department of  
7 Education, Culture, Employment will continue to work with  
8 De Beers and the communities to ensure a strong partnership  
9 is in place. We feel it's necessary to capture these details  
10 and commitments through a socio-economic agreement.

11                   Through training and employment, the human  
12 resource capacity in the NWT will continue to rise. Workers

13 are needed in the communities as well at the mine sites. De  
14 Beers has example -- has identified ten (10) apprenticeship  
15 positions. We feel that this could be increased.

16 Both the catchment area and the slight -- fly  
17 in sites will have to be expanded to achieve high levels of  
18 northern employment. Both EKATI and Diavik have recognized  
19 this and have adjusted their operations accordingly.

20 The cost of living in the NWT communities is a  
21 major concern. Currently, many employers provide incentive  
22 for people to live and work in the north.

23 In order to maximize northern employment,  
24 De Beers needs to provide real incentives for employees to  
25 remain in, or relocate to the NWT.

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1 Without these incentives, northerners may move  
2 to southern locations, taking labour capacity, and project  
3 benefits away from the Northwest Territories.

4 What needs -- what is needed from De Beers?  
5 It is the conclusion of the Department of Education, Culture,  
6 and Employment that the following is needed from De Beers:  
7 employment commitments to ensure northern benefits; this has  
8 been confirmed, but it needs to include the subcontractors  
9 and the contracts.

10 Inclusion of all NWT communities, the  
11 continuation of training efforts that lead to employment, the  
12 promotion of the north as a place to live, and a certainty of  
13 commitment through a socio-economic agreement.

14 Thank you. Now I would like to pass it over  
15 to Martin Irving.

16 MR. MARTIN IRVING: Hello, my name is -- my  
17 name is Martin Irving, and I'm the Director for Diamond  
18 Projects for the Government of the Northwest Territories.

19 The Government of the Northwest Territories  
20 believes that our diamond mining industry is more than just  
21 finding and extracting precious gems from kimberlite ore.

22 We believe that a properly developed diamond  
23 industry will also include secondary activities that create  
24 wealth, jobs, and economic opportunities.

1 -- that secondary diamond industry activities can, and should  
2 be undertaken in the Northwest Territories.

3 To accomplish this goal, we recommend that De  
4 Beers enter into a written MOU with the Government of the  
5 Northwest Territories, to supply rough diamonds from Snap  
6 Lake for cutting and polishing in the Northwest Territories.

7 We have benefitted already from the  
8 development of a secondary diamond industry, resulting from  
9 rough diamond supply from existing diamond mines.

10 A supply from the EKATI Diamond Mine has  
11 created approximately one hundred (100) full time jobs in  
12 three (3) factories.

13 This employment is nine (9) to five (5), five  
14 (5) days a week. This means no fly-in, fly-out locations for  
15 persons who prefer regular working and home life conditions.

16 The cutting and polishing factories have  
17 developed a new export market for a unique NWT product, and  
18 the direct impact on the NWT gross domestic product in 2001  
19 from these three (3) factories was approximately \$9 million a  
20 year.

21 A supply from the Diavik Diamond Mine will add  
22 further jobs, and economic benefits. The recently completed  
23 Tiffany Factory alone has a capacity to employ seventy-five  
24 (75) people.

25 De Beers has made express commitments within

1 the environmental assessment process to support the  
2 development of the NWT secondary diamond industry.

3 In its conformity report, De Beers committed  
4 to establish a sorting and valuation facility in the

5 Northwest Territories, and in technical hearings, De Beers  
6 made the clear commitment to make a supply of Snap Lake rough  
7 diamonds available to manufacturers based in the Northwest  
8 Territories through the socio-economic agreement process with  
9 the Government of the Northwest Territories.

10 While work had started on a memorandum of  
11 understanding as between De Beers and the GNWT, progress to  
12 date has been slow. In addition, there have been statements  
13 made that suggest De Beers may be reconsidering their  
14 commitment to supply rough diamonds directly for  
15 manufacturing in the Northwest Territories.

16 The GNWT requests the Board to require from De  
17 Beers, confirmation of their commitment to establish a  
18 sorting and valuation facility in the Northwest Territories  
19 off mine site, creating employment opportunities for  
20 Northerners in the sorting and valuation of rough diamonds,  
21 and make a supply of Snap Lake rough diamonds available to  
22 NWT based manufacturers to support the development of the  
23 secondary industry through the GNWT socio-economic agreement  
24 process.

25 Thank you, and I'll pass it off to Peitro.

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1 MR. PIETRO DEBASTIANI: My name is Pietro  
2 Debastiani, I'm a policy advisor with the energy secretariat,  
3 Department of Resources Wildlife and Economic Development.

4 The Energy Secretariat is developing a  
5 comprehensive NWT energy strategy that addresses issues and  
6 opportunities related to domestic industry and community  
7 energy supply and demand, to the development of NWT energy  
8 resources, and to the environmental sustainability of our  
9 energy systems.

10 The proponent utilized the following factors  
11 in evaluation the energy supply options for the mine site.  
12 Prior experience, suitability, cost, and environmental  
13 impact.

14 They concluded that diesel fuel was the most  
15 appropriate energy form for use at the Snap Lake mine. The  
16 GNWT is investigating all options to reduce fossil fuel used

17 in the NWT through energy efficiency, and the use of  
18 renewable energy.

19 De Beers is proposing to use fossil fuels  
20 imported from southern refiners at the proposed Snap Lake  
21 mine.

22 Volumes of fuel for each use category at Snap  
23 Lake are, 28 million litres per year for generating  
24 electricity, which equates to about 80 gigawatt hours of  
25 electricity production, 8 million litres per year for

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1 heating, and 4 million litres for transportation. Those  
2 volumes for generation will increase over time.

3 The NWT has several developed rivers in the  
4 Great Slave Lake basin, with the capacity to supply cost  
5 effective electricity to new demand clients, such as De  
6 Beers' Snap Lake mine.

7 Hydro-electricity is more environmentally  
8 sustainable as an energy source, than non-renewable fossil  
9 fuels. As well, the GNWT encourages De Beers to purchase low  
10 sulphur diesel for all non-hydro energy requirements at the  
11 mine site. The GNWT itself specifies low sulphur diesel in  
12 all of its own fuel purchasing contracts.

13 Expansion of the NWT's hydro-electric  
14 generation and transmission system, results in legacy  
15 infrastructure, to serve future energy demand for NWT  
16 communities, and the non-renewable resource sector.

17 This also provides sustainable business  
18 opportunities for aboriginal businesses and other NWT  
19 business interest. The positioning of cost effective hydro-  
20 electricity transmission infrastructure in the Slave  
21 Province, can improve prospects for a sustainable mining  
22 industry in the NWT.

23 The GNWT, and the Government of Canada, are  
24 committed to working with industry to address climate change,  
25 and air pollution.

1                   Displacing fossil fuels with renewable energy  
2 assists in reducing greenhouse gas emissions and other air  
3 pollutants in the NWT.

4                   And the provision of hydro-electricity will  
5 provide protection from possible future increases in the  
6 price of fossil fuels.

7                   The NWT have hydro-electricity available to  
8 meet growing domestic demand. Hydro expansion and  
9 transmission options to Snap Lake are under consideration  
10 from several sites.

11                  The GNWT will move forward on hydro -- will  
12 not move forward on any hydro-electric initiative without the  
13 support of effected aboriginal interests in the NWT.

14                  I'll pass it on to Dan Westman now.

15                  MR. DAN WESTMAN: Hi, my name is Dan Westman.  
16 I'm manager of Economic Planning and Resources Wildlife and  
17 Economic Development.

18                  I'd like to make a short presentation on  
19 business and -- well, it's in four (4) parts. Overview of  
20 economic growth and the GDP, impacts on business -- sorry  
21 guys.

22                  Some business challenges end up on one (1)  
23 slide on observations and conclusions. Next slide.

24                  This chart shows GDP growth, and GDP -- GDP  
25 growth in NWT since our creation in 1999. The interesting

1 point is that the construction industry accounted for the  
2 vast majority of growth, followed by mining and oil and gas.  
3 Construction is also closely associated with mining.

4                  It was during this period that the Diavik  
5 property was developed and BHP completed construction. We  
6 can also see some significant growth in other sectors of the  
7 economy, including trade, finance, professional services and  
8 accommodation.

9                  By contrast, government growth which is at the

10 top of the slide, increased very little.

11 This chart shows retail trade in the Northwest  
12 Territories since our creation. As you can see from the  
13 chart, it's been very strong. Retail fills the end of the  
14 tier are -- are approximately \$40 million per month now.  
15 This compares to 24 to 25 million per month back in 1999.

16 Economic theory predicts a close correlation  
17 between personal incomes and retail sales. We can see this  
18 in this chart from where the arrows are shown up there from  
19 that Christmas buying peak and it also is shown in the next  
20 slide which talks about personal incomes in the NWT.

21 This slide shows, again, personal incomes by  
22 month in NWT since we were created. If you can remember back  
23 to the first slide, it shows that there's a close correlation  
24 between the two (2) trends, as we would expect.

25 Labour income, now, in the NWT is

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1 approximately one hundred and thirty dollars (\$130) per --  
2 \$130 per month up from \$83 million per month back in 1999 and  
3 in fact, we're one of the richest provinces in Canada on a  
4 per capita basis.

5 Not many people think of the wholesale  
6 business being important in the NWT but, in fact, it's almost  
7 half the size of retail trade. The thing to point out about  
8 the wholesale trade industry in the NWT is it's closely  
9 associated with mine resupply and the arrows up there show  
10 the -- the peaks that happen during the winter road resupply  
11 season and during that time of the year wholesale trade can  
12 double in one month.

13 The Canadian Federation of Independent  
14 Business just released results of their member survey of what  
15 their members think is important to overall business  
16 development in the NWT. Ninety percent of all the businesses  
17 surveyed saw the diamond industry and oil and gas development  
18 as being important to business success in the NWT. Tourism  
19 is also shown as being significant. Next slide, please.

20 One issue we face, and it's been raised by  
21 some presenters, is housing. Right now, our -- our vacancy

22 rate in Yellowknife is one-third (1/3) of 1 percent. We  
23 don't have any official vacancy data for -- for other  
24 communities but there's some anecdotal evidence that there's  
25 a shortage in al -- in a lot of communities and even in

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1 places like Hay River.

2 Well, we'd like to consider from a business  
3 perspective is that the development of two (2) mines, along  
4 with exploration like companies like De Beers has created  
5 large and ongoing benefits for NWT businesses and the  
6 economy. Businesses see continuing growth as tied to  
7 resource development.

8 In terms of direct impact, it should be  
9 possible to purchase most goods and services in the NWT and  
10 as was pointed out by De Beers. We now have three (3) -- or  
11 possibly three (3) operational diamond mines. The employment  
12 targets for business should be established within a socio-  
13 economic agreement.

14 Aside from the direct impacts of mine  
15 purchases, business development is closely associated with  
16 NWT employment and income. Our conclusion is and as has been  
17 stated today by De Beers, the employment targets should be  
18 established in a socio-economic agreement.

19 One issue for business and employees is a  
20 shortage of affordable housing. While this not an issue or  
21 the sole responsibility of the mining industry, it is an  
22 issue that needs to be addressed if NWT employment is going  
23 to be maximized.

24 It is our conclusion that the GNWT and De  
25 Beers should work together collaboratively through a socio-

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1 economic agreement to deal with some of the issues of housing

2 and that's it, Mr. Chairman.

3

4 (BRIEF PAUSE)

5

6 THE CHAIRPERSON: Thank you. Just prior to  
7 going to questions of the GNWT, and somewhat related to the  
8 GNWT presentation, Mr. McConnell had indicated that he had an  
9 answer to the question posed by Mr. O'Reilly, this morning,  
10 on the use of low sulphur fuel.

11 Mr. McConnell, do you think you could give us  
12 that answer now, sir? Thank you.

13 MR. JOHN MCCONNELL: Thank you, Mr. Chairman.  
14 I think the question was related to the type of fuel that we  
15 had proposed using at Snap Lake. And I just needed to get a  
16 clarification and the proper terminology.

17 But the fuel is a P-50, which is a low gel  
18 point low sulphur fuel.

19 THE CHAIRPERSON: Thank you, sir. Questions  
20 of the Government of the Northwest Territories?

21 Mr. McConnell...?

22 MR. JOHN MCCONNELL: Many very cynical  
23 questions come to mind, but I'm sure it's got something to do  
24 with having sat here for five (5) days, so I think we'll  
25 pass.

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1 THE CHAIRPERSON: Okay.

2 Yellowknives Dene. Questions of the  
3 Government of the Northwest Territories?

4 MR. TIM BYERS: Thank you, Mr. Chair. Yes,  
5 I'd like to, I guess, re-pose the question that I earlier  
6 asked Andy Swiderski.

7 And that is, with increased incomes resulting  
8 in reduced welfare payments, the benefit is supposed to be  
9 freeing up of government money to put into -- which can then  
10 be put back into social and education services in the  
11 communities.

12 So I guess I would ask the GNWT, when these  
13 monies are freed up, does the money go back into community

14 programs? Or is it put into general revenues? Thank you.  
15 THE CHAIRPERSON: Ms. Allen...?  
16 MS. LESLEY ALLEN: Thank you, Mr. Chair.  
17 Lesley Allen from the Northwest Territories, GNWT Government.  
18 The answer to that question is -- is that we have done  
19 increases in the last two (2) years, into the income support  
20 programs.  
21 THE CHAIRPERSON: Mr. Byers...?  
22 MR. TIM BYERS: Yes, could you explain what  
23 the income support programs are?  
24 THE CHAIRPERSON: Thank you. Ms. Allen...?  
25 MS. LESLEY ALLEN: Thank you, Mr.

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1 Chairperson. Again, Lesley Allen, GNWT. The income support  
2 program is a program that's based on need. And so people  
3 bring their resources and then -- and then the needs are  
4 examined in terms of the requirements or the expenditures on  
5 a monthly basis and then those needs are topped up.  
6 In our program, we have a number of smaller  
7 programs with it. For example, we have the food, shelter and  
8 clothing, as well as we have enhanced benefits related to  
9 furniture, emergency and seasonal clothing.  
10 THE CHAIRPERSON: Mr. Byers...?  
11 MR. TIM BYERS: No further questions. Thank  
12 you very much.  
13 THE CHAIRPERSON: Thank you, Mr. Byers.  
14 INAC?  
15 NWT and Nunavut Chamber of Mines? Mr.  
16 Vaydik...?  
17 MR. MIKE VAYDIK: Thank you, Mr. Chairman. I  
18 just had one (1) comment about Ms. Allen's presentation.  
19 THE CHAIRPERSON: Is it a question or a  
20 comment, Mike? Because --  
21 MR. MIKE VAYDIK: You only want questions?  
22 THE CHAIRPERSON: Yes.  
23 MR. MIKE VAYDIK: Okay, I'll move -- I  
24 won't -- I will move onto questions, then.  
25 My questions regard the local cutting and

1 polishing facilities that have now been operating for some  
2 five (5) years. And I wonder if the government can report as  
3 to what percent of EKATI production has actually been taken  
4 up by the factories?

5 MR. MARTIN IRVING: Martin Irving from the  
6 Government of the Northwest Territories. At this time, the  
7 three (3) cutting factories purchasing approximately 4  
8 percent by value of the EKATI Diamond production.

9 THE CHAIRPERSON: Thank you. Mr. Vaydik...?

10 MR. MIKE VAYDIK: Thank you. I wonder if Mr.  
11 Irving could comment on the total value of subsidies to the  
12 factories by the GNWT?

13 THE CHAIRPERSON: Mr. Irving...?

14 MR. MARTIN IRVING: I -- I don't have a total  
15 number with me at this point. We provide support programs to  
16 the diamond businesses, the same as any other business in the  
17 Northwest Territories.

18 The support is provided in training --  
19 training, wage subsidies, and training program through Aurora  
20 College, and through the provision of loan guarantees.

21 But, there are no specific support programs  
22 that are only open to the diamond industry. They are open to  
23 all businesses.

24 THE CHAIRPERSON: Thank you. Mr. Vaydik...?

25 MR. MIKE VAYDIK: Thank you. This morning,

1 the Government of the Northwest Territories asked De Beers  
2 about their commitment to employment targets, and I -- I  
3 wonder what the experience has been of the local cutting and  
4 polishing factories.

5 Do they have targets for Aboriginal  
6 employment? What are they, and are they -- those targets in

7 any way tied to the subsidies?

8 THE CHAIRPERSON: Thank you. Mr. Irving...?

9 MR. MARTIN IRVING: Martin Irving, Government

10 of the Northwest Territories. As I said early -- the --

11 earlier, that the funding support -- part of the funding

12 support provided to the factories is for training of

13 Northerners.

14 At the moment, 55 to 60 percent of the

15 workforce are Northerners, the rest are imported skilled

16 workers, working as trainers, and providing the necessary

17 skill and expertise for the industry to grow here.

18 There are no specific targets for the cutting

19 factories. There are, however, training plans that they

20 provided to the GNWT, and that are reviewed with the

21 factories and the Government of the Northwest Territories on

22 an on-going basis.

23 THE CHAIRPERSON: Thank you. Mr. Vaydik...?

24 MR. MIKE VAYDIK: Thank you. Just at lunch

25 hour, I read that there are now sixteen thousand (16,000)

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1 cutters in China. At the end of next year, there are

2 scheduled to be about twenty-one thousand (21,000) diamond

3 cutters in China, and I'm wondering if Mr. Irving could

4 comment on what possible effect that might have on the

5 ability of the Northwest Territories as a jurisdiction,

6 considering that we're a high-cost jurisdiction to compete in

7 that international marketplace?

8 THE CHAIRPERSON: Thank you. Mr. Irving...?

9 MR. MARTIN IRVING: Martin Irving from the

10 Government of the Northwest Territories. Diamonds are cut

11 all around the world in numerous different jurisdictions.

12 Some of them are low wage environments, such

13 as China or India. Others are what you would consider higher

14 wage environments, such as Antwerp, Tel Aviv, New York, or

15 indeed, Northwest Territories.

16 The critical issue is what are the types of

17 diamonds that are -- you are cutting and polishing. It's the

18 value and type of the rough that you are cutting that

19 determines where -- where it is economic to be cut and  
20 polished.

21                   One (1) of the premises and principles that  
22 the Government of the Northwest Territories has in this -- in  
23 this approach with both BHP and Diavik, and hopefully, with  
24 De Beers as well, is that the rough diamonds that are  
25 provided are in -- in fact, economic to be cut and polished

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1 here in the Northwest Territories.

2                   THE CHAIRPERSON: Thank you. Mr. Vaydik...?

3                   MR. MIKE VAYDIK: I'm finished. Thank you.

4                   THE CHAIRPERSON: Thank you. North Slave  
5 Metis Alliance, questions for GNWT? DFO?

6                   MS. KRIS JOHNSON: Sorry, I forgot to ask Ron  
7 -- Ron Ball -- Balsillie has a few questions.

8                   THE CHAIRPERSON: Thank you. Mr.  
9 Balsillie...?

10                  MR. RON BALSILLIE: Okay. How many people,  
11 including contact as an income, consultants are currently  
12 employed by De Beers directly on this project.

13                  THE CHAIRPERSON: Thank you. That, sir, is  
14 not a question that the GNWT could -- could answer. Sorry.

15                  MR. RON BALSILLIE: Is there anyone in this  
16 room that can answer that question?

17                  THE CHAIRPERSON: There is, however, we're  
18 not in the question phase of De Beers, we're in the question  
19 phase of the GNWT, sir.

20                  MR. RON BALSILLIE: Okay. Does the GNWT have  
21 any responsibility for ensure that Aboriginals are employed?  
22 Yes? No? Not sure?

23                  MS. LESLEY ALLEN: Thank you, Mr.  
24 Chairperson. It's Lesley Allen from the GNWT. Yes, we do.  
25 We have an affirmative action policy.

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1 THE CHAIRPERSON: Thank you. That relates,  
2 though, to GNWT, not to De Beers Snap Lake Mine?  
3 MS. LESLEY ALLEN: I'm Lesley Allen, GNWT.  
4 Through the socio-economic agreement process, we are  
5 encouraging first Aboriginal people and then Northerners. So  
6 that's how I would answer the question.  
7 THE CHAIRPERSON: Okay. So you -- when you  
8 refer to affirmative action policy, you're talking about your  
9 socio-economic monitoring agreement that you would negotiate  
10 with the proponent, De Beers, correct?  
11 MS. LESLEY ALLEN: Yes.  
12 THE CHAIRPERSON: Mr. Balsillie. The -- yes,  
13 the answer to your question is, yes, they have some role in  
14 hiring at -- at De Beers.  
15 MR. RON BALSILLIE: Thank you.  
16  
17 (BRIEF PAUSE)  
18  
19 THE CHAIRPERSON: Dogrib Treaty 11?  
20 Questions of the GNWT?  
21 CARC? Mr. O'Reilly...?  
22 MR. KEVIN O'REILLY: Thank you, Mr. Wray.  
23 I'd like to ask the Government of the Northwest Territories  
24 one (1) of my favourite questions on the timing of socio-  
25 economic agreement and the memorandum of understanding on

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1 supply of rough diamonds, whether these should be in place  
2 before the operation of the mine? Or whether they have any  
3 other position on the timing? Thank you.  
4 THE CHAIRPERSON: Thank you. Mr. Doan...?  
5 MR. DOUG DOAN: Thank you, Mr. Chairman.  
6 We're quite surprised by that question. From the GNWT  
7 perspective, we do -- we do see some -- some distinct  
8 advantage in having an agreement concluded before the closure  
9 of the Public Registry on May 28th.  
10 But at the same time, we recognize that we are  
11 working with a number of other parties, to -- to meet this

12 agreement, or to reach this agreement. We're sensitive to  
13 the needs of the communities, so from our perspective, while  
14 we would like it done as soon as possible, our view is that  
15 it must be concluded by the 30th of June. Thank you.

16 THE CHAIRPERSON: Thank you. And just for  
17 the record, the Public Registry closes on May 23rd. However,  
18 as Mr. O'Rielly pointed out yesterday, Section 10 gives us  
19 the ability to extend it. Thank you.

20 Mr. O'Reilly...?

21 MR. KEVIN O'REILLY: Thank you. Kevin  
22 O'Reilly, CARC. I wanted to -- I asked this question of De  
23 Beers this morning, in terms of one -- a couple of the charts  
24 in Mr. Swiderski's presentation, showed declining social  
25 assistance payments over a period of years in the primary

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1 communities.

2 And I'm wondering if the -- the Government of  
3 the Northwest Territories can explain whether this -- what  
4 the reason for this decline is. Is it because more people  
5 are working? Or is it -- does the claw backs in the social  
6 assistance payments have any role to play in this? Thank  
7 you.

8 THE CHAIRPERSON: Ms. Allen...?

9 MS. LESLEY ALLEN: Thank you, Mr.  
10 Chairperson. Lesley Allen, GNWT. Because more people are  
11 working, because the economic growth in the Northwest  
12 Territories is so robust, the number of people on income  
13 assistance has gone down.

14 THE CHAIRPERSON: Thank you. Mr.  
15 O'Reilly...?

16 MR. KEVIN O'REILLY: Thank you. Just for  
17 clarification, then. Is it the policy of the Government of  
18 the Northwest Territories to still claw back payments made to  
19 individuals under impact benefit agreements from social  
20 assistance?

21 THE CHAIRPERSON: Thank you. Ms. Allen...?

22 MS. LESLEY ALLEN: Thank you, Mr.  
23 Chairperson. Lesley Allen, GNWT. I'd like to just clarify.

24 What happens is, if somebody gets an IBA single payment to an  
25 individual, and that person is on income assistance, then

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1 that income is taken into consideration.  
2 So, if their needs are of certain amount, then  
3 that is taken into consideration. Thank you.  
4 THE CHAIRPERSON: Thank you, Ms. Allen. Mr.  
5 O'Reilly...?  
6 MR. KEVIN O'REILLY: Thank you. Kevin  
7 O'Reilly, CARC. That sounded like a yes to me, but I'll go  
8 on.  
9 I have a question about commitments in a  
10 socio-economic agreement, and I was pleased to hear De Beers  
11 this morning, make a commitment with regard to employment  
12 targets in a socio-economic agreement.  
13 But, are there other kinds of targets that the  
14 Government of the Northwest Territories is looking for in a  
15 socio-economic agreement, say, for instance, contracting, or  
16 purchasing in the North?  
17 Or, perhaps other targets, and if they could  
18 explain that a little bit, that would be helpful.  
19 THE CHAIRPERSON: Thank you. Mr. Doan...?  
20 MR. DOUG DOAN: Thank you, Mr. Chairman.  
21 It's -- it's Doug Doan with Resources, Wildlife, and Economic  
22 Development.  
23 There's -- there are a number of areas where  
24 we -- we believe that targets are -- are appropriate. One  
25 (1) of them, of course, is employment. A second one (1)

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1 involves procurement.  
2 We also believe that there should be targets  
3 established for such things as the transfer of rough to help

4 out with secondary industry, and also with respect to  
5 training.

6 There are other initiatives and items that we  
7 believe would go within the socio-economic agreement that  
8 might not have precise targets associated with them.

9 THE CHAIRPERSON: Thank you. Mr.  
10 O'Reilly...?

11 MR. KEVIN O'REILLY: Thank you. Could the  
12 Government of the Northwest Territories let us know whether  
13 De Beers has made, or has made any commitments in any of  
14 these other areas with regard to specific targets during the  
15 negotiations to date?

16 THE CHAIRPERSON: Thank you. Mr. Doan...?

17 MR. DOUG DOAN: Mr. Chairman, if I'm not  
18 mistaken, De Beers has provided commitments earlier today,  
19 both in terms of employment and procurement.

20 They have put numbers on the table, and I  
21 believe their presentation dealing with training also  
22 identified specific numbers for targets.

23 THE CHAIRPERSON: Thank you. Mr.  
24 O'Reilly...?

25 MR. KEVIN O'REILLY: Thank you. Kevin

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1 O'Reilly with CARC. I just want to turn now to the  
2 memorandum of understanding on the supply of rough diamonds.

3 There's a lot of variation in terms of the  
4 size and type of rough diamonds, and I understood Mr. Irving  
5 to say that you want to make sure that they get diamonds that  
6 are economic here.

7 Are there any other sort of targets, or  
8 considerations that they feel should be part of the MOU, and  
9 that they'd like some direction from the -- or some  
10 assistance with the Board, on specifying any of this in terms  
11 of whether that -- the supply of rough should be one (1) of  
12 mine, or size, type, so on. Thank you.

13 THE CHAIRPERSON: Mr. Doan...?

14 MR. DOUG DOAN: Thank you, Mr. Chairman. The  
15 GNWT is seeking targets for the supply of rough to our

16 manufacturing -- to a northern manufacturing industry. The  
17 specifics and the -- the nature of the agreement is something  
18 that we believe is yet to be negotiated in a memorandum of  
19 understanding with the company. Thank you.

20 THE CHAIRPERSON: Mr. O'Reilly...?

21 MR. KEVIN O'REILLY: Thank you. One (1) --  
22 one (1) further question. Will this -- I always like to ask  
23 this question, but will this MOU action be a public document  
24 when it's concluded. Thank you.

25 THE CHAIRPERSON: Thank you. Mr. Doan...?

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1 (BRIEF PAUSE)

2  
3 MR. DOUG DOAN: Thank you, Mr. Chairman. The  
4 -- the last two (2) agreements, which were executed between  
5 the Government of the Northwest Territories and diamond mine  
6 operations were in fact, public documents.

7 In this particular instance of course, the  
8 agreement has not yet been negotiated, but we would expect  
9 that it would be a public document. Thank you.

10 THE CHAIRPERSON: Thank you.

11 MR. KEVIN O'REILLY: Thanks. Just a couple  
12 more questions. The next one is for Mr. DeBastiani with  
13 regard to the energy profile of -- of the De Beers Snap Lake  
14 mine. Can you let me know if there's any differences between  
15 the energy profile of this mine and, say, the other diamond  
16 mines and if that difference in energy profile might lend  
17 itself to alternative energy use in any way?

18 MR. KEVIN O'REILLY: Thank you.

19 THE CHAIRPERSON: Thank you. All right.

20 MR. PIETRO DEBASTIANI: Pietro DeBastiani,  
21 RWED energy secretariat. In fact, the Snap Lake mine is a  
22 larger percentage user of electricity than the other mines.  
23 I would imagine that's due to the fact that it's an  
24 underground operation and not a surface open-pit operation.  
25 With the Diavik and EKATI about two-thirds (2/3), 66 percent

1 of the fuel is used in transportation related activities  
2 whereas that percentage is significantly lower at -- at the  
3 De Be -- proposed De Beers Mine.

4 THE CHAIRPERSON: Thank you, Mr. O'Reilly.

5 MR. KEVIN O'REILLY: Thank you. My last  
6 question, then, is for -- in regards to the presentation from  
7 Mr. Westman, I think. The -- the last slide that he used --  
8 the very last point was -- discussed the shortage of housing  
9 in the Northwest Territories and I guess, in particular, in  
10 Yellowknife.

11 And I noted earlier, I think, in one of the  
12 other GNWT presentations that they were -- will -- would like  
13 to encourage De Beers employees to -- that don't live in the  
14 Northwest Territories to settle in the Northwest Territories.

15 I just find it a bit of a contrast that on one  
16 hand, they want people to move here but there's a housing  
17 problem and I guess I might slip on another hat that I wear  
18 on occasion and ask what sort of specific assistance is the  
19 government of the Northwest Territories prepared to give on  
20 the issue of housing?

21 Are we talking about investing more money into  
22 public housing or what sort of assistance they talking about  
23 here?

24 THE CHAIRPERSON: Thank you. Mr. Westman...?

25 MR. DAN WESTMAN: With regard to the issue of

1 housing, we were kind of open to suggestions and you're right  
2 about -- my presentation looked at things from an economic  
3 and business impact. So, if we want people to work at the  
4 mine and not everybody's going to be hired from the Northwest  
5 Territories, the economic impacts are far greater if the  
6 person is living up here than if they're commuting down to  
7 Edmonton.

8 Housing is an issue that has to be dealt with.

9 We haven't been proscriptive, to date, on that. We have  
10 looked at some options ourselves, one of them was cooperative  
11 housing. In fact, we're thinking about sponsoring a  
12 conference on that. That's not specifically what's in our  
13 mandate housing but cooperatives are --

14 THE CHAIRPERSON: Thank you, Mr. Westman. I  
15 could suggest, Mr. O'Reilly, that the City do something with  
16 paved-over parking lots in the downtown core which might help  
17 the lot of us. However --

18 MR. KEVIN O'REILLY: Well, thank you for that  
19 suggestion.

20  
21 (BRIEF PAUSE)

22  
23 MR. KEVIN O'REILLY: I'll take it back wearing  
24 my -- another hat. I did want to --

25 THE CHAIRPERSON: Questions misdirected.

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1 MR. KEVIN O'REILLY: It's always nice for me  
2 to get questions once in a while, right? My colleague, Dr.  
3 Montgomery, has one or two (2) questions.

4 THE CHAIRPERSON: Dr. Montgomery...?

5 MS. SHELAGH MONTGOMERY: One quick question  
6 related to the first part of the presentation from GNWT  
7 related more generally to the social -- social services --  
8 health and social services.

9 There were a number of significant points made  
10 in that presentation about details that they felt were  
11 lacking in the environmental assessment. For example, can  
12 not evaluate effectiveness of proposal -- proposed mitigation  
13 measures without much needed details.

14 I'm just wondering, would the GNWT find it  
15 satisfactory that the EA process closed prior to having these  
16 much needed details?

17 THE CHAIRPERSON: Thank you. Mr. Doan...?

18  
19 (BRIEF PAUSE)

20

21 MS. CATHY PRAAMSMA: Thank you, Mr. Chairman.  
22 It's Cathy Praamsma from the Department of Health and Social  
23 Services, GNWT. I think we would find it satisfactory if the  
24 information came in prior to the decision making.  
25 MS. SHELAGH MONTGOMERY: Okay.

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1 THE CHAIRPERSON: I guess the follow up is  
2 going to which decision because there's a number involved in  
3 this process. We have the -- the phraseology for the last  
4 three (3) or four (4) days has been prior to the close of the  
5 Public Registry, prior to the regulatory process, or prior to  
6 the beginning of construction, I guess are the three (3) time  
7 frames I've been asked about.  
8 MS. CATHY PRAAMSMA: Thank you, Mr. Chairman.  
9 Cathy Praamsma for the GNWT. Prior to the regulatory  
10 process.  
11 THE CHAIRPERSON: Thank you. Mr.  
12 O'Reilly...? Thank you.  
13 Okay, Environment Canada? No?  
14 Lutsel K'e Dene First Nation? Ms.  
15 Catholique...?  
16 MS. FLORENCE CATHOLIQUE: Marci cho, Mr.  
17 Chairperson. I will ask my question in Chipewyan.  
18  
19 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)  
20  
21 MS. FLORENCE CATHOLIQUE: The question -- the  
22 question I would like to ask is to the Government of the NWT.  
23 The way that they have, on Chart 3, it says about housing, we  
24 have social problems and family stress within that -- the  
25 question is, are you having community or -- is it about the

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1 community or just the whole NWT that you're talking about  
2 when you say about socio-economic problems, here?

3 I asked of the family stress part of Slide 3  
4 included housing?

5 THE CHAIRPERSON: Thank you. Ms. Allen...?  
6 Ms. Praamsma...?

7 MS. CATHY PRAAMSMA: Thank you, Mr. Chair.  
8 Cathy Praamsma, Department of Health and Social Services.  
9 The potential impact slide that the individual is referring  
10 to, was around family stress, obviously having the lack of  
11 housing or overcrowding would contribute to that.

12  
13 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

14  
15 MS. FLORENCE CATHOLIQUE: And how about the  
16 culture and language, is that included in that, also?

17 THE CHAIRPERSON: Thank you. Ms.  
18 Praamsma...?

19 MS. CATHY PRAAMSMA: Yes. Thank you, Mr.  
20 Chairman.

21 THE CHAIRPERSON: Thank you. Ms.  
22 Catholique...?

23  
24 (THROUGH CHIPEYWAN INTERPRETER INTO ENGLISH)

25

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1 MS. FLORENCE CATHOLIQUE: So if the language  
2 and culture is included, if we're going to have difficulty  
3 with this in our -- in our communities, how come it's not in  
4 that -- within the social health and wellness, when you talk  
5 about with the education of the -- educational programs?

6 And about the hydro? And how -- and how  
7 people would need -- more money would have problems? And how  
8 come -- I was asking the question, is, how come they're  
9 talking about culture and language, also? They never said  
10 anything about those.

11 MR. DOUG DOAN: Mr. Chairman...?

12 THE CHAIRPERSON: Mr. Doan...?

13 MR. DOUG DOAN: The issues that have been  
14 raised are all very important issues and these are issues  
15 I -- I responded to in earlier question about targets, by  
16 that suggesting that in addition to the targets, there would  
17 be a broad range of other issues that would be dealt with,  
18 within the context of the socio-economic agreement.

19 The issues that have been raised are all  
20 issues that the GNWT would wish to see addressed through the  
21 socio-economic agreement, and the GNWT has made offers to  
22 involve the Aboriginal parties in the development and  
23 negotiation of that socio-economic agreement. Thank you.

24 THE CHAIRPERSON: Thank you. Ms.  
25 Catholique...?

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1 MS. FLORENCE CATHOLIQUE: Marci, Mr.  
2 Chairman. Then, I want to know the composition of the -- the  
3 groups that are sitting on -- at the socio-economic  
4 negotiations in the -- the socio-economic negotiations?

5 THE CHAIRPERSON: Thank you. Mr. Doan...?  
6

7 (BRIEF PAUSE)  
8

9 MR. DEBORAH ARCHIBALD: Deborah Archibald  
10 with the Government of the Northwest Territories. The  
11 parties that are currently at the negotiating table are the  
12 Government of the Northwest Territories, De Beers, the North  
13 Slave Metis Alliance, the Lutsel K'e Dene First Nation, the  
14 Dogrib, and the Yellowknives Dene.

15 THE CHAIRPERSON: Thank you. Ms.  
16 Catholique...?

17 MS. FLORENCE CATHOLIQUE: Marci, Mr.  
18 Chairman, my question then is, why is the -- the Government  
19 of Canada not sitting at this table?

20 THE CHAIRPERSON: Ms. Archibald...? Mr.  
21 Doan...?

22 MR. DOUG DOAN: Thank you, Mr. Chairman. The  
23 socio-economic issues, and the socially -- the subject of the  
24 socio-economic agreements are generally responsibilities

25 which fall under the mandate of the Government of the

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1 Northwest Territories, and for that reason, the Government of  
2 the Northwest Territories has led in this process.

3 THE CHAIRPERSON: Thank you. Ms.  
4 Catholique...?

5 MS. FLORENCE CATHOLIQUE: Sorry, my mind was  
6 wandering there. Could you repeat that please?

7 THE CHAIRPERSON: Mr. Doan...?

8 MR. DOUG DOAN: The subject matter, which is  
9 dealt with in the socio-economic agreement responds to issues  
10 and subjects which fall under the mandate of the Government  
11 of the Northwest Territories. Thank you.

12 THE CHAIRPERSON: Ms. Catholique...?

13 MS. FLORENCE CATHOLIQUE: Marci. Then I have  
14 a question that has -- that relates to past experience then,  
15 and we -- just so that the Board doesn't think that I'm  
16 wandering off some more here.

17 Lutsel K'e has been involved in two (2) other  
18 socio-economic agreements; one (1) was BHP, and also with the  
19 -- the Diavik Diamond Mine. In both agreements, the  
20 exclusion of the -- the Federal Government has affected the  
21 implementation off of those agreements where we see increased  
22 benefits of programs delivery in the communities and we -- we  
23 do not see an increase, or a positive deliverance of those  
24 programs within the community.

25 And, we think that the reason that is

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1 happening is that the -- the person that holds the purse is  
2 not at that table, and -- and we know -- and we understand  
3 that should there be any increase in the funding that's given  
4 from the Federal Government to the GNWT, any amount doesn't

5 increase the level that they -- they rated, I guess is the  
6 word.

7 And -- and so, our question is, how -- how  
8 does it the GNWT perceive in increasing the -- the funding  
9 requirements in the small communities, if that's -- if they  
10 -- the funding from the Federal Government can't be  
11 increased.

12 And, I saw this beautiful chart there now, and  
13 every time I see monies, I go a little bit -- with money  
14 signs in my eyes, and maybe that's why I can't really focus  
15 very good.

16 And so, people that know me, they know that's  
17 true, but show a whole bunch of charts, showing more  
18 employment, more -- more revenue for the GNWT, doesn't mean  
19 anything to us, because the funds, and the tax, the way that  
20 it's set in the royalties, are all held in somewhere else.

21 And so, we're wondering, how will those -- how  
22 will -- how does the GNWT perceive more additional funding to  
23 be given to the smaller communities in their program  
24 delivery?

25 THE CHAIRPERSON: Thank you. Mr. Doan...?

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1 MR. DOUG DOAN: Thank you, Mr. Chairman. I  
2 think we share some of the sentiments that have been  
3 expressed by Ms. Catholique. There is no question that the  
4 distribution of benefits from development is not -- is not in  
5 a particularly balanced fashion right now. The GNWT is  
6 working on a process through the inter-governmental forum  
7 which will deal with the issue of devolution and the issue of  
8 resource revenue sharing.

9 The GNWT is strong advocating the federal  
10 government to invest further resources with the GNWT so  
11 program delivery can keep up to the needs that are brought  
12 about by development and the final point I would make is that  
13 notwithstanding the fact that the benefits are not  
14 distributed in any proportionate manner.

15 There's -- nonetheless, there is an incentive  
16 for the GNWT because there is, in fact, some benefit enjoyed

17 as a result of increased personal taxation, increased  
18 corporate taxation, increased employment of NWT residents and  
19 -- and the -- the benefits that that does entail. It is not  
20 keeping pace with the demand for program delivery but there  
21 is clearly benefit for the people of the NWT. Thank you.

22 THE CHAIRPERSON: Thank you. Ms.  
23 Catholique...?

24 MS. FLORENCE CATHOLIQUE: That's the only  
25 question that I have, which was the money question but I

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1 think my -- Addie Jonasson who will be doing a presentation  
2 later on behalf of the Lutsel K'e has a question.

3 THE CHAIRPERSON: Thank you.

4 MS. ADDIE JONASSON: Thank you. I have one  
5 (1) question and this is for the Department of Education,  
6 Culture and Employment. Will they be exploring any training  
7 program in the community relevant to the mining industry?

8 THE CHAIRPERSON: Thank you. Ms. Allen...?

9 MS. LESLEY ALLEN: Thank you, Mr. Chairperson.  
10 I'm Lesley Allen, GNWT. Yes, we -- we mentioned in our  
11 presentation that we would be working with the communities  
12 and De Beers on developing a strong partnership relationship  
13 related to training and education.

14 THE CHAIRPERSON: Thank you.

15 MS. ADDIE JONASSON: Thank you but the  
16 question was will they be doing the program in the  
17 communities?

18 THE CHAIRPERSON: Ms. Allen...?

19 MS. LESLEY ALLEN: Lesley Allen, GNWT. In  
20 working with partnership, of course, where there are  
21 facilities and where there are the instructor, they're --  
22 they will be done in the communities but we -- we're just  
23 working that out right now with -- with the people that are  
24 at the table with us related to the socio-economic agreements  
25 and with De Beer.

1 THE CHAIRPERSON: Thank you, Ms. Allen.

2 MS. ADDIE JONASSON: Thank you.

3 THE CHAIRPERSON: Thank you. Okay, I have a  
4 couple of questions before we take a break. Mr. Doan, in  
5 presentation filed by -- by De Beers, it showed that net  
6 revenues to the Federal Government over the life of the mine  
7 are predicted to be \$872 million. To the government of the  
8 Northwest Territories, the revenue is predicted to be \$35  
9 million.

10 Now, this morning we saw a slide which changed  
11 that net revenue number to 119 million but I think that's  
12 predicated on the GNWT receiving about \$84 million in per  
13 capita transfers that would accrue with an increase of  
14 immigration. Now, the 119 million obviously would be  
15 somewhat cut down because with an increase in population is  
16 an increase in schools, et cetera.

17 Anyway, the bottom line is that in either  
18 scenario and I was going to say best and worst but there is  
19 no best case scenario here for the north, the government of  
20 the Northwest Territories would receive about 1.4 million a  
21 year extra or under the scenario presented this morning,  
22 approximately just under 5 million a year.

23 In either of those cases, is there anywhere  
24 near sufficient to pay for or accommodate the increased cost  
25 to the government of the Northwest Territories brought about

1 by the development in the north?

2

3 (BRIEF PAUSE)

4

5 THE CHAIRPERSON: It should be a really easy  
6 answer.

7

8 (BRIEF PAUSE)

9

10 MR. DOUG DOAN: Thank you, Mr. Chairman.  
11 This is very much a -- a gross estimation because I can't --  
12 I can't answer with absolute integrity. But it would be our  
13 considered view that that number would not come close to  
14 covering the increased costs.

15 THE CHAIRPERSON: Thank you, sir. And I have  
16 one (1) final question. Is it the position of the Government  
17 of the Northwest Territories that De Beers Canada should  
18 provide rough diamonds to the local cutting and polishing  
19 industry, in the Northwest Territories, under the same terms  
20 and conditions as currently done by other diamond mine  
21 operators?

22 MR. DOUG DOAN: Mr. Chairman, I'd like to  
23 refer that question to Martin Irving, please?

24 THE CHAIRPERSON: Mr. Irving...?

25 MR. MARTIN IRVING: Martin Irving, Government

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1 of the Northwest Territories. Yes, that's our position, that  
2 our policy on the provision of rough, applies to all diamond  
3 mining companies in the Northwest Territories.

4 THE CHAIRPERSON: Thank you, sir. We'll now  
5 take a short coffee break. And after the coffee break, we  
6 will hear presentation by Lutsel K'e Dene First Nation. And  
7 I also have notice of short presentations by Kurt von Hagen,  
8 Superintendent of Yellowknife Catholic Schools, Bill Ange,  
9 President of YK Metis Nation Local 66 and the NWT  
10 Construction Association. Thank you.

11  
12 --- Upon recessing at 3:42 p.m.  
13 --- Upon resuming at 3:56 p.m.

14  
15 THE CHAIRPERSON: Thank you. Just prior to  
16 asking the delegation from Lutsel K'e to make their  
17 presentation, I neglected to recognize Mr. O'Reilly. After  
18 the Dogrib presentation he had a question. And I apologise,  
19 Mr. O'Reilly.

20 Ms. Teillet, Mr. O'Reilly's question was, do  
21 the Dogrib Treaty 11 have a position on the timing of IBA, or

22 environmental monitoring agreements? And when should they be  
23 in place?

24 MS. JEAN TEILLET: Again, the Dogrib's note  
25 that De Beers has committed to do these. And -- and Mr.

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1 McConnell's statement as to the progress that's been made  
2 with the Dogrib's is quite accurate in terms of them being  
3 preoccupied with the land claims agreement, at the moment.

4 But we do anticipate that to be over very  
5 soon. Regardless, in terms of timing, we don't think that  
6 it's possible to do these things before the close of the  
7 Public Registry. Although we think that good progress can be  
8 continued to be made on it, we'd liked hearing GNWT say June  
9 30th, but we're not quite willing to put down a hard and fast  
10 deadline on it.

11 So I think that we'd be more comfortable in  
12 saying that it should be done before we get to the regulatory  
13 stage, Mr. Chair.

14 THE CHAIRPERSON: Thank you very much, Ms.  
15 Teillet. Mr. Doan, I also -- I had written a question down  
16 in front of myself, and I forgot to ask it.

17 Was there a reason for the June 30th date? Is  
18 that a -- is that a target date or do you have a particular  
19 reason for -- for that date?

20 MR. DOUG DOAN: Thank you, Mr. Chairman. The  
21 reason that we stated that date is that De Beers has made a  
22 commitment, which is based on June, and we have made a  
23 commitment of June. And the 30th of June is the -- the last  
24 day of that month. Thank you.

25 THE CHAIRPERSON: Thank you, sir. We'll now

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1 move to Lutsel K'e presentation. Ms. Catholique, could you

2 introduce your presenters and then the Board will move down  
3 to its table?

4 MS. FLORENCE CATHOLIQUE: Good afternoon. I  
5 have two (2) people presenting this afternoon on behalf of  
6 the Lutsel K'e Dene First Nation. Gloria, who is at the  
7 table, will be doing a presentation on information data that  
8 we've collected on the impacts that we've had in regards to  
9 the other two (2) developments. The -- the mining  
10 development.

11 And then Addie will be doing a presentation on  
12 the work that the program heads have put together, pulled  
13 together this week, as to what we see should be done in  
14 regards to the social and economic, and cultural issues.  
15 Marci. Addie Jonasson, Gloria Enzo.

16 THE CHAIRPERSON: Thank you. If just -- if  
17 you give us just a minute here.

18  
19 (BRIEF PAUSE)

20  
21 THE CHAIRPERSON: Thank you. Go ahead.

22 MS. GLORIA ENZOE: Hi, I'm Gloria Enzo, like  
23 Florence Catholique has said. On the copies that are handed  
24 out, there's a typo on your right side of the page, there's a  
25 -- there's an example of our surveys.

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1 Those numbers on the side there are supposed  
2 to go down one (1), two (2), one (1), two (2), three (3),  
3 four (4), but they came out fifty-six (56) and thirty-four  
4 (34) and stuff like that.

5 Okay, and they handouts that you have, they  
6 are not in order, so can you just follow along?

7  
8 (BRIEF PAUSE)

9  
10 MS. GLORIA ENZOE: The surveys that we were  
11 recording on the part of the larger community health  
12 monitoring project that begun in Lutsel K'e in 1996, the  
13 study was fun -- funded by the West Kitikmeot Slave study

14 society.

15 Indicators were developed, based in  
16 interviewees with each household in a community. The  
17 qualitative and quantitative surveys were developed to  
18 monitor many different kind of indicators about self-  
19 government, healing, and cultural preservation.

20 The other people who had worked on this  
21 project in the last seven (7) years are Angie Lantz, Evelyn  
22 Marlowe, Dennis Drygeese and Brenda Parlee.

23 Dr. John O'Neil from the Aboriginal Centre of  
24 Health Research at the University of Manitoba helped us  
25 develop a -- this survey so that we could be confident about

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1 the way that we asked questions, and interpreting the  
2 results; see attached community-based monitoring  
3 questionnaire.

4 In addition to this larger health monitoring  
5 questionnaire, we have done qualitative research on impacts  
6 of mining employment. The survey results we will present  
7 today are from 2001 qualitative semi-direct interviews with  
8 mine employees, and their families.

9 These results tell you about the quality of  
10 employment, based on experience of employees, and how this --  
11 how this employment has affected families in our community.

12 We focussed on families, because this is -- is  
13 the impact that employees have talked about the most.

14 Definition. When we were talking the mining  
15 sector, we are mainly talking about employment with the  
16 existing EKATI and Diavik Diamond Mines.

17 Of the twenty (20) people we interviewed, over  
18 half of them were employed full-time. Sixty percent part  
19 time, casual, seasonal jobs represent only 15 percent of the  
20 employment.

21  
22 (BRIEF PAUSE)

23  
24 MS. GLORIA ENZOE: Quality employment. As we  
25 -- sorry. As we ask the mine employees what do you like

1 about your job? We asked them -- team work, 31 percent,  
2 training and skill development, 28 percent, enjoy the work  
3 task, 18 percent, and the other question was, how could your  
4 job be improved.

5 Sorry.

6  
7 (BRIEF PAUSE)

8  
9 MS. GLORIA ENZOE: Okay. Better work  
10 schedule, 23 percent, better teams -- better teamwork, 17  
11 percent; unknown nil, 15 percent; childcare in community, 13  
12 percent.

13 We also asked mine employees if they -- if you  
14 are no longer working, why did you leave your job? Family  
15 problems, 30 percent; end of contract, 25 percent; still  
16 working, 20 percent; too few -- too few Aboriginal people, 5  
17 percent; health reasons, 5 percent; did not like their  
18 workplace, 5 percent; perceived racism, 3 percent.

19 We also talked to families about the impact of  
20 employment on the family. We asked them how has employment  
21 benefitted your family.

22  
23 (BRIEF PAUSE)

24  
25 MS. GLORIA ENZOE: We asked them how

1 employment has benefitted the family. Help pay bills on  
2 time, groceries, 59 percent...

3  
4 (BRIEF PAUSE)

5  
6 MS. GLORIA ENZOE: I'm sorry. I think I

7 missed that page. Other questions were, we also asked, is  
8 work affecting your family and how.

9  
10 (BRIEF PAUSE)

11  
12 MS. GLORIA ENZOE: No, 30 percent; breakdown  
13 of relationships with children, 27 percent; not enough time  
14 with children, 23 percent; increasing responsibility and  
15 pressure on spouse, 14 percent; breakdown of relationship  
16 with spouse, 7 percent.

17 In summary, the results of the survey tell us  
18 about the importance of family in our community. These  
19 results also tell us that mining employment may be negatively  
20 affecting family life. In order for our community to benefit  
21 rather than be negative -- negatively affect -- affected by  
22 the proposed De Beer diamond mine, we recommend the  
23 following:

24 Family time. Employment in the mining sector  
25 creates stress within the family. The two (2) week rotation

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1 schedule separates parents from their children and spouse  
2 from each other. Our research has revealed many different  
3 emotional, mental, as well as physical health problems  
4 resulting from this separation.

5 De Beer Canada should work with mine employees  
6 as well as helping social service resource people in our  
7 community to help mitigate these effects. See presentation  
8 by Lutsel K'e at health and social services.

9 Investment in daycare. The government of the  
10 Northwest Territories is responsible for funding education in  
11 our region. Childcare for children under school age is a  
12 major issue. If employees do not have a responsible ch --  
13 child b -- childcare, it creates stress and anxiety in them  
14 as an individual and in the family. They are more likely to  
15 miss work or quit their jobs for that reason. For our  
16 community to benefit from the proposed De Beer diamond mine,  
17 further work must be done to ensure.

18 Time on the land. The other major impact of

19 the diamond mining industry relates to traditional land use.  
20 The community is based on a land-based way of life: caribou  
21 hunting, fishing, berry harvesting and trapping. The land is  
22 part of our identity.

23 Employees working at the diamond mines report  
24 spending less time on the land and their families than do --  
25 than do other members of our community, this can cause for

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1 emotional stress and anxiety.

2 Conclusion. Many of our health issues we  
3 talked about are not about physical illness. They are issues  
4 of emotional stress and anxiety. There is no outward sign  
5 that employees and their families or other members of the  
6 community be -- may be suffering. However, emotional stress  
7 and anxiety can lead to many other social problems that --  
8 and physical health effects in our community.

9 These impacts may not be visible today or  
10 tomorrow but -- but may be next year or in five (5) years.  
11 Children growing up with self-childcare facilities and  
12 absence of one or more parents will surely have devastating  
13 impact on our community in the future.

14 By sharing this information with you today, we  
15 hope that you will consider how the government of the  
16 Northwest Territories, the Government of Canada, De Beers  
17 Diamond Mines as well as other mines, can help us deal with  
18 these health issues before we see a health crisis in our  
19 community. Thank you.

20 THE CHAIRPERSON: Thank you.

21  
22 (BRIEF PAUSE)

23  
24 MS. ABBIE JONASSON: I will now do the second  
25 part of the presentation. Will Lutsel K'e benefit from

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1 another mine?

2 Introduction. The purpose of this  
3 presentation is to take a brief look at the impact of the  
4 mining development on housing, social services, health,  
5 recreation, education, culture, employment, justice and  
6 economic development in Lutsel K'e.

7 Community Profile. We have a Band membership  
8 of six hundred and fifty-one (651) people. Our current  
9 population is three hundred and ninety-six (396). We are an  
10 isolated fly-in community.

11 We have limited access to resources. The cost  
12 of living in Yellowknife is 100 percent, and in Lutsel K'e it  
13 is 175 percent, according to GNWT Bureau of Statistics. We  
14 are a 95 percent Aboriginal community.

15 Community Services. We have a two (2) nurse  
16 nursing station, a healing centre consisting of social  
17 services, alcohol and drug and prenatal services. We have a  
18 senior citizens home where we have respite and meal programs.  
19 We also have a home care program.

20 We have dental, therapy services, heli-health  
21 services, housing office, Co-op Store, a school from  
22 kindergarten to Grade 10, and an adult Ed. Centre.

23 We also have a fire hall, forestry base,  
24 renewable resource office, treaty entitlement office,  
25 recreation office, MLA office, economic development office,

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1 income support and parks office, justice coordinator, two (2)  
2 Member Detachment, RCMP Detachment, airport terminal, CARC  
3 office, band office and a DPW office.

4 The impact on food chain. Caribou migration  
5 route impacted because of mining development. Over time,  
6 traditional food consumption will be reduced and will be  
7 replaced by store bought foods. Caribou has not been  
8 harvested close to the community for the last two (2) years.

9 Fuel emissions from the mines going into  
10 traditional food sources such as caribou, fish and birds will  
11 be passed onto the human food chain, and long term health

12 effects could be very detrimental to the community.

13           Impact on Health. Over time, the historical  
14 traditional diet will change resulting in an increase of  
15 diseases such as diabetes, heart disease, colon cancer and  
16 high cholesterol. This will increase the demand for primary  
17 health care services and may reduce life span of community  
18 members.

19           Impact on Health. The reduction of  
20 traditional foods in the community's diets, especially in low  
21 income families, will result in nutritional deficiencies.  
22 The consumption of cheaper processed foods will result in  
23 increase of dental problems and obesity.

24           Impact on health and culture. If caribou  
25 harvesting activities decrease, this will lead to reduction

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1 in physical activity, and a loss of the part of the culture.

2           Loss of traditional activities on the land,  
3 such as preparing meat, and dry meat making, camping, lots of  
4 skills in preparation of hides, and finished products.

5           Impact on social issues. No income to high  
6 income paying jobs quickly result in social problems. No  
7 orientation on how to cope with a sudden change of lifestyle.  
8 No life skills, money, and debt management.

9           Social housing, rent increases, jumping from  
10 thirty-two (32) dollars per month, to the maximum unit rent  
11 of one (1) bedroom, fourteen hundred and ninety-nine (1499),  
12 two (2) bedrooms, one (1) -- one thousand nine hundred and  
13 twenty-six (1,926), three (3) bedrooms, two thousand, three  
14 hundred and fifty-five (2,355), four (4) bedrooms, two  
15 thousand, seven hundred and eighty-three (2,783).

16           Impacts on more social issues. If alcohol and  
17 drug abuse has been a problem, high income may trigger higher  
18 addiction problems; cocaine, crack, bootlegging, and  
19 trafficking.

20           Cocaine and crack use is becoming a big  
21 northern problem. Cocaine and crack dealers are targeting  
22 high earners.

23           With the increase of bootlegging and drug

24 trafficking in Lutsel K'e, income earners are expending fifty  
25 (50) dollars, to three hundred (300) dollars per bottle, ten

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1 (10) dollars per joint. Traffickers are benefitting, and  
2 families are suffering.

3 Family stability is affected by children  
4 starting to act out, being spoiled by money, becoming  
5 materialistic. Money replaces love out of guilt.  
6 Traditional values become lost again.

7 Child welfare issues developed if spouse at  
8 home cannot cope, and turns to gambling or alcohol and drugs.  
9 Inadequate child care for spouses left the community  
10 potentially leaves them unable to fulfill their employment  
11 obligations.

12 Family stability is affected by, when an  
13 employee returns to family, they may end up mis-managing  
14 their income, and this causes more relationship problems.

15 For example, bills are not being paid, spouse  
16 is not having enough money to maintain the home when employee  
17 goes back to work, there is not enough core funding available  
18 to have a community program in place to work through these  
19 issues with affected families.

20 Increase in housing damages are alcohol-  
21 related. The crime statistics show that -- show there is a  
22 definite rise in liquor and drug offenses.

23 For the period, January through April 2003,  
24 there has been thirty-five (35) criminal code charges,  
25 including nine (9) liquor offenses, and three (3) drug

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1 offenses.

2 For the year 2002, there were two hundred and  
3 eight (208) criminal code charges. Ninety-five (95) percent

4 of these were alcohol and drug related.

5 With this many people having criminal records,  
6 it may prevent community members from securing employment for  
7 the next three (3) to five (5) years.

8 Sudden changes to the structure of the family  
9 unit is decreasing traditional values and activities. Mining  
10 employment causes dysfunctional families, because the family  
11 is split up for the -- for half the time, and there is a lack  
12 of community support programs in place to help deal with  
13 separation, and relationship issues.

14 Current employment -- employee assistance  
15 programs funded by the minds are not culturally appropriate.

16 Employment opportunities seem to favour single  
17 males or females. Supports are not in place for mothers, or  
18 single parents, as there are no daycare facilities on-site.

19 This means that we cannot help our high-risk,  
20 low income groups moving to the employment field, and the  
21 opportunities that mining offers.

22 If this group does secure employment, extended  
23 family members are ending up taking on parental  
24 responsibilities so the family unit structure shifts again.

25 The mines contribute to social problems by not

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1 addressing these groups, as these people are more prone to be  
2 living over-crowded housing and having social issues and  
3 lower education levels. The mines have not been forthcoming  
4 with programs and resources to assist the community deal with  
5 the social impact of mine development.

6 Main social is -- issues in the community are  
7 generational effects of residential schools on parenting,  
8 family violence as a result of addiction issues, alcohol and  
9 drug abuse, gambling, discipline problems with children  
10 resulting in behaviour issues in the schools and poor  
11 academic achievements.

12 High number of school dropouts, teen mothers,  
13 STDs, FASFA -- main social issues in the community are a high  
14 number of income support clients, fewer graduates from school  
15 or colleges. We only had one high school graduate since

16 1999.

17 Main social issues, housing shortages  
18 resulting in over-crowding and family abuse. Currently there  
19 are thirty-one (31) applicants on the community waiting list  
20 for social housing. Twenty-two (22) require one bedroom  
21 units, five (5) require two (2) bedroom, three (3) require  
22 three (3) bedroom, one requires a four (4) bedroom.

23 We seen -- we are seeing mining employees  
24 moving away because there is no new housing and social  
25 housing becomes un-affordable. In terms of these families

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1 which could go towards the local economy has been lost.  
2 Although the mines have employed local people, they move away  
3 and the community still remains largely populated with  
4 unskilled workers and less role models for our school  
5 children.

6 The community needs to be developed at a  
7 faster rate to keep up with the needs of the members so they  
8 won't want to relocate out of town.

9 Statistics. We have eight (8) people with  
10 diabetes, three (3) with cancer, twenty-four with STD's  
11 within the last year, four (4) teen mother -- mothers under  
12 sixteen (16), seventeen (17) crimes and treatment within the  
13 last three (3) years.

14 We have forty-six (46) call backs at the  
15 health centre related to alcohol and drugs. Twelve (12)  
16 families with full time -- employed at the mine, five (5)  
17 relocated to Yellowknife. We had eighty-five (85) percent of  
18 potential employees failing pre-employment drug tests.

19 We've had five (5) alcohol related deaths over  
20 the last -- or seven (7) alcohol -- alcohol related deaths  
21 over the last five (5) years. We have twelve (12) children  
22 with development delays based on the nippissing screening  
23 done in 2001 on a random group of thirty-five (35) children  
24 ages zero (0) to twelve (12). Oh, sorry. We have ten (10)  
25 at the correct stage of development, twenty (20) with some

1 form of developmental delay, five (5) later diagnosed with  
2 FAS/FAE.

3 Recommendations. Mines invest in housing for  
4 mine employees. Mines develop incentives to meet the needs  
5 in families. Investment in early childhood development in  
6 the community and on-site through adequate day care  
7 facilities. Mine to build and maintain a facility out on the  
8 land to provide a full range of family and individual support  
9 services.

10 This commitment will ensure yearly operational  
11 costs are provided by the mine. The community shall be  
12 guaranteed the employee assistance program contract to  
13 provide culturally appropriate support programs for the  
14 mining employees and community members.

15 Mines to use this facility for a pre-  
16 orientation program for all northern and southern workers.  
17 Community input and approval process must be in place in the  
18 development of this pre-orientation program. Mine to train  
19 and contract community resource workers to provide workshops  
20 and programs at the mine sites, as well as at -- on the land  
21 facility; to be established at the mine to be used as a  
22 communication and counselling tool.

23 Close working relationship must be guaranteed  
24 with the Lutsel K'e Band, school pathways and adult education  
25 to promote training, education and employment.

1 Mine must provide long term plan and financial  
2 commitment to this process. Mine to support cultural  
3 programs so community can retain culture but grow with new  
4 developments by use of on the land facility for language and  
5 cultural programs.

6 Integrate on the land facility programs with  
7 the Lutsel K'e school curriculum. Review potential employee  
8 with -- with criminal record and assist them to get into

9 programs to overcome their issues and get them employed.  
10 Heavy investment in community infrastructure  
11 is needed to encourage employees to stay in the community.  
12 For example, school expansion, health centre expansion, more  
13 housing units, youth and recreational facilities, child care  
14 facilities, retail, restaurant and hotel development. Must  
15 create opportunity for community business development and  
16 training initiatives.

17 The mines will influence how our culture will  
18 evolve in the future. Long after the mines have finished  
19 their production, our community will still exist as it has  
20 since time immemorial. These changes may not be what the  
21 community wants for its future. Marci cho.

22 THE CHAIRPERSON: Thank you very much.

23  
24 (BRIEF PAUSE)

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1 THE CHAIRPERSON: Thank you for that  
2 excellent presentation. Questions? Any questions from the  
3 floor, for Lutsel K'e?

4 Mr. O'Reilly...?

5 MR. KEVIN O'REILLY: Thanks for recognizing  
6 me without putting my hand up.

7 I'm wondering if Lutsel K'e First Nation has a  
8 position on the timing of the completion of a social economic  
9 agreement, and impact on benefit agreement? Whether these  
10 should be completed before the close of the Public Registry,  
11 before the Environmental Assessment, submitted before  
12 construction? What -- what -- is there any preference or  
13 position? Thank you.

14 THE CHAIRPERSON: Ms. Catholique...?

15 MS. FLORENCE CATHOLIQUE: When the socio-  
16 economic and the IBA agreements should be completed, was that  
17 the question?

18 THE CHAIRPERSON: Yes, when -- when -- what  
19 is your preference for timing? Prior to the close of the EA,  
20 prior to regulatory, or prior to construction?

21 MS. FLORENCE CATHOLIQUE: I think yesterday,  
22 that question was asked to me in regards to the Environmental  
23 Assessment. And our -- our answer is the same. That I think  
24 that it should be completed before the -- the closing of the  
25 Registry.

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1 I know that that date is set as May the 23rd,  
2 but I think it's -- it can be recommended -- and we recommend  
3 to the -- the Board that that date be extended.

4 THE CHAIRPERSON: Thank you. Any additional  
5 questions for Lutsel K'e? Okay, the next presentation I  
6 have, I have notice of Kurt Von Hagen from Yellowknife  
7 Catholic Schools. Mr. Von Hagen...? I guess, just use this  
8 table at the front, sir.

9 You don't have overheads, do you?

10 MR. KURT VON HAGEN: I do not.

11 THE CHAIRPERSON: Thank you.

12  
13 (BRIEF PAUSE)

14  
15 MR. KURT VON HAGEN: Thank you, Mr. Chair and  
16 to the Board, for the opportunity. I appreciate having a  
17 short period of time, here, with you this afternoon. I know  
18 it's at the tail end of a long five (5) days and by the looks  
19 of it, it might go longer than that.

20 I stand here today, as Superintendent of  
21 Yellowknife Catholic Schools. And I am here acting, I guess,  
22 as both citizen, and in an educational capacity.

23 And, it's probably not usual to hear from  
24 people like myself at these kinds of meetings, but I thought  
25 that I had a responsibility to step forward, and to, I guess,

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1 for the perspective on the floor.

2 Less than a decade ago, the Northwest  
3 Territories, and the City of Yellowknife were in economic  
4 decline. Correspondingly so was much of our social  
5 infrastructure, and poor throughout all of our communities.

6 Division, devolution, downsizing were the  
7 operative words. Certainly in Yellowknife, we were -- we  
8 were very challenged. Obviously, this is not a time to  
9 relive the past, and it is not my purpose to review in detail  
10 just how challenged we were.

11 However, perhaps it's time to review our  
12 present status. With the arrival of the diamond industry, we  
13 have experience a resurgence within the Territories.

14 While there will be those who decry, or  
15 criticize the economic activity in the environmental impact,  
16 and the spin-off social ills associated with the diamond  
17 development.

18 I believe it is important to capture just what  
19 this most significant exploration and development has meant  
20 for the north.

21 We should be concerned with the shadow side of  
22 the development, but we should also be equally inspired by  
23 the positive that diamonds has made upon us.

24 One (1) way to do so, is just to list the  
25 kinds of activities, and initiatives that have taken place as

1 a result, some of which, I'm sure, have been alluded to  
2 throughout these past five (5) days.

3 We've experienced the creation of countless  
4 northern companies, suppliers, and workers. We've seen the  
5 rise of geotechnical and geosynthetic services, the renewal  
6 and replenishment of expediting and charter services has been  
7 incredible, as outfitting companies have realized  
8 unprecedented prosperity.

9 We've seen the growth of standard services in  
10 the areas of surveying, engineering, firefighting, ice road  
11 maintenance. The growth of camp and accommodation  
12 management, food, and environmental services has been

13 unparalleled.

14                   The eruption of entire new industries, like  
15 the unprecedented diamond cutting and polishing, has been  
16 tremendously beneficial.

17                   The training and support for apprenticeable  
18 positions has grown with these developments. Construction,  
19 logistics, contract mining, and site servicing have reached  
20 new heights.

21                   Heavy mechanic installations for the mining  
22 sector have also taken off. Growth in drilling, and  
23 blasting, trucking, and hauling, security, and training, has  
24 been equally phenomenal, and the list goes on.

25                   None of the aforementioned begins to address

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1 the soft side, the human resource development, and the  
2 training. There has been, and will continue to be,  
3 tremendous investment in the training of our people.

4                   In fact, supply can't meet the massive demand  
5 at the present time. However, that has not stopped our  
6 diamond industry players from investing hundreds of thousands  
7 of dollars in on-site training facilities, with a focus on  
8 upgrading, support for apprenticeships, operational training,  
9 and more.

10                   The arrival of the diamond industry has raised  
11 the educational bar in a supportive contest. Early school  
12 leavers are now receiving their education in a different way.  
13 Adult learners, are now realizing educational goals, in  
14 conjunction with meaningful employment.

15                   Expectations within the work environment have  
16 led to job embedded learning, and the transference of these  
17 higher education levels, and expectations of the communities  
18 of the north, will add value to each of them. Overall, the  
19 potential for community development is higher than it has  
20 ever been.

21                   So, who has benefitted from this economic  
22 activity, from this development? The simple answer would be  
23 to say that the north in general has. A closer look suggest  
24 more specifically, that northern residents, Aboriginal Bands,

25 communities, and even the Government have realized the

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1 dividends.

2           The manner in which residents have benefitted  
3 has largely been addressed in earlier comments. The long  
4 overdue benefit to Bands and their communities has been lived  
5 through impact benefit agreements, or participation  
6 agreements.

7           The parameters and terms of the many  
8 agreements between the respective diamond mines and bands,  
9 have had an immediate and direct positive impact on  
10 Aboriginal people.

11           Both capacity and independence have been  
12 enhanced, and it has fit with the self-governing model that  
13 Bands are seeking.

14           This is not to suggest that there shouldn't be  
15 some concern about the developments that are taking place.  
16 Certainly, the GNWT has learned from each time that it has  
17 negotiated the parameters for our first two (2) diamond  
18 mines.

19           This particular Board has also grown, as it  
20 has to entertain the respective environmental impact of each  
21 project. It will continue to do so now, as it entertains  
22 this new De Beers development.

23           It would be safe to say that the people of the  
24 north have also had to grow, and make adjustments to the new  
25 realities of these developments.

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1           My position would be to engage these new  
2 developments in a constructive and challenging manner.  
3 Ensure that there is integrity, ensure that there is  
4 responsibility across the spectrum of commitments that are

5 made by these huge corporations. They are here for a  
6 purpose.

7           Their intent is to make a profit. Our intent  
8 should be to ensure that they don't make a profit at a great  
9 expense to the north but we should not arbitrarily dismiss  
10 them out of hand.

11           We should continue to have high expectations.  
12 We should continue to engage them constructively to address  
13 the concerns of northerners. The day of corporate  
14 indifference or social irresponsibility within the countries  
15 or regions chosen for development has disappeared.

16           A quick scan of the world suggests strongly  
17 that people will no longer tolerate irresponsible  
18 developments or the social injustices associated with them.

19           We need to demand that these companies live up  
20 to their promises. They need to meet their environment  
21 obligations. They need to work towards sustainable  
22 development. They need to meet their obligations to the  
23 human resource sector and they must honour their  
24 participation agreements with our First Nations people.

25           Having said this, we must also be realistic

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1 and fair. We cannot expect that the diamond mines can do  
2 everything on their own or do everything for us. We cannot  
3 expect them to do all of the work. We must work in  
4 partnership and relationship with them. Clarity of purpose  
5 and sound communication strategies will go a long way to  
6 achieving successful and sustainable development.

7           This can not be just for the short term. We  
8 must adopt this approach for the long term. These mines will  
9 be with us for twenty (20), twenty-five (25), thirty (30)  
10 years at a minimum. It will require vigilance on both parts.  
11 Let's invest our energies in realizing a mutually beneficial  
12 partnership characterized by responsible and honourable  
13 cooperation. To it -- to do anything less or else will be  
14 the north failing.

15           We cannot expect to have the dividends offered  
16 by such developments without investing of ourselves, as well.

17 We have the capacity to do so. Let's use that capacity to  
18 realize a vision of a better north, both directly through  
19 these developments and indirectly through secondary and  
20 tertiary industries supporting them.

21 De Beer has made a strong part in honouring  
22 its commitments to the north. It has begun to invest in  
23 significant and meaningful initiatives as a means to support  
24 long term growth. Two (2) projects that illustrate their  
25 approach are the NWT apprenticeship support materials and

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1 investment in the career and technical centre being built by  
2 our particular district.

3 In the first, De Beers has partnered with the  
4 Department of Education, Culture and Employment, Human  
5 Resources Development Canada, Indian and Northern Affairs  
6 Canada, Skills Canada, Northwest Territories Nunavut, Aurora  
7 College and the Genesis group to produce five (5) modules  
8 designed to support the learner in realizing the competencies  
9 required to meet the entrance level for apprenticeship  
10 programs.

11 Aside from the working relationships that it  
12 has taken to produce these quality and useful materials, De  
13 Beers has helped produce a resource that will support long  
14 term development of our people. Investing in the people of  
15 the north is our greatest hope. This, in my view, is a  
16 visionary approach to development and I do have those  
17 materials here if anyone cares to see them.

18 In the second example, which is a little  
19 closer to home, De Beers has invested significantly in the  
20 construction and eventual operation of a career and technical  
21 centre. That is going to be located in our City. Our  
22 objective is to establish this centre that -- and that it  
23 will promote pre-employment exposure and experience for our  
24 students in the trades. It is our belief that this project  
25 can drive some significant issues to foster an environment

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1 that can produce trades-ready students for the northern work  
2 place.

3                   While the centre will cater to the needs of  
4 Yellowknife students, it's also our intent to open the  
5 facility to all students across the north, to Aurora College  
6 programs, to Skills Canada programs, to industry participants  
7 and to our community.

8                   Again, this facility is an investment in the  
9 future and supports the long-term development of people. In  
10 my view, this is an appropriate and strategic approach to  
11 contributing to northern development. If these are examples  
12 of how De Beers intends to do business, I would say that it  
13 is a positive sign of things to come.

14                   In closing, I would suggest that we have made  
15 a good, strong start in further developing the Northwest  
16 Territories. The last five (5) to seven (7) years has  
17 catapulted the north onto the world stage. The potential  
18 earning power of the north is at an all time high. We  
19 certainly do not want to take a step back at such a critical  
20 stage.

21                   Let's take advantage of an opportunity that  
22 will add value to the Territories. I believe that in De  
23 Beers, we have a corporate citizen that will respond  
24 positively to the expectations we have of them. In fact, on  
25 at least a local level, that's been my experience.

1                   Let's work with them to make sure that  
2 together, we can meet those expectations. Thank you, Mr.  
3 Chair.

4                   THE CHAIRPERSON: Thank you, sir. Any  
5 questions for Mr. Von Hagen? Okay, thank you very much, sir.

6                   The next presentation -- I'm sorry, Ms.  
7 Catholique...?

8                   MS. FLORENCE CATHOLIQUE: I'm sorry, but I  
9 didn't catch who the presenter was -- was speaking on behalf?

10 THE CHAIRPERSON: I'm sorry, it's Kurt Von  
11 Hagen, Superintendent of Yellowknife Catholic Schools.  
12 MS. FLORENCE CATHOLIQUE: Is that the -- the  
13 organization that just -- I think I read in the paper  
14 something about a half a million dollars?  
15 THE CHAIRPERSON: Mr. Von Hagen...?  
16 MR. KURT VON HAGEN: Happy to respond. You  
17 are correct in that.  
18 THE CHAIRPERSON: Could you -- microphone,  
19 sir?  
20 MR. KURT VON HAGEN: It is on. Yes, you're  
21 correct in that assumption. We have been the recipient,  
22 recently, in partnership Memorandum of Agreement with De  
23 Beers Canada.  
24 But I would like to highlight that, while it  
25 will directly impact us and the facility we plan to build, as

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1 I've highlighted, the intent is to have this facility also  
2 answer the needs of northerners in general.  
3 And I would add, as well, that you have a  
4 school district that has invested \$1 million in this project,  
5 aside from the monies that we're referencing right now with  
6 De Beers. Thank you.  
7 THE CHAIRPERSON: Thank you, sir. Ms.  
8 Catholique...?  
9 MS. FLORENCE CATHOLIQUE: Marci. Also, you  
10 spoke to the IBA. And I just wanted to know if you knew the  
11 content of any of the IBA's?  
12 THE CHAIRPERSON: Thank you. Mr. Von  
13 Hagen...?  
14 MR. KURT VON HAGEN: Again, I -- I've only  
15 had a cursory review of those agreements. My understanding  
16 is, and my hope would be, that through those participation  
17 agreements or impact benefit agreements, that the peoples of  
18 those communities impacted most directly, will receive  
19 positive benefit.  
20 And I would hope, even as this process does,  
21 that the vigilance that people like yourself have, will

22 ensure that those -- those benefits go directly to the people  
23 that they most impact.

24 THE CHAIRPERSON: Thank you. Ms.  
25 Catholique...?

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1 MS. FLORENCE CATHOLIQUE: Marci.

2 THE CHAIRPERSON: Thank you. Thank you very  
3 much, sir. Second presentation is Mr. Bill Enge, YK Metis  
4 Nation Local Number 66.

5  
6 (BRIEF PAUSE)

7  
8 THE CHAIRPERSON: Thank you, Mr. Enge. And  
9 if you could present your co-presenter for the record,  
10 please?

11 MR. BILL ENGE: Good afternoon, Panel Members  
12 and ladies and gentlemen of the audience.

13 My name is Bill Enge, and I am President  
14 Yellowknife Metis Nation Local 66. I have been the President  
15 of this organization for the past seven (7) years. I have  
16 been involved directly and indirectly with diamond  
17 development going on in this region, dating all the way back  
18 to the early BHP days and culminating today in the third  
19 consecutive diamond mine to be built in this region.

20 I'm here today because Yellowknife Metis  
21 Nation Local 66 has a thousand (1,000) members, and  
22 development that goes on in this region effects our  
23 membership positively and negatively. But thus far I can say  
24 that what I have seen in terms of development, it has been  
25 overwhelming positive as opposed to negative, with respect to

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1 the socio-economic impacts on the members that I represent.

2 And I'm sure I can say the same for members of  
3 this community and across the North. The Northwest  
4 Territories needs economic development and we need jobs and  
5 we need to bring ourselves into a level of prosperity that  
6 the rest of this country enjoys.

7 So, having had said that, I would like to say  
8 that my members are in support of the construction of De  
9 Beers Snap Lake Project.

10 The presentations, and the work that has gone  
11 into today's -- or, this week's presentation, we are very  
12 satisfied with, and we see that De Beers is, in all  
13 likelihood, based on what we have seen thus far, going to be  
14 a good corporate citizen of our region, our community, and  
15 across the Northwest Territories as a whole.

16 Now, one (2) of the things that we very much  
17 appreciate it, and we felt we deserved as Aboriginal peoples  
18 who have Aboriginal rights to the lands and resources in this  
19 region, is the introduction of impact benefit agreements by  
20 the diamond companies with the Aboriginal Groups that are  
21 going to be affected, or impacted by these developments.

22 I was a negotiator with respect to the very  
23 first impact benefit agreement that Metis secured between BHP  
24 and the Metis of the North Slave Region.

25 In that regard, we had to go so far as to

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1 construct a new regional organization known as the North  
2 Slave Metis Alliance to do that job, and I think it's public  
3 knowledge that there was a lot of growing pains with respect  
4 to getting the Metis organized in this region to do that very  
5 job.

6 And, that's not to say the growing pains are  
7 over today either. We're still right in the midst of it  
8 right now, but we'll work our way through these -- these  
9 piecing difficulties, and eventually get where we need to go.

10 Now, I wish to address the -- the notion that  
11 the South Slave Metis Tribal Council, who are now call  
12 themselves the Metis Nation of the Northwest Territories, has  
13 some kind of Aboriginal right to the land and resources in

14 this region.

15                   We take exception to that contention. As far  
16 as we're concerned, this is our home land. The South Slave  
17 Metis Tribal Council has changed their name, so they can act  
18 like they have a pan-territorial mandate. That's simply not  
19 the case.

20                   We are actively lobbying the Federal  
21 Government, the Territorial Government, and anybody else who  
22 will listen to us, to get to the negotiations table.

23                   We see this region as our region. There is a  
24 line in the sand here, and they've crossed it. While I  
25 understand that the South Slave Metis Tribal Council, or the

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1 Metis Nation Northwest Territories as they are now called,  
2 wants to hold a Mackenzie Valley panel here, and responsible  
3 for not addressing the Fort Resolution, Metis.

4                   Well, we find that as an absurd argument.  
5 They have a -- a lands and resource negotiation underway,  
6 which does not include lands of the North Slave Region.

7                   We therefore, categorically state, for the  
8 record, that we do not expect this Board to make De Beers  
9 application contingent on the introduction, or the securing  
10 of an impact benefit agreement with the -- with the Metis  
11 Nation of the Northwest Territories, or as they're know, as  
12 the South Slave Metis Tribal Council.

13                   With that in mind, I would just like to wrap  
14 up my -- my discussion here today, with the Panel, or -- or  
15 presentation by saying once again, that the Metis and  
16 Aboriginals, or Aboriginal counterpart, the Treaty 8 Indians,  
17 the Dogrib Indians, and to some extent, the Inuit from  
18 Kugluktuk, must benefit from lands and resource development  
19 going on in their homelands, and in their backyards.

20                   I would expect that this Board would make the  
21 issuance of permits and license recommendations to the  
22 Department of Indian and Northern Affairs to -- contingent  
23 upon the securing of an impact benefit agreement with those  
24 Aboriginal peoples whose -- whose lands are being developed  
25 without the benefit of a land claim in place.

1                   So, with that, I would like to introduce my  
2 counterpart, Mark Douglas, who is the Vice President of the  
3 Rae-Edzo Metis Local 64, who is here on behalf of his  
4 membership to present the views of the Rae-Edzo Metis to this  
5 Board. Thank you.

6                   THE CHAIRPERSON: Thank you, Mr. Enge. Mr.  
7 Douglas...?

8                   MR. MARK DOUGLAS: My name is Mark Douglas,  
9 from Rae-Edzo. I just want to state just for the record that  
10 the North Slave -- North Slave Region, the people that are  
11 here represent -- or the Dogrib communities, Rae-Edzo, Lac de  
12 Gras, Kumati (phonetic) and Boobati (phonetic) and  
13 Yellowknife people in Dettah. This not the South Slave Metis  
14 Tribal council territory. This is our home land and we will  
15 say what we are going to do. Don't infringe on our rights.  
16 Please respect what we are going to do and we can work with  
17 anybody and will do things right.

18                   I would like to make a longer speech but I  
19 keep it really short. Thank you very much. Massi.

20                   THE CHAIRPERSON: Thank you, sir. Mr. Enge,  
21 that you very much. Questions? Thank you very much, Mr.  
22 Enge, for your usual eloquence.

23  
24                   (BRIEF PAUSE)

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1                   THE CHAIRPERSON: The next presentation is for  
2 the -- by the Northwest Territories Construction Association.  
3 Gentlemen?

4  
5                   (BRIEF PAUSE)

6

7 MR. DAVID TUCKER: Thank you very much. I'd  
8 like to make some brief introductions. To my far left is Ken  
9 Zarkowitz (phonetic). He works with Nahanni Construction and  
10 he's the Director on our Board and to my immediate left is  
11 Bill Ahoe. He's with Central Mechanical Systems and also,  
12 past president and director of the Northwest Territories  
13 Construction Association. We have a brief oral presentation.

14 THE CHAIRPERSON: Your name, sir?

15 MR. DAVID TUCKER: My name -- that's the first  
16 part of the presentation. My name is David Tucker and I'm  
17 the president of the NWT Construction Association. We are  
18 here today to lend De Beers our full but not unconditional  
19 support for the development of the Snap Lake diamond mine.

20 We support this development because  
21 appropriate development of northern resources is the best and  
22 perhaps the only realistic way for all northerners to achieve  
23 prosperity and we support this development because it  
24 supports the Construction Association's -- Association's  
25 vision for the future of the north, a vision in which the NWT

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1 because a half territory, making a meaningful contribution to  
2 the Canadian Federation and where northerners are the masters  
3 of their own destiny.

4 What qualifies the Construction Association to  
5 take a position on this important development? Well, for  
6 one, construction is now the largest industry in the NWT  
7 accounting for 71 percent of territorial GDP. Contractors,  
8 architects and engineers collectively comprise the largest  
9 private sector employer in the NWT and pay the highest wages  
10 of any sector outside government.

11 Moreover, our members live and work in the  
12 NWT, are active in recruiting new people to the north and  
13 improving northern skills levels. Finally, more than most,  
14 our industry is particularly vulnerable to swings in the  
15 territorial economy and hence to development decisions such  
16 as the one we are addressing here today.

17 Of course, the construction industry has a  
18 vested interest in resource and economic development,

19 however, the association does not advocate resource  
20 development at any cost. In our view, it is critical that  
21 northerners assess the inevitable cost of resource  
22 development, be they environmental, social or financial and  
23 balance those costs against the anticipated benefits.

24 Only those projects whose benefits exceed  
25 their costs deserve our support. It is also our view that

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1 economic and social benefits accruing from the development of  
2 the Snap -- Snap Lake mine will far outweigh the  
3 environmental and social costs.

4 Our association will not be speaking to the  
5 environmental costs associated with this proposed  
6 development. I'm sure you've been provided with testimony in  
7 this regard already and steps required to mitigate negative  
8 impacts. Rather, we wish to speak to the economic and social  
9 benefit the Snap Lake mine will be bringing.

10 The evidence for our position is gleaned from  
11 past experience prior to the development of the BHP and  
12 Diavik diamond mines, the economy of the NWT was in dire  
13 straights. Unemployment had reached almost 14 percent in  
14 late 1999 but has since plummeted to 6.3 percent by November  
15 of 2002.

16 The Construction Association's view is that  
17 but for a profound and persistent skills gap, unemployment  
18 levels in the NWT could be lower still, thanks largely to the  
19 development and ongoing operation of diamond mines in the NWT  
20 but these figures merely represent economic improvement.

21 On the social front, territorial welfare  
22 payments dropped by almost 70 percent between 1999 and 2002.  
23 In two (2) recent annual reports produced by the GNWT to  
24 assess the EKATI and Diavik's impact on North Slave  
25 communities, conclude that there are no noticeable negative

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1 socio-economic repercussions attributable to the mines.

2 In fact, they find average incomes have  
3 increased while spousal assaults have declined. And they  
4 find that more residents of the smaller communities have  
5 passed Grade 9, and more of them have earned certificates and  
6 diplomas than prior to the advent of diamond mining in the  
7 NWT.

8 The reports also find that 70 percent of EKATI  
9 employees from the small communities, and 50 percent of  
10 employees -- Yellowknife employees, are drinking alcohol less  
11 often than before they began working at the mine.

12 Likewise, our industry has seized the  
13 opportunities presented by diamond related industrial  
14 development, to actively build capacity, both in support of  
15 the existing mines and in anticipation of future development.

16 Not so long ago, our non-industrial capacity  
17 was well developed, but we had precious little industrial  
18 construction capacity. Now, with EKATI and Diavik under our  
19 belts, there is not much mine construction our members --  
20 northern members cannot handle.

21 This capacity building allows our industry to  
22 provide even more employment opportunities to northerners,  
23 which, in turn, strengthens social well-being of -- the  
24 social well-being of our territory.

25 We commend the two (2) existing mines for

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1 their considerable support in allowing us to increase our  
2 construction capacity. And we should point out that they  
3 have likewise provided many other northern and Aboriginal  
4 businesses with opportunities to grow and mature.

5 I referred earlier to a skills gap. The  
6 shortage of skilled workers is the most significant barrier  
7 to fully realizing the potential of northern resource  
8 development. The NWT has one (1) of the youngest and fastest  
9 growing populations in the country, some 3,900 territorial  
10 young people, aged ten (10) to fourteen (14), will be looking  
11 for work over the next five (5) years, and another 3,800,

12 aged five (5) to nine (9), will enter the labour force after  
13 them.

14 The chances of their finding steady, well  
15 paying and meaningful jobs will be improved with the addition  
16 of a third diamond mine, but only if we ensure that they have  
17 the skills necessary to realize these opportunities.  
18 Elementary literacy and numeracy are basic prerequisites for  
19 any kind of meaningful employment, even in construction, yet  
20 far too many of our youth are leaving school without these  
21 crucial skills.

22 De Beers appears to understand that the skills  
23 gap is one (1) of the biggest obstacles to building  
24 additional northern capacity. We are encouraged to believe  
25 this because De Beers has recently made substantial financial

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1 contributions to a proposed trades training centre that you  
2 heard about in the previous presentation.

3 We are also encouraged by De Beers funding of,  
4 and participation in, development of course material to  
5 assist territorial residents in passing the trades entrance  
6 exam, also discussed in the previous presentation.

7 So, yes, we support De Beers' proposal because  
8 it is definitely in our interests to do so. But for the  
9 reasons mentioned, we submit, that virtually everyone stands  
10 to benefit significantly.

11 And you don't have to take my word for it. A  
12 recent survey found that more than 80 percent of NWT based  
13 EKATI employees agreed their lives would improve over the  
14 course of five (5) years.

15 Of course, the extent of which northerners  
16 truly benefit from the resource development depends on  
17 enlightened interaction between Aboriginal governments, the  
18 territorial government, the Federal Government, industry and  
19 resource developers.

20 This brings us to the conditions for our  
21 support, conditions which impose obligations on the federal  
22 and territorial governments, as well as on De Beers. The  
23 most significant obligation that the federal and territorial

24 governments must bear relates to the skills gap.

25 The Government of the NWT no doubt has their

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1 bests interests in mind when it insists that developers hire  
2 a large percentage of northerners. But the reality is, that  
3 there are only so many able bodies to go around and even few  
4 skilled workers available.

5 So the actual net result of setting  
6 unrealistically high northern employment quotas is to  
7 encourage the appearance of compliance, without necessarily  
8 encouraging genuine capacity building.

9 It is the construction association's  
10 experience that the two (2) existing diamond mines have made  
11 genuine attempts to expand northern capacity and meet their  
12 quotas. However, what may have been a reasonable obligation  
13 to impose on BHP, may no longer be reasonable for any of the  
14 mines, simply because there are now two (2) mines, the  
15 government and a growing business community, tapping the same  
16 pool of talent.

17 When we start desperately competing for the  
18 same employees, we inflate our labour costs and diminish our  
19 competitiveness versus the south. Once the talent pool has  
20 been exhausted, it is necessary to replenish the pool, a much  
21 more difficult task than simply demanding compliance with a  
22 quota. And we would argue, a task for the federal and  
23 territorial government.

24 Replenishing the pool requires that we address  
25 issues like adequate education, affordable housing and an

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1 attractive cost of northern living. It also requires that we  
2 encourage our young people to stay in the north and excel in  
3 the north, that we encourage migration to the north, and that

4 we take the long view of capacity building.

5                   These are not obligations we can pose --  
6 impose solely on resource developers or industry. These are  
7 burdens our governments must take up.

8                   We would ask that De Beers and this  
9 territorial government to take great care in crafting the  
10 northern participating policies, particularly their  
11 definition of northern business.

12                   A major deficiency in past socio-economic  
13 agreements is that instant northern companies, southern  
14 companies setting up arrangements of convenience without  
15 actually creating additional northern capacity, have  
16 benefitted disproportionately from industrial development.

17                   We have no objection to southern companies  
18 working in the north, but we object to the pretense that  
19 these storefront companies are, in fact, northern.

20                   This is a sham in which everyone participates.  
21 Industry participates, because it's an effective way to  
22 secure work, Governments turn a blind eye out of convenience,  
23 and the mines succumb to it as a result of unrealistic  
24 quotas.

25                   This self-delusion only makes it more

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1 difficult to accurately monitor our progress towards the goal  
2 of genuine capacity building.

3                   We are again encouraged that De Beers  
4 understands the realities of Northern capacity building,  
5 versus arrangements of convenience. They have indicated a  
6 willingness to assess the capacity of northern businesses to  
7 meet their needs, and to adjust the composition of their  
8 tender packages to maximize realistic northern participation.

9                   And, we would further suggest that the con --  
10 that they consult local industry on an on-going basis, as  
11 they develop their construction plans, and post construction  
12 strategies.

13                   In conclusion, it is our view that De Beers is  
14 not different from BHP or Diavik. They have simply come out  
15 on to the scene at a different time.

16 Further, our response to the Snap Lake  
17 development proposal should be no different than our response  
18 to previous mine development proposals, but it should reflect  
19 the new realities faced by northerners.

20 If we can come to grips with the reality of  
21 our present circumstances, the Snap Lake development can make  
22 a significant, positive contribution to our collective well-  
23 being.

24 If Aboriginal, territorial, and Federal  
25 governments, northern businesses, and De Beers can act in

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1 accordance with these realities, this project is deserving of  
2 our support.

3 Thank you for the opportunity to share our  
4 views on this potentially important milestone on the road, we  
5 hope a short road, to northern prosperity, self-sufficiency,  
6 and independence.

7 THE CHAIRPERSON: Thank you, sir. Questions?  
8 Questions? Okay. Thank you very much, sir. We will now  
9 take a short twenty (20) minute break, and then we will  
10 reconvene with closing statements.

11 De Beers will be the last to make their  
12 closing statement, with the exception of myself, and if other  
13 Intervenors could just indicate to Glenda if you have a  
14 closing statement to make, so that I've a -- a list of who to  
15 call on. Thank you very much.

16  
17 --- Upon recessing at 5:03 p.m.

18 --- Upon Resuming at 5:31 p.m.

19  
20 THE CHAIRPERSON: Thank you, ladies and  
21 gentlemen. We will now reconvene in the -- the marathon of  
22 the Hearings and the final stage.

23 The first closing statement will be made by  
24 the Yellowknife Dene First Nation.

25

1 (BRIEF PAUSE)

2  
3 MS. RACHEL CRAPEAU: Good evening. My name is  
4 Rachel Crapeau for the Yellowknife Dene First Nation Land and  
5 Environment Committee. I want to say that I'm glad that we  
6 had a chance to look at the De Beers Snap Lake diamond  
7 project.

8 From the start of 1996 or '97, I can't  
9 remember when, it was Winspear company back then. We were  
10 involved with looking at the fish baseline -- fish collection  
11 work data back then but, since then, after Monoprose  
12 (phonetic) came involved and now De Beers, things have  
13 shifted with our involvement with looking at data -- baseline  
14 data collection work.

15 And afterwards what we did was we just only  
16 looked at information that was sent to us through faxes or  
17 mail and also starting with the project description. It's  
18 been quite a bit of work in the last two (2) years leading up  
19 to today.

20 Meanwhile, at the -- aside from just looking  
21 at the De Beers Snap Lake project, our committee has been  
22 busy working on the Bathurst Caribou Management Plan and  
23 we're on the committee and our member Lars Goulet (phonetic)  
24 has been participating at those meetings.

25 And also, hopefully down the road we'll have

1 the Cumulative Assessment Management Committee and that we'll  
2 be able to look at all mines as a whole and everything that  
3 happens in the area of our territory for the Yellowknife Dene  
4 First Nation. The cumulative effects of everything and I  
5 know that we've got a cumulative effects assessment  
6 management planning meeting coming up pretty soon right after  
7 we're done here.

8 We've also been busy with the Diavik

9 comprehensive study which took us a full -- it seemed like  
10 forever but I think it was two (2) years of straight work and  
11 I remember those meetings.

12 I didn't count the amount of meetings, but  
13 when I was given the -- an award of excellence with working  
14 with our Land and Environment Committee members in that  
15 process, they said we did at least three hundred (300)  
16 meetings or more. That was quite a bit and we participated  
17 in the environmental assessment -- environmental agreement  
18 negotiations for Diavik and BHP.

19 In the -- in the future that we are hopeful  
20 that we would have one regional monitoring board to handle  
21 all the monitoring of all the mines. That's our one wish as  
22 a committee but that's to be seen later on. We would like to  
23 also get started on protected er -- area work for our  
24 territory because we're being bombarded with requests for  
25 land from anyone and everyone.

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1 We've been working on the Contwoyto-Tibbitt  
2 winter road monitoring and we started monitoring from Ross  
3 lake to monitor the amount of people who travel on the winter  
4 road. That's why through this process to -- this week we  
5 were interested in the amount of winter road use the mine was  
6 going to be involved in in the future when their -- when  
7 their project opens.

8 But besides that, from talking with the elders  
9 in pre -- in preparation for the public hearings, we were  
10 interested in the air quality and the quality of the fish  
11 after the mine closes. If it's going to be edible or if it's  
12 going to be different. What is the fish going to be like in  
13 the future and the land when it goes through reclamation and  
14 there's growing again, is the food going to be good for the  
15 caribou and for the animals that live off the land?

16 I was hoping that all the experts would still  
17 stay around for Thurs -- yesterday's evening to listen to the  
18 Elders because their concerns were basically -- of the  
19 nature. That we want to make sure that the land and the  
20 waters will not be totally jeopardized for future use.

21                   And Mr. Chapman, who had to leave really  
22 early yesterday, I -- or Wednesday, I believe, answered my  
23 question because I had to ask him on behalf of an elder, is  
24 there going to be the same kind of fish in the lake after the  
25 mine closes and the man said, yes, which made me happy to

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1 hear that.

2                   We had concerns regarding environmental  
3 protection issues, the health issues of the workers, the  
4 health of the animals. If there's going to be problems with  
5 air quality and these things, I think we've put our questions  
6 forth and we've got some of the answers and we're pretty  
7 satisfied with some of the answers that we've got.

8                   We have to do some more reading after we're  
9 done and we'll have to get together with the Land and  
10 Environment Committee members to -- to go over the answers  
11 that we were provided with and --

12                   The week has been pretty scary, at times,  
13 because I felt like I was in court and I felt as if I didn't  
14 know if I should ask anything in case I'm out of order and I  
15 might get into trouble and I won't say anything ever again.

16  
17                   (BRIEF PAUSE)

18  
19                   But I was wanting to mention that we had just  
20 a quick little paper that we put together regarding our  
21 concerns from this week. For example, who's in charge of air  
22 quality regulation?

23                   We are concerned that there are currently  
24 existing the void in the government's ability to regulate air  
25 quality. In Southern Canada, the provinces are in charge of

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1 setting the regulatory framework for regulating air  
2 emissions.

3 In the Northwest Territories, the National  
4 Energy Board has that mandate for the oil and gas industry  
5 for emissions from at least one aspect of gas development,  
6 the flaring off of impurities in natural gas.

7 The only aspect of air pollution that can be  
8 regulated by the Mackenzie Valley Land and Water Board is  
9 dust deposition and acid inputs deposited into lakes. This  
10 through the Class A water licenses and RWED through its  
11 Environmental Protection Act from 1994 has established  
12 maximum acceptable limits for sulphur dioxide and total  
13 suspended particulates and that's the microscopic particle  
14 that can be breathed into the lungs but this has no  
15 regulatory standing and thus is not enforceable.

16 However, we do not have any mechanisms in the  
17 NWT for regulation and enforcement of air quality standards  
18 for mine developments. It seems that federal and territorial  
19 governments have only an advisory role to play in  
20 environmental management of air -- air pollution.

21 It is unfortunate that we do not yet have a  
22 government regulation that can punish a developer who  
23 pollutes beyond the guideline or threshold. We would like to  
24 see some progress made in this regard, our regulators in the  
25 NWT.

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1 Otherwise the only recourse we have to ensure  
2 that De Beers and other mines do not contribute to air  
3 pollution problems is th -- is through legally binding  
4 environmental agreements or litigation.

5 When is risk acceptable? Last Wednesday, Mr.  
6 Johnstone used a familiar argument in talking about risk and  
7 uncertainty. The argument, one that the nuclear energy  
8 industry in Canada also uses is that there are all kinds of  
9 risks in life that Canadians willingly accept in their daily  
10 lives.

11 We are never certain whether the plane or car  
12 that we travel in will crash. We are never certain that the

13 person serving us a meal at a restaurant has used proper food  
14 handling and cooking methods to assure the food is safe to  
15 eat but we take it all in faith that we will be safe.

16           However, there is one very big difference  
17 between these everyday risks and the risks De Beers is  
18 talking about. The risks we take in our own lives are  
19 voluntary. We accept the risks and uncertainties exist and  
20 are prepared to live with those risks.

21           The risks from the Snap Lake project are  
22 involuntary risks, that is these risks are imposed on the  
23 land by De Beers, the animals, fish and Aboriginal resource  
24 users are not volunteering their lives to take on the risks  
25 if De Beers is wrong with their predictions of no significant

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1 impacts.

2           Gathering traditional knowledge. Yellowknives  
3 Dene have concerns about the way their people's traditional  
4 knowledge has been gathered. It appears to us that what De  
5 Beers calls TK gathering has been more like information  
6 exchange.

7           Their methods of getting people's TK have not  
8 been adequate nor accurate. Science has it appear we view  
9 process or evaluating scientific information before it is  
10 brought out to the larger scientific community.

11           Experts in the scientific field, similar to a  
12 study -- study scientist will review the scientist's draft  
13 report for accuracy for methods, results and conclusions.  
14 Traditional knowledge reporting should have the same peer  
15 review process before a develop it -- a developer uses the TK  
16 that is shared.

17           What we mean is whatever TK is used by the  
18 company should be reviewed by the most knowledgeable TK  
19 holders and a larger segment of the community, for example,  
20 the Land Environment Committee or Land Environment  
21 Committees. This review of the YK -- Yellowknives Dene  
22 traditional knowledge that is being sought by the company  
23 should be assessed by the Yellowknife Dene people checking on  
24 the accuracy of the TK document before it is used by the

25 company.

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1                   This is the short information that we've put  
2 together for our closing remarks and that I was just thinking  
3 that throughout this week. As a member of the Yellowknife  
4 Dene First Nation member, I was feeling as if -- that some  
5 people were trying to claim land and as a person who lives in  
6 Dettah.

7                   And the people who live in our communities, I  
8 know that young people when they hear other people claiming  
9 land that is not theirs, it up -- it upsets them and that to  
10 hear things like that makes you feel kind of really funny.

11                   But also I noticed that some time ago when I  
12 was working on the Band Council, I was talking to a colleague  
13 of mine who was looking at a list of names of -- of people  
14 who were considered Metis -- membership people and she knows  
15 that her children were listed as Metis and she said that she  
16 had listed them as Yellowknives Dene First Nation members and  
17 that they were Treaty and she said, how come the Metis people  
18 were gathering names of people without the parent's consent.

19                   I thought that was kind of interesting and  
20 also, I was just wanting to say that it's been a long week,  
21 interesting and that I hope that we were helpful in this  
22 process and that whatever work that we will have to do in the  
23 future, we'll be there to provide the help that's needed but  
24 also we expect to be forthcoming also and in Michelle  
25 Caper's(phonetic) words, let's do something to work really

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1 well together. Thank you.

2                   THE CHAIRPERSON: Thank you, Ms. Crapeau.  
3 Chief Edjaracon, welcome, sir.

4

5 (BRIEF PAUSE)

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7 CHIEF RICHARD EDJARICON: Thank you. I'd like  
8 to thank the Board for giving -- giving me the opportunity to  
9 come over and say a few words. Actually, when I sat here  
10 listening to people about coming to the presentation here  
11 today speaking on behalf of our community, I don't know if  
12 I'm -- actually, if I'm still the Chief.

13 But it -- it disturbs me when people speak on  
14 behalf of our community and I wish these people would stick  
15 around so that they could listen to what I have to say but  
16 I'm want to just talk about a couple of points that I want to  
17 kind of send a message here.

18 Is that -- you know, all week we've been quite  
19 busy with our own Dene Leadership meeting here in Dettah. We  
20 had an opportunity to have all the Chiefs come through our  
21 community. They gave -- I even seen Charlie Snowshoe so it  
22 was good to see you.

23 And you know, when I hear people saying that  
24 this is their territory and I think a lot of people are  
25 coming to the Board here and saying the same thing and I'm

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1 here to -- just to make a comment about that and I want to  
2 kind of clear the air a bit but as you all know, the Akaitcho  
3 is in the process already.

4 We have a framework agreement that was signed  
5 in July 2000 that leads all thirty-five (35) principles.  
6 Part of its governance, the biggest issues is land. And  
7 we've been quite busy in this area for the last three (3) to  
8 four (4) years.

9 Having said that, one of the things that we  
10 were really concerned about was the issue with our neighbour  
11 tribes about the boundary and that's something you almost  
12 have to be careful what you wish for because it comes true  
13 and if it does happen, then what do you do?

14 So we've been quite busy in -- in this area  
15 trying to, you know, we were talking on going to court and we  
16 went down this road and at the end of November of last --

17 this past year, we had a huge celebration in regards to this  
18 overlap boundary and to us, I think that was something that  
19 -- that clearly indicated that who's territory this is and I  
20 -- I've got a map here I want to give you before I leave  
21 But I want to just let you know that also  
22 within the Akaitcho territory we have a few agreements on the  
23 table. We have an agreement with the Government of the  
24 Northwest Territories and the Government of Canada called a  
25 political court.

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1 We also have the interim measures agreement,  
2 again with the Government of Canada and the Government of the  
3 Northwest Territories and to us that's something that -- its  
4 interim measures agreement that until we get to a certain  
5 point in negotiations then, you know, those are things that  
6 we want protected.

7 So we're going down this road, as well, and I  
8 am getting really concerned now that industries open door to  
9 people that are trying to claim territory in the same lands  
10 we live on and I'm just here to kind of help clarify that  
11 this territory that we're all in is the Akaitcho territory  
12 and home of the Alnisan (phonetic) First Nation, Lutsel K'e,  
13 Dene First Nation and also Dene que (phonetic).

14 And we have a huge territory and we're moving  
15 along in a process that's quite unique and again, we're --  
16 like I said, you have to be careful what you wish for and it  
17 comes true. So in November of this year we resolved this  
18 issue and now we're scratching our heads and regrouping and  
19 moving forward.

20 So I just want to kind of shed a little bit of  
21 light on, with the Board, of where we're at -- in our process  
22 and, you know, we do -- we are concerned about other interest  
23 groups that are -- that are out there. That are --  
24 especially interest that this is their traditional territory.

25 But this map that I have here, it was

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1 something that we worked on for some time and also this map  
2 that we have we brought to the Legislative Assembly this year  
3 prior to the Dogrib's moving forward and -- and going to the  
4 initiating process.

5 We call it a -- it's a very expensive map that  
6 we had when we brought over to the Legislative Assembly and  
7 that shows all the traditional trails, burial sites and all  
8 the traditional use area and this map is so huge, it went all  
9 the way into Nunavut up to the -- up to Copper, Cambridge and  
10 all in that area.

11 So we know where we come from. We know who we  
12 are. We have a land base and we're also a government.  
13 That's why we're at the table of Government Canada and when  
14 people speak on our behalf I'm a bit concerned and I want to  
15 make sure that, for the record, that, you know, that's  
16 cleared but also I want to kind of send a message to industry  
17 that you've got to be careful you don't open the doors to  
18 everybody.

19 I think if I was going to the Quitchen  
20 (phonetic) area, I know who to see if I was a developer. I  
21 will see the people that own the land -- sought to, same  
22 thing. They have agreements and those are things that I --  
23 that I'll respect. I'll have to do that.

24 So when people come to our area, Chief  
25 Catholique is here today. She's saying Dene que. This map

1 is a very important map and you know, maybe you could reach  
2 it to bring it up. Just so that I want to leave it with you.

3 THE CHAIRPERSON: I would appreciate that,  
4 sir. Thank you very much.

5 MR. RICHARD EDJARICON: Thank you very much.

6 THE CHAIRPERSON: Thank you. I'll now call  
7 upon Chief Catholique from Lutsel K'e Dene First Nation to  
8 make the closing statement on behalf of the Lutsel K'e Dene.

9 CHIEF ARCHIE CATHOLIQUE: Thank you, Mr.

10 Chairman. I know Monday I was over here and had the  
11 opportunity to make my presentation at the beginning and --  
12 and I had the opportunity to speak in my own language but  
13 this afternoon, I don't think I can do that because some of  
14 the interpreters are not here but that's all right. I can do  
15 it in English.

16 I just want to thank you, again, for giving  
17 the time here to make my closing remarks and also the people  
18 that are here this afternoon. One of the things that I  
19 talked about over and over is that, you know, the Elders back  
20 home tell me that, you know, there's people out there that  
21 are wanting -- wanting to work the land.

22 People coming in. The mining industry wanting  
23 to develop maybe gold or diamonds then -- and what they're  
24 saying now is that they're going to go and talk to those  
25 people and make sure that -- make sure that the environment

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1 and the waters and the wildlife are -- are -- are going to be  
2 protected.

3 Today, I think a couple of mining industries  
4 that are on our territory are going to try their best to make  
5 sure that the environment is -- is going to be looked after,  
6 the wildlife and the waters, and so on.

7 And I think also, that De Beers that is going  
8 to -- wanting to do a similar type of work to mine diamonds,  
9 and again, I'm here to remind these people that -- that  
10 they're going to have to respect the animals and the waters  
11 and the land.

12 And I hope that they -- I do have a lot of  
13 faith in these people when they talk about how they're going  
14 to take care of the land.

15 So, I'm going to leave it at that. And again,  
16 you know, I've been asked that -- in a way I can help with  
17 these -- these people that are going to work the land, and  
18 give the support behind.

19 I know a lot of time -- a lot people has  
20 talked about, you know, the land. As Akaitcho people,  
21 we'd -- as a young people, when we were growing up, we have

22 been taught to take care of the land.  
23 And I'm sure our friend, Charlie, understands  
24 that. And I'm sure that he'll speak often about these  
25 things, and I'm glad that he's -- he's up there and making

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1 decisions up there.  
2 So, I think, you know, when I came over here,  
3 I walked in here, there was a lot of people -- a lot of  
4 people, different organizations, that are making  
5 presentations.  
6 And I was thinking, you know, all these people  
7 here, you know, are wanting to -- they all have interests, or  
8 they all want to be part of what's happening on Akaitcho  
9 territory, on our traditional lands.  
10 And I was -- I really wasn't, you know, what  
11 to make of it, what to think of it. The amount of people  
12 talking and making presentations, and these are the lands  
13 that I -- I grew up on, these are the lands where I went  
14 hunting and trapped and provide for my family.  
15 And, you know, from a -- from a trapper, to  
16 become -- to be involved in a business, such as the mining,  
17 you know, when you be part of that kind of an industry and  
18 how you're going to benefit from it. It's a fast -- fast  
19 growing thing for the community.  
20 And I know the GNWT was here and making  
21 presentation earlier, I listened to part of what they were  
22 saying.  
23 I know the GNWT is -- I think they're trying  
24 their best to -- to meet the needs of the communities, but  
25 the communities itself know what's needed out there.

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1 To give you an example, for one that I'd talk

2 a lot about is the education of the young people back home.  
3 You know, the last five (5) years that -- our graduation is  
4 young kids that are coming out of schools are quite low.

5 And, you know, if I became a Chief, I'd have  
6 the opportunity to look into it. And one of the things that  
7 I found out was that the programs that are being run out  
8 there should be run by our own people.

9 So, I've approached the Minister to -- to do  
10 this, and I've been given that opportunity to do that this  
11 year.

12 And some money that has been involved in  
13 that -- there is no money, but I'm quite fortunate because,  
14 you know, the agreements that I have made has provided me  
15 with a few dollars to invest in the education. So, that was  
16 quite good. And that investment that is going to come out  
17 good in the end, I know.

18 And again, you know, when you were talking  
19 about the social issues here, I know the last few days you  
20 have been talking about social issues.

21 One of the things, I think, is happening with  
22 the mining industry; there's people coming in from the south,  
23 southern workers that come into the mining industry, there's  
24 a clash between the aboriginal people, and a lot of our young  
25 people are quitting because of that.

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1 So, I think there's a need to investigate, or  
2 to -- to look into what I'm saying here. Probably that has  
3 been brought up earlier, but again, I want to -- I want to  
4 stress that here.

5 And also, the -- a lot of people too also are,  
6 you know, when they leave, that the housing situations, the  
7 house that they live in, or some of them, they don't have any  
8 housing, and it's very difficult for them to, you know, to go  
9 into the mines and leave their families behind.

10 And so, that's something that I -- I talked  
11 about, I think, in the beginning. And again, I want to -- I  
12 want to stress that, so that, you know, there can possibly be  
13 something done about that.

14 I know one of the things that we're doing in  
15 our discussions with the Federal Government -- one of the  
16 things that we talked about is that we all are going to have  
17 to work together.

18 And I know our Elders talked about that when  
19 our signing of the treaty's, and what they're saying that we  
20 want people to -- to live on our lands, and they can work,  
21 and work together.

22 And I think, you know, that -- that can be  
23 done, and done in a way that we'd, you know, agree to it, and  
24 been asked, what do you think -- this is how -- can I be able  
25 to do this, you know, that's quite simple to ask.

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1 And a lot of times, you know, things are --  
2 have been done without our involvement, so, but today, you  
3 know, this is -- this is good this is what's happening here.

4 The people are listening to -- to us, and I  
5 want to thank you for that. I just don't want to say too  
6 much, I just want to thank you guys for giving the  
7 opportunity here, and I'm hoping to see the De Beers, John,  
8 and those people again.

9 So, the other thing too, this is the  
10 last -- last comment too. Also, I think, you know, when  
11 we're talking about social issues, you know, I think if it  
12 was done in a way where they would go and talk to the  
13 communities; where you sit down, and like, have a panel --  
14 and all these social issues that's -- that's effected the  
15 communities within the jobs that happening in the mining  
16 industry, then their going to collect a lot of information.

17 That way, you'll understand where the  
18 communities are coming from. So, I just want to leave you  
19 with that, and Marci cho.

20 THE CHAIRPERSON: Thank you, Chief Catholique.  
21 And, the Board truly appreciates the input and hard work that  
22 Lutsel K'e Dene First Nation have made this week, represented  
23 by Florence Catholique. Thank you very much.

24 North Slave Metis Alliance, Ms. Johnson...?

25 MS. KRIS JOHNSON: Thank you. Kris Johnson,

1 for the North Slave Metis Alliance. I just have a few  
2 comments I'd like to make in closing.

3 Before I begin, I'd like the Board to  
4 seriously consider the disadvantages aboriginal communities  
5 has had to deal with throughout this process.

6 Due to time constraints, I'm not going to go  
7 into great detail. If you'd like more detail, please refer  
8 to the document submitted by the North Slave Metis Alliance  
9 to the public registry, April 16th and 25th, 2003.

10 However -- however, I would like to bring your  
11 attention to the report, The Mackenzie Valley Environmental  
12 Impact Review Board released October 1999, entitled, Views on  
13 the Diavik Diamond Project Comprehensive Study Report.

14 In this report, the Mackenzie Valley  
15 Environmental Impact Review Board, called for a clear,  
16 consistent process that would allow for meaningful  
17 participation by aboriginal groups.

18 When will the Board be acting on these  
19 recommendations to ensure aboriginal communities can  
20 adequately participate in environmental assessments of  
21 projects proposed on their lands?

22 In the same document, the Board criticizes the  
23 Diavik process for not being realistic about party's capacity  
24 to respond and raise concerns about exhaust -- exhausting  
25 resources.

1 It is very apparent to the North Slave Metis  
2 Alliance; and De Beers, based on their line of questioning,  
3 and other aboriginal communities, that this process is now  
4 plagued by the same problems.

5 I will leave this with you, in hopes that the  
6 capacity and funding issues aboriginal groups have raised

7 throughout this process do -- do not end up being shelved in  
8 another report.

9 I would also like to clarify why the NSMA has,  
10 to the best of their ability, tried to stay involved in this  
11 EA.

12 Historically, Metis in the north -- north,  
13 have experience extremely negative impacts from mining;  
14 especially when considering the giant mine project.

15 Metis people have been made sick, and saw  
16 traditional harvesting areas polluted. And I believe, Alice  
17 Lafferty, did a good job of speaking about this last night.  
18 This is why the Metis want their concerns addressed, and this  
19 is why we are here.

20 Now, on to our presentations. You will have  
21 noticed the presentations I gave are all centered around  
22 answering the questions: Will the Snap Lake Diamond Project  
23 have significant adverse environmental impacts, can these  
24 impacts be mitigated, and is there significant public  
25 concern?

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1 And I apologize for the repetitiveness of  
2 these presentations, however, it was important because these  
3 are the questions the Boards -- the Board will be answering,  
4 in order to fully assess the impacts of the Snap Lake Diamond  
5 Project, as set out in the Mackenzie Valley Resource  
6 Management Act.

7 Again, this is why the North Slave Metis have  
8 focused our attention on these big picture questions.  
9 Basically, the Boards assessment is a three (3) part process.

10 First, they must assess the baseline  
11 information, and determine if there is sufficient information  
12 to make accurate predictions.

13 Second, they must assess monitoring programs,  
14 and their ability to predict impacts. And third, they must  
15 assess mitigation measures, and their ability to reduce  
16 impacts.

17 The Board has been left hanging at the first  
18 step in this process, assessing the baseline information.

19 What we have all heard repeatedly, is that baseline data is  
20 inadequate to make accurate predictions.

21 This issue must be resolved before the Board  
22 can make an accurate assessment of the impacts associated  
23 with the Snap Lake Diamond Project.

24 Now, and I stress, now, we can all work  
25 together to ensure accurate baseline data exists, so we can

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1 move to the next step.

2 Traditional knowledge could be the key that  
3 we're all looking for. Aboriginal communities have  
4 generations worth of information and data that has yet to be  
5 explored.

6 The Mackenzie Valley Environmental Impact  
7 Review Board, must enforce the requirement that traditional  
8 knowledge be considered equally to western science.

9 It is very apparent that this is yet to  
10 happen. De Beers has an opportunity to forge relationships,  
11 fill in gaps in data, and remove the uncertainty surrounding  
12 their impact predictions.

13 Aboriginal communities are ready, willing, and  
14 receptive to working with De Beers, however, there's one  
15 problem; aboriginal communities do not have the resources, or  
16 capacity, to record their traditional knowledge.

17 In fact, aboriginal communities don't even  
18 have the resources to adequately participate in this EA. As  
19 a result, we're all stuck at the first step in the EA,  
20 repeatedly assessing inadequate baseline data, attempting to  
21 justify impact predictions made from invalidated models.

22 This issue of inadequate baseline data must be  
23 addressed before we can move to the second step, which is  
24 monitoring.

25 Once traditional knowledge and western science

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1 have been used to provide the best available baseline data,  
2 impact predictions can be made.

3 As De Beers so eloquently stated yesterday,  
4 impact predictions are not absolute, and that is why  
5 monitoring is so important.

6 Again, this is why the Mackenzie Valley  
7 Environmental Impact Review Board must adhere to their Terms  
8 of Reference, and require detail monitoring programs be  
9 developed before an accurate assessment of the proposed  
10 project can be made; this is the Boards obligation.

11 And in further review of the project, De Beers  
12 will have the ample time and opportunity to develop  
13 monitoring programs with detailed, specific objectives,  
14 proposed approach, methodologies, and traditional knowledge.

15 Monitoring programs must be developed before  
16 an accurate assessment of the impact predictions can be made.

17 Once again, this has to be done before we can  
18 move to the third step in the process, mitigation. Again,  
19 because of time constraints, I'm not going to go into great  
20 detail about proposed mitigation measure.

21 I'm only going to say that, De Beers has  
22 provided some mitigation measures, however, without adequate  
23 baseline data, and detailed monitoring, it is impossible to  
24 measure if mitigation is sufficient or effective.

25 Furthermore, until the socio-economic impact

1 agreements, IBA's, and Environmental Agreements, are  
2 finalized, it will be impossible for the Board to assess  
3 whether or not mitigation measures sufficiently address the  
4 impacts outlined by aboriginal communities.

5 Again, I would like to draw the Boards  
6 attention to the Mackenzie Valley Environmental Impact Review  
7 Boards comments regarding the Diavik process, and views from  
8 the Diavik Diamond Project comprehensive study October, '99.

9 In this report the Mackenzie Valley  
10 Environmental Impact Review Board acknowledged, that without  
11 the -- without the completion of IBA's, neither the Board,

12 nor the Minister, can determine the effectiveness of the  
13 treatment of socio-economic effects.

14 The Board acknowledged this information was  
15 needed to assess mitigation measures. Once again, I ask the  
16 Board to seriously consider their comments in this document,  
17 and how they plan to justify their assessment without this  
18 pertinent information.

19 I do not want to take up any more of your  
20 time, except to say to the Board, please consider the  
21 documents submitted to the Public Registry, and discussed  
22 throughout this process, in the context of aboriginal people,  
23 their culture, and their future generations.

24 The NSMA has not had sufficient resources to  
25 have our expert resource -- witnesses available to present

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1 the outstanding issues, or answer questions during these  
2 public hearings.

3 So, I urge the Board to review the documents  
4 we have provided to the Public Registry, to supplement, and  
5 clarify points made during my presentations.

6 We have an opportunity, and an obligation to  
7 ensure this EA addresses the concerns of aboriginal  
8 communities, we must take it.

9 We are encouraged by what we've heard this  
10 week, however, we must recommend this project to a further  
11 review, so that we can be confident aboriginal people, and  
12 the environment are protected. Thank you.

13 THE CHAIRPERSON: Thank you, Ms. Johnson.  
14 Fisheries and Oceans...?

15 MS. JULIE DAHL: Thank you, Mr. Chairman.  
16 This is Julie Dahl, from Department of Fisheries and Oceans.  
17 The Department would like to thank the Review Board for the  
18 opportunity to present our outstanding issues with respect to  
19 the proposed Snap Lake Diamond Project.

20 We have listened closely throughout this  
21 public hearing in order to seek resolution of our outstanding  
22 issues, and to ensure that all issues of interest to DFO have  
23 been identified and adequately addressed.

24                   We have heard that there are still  
25   discrepancies as to the quantity and quality of mine water

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1   that will ultimately be discharged to, and impact on, Snap --  
2   the water of Snap Lake.

3                   With respect to metals, DFO would like to  
4   recommend that the forms and state of metals of concern, such  
5   as chromium, in the discharge and in Snap Lake, be clearly  
6   stated.

7                   And that thresholds for treatment, such as the  
8   coagulation of filtration described by De Beers as optional,  
9   be based as a starting point on meeting CCME criteria in the  
10  discharge, as this would afford the greatest protection to  
11  the aquatic community of Snap Lake.

12                  De Beers claims conservatism throughout their  
13  assessment, the application of CCME would continue this  
14  approach.

15                  De Beers assessed various treatment plant  
16  configurations to address the issue of metals in the  
17  discharge, and presented their findings in a technical  
18  memorandum on treatment alternatives.

19                  In our technical report addendum of March  
20  14th, DFO noted that without data to support De Beers' choice  
21  of treatment approach, reviewers cannot assess whether the  
22  most environmentally beneficial approach was chosen, and  
23  whether impacts due to metals in the discharge have been  
24  mitigated to the extent possible.

25                  DFO, therefore, recommends that the data to

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1   support the treatment approach chosen by De Beers be provided  
2   for review.

3                   Further, we have heard that the Impact

4 Assessment is based on achieving a discharge concentration of  
5 five (5) milligrams per litre of TSS, and the associated  
6 metals in that fraction.

7 If, however, difficulties are encountered in  
8 continually achieving this level -- level, TSS may be greater  
9 than the five (5) milligram per litre, and metals are likely  
10 to be proportionately higher in the discharge above those  
11 concentrations assessed in the EA.

12 It is not clear if a TSS value of five (5)  
13 milligrams per litre is a best case scenario for a  
14 conservative estimate on what is achievable.

15 The potential difficulties in continuously  
16 achieving five (5) milligrams per litre of TSS, supports the  
17 need for optimizing treatment approaches from the onset to  
18 ensure metal concentrations do not exceed those assessed for  
19 impact, and ideally, meet more protective CCME values.

20 Should the project proceed, a TSS  
21 concentration of no more than five (5) milligrams per litre  
22 can be allowed to ensure impacts are not greater than  
23 assessed, this of course, will be the role of the Land and  
24 Water Board to set, but will have direct and important  
25 relationship to the approach taken in the EA.

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1 With respect to TDS, given the possible  
2 discrepancies with TDS loading predictions, the issue should  
3 be resolved, and if necessary, new predictions be provided  
4 prior to the conclusion of the EA.

5 DFO has identified concern with the TDS  
6 concentrations predicted by De Beers, and the impacts to the  
7 aquatic community of Snap Lake.

8 Discussion is needed on what mitigations are  
9 available to address elevated TDS, for example, extending the  
10 use of grouting to mitigate flows, and the environmental  
11 considerations for such an approach; given that the use of  
12 grout itself can increase TDS concentrations. Thank you.

13 THE CHAIRPERSON: Thank you, Ms. Dahl.

14 Ms. Teillet, Dogrib Treaty 11...?

15 MS. JEAN TEILLET: Thank you, Mr. Chair.

16 Before I start I want to convey the Grand Chief's apologies  
17 for not being here.

18 He felt the need to go back to his family. He  
19 said he's been away too long, and he needed to go home. And  
20 he thought the Board would probably understand.

21 So, I'm going to do my best to convey our  
22 closing comments. I'm not going to reiterate, or remind the  
23 Board about our opening comments, with respect to the Dogrib  
24 agreement, I'm sure you heard it, and it's on the record, and  
25 particularly the obligations that that puts on the Board.

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1 I'd rather like to focus our remarks on the  
2 task that is before the Board right now, the determination of  
3 whether there are likely to be significant adverse impacts  
4 arising from this project, and if so, whether these effects  
5 can be mitigated.

6 In other words, I guess the question is: Are  
7 we going to reject the proposal, are we going to recommend it  
8 with terms and conditions, are we going to send it to review?

9 In answering these questions, the Dogrib  
10 Treaty 11 council would like to state our conclusions, with  
11 respect to some of the outstanding issues.

12 These generally fall into three (3)  
13 categories: hydro-geology, Snap Lake water quality, and the  
14 caribou.

15 And finally, we'd like to make, what we hope  
16 are helpful recommendations on how to deal with the  
17 cumulative effects.

18 With respect to water, the Dogrib Treaty 11  
19 council says that there are still uncertainties with respect  
20 to water. We've heard varying opinions as to whether or not  
21 the project is likely to have significant adverse effects.

22 De Beers stated that it has confidence in its  
23 predicted potential maximum flows, and potential water  
24 quality variability from the mine workings. They also state  
25 confidence in their contingency plans for water storage and

1 treatment.

2 Dogribs take the position, that there are  
3 remaining uncertainties associated with De Beers predictions  
4 of water volumes and water quality.

5 And these uncertainties fall into two (2) main  
6 areas: Basically, insufficient data and contingency  
7 planning.

8 Now, with respect to hydro-geologic  
9 characterization, Dr. Wilbur listed several areas where he  
10 said that the data is insufficient. I'm just going to  
11 briefly list them. He said, there were lack of any samples  
12 below a hundred and fifty-five (155) metres.

13 He said, there was a lack of data with respect  
14 to country rock, lack of data to inform us with respect to  
15 hydro-static conditions of the groundwater environment  
16 outside the working zone.

17 Lack of data, with respect to how well the  
18 surface water in the lakes is connected to the deeper  
19 groundwater zones.

20 Lack of groundwater field data that calculate  
21 large or small scale horizontal gradients. Lack of data to  
22 quantify the role of fractures in the groundwater flow.

23 And finally, he expressed concern with respect  
24 to model calibration because there were very few data points,  
25 and no long term data.

1 Now, with respect to groundwater quality, the  
2 Dogrib Treaty 11 Council has the following concerns, which  
3 mostly arise also do to insufficiency of data.

4 The connate water concentrations and profiles  
5 below a hundred and fifty-five (155) metres of depth. Again,  
6 variability modeling, total dissolved solids concentration  
7 values, mine flow, and again, contingency plan for higher  
8 than expected mine inflows.

9 And including in that, we looked at the --  
10 that Dr. Wilbur expressed concerns about expanding the water  
11 management pond, and -- or the -- and flooding parts of the  
12 mine, as to whether those were realistic, or ultimately would  
13 be helpful as contingency plans.

14 Now, with respect to Snap Lake water quality,  
15 and fish and aquatic habitat, the Dogribs are of the opinion  
16 that some issues remain outstanding.

17 The effect of the change in phosphorus  
18 balance, the effect of reduced dissolved oxygen  
19 concentrations, the effect of total dissolved solids  
20 toxicity, impacts to benthic invertebrates, and interactive  
21 effects.

22 Now, on our second topic, on wildlife. I'd  
23 like to point out again, that the Independent Environmental  
24 Monitoring Agency data shows that there is statistical  
25 evidence showing that we already have minor adjustments by

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1 the caribou to the BHP Project.

2 And I'm going to say what I understood Dr.  
3 Gunn to state, and hope I got it right. Dr. Gunn -- our  
4 understanding is that Dr. Gunn stated in her presentation,  
5 that although she had not examined the Independent  
6 Environmental Monitoring Agencies data, this kind of minor  
7 adjustment to a development was what she would have expected.

8 And we also note, that the Alaska Report shows  
9 that this kind of minor adjustment is merely the first stage,  
10 and that we can expect, as density of development increases,  
11 major shifts in the use of habitat.

12 Dr. Gunn also pointed out to us that caribou  
13 react slowly. And I believe she used the term as saying that  
14 something like, we might not know for as much as fifteen (15)  
15 years.

16 Now, we note that even if it takes fifteen  
17 (15) years for us to recognize the effects in caribou, that  
18 is still within the projected life of this mine.

19 Now, there is traditional knowledge, which is  
20 now on this record, in this hearing, that shows that the

21 caribou are already acting differently than they have in the  
22 past.

23 And we also have a prediction from some  
24 aboriginal people of further changes. And as you heard  
25 yesterday in the quote that the Dogribs read into the record,

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1 with respect TEK by Dr. Batiste (phonetic), and Dr. Henderson  
2 (phonetic), traditional knowledge is better at predictions  
3 than scientific knowledge.

4 Now, the evidence also showed that a major  
5 shift in the habitat use by the caribou would have  
6 significant effects on aboriginal peoples who rely on this  
7 area.

8 This would be significant negative social,  
9 cultural, spiritual, and economic consequences for all of the  
10 aboriginal peoples in the Mackenzie Valley.

11 So, as a result, we say that this Board is in  
12 possession of sufficient evidence to make a finding that  
13 there are likely to be significant adverse impacts on the  
14 caribou.

15 Now, the Dogrib Treaty 11 Council is not  
16 saying that De Beers Snap Lake Project, in and of itself, is  
17 the cause of the significant adverse impact on the caribou.

18 However, it's contribution is what we're  
19 calling another brick in the wall of the development. And  
20 that can be considered a cumulative effect within the meaning  
21 of the Mackenzie Valley Resource Management Act. So, this is  
22 a dilemma for us. What are we supposed to do about it?

23 We've identified a significant adverse impact,  
24 but unfortunately, and I really would like to underline this,  
25 there is no known mitigation for that identified impact,

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1 short of dismantling this development wall that we're talking  
2 about.

3 Now, there have been several suggestions that  
4 we set up a regional monitoring agency, to gather knowledge  
5 on the effects of the wall cumulatively.

6 And indeed, the Dogribs fully support this  
7 recommendation, however, we note, as we emphasized earlier,  
8 monitoring is not mitigation.

9 If indeed, the caribou are already being  
10 effected in a minor way, and the slippery slope we're sliding  
11 down here is leading to major effects on the caribou, then  
12 monitoring is simply going to provide us with ring side  
13 seats, and high powered magnifying glasses with which we can  
14 more closely observe the long, slow destruction of these  
15 magnificent caribou herds.

16 Monitoring will do nothing to mitigate  
17 development effects, nothing to save the herd, and nothing to  
18 save the lifestyle of the aboriginal people who rely on those  
19 herds.

20 The Dogribs are deeply concerned that  
21 monitoring seems to be the only recommendation that has been  
22 discussed, so far, to come forward to deal with cumulative  
23 effects.

24 So, we ask ourselves, are there other ways to  
25 assess and deal with these cumulative effects, other than

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1 monitoring.

2 As we've stated before, the -- with respect to  
3 this, De Beers' project is just another brick in the wall.  
4 Dogribs pose this question to this public hearing, and to the  
5 Board: Given that we've accepted the placement of the Snap  
6 Lake brick in the wall, given if we do, but say it's a given,  
7 how many more bricks are we going to add to the wall?

8 We think this a very pertinent question. And  
9 it may be that we should all consider authorizing this Snap  
10 Lake project as the last project that the wall can support.

11 It may mean that we decide to take a  
12 development hiatus on the wall. Now, please note, I'm not

13 saying a development hiatus in all of the Mackenzie Valley,  
14 I'm saying that we might want to consider a development  
15 hiatus for the wall, at least until we get sufficient  
16 information to see what the effect of the existing density on  
17 the wall is on the environment.

18 Now, we say this hiatus is not a holiday from  
19 development, and it can be used to fill two (2) specific  
20 needs.

21 And the first, is the need for comprehensive  
22 planning in the Mackenzie Valley. We note that decisions  
23 about the conditions for industrial activities in the  
24 Mackenzie Valley are made by territorial, Federal, and now,  
25 by aboriginal bodies.

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1 However, communication and coordination among  
2 these bodies is, to say the least, somewhat weak and  
3 sporadic.

4 Now, developers have, in the past, exploited  
5 these weaknesses, and I know this Board is very aware of the  
6 -- what I will call, the BHP exploitation of what happened  
7 last year in the extension pipe line.

8 The difference between this Board, and the  
9 Water Board, and I know that Mr. Wray knows what we're  
10 talking about. So, what we say is that environmental  
11 assessment, licencing, and permitting decisions have been  
12 happening on a case by case basis.

13 And they have been made without a Mackenzie  
14 Valley wide comprehensive plan that would identify the scope,  
15 intensity, direction, or consequences of these activities.

16 Now, similarly, project specific  
17 rehabilitation of disturbed habitat is also planned without  
18 an overall plan to identify valley wide land use goals,  
19 objectives, performance criteria, or monitoring requirements.

20 We see little consideration has been given to  
21 how different future trajectories would be viewed by  
22 different groups, especially by aboriginal people.

23 We're suggesting that what is needed is a  
24 Mackenzie Valley wide land use plan, actually, a plan

25 composed of two (2) -- two (2) plans because we say there are

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1 two (2) kinds of comprehensive planning that are needed to  
2 better explain and manage the environmental effects of  
3 development in the Mackenzie Valley.

4 The first, we say, is a comprehensive valley  
5 wide land use plan to guide industrial development, and  
6 assist in planning for the ongoing with, and the eventual  
7 departure, of the diamond industry from the region.

8 I think the plan should identify land use  
9 goals. It should be based on the needs of the land, fish,  
10 and wildlife, not based on the needs of development.

11 The plan should give substantial weight to  
12 aboriginals subsistence harvesting activities. It should  
13 include specific performance criteria, and monitoring  
14 requirements, tied to restoration and rehabilitation  
15 objectives.

16 And, it should provide an inventory of current  
17 facilities, including an assessment of the nature and extent  
18 of existing contamination.

19 The plan should also include protected areas.  
20 And we also note that these protected areas could function as  
21 control areas that would be -- could be accessible to  
22 researchers.

23 Dogribs believe that even if changes occur in  
24 the political, or market arrangements, or other factors come  
25 into play that make this plan obsolete, the exercise of

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1 creating a comprehensive plan would provide a shared vision  
2 of goals for the Mackenzie Valley.

3 And it would help to identify areas where  
4 knowledge is inadequate, and it would thus help to guide

5 research and monitoring.

6 And it goes without saying that such a valley  
7 wide land use plan must be done with the full partnership of  
8 aboriginal peoples.

9 The second need is for a coordinated,  
10 comprehensive research plan. This plan should include a  
11 regional assessment of ecological and human values that have  
12 various degrees of sensitivity to disturbance, with a view to  
13 ranking their importance and the urgency of addressing them.

14 Important research questions developed through  
15 collaborative efforts of scientists, aboriginal peoples,  
16 local communities, industry and regulatory agencies, and the  
17 identification of key indicators of environmental status and  
18 trends and how they'll be measured.

19 What we're saying is, this is the kind of  
20 planning that needs to happen, and it needs to happen now,  
21 because what we have is the tail wagging the dog, we have  
22 industry setting the development trends and the whole tone  
23 for how this Mackenzie Valley is going to move into the  
24 future.

25 As we hope you realize, our suggestions go far

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1 beyond monitoring, and they also go -- well, what we should  
2 say is they go beyond project specific monitoring, and they  
3 also go beyond cumulative effects impact monitoring, which  
4 are the only other alternatives we've heard to date.

5 The Dogrib Treaty 11 Council states  
6 categorically that it is not enough to simply recognize that  
7 there are cumulative effects, especially on the caribou and  
8 then just monitor those effects.

9 The Dogrib urge us all, everybody, Government,  
10 Aboriginal groups, this -- and regulatory agencies and  
11 industry, to take action to engage in land use planning and  
12 research needed, so that we can take action before it's too  
13 late.

14 The Dogribs believe that the above actions  
15 taken to identify and reduce the undesirable effects of  
16 interactions amongst development effectors, and the habitat

17 animal and Aboriginal people receptors, should greatly  
18 improve the quality and quantity of data in future decision  
19 making.

20                   However, we know that we are likely never  
21 going to know enough to be absolutely certain. Dogribs must  
22 proceed to live and prosper in this Mackenzie Valley in the  
23 face of uncertainties, and we know the information will never  
24 be sufficient to eliminate uncertainty and future problem  
25 solving.

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1                   So, we therefore remind the Board about our  
2 earlier comments on the precautionary principle, and I have a  
3 copy here of the case -- the Spray Tech case, which I will  
4 hand up for the -- to be placed on the public record. I  
5 don't know if I can hand it up right now, and then it's done,  
6 thank you.

7                   In paragraph 31, is the operative paragraph,  
8 if you want to take note of that.

9                   We say, however, that despite the  
10 precautionary principle and perhaps taking it into account,  
11 we say there is enough information for the Board to make its  
12 assessment of whether or not there's likely to be a  
13 significant adverse impact on the basis of the cumulative  
14 effect information before you.

15                   This means the Board can, under Section 128 of  
16 the MVRMA, recommend terms and conditions for this project,  
17 that address these cumulative effects, both for the proponent  
18 and for Government.

19                   In conclusion, the Dogribs said that the Board  
20 should find that the De Beers Snap Lake Project is likely to  
21 have significant adverse impacts, but we do not ask the Board  
22 to reject the project, rather we ask the Board to apply terms  
23 and conditions to the De Beers Snap Lake Project to address  
24 the issues raised above with respect to water, caribou and  
25 the cumulative effects.

1 That concludes my comments.

2 THE CHAIRPERSON: Thank you very much, Ms.  
3 Teillet.

4 Canadian Arctic Resources Committee, Mr.  
5 O'Reilly.

6 MR. KEVIN O'REILLY: Thanks, Mr. Wray. I'm  
7 just going to ask My Colleague to pass some copies of ours  
8 out to the other parties. I think the Board has copies of  
9 our written presentation, and once again I'll -- I will not  
10 read from it.

11 First off, we'd like to thank the Board for  
12 the opportunity to participate in the Hearings. We think  
13 that the Hearings were run efficiently and fairly, and we  
14 believe all the treaty -- all the parties were treated  
15 respectfully, and that there was flexibility shown by the  
16 Board to ensure the presentations and questioning relevant to  
17 the Proceedings was encouraged, so we -- we thank you for  
18 doing that.

19 We also commend the Board for its use of  
20 technical experts, given that this was a -- that it remains a  
21 very complex project and environmental assessment.

22 We do want to compliment De Beers for their  
23 professional and courteous demeanour throughout the Hearings.  
24 We -- we appreciate the fact that DIAND did secure the  
25 assistance of several independent technical consultants, and

1 we hope that the -- the funding for them to continue to do  
2 this can be found.

3 And we also want to compliment the --  
4 compliment the Aboriginal governments for doing the same,  
5 given their limited capacity, and we hope that our limited  
6 participation has added some value to the Hearings.

7 We'd like to go over a little bit about what  
8 we see as the duties of the Board at this point. We offer  
9 some further observations, and we make some recommendations.

10 I guess we see that right now the Board has  
11 two (2) task before it, as this environmental assessment  
12 starts to wind down. The first is to determine whether  
13 there's any significant adverse impacts from this project,  
14 and secondly, whether there's any significant public concern.

15 If you find that there is likely significant  
16 adverse impact on the environment, the Board must also  
17 determine whether these impacts can be prevented with  
18 imposition of measures. And like the previous presentation,  
19 clearly monitoring is not a preventative measure in itself.  
20 What's important is the management capability and response to  
21 monitoring.

22 I think it's fair to say that virtually all  
23 the Intervenor at this Public Hearing have expressed  
24 concerned with the project or in some ways how Government is  
25 going to attempt to manage this development.

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1 We do offer some -- some thoughts on how  
2 significance can be considered, and I'm not going to read  
3 those points for you, they're -- they're part of our written  
4 submission.

5 In terms of significant adverse impact  
6 determination, CARC is not in a position to independently  
7 assess the likelihood of significant adverse impacts to the  
8 environment from a potential Snap Lake Diamond Mine.

9 But it's pretty obvious to us that there's  
10 conflicting views as to whether there's appropriate baseline  
11 information to analyze and predict the impact of this  
12 development on the environment and people.

13 There are also conflicting views as to whether  
14 all the impacts have been identified, and whether they've  
15 been properly assessed.

16 These issues have been raised by the  
17 Aboriginal parties to this Proceeding, by GNWT, DIAND and  
18 some of the Board's own experts, and they generally fall in  
19 the areas of socio-economic matters, wildlife, water and  
20 cumulative effects.

21 We were also surprised to learn that De Beers

22 did not assess or predict what the effects may be of their  
23 use of the winter road for wildlife, and possibly other  
24 valued eco -- ecosystem or socio-economic components assessed  
25 with the winter road.

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1 We further note that there does not appear to  
2 have been any analysis of the potential impacts on the Ahiak  
3 Caribou herd by De Beers.

4 I think it's clear that some of the potential  
5 impacts of this development are going to be adverse. And  
6 that there appears to be considerable uncertainty over the  
7 impacts and their predictions, that we don't think should be  
8 left to monitoring and adaptive management.

9 Environmental assessment is the proper place  
10 for these differences to be sorted out, not the regulatory  
11 monitoring phase that some have suggested.

12 What sort of options does the Board have  
13 before it now, and I don't want to go into a great amount of  
14 detail here, but they're set out in Section 128.1 of the  
15 Mackenzie Valley Resource Management Act.

16 One (1) -- one (1) of the options is for you  
17 to find that an environmental impact review is not necessary,  
18 that this can simply go on to the regulatory process.

19 You could also find that there are significant  
20 adverse environmental impacts, and that you could order an  
21 environmental impact review.

22 You could find that there's significant  
23 adverse environmental impacts, and recommend that the project  
24 go ahead, based on the imposition of measures to prevent  
25 those impacts.

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1 You could find that there's significant public

2 concern and then you'd have to order an impact review.

3 Finally, you could find that there are  
4 significant adverse impacts that cannot be justified, and  
5 then you would go ahead and reject the -- the project.

6 We cert -- certainly don't envy the -- the  
7 Board, in making the -- a difficult determination on which of  
8 these options is the best. I guess we -- we'd want to raise  
9 a few questions at this point. Does the Board have the  
10 necessary information to decide whether all the impacts have  
11 been properly identified and assessed?

12 If the Board finds that the development is  
13 likely to cause a significant adverse impact, can that impact  
14 be prevented and how?

15 We think that it's really necessary for the  
16 Board to know with some certainty, what the mitigation  
17 measures are and how effective they will be in preventing an  
18 impact.

19 Is it sufficient for the Board to recommend  
20 that a series of agreements be negotiated? What are their  
21 timing in relationship to regulatory approvals that allow the  
22 construction or operation of the mine?

23 What level of detail should the Board have in  
24 making the determination of whether the preventative measures  
25 can mitigate any significant adverse impacts?

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1 I guess, we feel it's difficult to understand  
2 how there can be much certainty over the measures to prevent  
3 adverse impacts, in the absence of the agreements that have  
4 been the subject of a lot of discussion over the last few  
5 days.

6 And I guess we -- we think that there's some  
7 merit in having such agreements on the public registry, prior  
8 to the Board making a determination on whether mitigative  
9 measures can prevent significant adverse impacts from the  
10 Snap Lake Mine.

11 I'm going to move on now to some observations,  
12 we did review the relevance of our recommendations from our  
13 opening statement. We firmly believe that they have been

14 supported and in fact, reinforced through the submissions and  
15 questioning at these Hearings. We fine tuned some of these  
16 recommendations and I'm not going to spend a lot of time  
17 reading them, thankfully.

18               We do want to go back to the issue of  
19 participant funding, we note that some of the Aboriginal  
20 parties at the Hearing did not want to be questioned, given  
21 their limited capacity or inability to bring forward their  
22 technical advisors. We believe that in itself was a clear  
23 demonstration of a need for participant funding in this type  
24 of Proceeding. And we've offered a couple of recommendations  
25 there, some ideas for you, and we hope that you can follow up

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1 on them.

2               On the issue of cumulative effects and  
3 integrated resource management, we did provide, as we  
4 committed to on the first day, some smaller versions of the  
5 two (2) maps that we had posted on the wall.

6               There was one (1) additional map that we've  
7 also filed, that shows a high induced development scenario  
8 for the Slave Geological Province, and we referred to this  
9 map in our opening statement, and we're thankful for our  
10 consultant, and actually having completed a -- a good draft  
11 of that.

12              So, you -- you have three (3) maps now before  
13 you. We did provide them to the other parties and there were  
14 extra copies, I know, available on the table outside.

15              The reason why we've give -- we've given you  
16 these maps is that we hope that they can assist the Board in  
17 understanding the regional context for this project, and a  
18 potential for regional cumulative effects.

19              We believe that it should be clear to the  
20 Board that there is significant concern around the issue of  
21 cumulative effects in the Slave Geological Province, and we  
22 point out that this has been ongoing issue since the BHP  
23 Environmental Assessment Panel.

24              We see that there's a critical need for  
25 thresholds or limits of acceptable change to be developed

1 collectively by all the stakeholders, to ensure that there  
2 are no irreversible and undesirable adverse cumulative  
3 effects from a development boom that's currently under way in  
4 the Slave Geological Province.

5 We want to note again that there are  
6 unfulfilled commitments on the part of Government, in  
7 relation to cumulative effects. We think that it's fair to  
8 say that there are some technological, methodological and  
9 jurisdictional challenges, but yesterday we heard that there  
10 are also financial hurdles.

11 No funds have been identified this year for  
12 the cumulative effects assessment management framework, and  
13 other critical components of this work, and there is no  
14 commitment to long term funding. I certainly don't blame the  
15 representative here from DIAND for that, I want to make that  
16 very clear.

17 We did offer a recommendation on this issue,  
18 oh, I just -- sorry, we want to point out a few other issues,  
19 some missing components of that framework, and there's some  
20 commonality between some of the things we're going to say in  
21 our last presentation.

22 We too agree that there's a need for land use  
23 planning on the Northwest Territory side, the Slave  
24 Geological Province.

25 We support the call of the Dogrib Treaty 11

1 Council for more effective, fully staffed and publicly  
2 reported inspection and enforcement by DIAND on permits and  
3 licenses in the NWT.

4 It's important for you to know that DIAND's  
5 current policy of non-disclosure on inspection reports, where  
6 there's -- they have a non-disclosure policy on inspection

7 reports where there's any instance of non-compliance.

8           This makes it virtually impossible for the  
9 public to actually know what's going on out there, and I  
10 undertake to provide a copy of a -- of an e-mail that I  
11 received from the Regional Director General on this issue,  
12 for the public registry, for the benefit of the Board and the  
13 public.

14           I think it's also important to note that there  
15 are no reclamation standards for mine closure in the  
16 Northwest Territories. There is a vague commitment in the  
17 June 2002 Mine Site Reclamation Policy, but we really need  
18 those standards in place.

19           I'm not going to read the -- the second  
20 recommendation, but once again we need to have a recommitment  
21 from the Federal Government on this cumulative effects  
22 assessment management framework, and the cumulative impact  
23 monitoring program.

24           I guess one (1) sentence we've added here is  
25 that the Board may also wish to consider what specific

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1 commitments or support from De Beers is appropriate, for the  
2 timely and effective implementation of the -- the two (2)  
3 measures that I mentioned.

4           On the issue of a fair return to the Crown and  
5 fair distribution of the revenues, there hasn't been a lot of  
6 discussion around this perhaps, but we've heard little  
7 convincing evidence of the -- that Governments have seriously  
8 considered how to make an inherently unsustainable practice,  
9 namely diamond mining, contribute towards a sustainable  
10 development and diversification of our economy, without  
11 building up a dependence on diamonds.

12           It's clear to us that GNWT needs more money to  
13 cope with development, but it is not willing to raise the  
14 funds through new taxation where we can keep all of the  
15 revenues, there's no clawbacks, at least within the time  
16 frame of the current formula funding arrangement.

17           We have the same two (2) recommendations in  
18 terms of a fair return to the Crown, and we think that there

19 needs to be a public review of the mine -- mineral royalty  
20 and taxation regime, and we think that the Board should make  
21 some recommendations about targeted use of revenues from non-  
22 renewable resource development to help diversify our economy  
23 and promote more sustainable development.

24 On the issue of socio-economic and  
25 environmental agreements and impact and benefit agreements, I

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1 think we heard some overwhelming support for the completion  
2 of these agreements, at least before construction and  
3 operation of the mine.

4 Some have even ventured to say that these  
5 agreements should be before the Board, in advance of their  
6 report, on this environmental assessment. And we believe  
7 that should be the case as well. We believe these -- these  
8 recommend -- or these agreements should be in place before  
9 any approvals are issued that would allow construction or  
10 operation of the development.

11 We request that the Board consider making an  
12 amendment to the scheduled closure date for the public  
13 registry, as to allow for the filing of the socio-economic  
14 agreement, and the environmental agreements, prior to the  
15 issuance of your report on this environmental assessment.

16 I have a few words here about climate change.  
17 In my quick review of what De Beers had estimated as their  
18 greenhouse gas emissions, and it appears to me that the Snap  
19 Lake project alone, will result in a 10 percent increase in  
20 the emissions of greenhouse gas -- gases, from the baseline  
21 year of 1990 for Northwest Territories emissions.

22 And there doesn't seem to be much effort on  
23 the part of Government to evaluate this project, in light of  
24 our Kyoto commitments. I think that's understandable, given  
25 that we only ratified the Kyoto protocol during the course of

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1 this environmental assessment.

2 But we -- we request that you ask the -- the  
3 responsible Ministers to assess this project, in light of  
4 Canada's ratification of the Kyoto protocol, and that  
5 procedures be developed to ensure that all future  
6 developments in the Mackenzie Valley receive similar  
7 consideration.

8 Finally, I want to touch now on the  
9 determination that you have to make as a Board, under Section  
10 128.1 of the Mackenzie Valley Resource Management Act.

11 Given the public concerns expressed by CARC  
12 and others at this hearing, particularly those from directly  
13 -- the directly affected Aboriginal parties, we think it  
14 would be difficult to conclude that the issues and concerns  
15 that have been raise are not significant.

16 Furthermore, the Government of the Northwest  
17 Territories, and some other parties have raised issues around  
18 the adequacy of baseline information, on which the impacts  
19 were predicted. The need to test impact hypothesis, and a  
20 lack of details on mitigation measures.

21 Based on this, we conclude that there is a  
22 high level of uncertainty regarding the impacts on this  
23 project, and their probability or likelihood that once again,  
24 there's high uncertainty around the probability, high  
25 uncertainty around the likelihood of these impacts.

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1 We feel that there is substantial evidence to  
2 support a finding of significant adverse effects from this  
3 project, on the basis of some of the evidence that you have  
4 before you.

5 But given that there's tremendous uncertainty,  
6 we feel that in the face of this uncertainty, we think it  
7 prudent for the Board to exercise the precautionary  
8 principle, and determine that a significant adverse impact is  
9 likely from this project.

10 And finally, we -- we recommend that the  
11 Mackenzie Valley Environment Impact Review Board order an

12 impact review of the Snap Lake Project, based on a finding of  
13 significant public concern, and the likelihood of a  
14 significant adverse environmental impact.

15 Thank you very much for your patience.

16 THE CHAIRPERSON: Thank you, Mr. O'Reilly. I  
17 have next up, INAC, GNWT and then we'll close with the --  
18 from De Beers. But the Chair drank a bottle of water, so he  
19 needs to take about three (3) minutes, so if you'll just bear  
20 with us and just -- we'll take a quick three (3) or four (4)  
21 minutes and we'll come right back, thank you.

22  
23 --- Upon recessing at 6:52 p.m.

24 --- Upon resuming at 7:00 p.m.

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1 THE CHAIRPERSON: Thank you, ladies and  
2 gentlemen. The next presentation is Indian and Northern  
3 Affairs Canada. Mr. Livingstone...?

4 MR. DAVID LIVINGSTONE: Thank you, sir. In  
5 the interests of time I think I can get this done, certainly,  
6 in less than an hour.

7 Thank you, Mr. Chair. Before I summarize our  
8 position on the technical issues related to water quality,  
9 I'd like to make some general observations.

10 We've been somewhat bemused by the absolute  
11 uncertainty exhibited by De Beers and its experts in many  
12 areas, and particularly with respect to water quality. For  
13 example, the bold assertion by De Beers that there will be  
14 not the loss of a single species of any kind, is both  
15 startling and unsubstantiated.

16 Long experience has shown us that caution  
17 accompanied by a strong dose of humility is essential in the  
18 North. Over-confidence is a dangerous thing.

19 The Elders have spoken last night, and we, are  
20 agreed. If this project proceeds, it must do so with great  
21 care and caution. Immediate attention needs to be paid by De  
22 Beers to gathering the additional environmental baseline  
23 information necessary to support its project.

24 De Beers also needs to further develop  
25 rigorous and focussed monitoring programs, an effective

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1 adaptive environmental management program and robust  
2 contingency planning.

3 The monitoring programs carried out by De  
4 Beers need to be done in the context of regional cumulative  
5 effects monitoring, whether through a regional body or  
6 through an NWT-wide one (1). An environmental agreement is  
7 necessary to set the context for that monitoring.

8 Whether an arms length NWT-wide research and  
9 monitoring centre will be established remains to be seen, but  
10 the concept appears to have widespread support and is one (1)  
11 that we'll be actively pursuing over the next weeks and  
12 months.

13 Now, to the technical issues. With regard to  
14 geotechnical, geothermal and geochemical issues for the North  
15 Pile, our primary outstanding issues concerns the proponents  
16 assessment of the behaviour of the pile during, and more  
17 importantly, following mine operations.

18 The proponents analyses were previously  
19 portrayed as the expected results and have been presented  
20 here as conservative worst case. We do not agree that the  
21 analyses represent conservative worst case or even probable  
22 scenarios.

23 We note, in particular, that the proponent was  
24 not able to identify -- to specify, at this Hearing, the  
25 approximate time when the pile would be completely frozen,

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1 and the proponent did not contest any of our criticisms of  
2 its geotechnical, geothermal and geochemical modelling  
3 procedures or results. Our position is that there remains

4 uncertainty regarding the performance of the pile.

5 We note that the proponent has stated that  
6 there is no prior experience in the construction and  
7 operation of a paste pile in an Arctic environment. That  
8 said, we feel that the outstanding issues are manageable,  
9 with further studies, rigorous and focussed monitoring,  
10 effective adaptive environmental management and solid  
11 contingency planning.

12 Outstanding technical considerations with  
13 regard to the North Pile, and there are a number of them, can  
14 be dealt with during the regulatory process.

15 With respect to hydrogeological issues, we  
16 remain unconvinced with the level -- that the level of  
17 certainty ascribed by De Beers, to water quality predictions  
18 exists. De Beers has characterized, in these Hearings, that  
19 the occurrence of TDS, chloride and connate groundwater at  
20 concentrations two (2) to three (3) times those assumed in  
21 the EA, is unscientific, illogical, impossible and  
22 improbable.

23 In our judgement and scientific opinion, such  
24 occurrences are not only logical and possible, but are  
25 probable. De Beers in intransigence with higher TDS,

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1 chloride and connate groundwater, and hence mine water  
2 discharge, and in Snap Lake as noted, and in our view, is in  
3 sharp contrast to its stated commitment to conservatism and  
4 realism.

5 In essence, De Beers disputes our concern re  
6 TDS, chloride, by involving a new concept, the flow versus  
7 concentration teeter totter. De Beers contends that it  
8 cannot have high flow and high concentration. However, the  
9 North Lake's data refutes this concept.

10 There is both high TDS, chloride and flow  
11 permeability measured in north lakes monitoring wells. We  
12 remain concerned that Snap Lake is in both a high flow and  
13 high concentration environment.

14 De Beers did not want to use the North Lake's  
15 data because it considers those data to be within a discharge

16 zone. However, the available head data do not conclusively  
17 support this -- this exclusion. And the data from Well  
18 MW0205, adjacent to Snap Lake, shows higher concentrations of  
19 TDS and chloride than assumed by De Beers for the entire mine  
20 operation.

21 We remain convinced that concentration of TDS  
22 in the range of two (2) to three (3) times higher than those  
23 projected by De Beers, is a realistic possibility.

24 With respect to water quality, there remains  
25 the likelihood of significant adverse environmental effects

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1 related primarily to increased TDS concentrations in Snap  
2 Lake.

3 TDS, including calcium and chloride at  
4 concentrations two (2) to threefold above the levels De Beers  
5 considers among, "the worst things that could happen", will  
6 likely result in loss of species, changes in food chains and  
7 other effects such as reduced growth and reproduction in the  
8 remaining species.

9 Functional communities will remain in Snap  
10 Lake but not to the same extent as is presently the case.  
11 The Lake will not be dead but it will be impaired, and this  
12 impairment will remain for decades past abandonment, before  
13 recovery occurs.

14 And it is likely that the recovery will not  
15 result in exactly the same eco-system as presently exists in  
16 Snap Lake. And that, in our view, is the environmental cost  
17 of doing business.

18 It's tolerable, to use Stella Swanson's buffet  
19 analogy. The table will be sparser, the food not as  
20 appetizing but it will be edible. It will sustain life.

21 We recognize the Board has in front of it,  
22 divergent opinions from DIAND and its experts, and De Beers  
23 and its experts. The Board and its experts have some work to  
24 do in bridging the gap.

25 I'd suggest, though, that it may be less

1 important to bridge the gap, to try to develop a consensus on  
2 the degree of significance of the adverse effects, than it is  
3 to develop the mitigation measures necessary to ensure the  
4 impacts are the minimum possible in the circumstances.

5 Ensuring that there will be improved baseline  
6 information, rigorous and focussed environmental monitoring  
7 programs, a sound adaptive environmental management regime  
8 and robust contingency plans, those are the areas which, in  
9 our view, require the Board's greatest attention.

10 So to conclude, we feel that there are no  
11 outstanding water quality issues that would prevent this  
12 project from proceeding to the regulatory stage, subject to  
13 measures developed by the Board.

14 I'd like to thank the Board for its attention.  
15 I trust that we've been helpful through our presentations and  
16 our interventions throughout the process, and I hope that  
17 we'll be able to continue to provide support to the Board in  
18 future Environmental Assessments.

19 I do apologise for the relatively early  
20 departure of our experts, but I assure you, they stayed as  
21 long as they possibly could.

22 In a final note, Charlie, I really hope that I  
23 don't read about you in the paper anytime soon. Thank you  
24 very much.

25 THE CHAIRPERSON: Thank you very much, Mr.

1 Livingstone. We now move to the Government of the Northwest  
2 Territories, Mr. Doan...?

3 MR. DOUG DOAN: Mr. Chairman and Members of  
4 the Board, my name is Doug Doan. Thank you for this  
5 opportunity to provide summary comments on behalf of the  
6 Government of the Northwest Territories.

7 We have also listened carefully to the words  
8 spoken by the proponent and by the other parties involved in

9 this Hearing. The development of two (2) diamond mines, and  
10 the exploration activity by companies like De Beers, has  
11 created significant benefits for NWT businesses and the  
12 economy.

13 Our northern business community sees continued  
14 growth as an important element of our positive investment  
15 climate. The development of the De Beers property can  
16 contribute to our continued strong economic performance.

17 At the same time, we know that developments of  
18 this nature have impacts on the environment and wildlife.  
19 These impacts must be understood and mitigated.

20 Progress is evident in a number of areas, but  
21 there are still issues outstanding in both the environmental  
22 and the socio-economic areas. In my closing remarks, I would  
23 like to briefly outline some of these issues and how they can  
24 be addressed.

25 De Beers has done an excellent job of

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1 analysing the fiscal and tax benefits resulting from this  
2 project. Total cumulative tax and fiscal benefits to Canada  
3 were estimated by De Beers at \$872 million. The total  
4 cumulative tax and fiscal benefits to the Government of the  
5 Northwest Territories were estimated at \$119 million.

6 This disproportionate sharing of the fiscal  
7 and tax benefits, between the Federal Government and the GNWT  
8 speaks directly to our desire to maximize the socio-economic  
9 benefits to NWT residents, through negotiation of a socio-  
10 economic agreement.

11 We appreciate that De Beers has committed,  
12 during this Hearing, to a number of specific targets. We  
13 look forward to negotiating mutually agreeable targets  
14 through the socio-economic agreement process.

15 These targets would specifically address  
16 issues, including but not limited to, employment procurement,  
17 development of a sustainable secondary industries, including  
18 the provision of rough diamonds and training.

19 The agreement also needs to establish  
20 commitments to monitor and mitigate cultural impacts and to

21 promote positive social development. It is the socio-  
22 economic agreement that provides the GNWT, and the parties,  
23 with the formal commitments that the socio-economic impacts  
24 predicted by De Beers, will be achieved. It also establishes  
25 a process whereby the GNWT and the parties, can work with De

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1 Beers on further mitigation methods when those targets are  
2 not achieved.

3 The GNWT respectfully asks the Board to  
4 consider the need for a comprehensive socio-economic  
5 agreement to complement the impact benefit agreements between  
6 the company and the Aboriginal communities.

7 The GNWT would like to see the socio-economic  
8 agreement concluded by June 30th, 2003. But in the absence  
9 of a completed socio-economic agreement by the time that you  
10 make your recommendations, we would ask the Board to  
11 recommend that a condition of approval commits De Beers to  
12 negotiate a socio-economic agreement which addresses the  
13 issues I mentioned.

14 Those issues include but again are not limited  
15 to, employment targets, procurement targets, provision of  
16 rough diamonds to support secondary industry development,  
17 training of NWT residents, monitoring and mitigation of  
18 impacts and promotion of positive social development.

19 The GNWT is pleased to have the commitment of  
20 De Beers and the interest of DIAND, First Nations and the  
21 Metis in entering into an Environmental Agreement. We  
22 believe an Environmental Agreement will allow us to do a  
23 number of things.

24 Rigorously test environmental and cumulative  
25 effects impact predictions, ensure appropriate and effective

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1 site specific monitoring programs are conducted, strengthen  
2 regional monitoring programs through links to other project  
3 monitoring and links with regional research and monitoring  
4 conducted by government.

5           Ensure adequate and effective environmental  
6 management plans are in place, including plans for waste  
7 management, treatment of contaminated soils, air quality  
8 monitoring and emission tracking. Ensure strong and ongoing  
9 cooperation with stakeholders and involve stakeholders in  
10 adaptive environmental management.

11           The GNWT is prepared to work with De Beers,  
12 First Nations, Metis, Federal agency and non-government  
13 organizations to ensure comprehensive, cooperative approaches  
14 to understanding, monitoring and managing the environmental  
15 impacts of this development.

16           The GNWT respectfully ask the Board to  
17 consider the need for an Environmental Agreement. We ask the  
18 Board to recommend that a condition of approval commits De  
19 Beers to negotiate and implement an Environmental Agreement  
20 that will ensure that the programs and plans necessary for  
21 managing and monitoring impacts are in place before  
22 construction begins.

23           However, environmental impacts are not linked  
24 just to this project. There are other existing and proposed  
25 activities within the Slave Geological Province that give the

1 people of the NWT cause for concern. We have heard this  
2 week, repeated concerns about the potential for increasing  
3 human activity in this area, to effect the caribou.

4           While the Snap Lake Project is small in  
5 footprint, it will contribute to the cumulative environmental  
6 changes in the Slave Geological Province. Therefore, the  
7 project must also contribute to the understanding of, and  
8 management, of cumulative effects.

9           Unfortunately, the baseline data and analysis  
10 conducted by De Beers in their Environmental Assessment, did  
11 not contribute significantly to the body of knowledge  
12 necessary for managing cumulative effects.

13                   However, we are confident that De Beers'  
14 commitment to an Environmental Agreement, and their  
15 commitment to participate in regional cumulative effects  
16 monitoring programs, will help to address this.

17                   The need for an integrated and effective  
18 approach for cumulative effect, assessment and management in  
19 the Slave Geological Province is not a new message. Both the  
20 Environmental Assessment Review Panel Report on the EKATI  
21 Mine in 1996 and the Comprehensive Study Report on the Diavik  
22 Diamond mine in 1999, recognize it was not those specific  
23 developments that were likely to result in significant  
24 change, but the cumulative impacts of multiple developments.

25                   In 1999, in response to the Diavik

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1 Comprehensive Study Report, the Federal Minister of the  
2 Environment committed to the development of a regional  
3 cumulative effects management framework.

4                   In 2001, the National Round Table on the  
5 Environment and the Economy identified cumulative effects  
6 management as essential for the sustainability of Aboriginal  
7 communities in Northern Canada, and recommended the Federal  
8 Government invest \$25.8 million over six (6) years, to  
9 develop and implement cumulative effects management in the  
10 NWT.

11                   While progress is being made, it has been  
12 slow. And as we have heard at this Hearing, funding remains  
13 uncertain. Some of the parties at this Hearing have stated  
14 that while they are not against development, they are very  
15 concerned that there's currently no process to satisfactorily  
16 predict, understand, manage or monitor cumulative impacts in  
17 the NWT.

18                   The proponent has committed to a collaborative  
19 approach to monitoring and managing regional cumulative  
20 effects. Now we need a process for this to occur. As  
21 mentioned earlier, the total cumulative tax and fiscal  
22 benefits to the Government of Canada and the GNWT, are  
23 disproportionate.

24                   We believe that the Government of Canada has

25 the responsibility and the resources to invest in cumulative

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1 effects management, and in doing so, provide some certainty  
2 to the people of the NWT that development will only occur in  
3 a responsible and environmentally sensitive manner.

4 Therefore, we ask the Board to recommend that  
5 the federal commitment to regional cumulative effects  
6 assessment and management framework, which was made in 1999,  
7 now receive the necessary funding to move quickly towards  
8 implementation of the framework components.

9 Thank you very much.

10 THE CHAIRPERSON: Thank you, sir. We will  
11 now move to the final presentation of the day/evening, that  
12 of De Beers Canada. Mr. McConnell...?

13 MR. JOHN MCCONNELL: Thank you, Mr. Chairman,  
14 Members of the Board. I want to express my thanks for the  
15 Board's conduct of this Public Hearing. We appreciate the  
16 Board's careful attention to the presentations and  
17 submissions, and your patience throughout this long week.  
18 And I commend the Board Members for your personal  
19 contribution to public service.

20 Let me also express my appreciation to the  
21 Intervenors, and their specialists, and advisors, for the  
22 respectful tone -- of their -- for their respectful tone of  
23 this hearing.

24 In addition, I want to compliment you for  
25 achieving the stated purpose of the establishment of this

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1 Board, which is in the words of the MVRMA:

2 "To enable residents in the Mackenzie  
3 Valley to participate in the management of  
4 its resources for the benefit of the

5 residents, and of other Canadians."

6 Consultation, and openness are key notes of  
7 the environmental assessment process set up by the MVRMA, and  
8 conducted under the authority of the Board. These values  
9 have been honoured in practice.

10 De Beers has consulted with Aboriginal  
11 communities. I have personally attended many of these  
12 sessions. Some of the details are part of the record. We  
13 intend to carry on consultation as the project goes forward.

14 In my opening statement, I submitted that I  
15 would demonstrate that the Snap Lake Diamond Project is not  
16 likely to have a significant adverse impact, and that you  
17 will have good reason to recommend approval of the  
18 development, subject to mitigation measures we have proposed.

19 The proceeding this -- proceedings this week  
20 reaffirm my confidence. This public hearing should likewise  
21 instill the Board with confidence in the merits of the Snap  
22 Lake Diamond Project.

23 Early in the development of the project, De  
24 Beers assembled a world-class team of experts, and instructed  
25 them to listen and learn, to investigate, and innovate. The

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1 result is a sound mining and environmental plan, and a  
2 thorough reliable environmental assessment.

3 De Beers is proud to put its name on the EA,  
4 and on this project. I am proud to put my name on both.

5 Relevant issues have been analysed from many  
6 angles. All initial solutions have been critically reviewed.  
7 Consultation has never stopped, and the solutions have been  
8 refined and improved throughout the process.

9 In the collective opinion of our team of  
10 experienced and capable scientists and engineers, this is a  
11 comprehensive, and reliable environmental assessment.

12 The Intervenors have echoed during the  
13 hearings what our team has told us, that we listen, and we  
14 are responsive.

15 The adaptive management that we plan to use in  
16 our environmental management program is not an novel, modern

17 concept. It is a way of life.

18 When we emphasize our commitment to  
19 monitoring, we mean we have developed systems to keep abreast  
20 of changes, recognizing, for instance, that caribou behaviour  
21 may change for reasons that nobody can predict. Our efforts  
22 to mitigate have to respond to unforeseeable changes. That  
23 is our plan.

24 Harry Simpson said on Thursday evening,  
25 something to the effect that no matter who we are, we depend

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1 on water, and meat, and fish, and other products of the earth  
2 to live.

3 That sentiment is as wide, as it is simple.  
4 We all share the same resources of this land, and our  
5 responsibility for its careful stewardship.

6 The values reiterated to us on every occasion  
7 by the Elders are the same values by which we live our lives.

8 We have children, we worry about their future.  
9 All of us share this planet. We have heard the Elders speak,  
10 and we learn from what they say.

11 During this hearing, and throughout our  
12 consultation, the Elders have told us to respect the air, the  
13 land, and the water, because our lives depend on them.

14 We must cause as little adverse impact as  
15 possible. Let me remind you very briefly how our plans will  
16 contribute to the well-being of the people, and how we will  
17 protect the air, the water, and the land.

18 First, the people. The health and well-being  
19 of people is of primary importance to De Beers. This is true  
20 for the people who work for De Beers, and for their families,  
21 as well as the people in the communities.

22 We spent a lot of time in the communities,  
23 listening and learning about social and economic concerns.  
24 People told us they have -- they are concerned about  
25 employment, education and training, life skills, family

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1 support and culture, business opportunities, and traditional  
2 resource use, and ecological integrity.

3 While these are general concerns, and are not  
4 are -- and are not specific to our project, we work in  
5 partnership with communities, and government to maximize the  
6 benefits, and opportunities for people in the north, and to  
7 manage and mitigate impacts.

8 De Beers recognizes that our project will not  
9 proceed in isolation. Its effects have been considered,  
10 along with the other major diamond developments, and other  
11 projects and activities that will influence the social and  
12 economic fabric of the region.

13 Through a long-term commitment to partnership  
14 with communities, and Governments, De Beers will contribute  
15 to creation of opportunities and choices at the individual  
16 family and community level; creation of wealth through  
17 employment, investment and business opportunities; generation  
18 of tax and fiscal revenue payments for governments; and a  
19 wider distribution of sharing of these opportunities and  
20 wealth across communities.

21 Now to air. The design of the project greatly  
22 reduces concerns about air quality. For example, dust will  
23 be reduced, because mining will be underground in a wet  
24 environment, primary ore crushing will also be underground,  
25 and ore will be moved by covered conveyor, not trucks.

1 In addition, the project is designed to  
2 minimize energy use, and therefore, the emission of  
3 greenhouse gases. Every stated concern about air quality has  
4 now been addressed.

5 And, water. De Beers recognizes that Snap  
6 Lake is a comparatively small head water lake, and this makes  
7 it relatively sensitive to changes in water quality.

8 Through consultation with communities, we have  
9 received the message loud and clear, that Snap Lake is

10 important to the people. We heard this again last night from  
11 the Elders, who spoke eloquently.

12 The project has been designed to minimize  
13 effects on Snap Lake, and downstream water bodies.

14 By confining the main project activities to a  
15 small footprint on the Northwest Peninsula, impacts to  
16 aquatic habitat will be negligible.

17 The project will include a state of the art  
18 water treatment plant, using the best available technology  
19 that is practical, and proven in the north.

20 Most of the water entering the mine comes from  
21 Snap Lake, and the water treatment plant will ensure that it  
22 is clean and clear when it is returned to the lake.

23 De Beers has been listening to, and  
24 interacting with communities since 1999, and we have adapted  
25 our design, based on concerns that we have heard.

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1 As recently as last month, we were advised the  
2 design of the ditch between the North Pile and Snap Lake to  
3 prevent seepage to the lake.

4 This was a result of recommendations made by  
5 Intervenor. De Beers had been, and remains committed to  
6 incorporating all practical measures, to minimize effects on  
7 Snap Lake.

8 An issue was raised at the Hearings about  
9 possible concentrations of total dissolved solids in connate  
10 groundwater. The idea and data presented were not new to De  
11 Beers. They have for some time, for part of the available  
12 information, an understanding of groundwater flow processes  
13 that were considered in preparing the comprehensive  
14 environmental assessment.

15 This issue is very important to De Beers. We  
16 are confident that our environmental assessment predictions  
17 of changes to water quality in Snap Lake strike the right  
18 balance between conservative enough that the effects will not  
19 be greater than predicted, yet realistic enough that changes  
20 are within the realm of what is possible.

21 We looked at how the combination of water

22 quality changes may affect aquatic life in Snap Lake. There  
23 will be a balance between the lake-wide stimulatory effects  
24 of phosphorus, and the slight negative effects from lower  
25 dissolved oxygen in small parts of the lake in mid to late

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1 winter.

2                   The change in total dissolved solids is not  
3 high enough to cause an effect on aquatic life in Snap Lake.  
4 The total overall effect is expected to be small changes in a  
5 relative abundance of some algae, zooplankton, and bottom-  
6 dwelling organisms, with no elimination of species, and no  
7 measurable change in fish populations.

8                   De Beers has committed to effective  
9 environmental monitoring in the underground mine on-site, and  
10 within Snap Lake, to ensure that Snap Lake is protected.

11                   The combination of an effective monitoring  
12 program, and on-going modelling will verify the environmental  
13 assessment predictions, anticipate changes that will occur,  
14 and support adaptive management to protect Snap Lake.

15                   And finally, to the land. De Beers has  
16 designed the project to minimize the footprint, and to  
17 incorporate reclamation. As a result, impacts on the land  
18 are minimized.

19                   De Beers has drawn on many sources of  
20 information to assess how wildlife may be affected. As the  
21 Board heard this week, the focus has been on caribou,  
22 wolverine, and grizzly bear.

23                   We have look to traditional knowledge, RWED  
24 data, new data that we have collected ourselves, monitoring  
25 data from other projects, and the general scientific

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1 literature. De Beers has used all these lines of evidence in

2 the environmental assessment.

3 We appreciate the special place of caribou, as  
4 Elders have emphasized last night, and many times before.  
5 Based on the experience at Snap Lake and other projects, we  
6 know of many things we can do to mitigate impacts.

7 De Beers' objective is zero wildlife mortality  
8 as a result of the project. While we cannot absolutely  
9 guarantee to meet that objective over the twenty-five (25)  
10 year life of the mine, our considered expectation is that we  
11 will be very close.

12 Of course, there are other possible effects on  
13 wildlife. Questions have been asked about the potential for  
14 the project how caribou move through the area, and what the  
15 meat -- and what that means to caribou populations.

16 Based on what we see happening at other mines,  
17 we expect that when caribou are within a few kilometres of  
18 the Snap Lake Diamond Project, they may spend less time  
19 eating there. Nevertheless, our careful study has concluded  
20 that the effects of caribou populations from the Snap Lake  
21 Diamond Project will be undetectable.

22 The bigger concern, as the Board has heard  
23 from several sources, is how the cumulative effects of human  
24 activity, such as mines, hunting camps, and hunting, combined  
25 with natural factors, like insects, harvesting, predation,

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1 and weather, all act together to influence caribou  
2 populations across -- across the Slave Geological Province,  
3 and beyond.

4 De Beers reiterates our commitment to  
5 participate in a practical way of monitoring cumulative  
6 effects.

7 Data collected by De Beers, both wildlife  
8 populations, notably grizzly bear and wolverine, will like  
9 while -- likewise contribute to region-wide information that  
10 will in turn, contribute to a broad scale understanding of  
11 cumulative effects on these species in particular, and  
12 wildlife in general.

13 In closing, the rewards of continuous

14 learning, and -- improvement were evident this week. Not a  
15 single presentation at this public hearing demanded that the  
16 project be stopped.

17 The Board has heard that pretty much everyone  
18 wants the benefits of development. The jobs and careers, the  
19 hope and promise, and the economic spin-offs that resource  
20 development has brought to communities throughout the history  
21 of Canada, but, we all want development in a way that  
22 protects the water, the land, and the wildlife.

23 De Beers shares those goals and aspirations.  
24 This approval process is not about choice between building  
25 and conserving. It is about doing the two (2) together.

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1 We have recognized from the outset that as the  
2 developer of the project, it is incumbent on De Beers to  
3 achieve the objective of sustainable development.

4 By not only listening, but hearing, we have  
5 put together a plan that I personally have every confidence  
6 will protect the environment from significant adverse  
7 impacts, and will protect the social, cultural, and economic  
8 well-being of residents and communities in the Mackenzie  
9 Valley.

10 Those are the aims of the Resource Management  
11 Act. I sincerely believe that through collaboration and  
12 consultation, they are being achieved.

13 Our goal with the Snap Lake Diamond Project is  
14 economic growth, balanced by good stewardship. This goal is  
15 consistent with the company's overall mission.

16 The mission statement of De Beers was  
17 articulated a century ago by Sir Ernest Oppenheimer, and it  
18 rings every bit as true today, as it did then.

19 Our mission is to make a profit, but in such a  
20 way that we make a real and lasting contribution to the  
21 country, and the communities in which we operate.

22 I, respectfully, urge the Board to recommend  
23 that the Minister of INAC approve the Snap Lake Diamond  
24 Project, and refer it to the Land and Water Board for the  
25 final stage of the regulatory project -- regulatory approval.

1 Thank you very much.  
 2 THE CHAIRPERSON: Thank you, sir.  
 3  
 4 (BRIEF PAUSE)  
 5  
 6 THE CHAIRPERSON: On behalf of the Mackenzie  
 7 Valley Environmental Impact Review Board, I would like to  
 8 thank you all for your patience, and your perseverance over  
 9 the past five (5) long days and nights.  
 10 Even though they are gone, I'd like to, in  
 11 particular on the record, thank the people who probably  
 12 worked the hardest here this week, and that is the  
 13 Interpreters.  
 14 I also wish to commend a caring staff, and all  
 15 of those who made this hearing proceed as smoothly as it has.  
 16 To the Board staff, thanks for putting up with  
 17 me, and to our consultants, we got lots of work to do.  
 18 The Board understands how much effort it takes  
 19 to prepare for, and participate in a Hearing like this, and  
 20 we appreciate your efforts to assist us in understanding this  
 21 proposed development, and its potential environmental and  
 22 socio-economic effects.  
 23 Particular, we want to thank the Elders who  
 24 attended and shared their knowledge, wisdom and humour with  
 25 us last night. As indicated then, the Review Board will give

1 traditional knowledge equal weight, along with scientific  
 2 information, which we have heard over the last five (5) days.  
 3 Input from First Nations and Metis is also  
 4 appreciated, and critical. We thank you for the time and  
 5 efforts to assist this Board.  
 6 To the -- the developer, De Beers Canada,

7 DIAND, the Government of the Northwest Territories, and other  
8 Government agencies who brought their considerable expertise  
9 to bear on the scientific, and other issues in this hearing,  
10 thank you, your help is greatly appreciated, and we hope that  
11 it will continue.

12 As I'm sure some of you aware, this is the  
13 Board's first major environmental assessment, and as such, is  
14 still developing its process.

15 Bringing this proceeding to a close has been a  
16 challenge for all participants, but the Review Board is  
17 determined to continue to develop its processes in a way  
18 which will allow us to identify, and deal efficiently with  
19 the environmental issues in our environmental assessment  
20 process.

21 The Board is also aware of the demands in  
22 terms of time and financial resources, which a public hearing  
23 can place on all parties.

24 We are particularly sensitive to the capacity  
25 issues, which continue to arise from small communities, and

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1 Intervenors. Unfortunately, the Mackenzie Valley Resource  
2 Management Act does not include provision to deal with these  
3 issues.

4 However, it is a major concern of the Board,  
5 and we will continue to raise this issue with Government, as  
6 we have done consistently for the past two (2) years.

7 Once the report is in the Minister's hands, it  
8 is our intention to do a thorough review of the process, and  
9 to take advantage of a lessons learned workshop that we will  
10 organize, in order to continue to improve our procedures, and  
11 this process, and we would encourage all of the participants  
12 in this one (1) to participate in that workshop.

13 As you know, it is our intention to have the  
14 report to the Federal Minister by the end of June. We have a  
15 lot of work to do yet, but we thank you all very much for  
16 your help to date.

17 We stand adjourned.  
18

19 --- Upon adjourning at 7:40 p.m.

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21 Certified Correct,

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23 \_\_\_\_\_

24 Wendy Warnock, Ms.

25 Court Reporter

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