MACKENZIE VALLEY REVIEW BOARD

DIAVIK DIAMOND MINES INC.

EA1819-01

COMMUNITY AND TECHNICAL HEARING

Mackenzie Valley Review Panel:

Chairperson	Joanne Deneron
Board Member	David Krutko
Board Member	Kirby Marshall
Board Member	Yvonne Nakimayak
Board Member	Bertha Norwegian
Board Member	Sunny Munroe
Board Member	Jim Edmonson

Yellowknife, NT

September 5th, 2019

APPEARANCES

Chuck Hubert	)MVRB Staff
Mark Cliffe-Phillips	)
Catherine Fairbairn	)
Catherine Janz	)
Kate Mansfield	)
Alan Ehrlich	)
Brett Wheler	)
Jeremy Freeman	)
Neil Hutchinson	)
Joe Handley	)
Catherine McManus	)
John Donihee	)Counsel
Julia Paille	)Counsel
Sean Sinclair	)Diavik Diamond Mines
Gord Macdonald	)
Kofi Boa-Antwi	)
Dave Patterson	)
Steve Bourn	)
Winter Bailey	)
Myra Berrub	)
Kyle Bennett	)
Mark Nelson	)
Shadi Dayyani	) Golder

APPEARANCES (Cont'd)

Jerry Vandenberg	) Golder
Rainie Sharper	) Golder
Erica Bonhomme	) Stantec
Colin Buchanan	) Stantec
Chief Clifford Daniels (np)	) Tlicho Government
Elder Joseph Judas	)
Elder Louie Zoe	)
Elder Charlie Nitsiza	)
Elder Joe Rabesca	)
Elder Dora Migwi (np)	)
Elder Joseph Moosenose	)
Violet Camsell-Blondin	)
Joline Huskey	)
Ginger Gibson	)
Morgan Moffitt	) GNWT
Lorraine Seale	)
Bill Pain	)
Katie Rozestraten	)
Barry Zajdlik	)
Patrick Simon	) Deninu K'ue First
Marc d'Entremont	) Nation

APPEARANCES (cont'd)

Richard Simon	)
Georgina Williston	) ECCC
Russell Wykes	)
Anne Wilson (by phone)	)
Agnes Simonsalvy	) CanNor
Dinah Elliott	) INAC-AANC
Maureen Flagler	)
Daniel Coombs	) DFO-MPO
Alexandra Sorckoff	)
Chief Edward Sandgris (np)	) Yellowknives Dene
Johanne Black	) First Nation
Machel Thomas	)
Chief Ernest Betsina	)
Doug Bright (by phone)	)
Blake Rasmussen	)
Philip Liske	)
Lauren King	) Lutsel K'e Dene First
Doris Enzoe	) Nation

APPEARANCES (cont'd)

Robert Paishegwon	)	
Stephanie Poole	)	
Charlie Catholique	)	
Jessica Hurtubise	)	North Slave Metis
Andrea Buckman (by phone)	)	Alliance
Heather Bears (by phone)	)	
Shawn McKay	)	Fort Resolution Metis
Katy Dimmer	)	Council
Arthur Beck	)	
John McCullum	)	EMAB
Janyne Matthiessen	)	
Friederike Schneider-Vieira (by phone)	)	
Bill Slater (by phone)	)	
Megan Cooley (by phone)	)	

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LIST OF UNDERTAKINGS

NO.	DESCRIPTION	PAGE NO.
1	Follow-up to advantages/ disadvantages slide 7 from Dettah hearing. Diavik to provide speaking notes along with slide 7 to the TG.	151
2	Diavik will respond tomorrow, Sept 6 to the following request from FRMC: a) Through an undertaking, Diavik to commit to reviewing a scope of work document produced by FRMC which would provide information on the scope and timing of a Project-specific FRMC Traditional Knowledge and Land Use Occupancy Study. Diavik to provide their response in writing on this document to FRMC prior to the submission of closing arguments. (b) Through an undertaking, Diavik to commit to reviewing a scope of work document produced by FRMC which would provide information on the scope and timing of a Project-specific FRMC Traditional Knowledge Study for	

Caribou.

LIST OF UNDERTAKINGS (cont'd)

--- Upon commencing at 9:38 a.m.

THE CHAIRPERSON: If everyone has taken their seats, we'd like to begin the day. And we have some housekeeping items here that a staff member will just bring to your attention.

MS. CATHERINE FAIRBAIRN: Thank you, Madam -- thank you, Madam Chair. The bathroom -- thank you, Madam Chair. The bathrooms are just out the hallway. The women's is almost right out those doors, and then the men's is a little bit further to the left.

There are four (4) fire exits in the room. You can see the dar -- doors clearly marked, although I don't recommend trying to make it to this one, because it's a little bit barricaded. The fastest way out is through the door that you came in, go straight outside.

Breaks will be called throughout the day at the Chair's discretion. Snacks and coffee will be refreshed periodically, and lunch will be provided from noon to 1:00 p.m. The hearings will end today at the Chair's discretion, but the goal is to be done at

6:00 p.m.

If there are media present, please don't disturb the proceedings, and see the media release on the website.

We do have simultaneous interpretation. There are different channels for each language. English is on channel 1.

MR. BRETT WHELER: For now, English is 5. Sorry.

MS. CATHERINE FAIRBAIRN: All right, English is on channel 5. Chipewyan is on channel 2, Tlicho on channel 3, and Weledeh on channel 4. All right, that's changed since I wrote things down, folks. Tlicho is on channel 1. Is -- is Weledeh still on 4? Nobody knows? Okay. We'll provide an update there, if -- if needed.

So please speak slowly, and always say your name so that the transcription can keep up with that and -- and record who's speaking. If you're presenting, try to also say what slide you're on, so that anybody on the teleconference can keep up. Teleconference isn't quite set up yet, but it is coming, so you're -- anybody who's going to be calling in will be able to shortly.

And just a reminder, the Review Board

will be producing an official transcript of the hearings, and those will be available at the end of the day or tomorrow morning. The ones from the community hearings -- the one from Behchoko is already available, and the one from Dettah should be shortly.

The Review Board staff may be taking photos throughout the day, so if you have any concerns and don't want your photo taken, please let one of the Review Board staff know.

That's it. Thank you.

THE CHAIRPERSON: Okay. Thank you for those housekeeping items. Good morning, everyone. My name is Joanne Deneron, and I am Chair of the Mackenzie Valley Environmental Impact Review Board.

Welcome to the technical hearings for the environmental assessment of Diavik Diamond Mine's proposal to put processed kimberlite in the mine pits and underground.

Before we begin, I would like to acknowledge that we are holding this hearing in Yellowknife and Chief Drygeese territory. I would like to invite our drummers to start, and then the Elder Philip Liske to give an opening prayer, and after that, we'll ask Chief Betsina to make some opening remarks.

The drummers?

(YELLOWKNIVES DENE DRUMMERS)

THE CHAIRPERSON: Please remain standing. I would like to ask Elder Philip Liske to lead us in a word of prayer.

(OPENING PRAYER)

THE CHAIRPERSON: Masi. I would now like to ask Chief Betsina for some opening remarks.

OPENING COMMENTS BY CHIEF ERNEST BETSINA:

CHIEF ERNEST BETSINA: Thank you, Madam Chair. I want to thank the Yellowknives Dene Drummers for the opening -- the opening drums prayer. Masi cho. I want to thank Philip Liske for doing the opening prayer, and I want to acknowledge all the Aboriginals -- groups in this room. Welcome to Chief Drygeese Territory.

Good morning, everybody. My name is Ernest Betsina. I am Chief of N'dilo. A warm welcome to Chief Drygeese Territory, the home of my people of the Yellowknives Dene First Nation. We are the

original guardians of this land.

We thank the Creator for this day and wish the outcomes for this hearing will result in the true healing of the land once Diavik ceases operation of this -- on our land.

All voices must be heard and all precautions must be taken to protect the land, the wildlife, the fish, and the water, during, at the end of this mine remediation.

We thank the Mackenzie Valley Review Board and Diavik for this hearing, and we pray that they listen to the concerns and recommendations from the public and work together with all peoples of the YKDFN to successfully mitigate and eliminate all potential risk on the land and the animals.

I understand that the Board was in Behchoko and in Dettah to hear from the people. I hope that the Board will keep an open mind and listen to all recommendations. May the Creator bless you and bless this process. Masi cho, everybody, and let us have a good hearing.

OPENING COMMENTS BY THE CHAIRPERSON:

THE CHAIRPERSON: Masi, and thank you for your opening remarks, Chief.

We are here as a board today to listen carefully to your views about the potential impacts of Diavik's proposal to put processed kimberlite into the mine pits and underground. The Review Board gets its authority to conduct environmental assessments in the Mackenzie Valley from the Mackenzie Valley Resource Management Act.

Board members here are nominated by the Tlicho, Territorial, Federal Government, and by First Nations organizations. Our goal here is to make decisions that will protect the environment and the social, economic, and cultural well-being of all residents of the Mackenzie Valley now and for the future generations to come.

We try to make our decisions by consensus. We have special regard for the conservation of the way of life and well-being of Indigenous peoples.

At this time I would like to introduce our Board members, as well as our Board staff and counsel. Board members Bertha Norwegian, David Krutko, Sunny Munroe, Jim Edmonson, Yvonne Nakimayak, Kirby Marshall, and myself as Chairperson, Joanne Deneron.

Joe Handley, whose term as a Board

member recently ended, will be acting as a special advisor to the Board. Mr. Handley Lee has been an important part of this Environmental Assessment and the Board would benefit from his presence for the remainder of the Environmental Assessment.

Mr. Handley will provide advice to the Board but will not participate in any Board decisions. During the hearings, he will participate like other advisors or Board staff by observing and asking questions of the developer or Interveners.

I would now like to introduce the Review Board staff: Mark Cliff-Phillips, our Executive Director; John Donihee, our Legal Counsel; Julia Paille, Legal Counsel; Kate Mansfield, our Senior Environmental Assessment Officer and Co-Lead for this Environmental Assessment; Catherine Fairbairn, Environmental Assessment Officer and the other Co-Lead in this Environmental Assessment; Alan Ehrlich, Manager of Environmental Impact Assessment; Chuck Hubert, our Senior Environmental Assessment Officer; Jeremy Freeman, our Environmental Assessment Officer; Brett Wheler, our Senior Policy Advisor, who's way at the back; Catherine Janz, our Administrative Assistant. You have to watch for these hands. I don't know where they all are, but we do

have staff here. And Neil Hutchinson is the principal scientist with Hutchinson Environmental Science Limited and Technical Advisor to the Review Board.

At this time I would also like to recognize our interpreters for today's hearing. Our Weledeh interpreters are Mary Rose Sundberg and Berna -- Berna Martin. Our Chipewyan interpreters are Bertha Catholique and Tom Unka. Our Tlicho interpreters are James Rabesca and Violet Mackenzie.

The scope of development for the Review Board determines that the scope of development for this Environmental Assessment includes transporting, depositing, and storing processed kimberlite into pits and underground mine workings, and closing reclaiming any mine infrastructure related to the transport, deposition, and storage of processed kimberlite in pits and underground mine workings.

The scope of development also includes three (3) pits at the mine and associated underground mine workings. Removing processed kimberlite from the existing containment facility is not part of this assessment, however, the Board is considering the impacts of adding processed kimberlite from the containment facility to the pits as part of the cumulative effects assessment.

The Board decided that the scope of assessment for the environmental assessment includes water quality and quantity, cultural use of the area, fish and fish habitat, and other wildlife, specifically caribou, birds, and species at risk.

The Review Board is holding this hearing to hear directly from interveners, the public, and Diavik about the potential impacts of Diavik's proposal to put processed kimberlite into the pits and underground.

We held community hearings in Behchoko on Tuesday and Dettah yesterday.

Today, Diavik will describe its project and how it plans to manage the project, including how it plans to manage any adverse impacts.

All Interveners will have the opportunity to ask questions after Diavik's presentation.

All questions and answers are permitted at my discretion, and once a line of questioning has begun, I will allow interveners and Diavik to question one another directly rather than approving each question.

Be advised, however, that I will intervene if it is not clear to me that the question

is relevant or appropriate.

For each question period, Interveners will ask their questions in the same order that they will be presenting, starting each time with the next presenter. I will ensure that each group is given their opportunity to ask questions if they wish.

Once Intervener questions are done, there may be questions from the Review Board staff, council, and advisors. And finally, the Review Board members may ask questions.

After questioning of Diavik is complete, interveners will present -- will present their interventions.

Review Board members are already familiar with these reports, so the presentations should focus on key points and priorities.

During questioning, Diavik will question after interveners and before Review Board staff and council.

I have some comments about today's hearings that I hope will help everything to go smooth. We have limited time and the Review Board is committed to hearing that everyone has an opportunity to speak and to say what they have on their mind.

Please respect the time requirements of

other interveners during presentations and questioning. Keeping your allotted time is important to make sure that everyone has a fair chance to be heard.

Use your time productively. Presentations will be timed and you will be given a five-minute warning to keep you on track. When your time is up, you may be interrupted.

People responding to questions should be direct and helpful in their answers. If any group needs more than a few moments to caucus before responding to a question, I may ask for it to be answered later in the hearing or in a written form of undertaking.

Please use the microphone for all questions and responses so that everyone, including Sean, our transcriber at the back, can hear you clearly.

Again, please remember to say your name before you speak. And I would also ask you to speak slowly and clearly for our interpreters.

Members of the public are also welcome to present their views directly to the Review Board. You are invited to speak at the Review Board from 5 PM to 6 PM as to the agenda during the public comment

period.

If you want to speak, please see the Board staff at the back table or at the front when you came in, and you can sign your name to the speakers list. I will then call the names of the people from the list during the public comment period.

Members of the public may also submit comments in writing to the Review Board. The Board will announce the deadline for written public comments at a later time.

And agenda for these technical hearings has been posted to the public registry and there are hard copies available at the table when you came in through the front doors.

Please remember that the schedule is set at my discretion and times may be changed, if necessary.

In conclusion, we need to hear and clearly we need to have you share your views on the potential impacts from the project on the environment, on your community, and on your ability to practice your culture.

The Review Board asks that you present your views an opinions on how important these potential impacts are to you and what can be done to

help minimize these impacts.

After the hearings, the Review Board will fully consider these views while making decisions in this environmental assessment.

Once that decision is made, the Review Board will prepare a report of environmental assessment. This report will describe the Board's decisions and the reasons for it.

The Review Board will submit it to the GNWT Minister of Lands, who is the final decision maker, along with the other responsible ministers.

To make a good decision, we need to understand what interveners think. We will listen carefully to you and we hope to get the right information that we need to make the best decisions possible in this environmental assessment.

I will now ask all interveners to please introduce themselves, and starting with EMAB at the table here and we'll go around. Thank you. EMAB?

MR. JOHN MCCULLUM: s Thank you, Madam Chair. I'm John McCullum, I'm the executive director with EMAB.

MR. CHARLIE CATHOLIQUE: Good morning. My name is Charlie Catholique, from Lutsel K'e. I'm on the EMAB. Thank you.

MS. JANYNE MATTHIESSEN: Good morning, my name is Janyne Matthiessen, environmental specialist with EMAB.

MS. LAUREN KING: My name is Lauren King, for the Lutsel K'e Dene First Nation.

MS. DORIS ENZOE: My name is Doris Enzoe, I'm from Lutsel K'e Dene First Nation, sitting on the Wildlife Board.

MR. MACHEL THOMAS: Machel Thomas, YKDFN.

MR. JASON SNAGGS: Jason Snaggs, CEO, Yellowknife Dene First Nation.

MS. JESSICA HURTUBISE: Jessica Hurtubise, regulatory analyst with North Slave Metis Alliance.

DR. GINGER GIBSON: Good morning. Dr. Ginger Gibson, technical advisor to the Tlicho Government.

ELDER JOSEPH JUDAS: My name is Joseph Judas, I'm working with the Tlicho Government.

MS. VIOLET CAMSELL-BLONDIN: Violet Camsell-Blondin, manager regulatory department, Tlicho Government.

MR. DANIEL COOMBS: Dan Coombs, senior fisheries biologist with fish and fish habitat

protection program with Fisheries and Oceans Canada.

MS. ALEXANDRA SORCKOFF: Alexandra Sorckoff, Fisheries and Oceans Canada.

MS. TATIANA LECLERC: Tatiana Leclerc, Fisheries and Oceans Canada.

MS. GEORGINA WILLISTON: Georgina Williston, head of Environmental Assessment North with Environment and Climate Change Canada.

MR. RUSSELL WYKES: Russell Wykes, senior environmental assessment coordinator with Environment and Climate Change Canada.

MS. LORRAINE SEALE: Lorraine Seale with GNWT Department of Lands, and we do have a number of people here that -- who I will introduce when we do our intervention this afternoon.

DR. BARRY ZAJDLIK: Dr. Barry Zajdlik, consultant to GNWT.

MR. BILL PAIN: Bill Pain, Government Northwest Territories ENR.

MR. ARTHUR BECK: Arthur Beck, Fort Resolution Metis Council.

MR. SHAWN MCKAY: Shawn McKay, Fort Resolution Metis Council.

MS. KATY DEMER: Katy Demer, technical advisor, Fort Resolution Metis Council.

MR. PATRICK SIMON: Good morning. Patrick Simon, Deninu K'ue First Nation.

MR. RICHARD SIMON: Good morning. Richard Simon, Deninu K'ue First Nation interim measures agreement coordinator.

DR. MARC d'ENTREMONT: Good morning, my name is Dr. Marc d'Entremont, technical advisor to the Deninu K'ue First Nation

THE CHAIRPERSON: Okay, thank you very much for your introductions.

I would now like to ask Diavik if they could start their presentation. Diavik...?

PRESENTATION BY DIAVIK DIAMOND MINES:

MR. GORD MACDONALD: Thank you, Madam Chair.

Madam Chair, Board, Board staff, interveners, members of the public, thank you for the opportunity to present a summary of Diavik's proposed processed kimberlite to mine workings project.

My name is Gord MacDonald, and I'm the closure manager for Diavik.

I've been with Diavik for over 20 years now, starting with the original baseline studies during advanced exploration and represented Diavik

through the original environmental assessment and I hope to be allowed to continue the closure.

I'd like to note that I'm not the only one here today that has been involved in -- since the original environmental assessment. It's very rewarding to see this continued involvement in the environmental stewardship of Diavik. So thank you to all.

I'd like to introduce the Diavik team and our expert consultants. On my left is Sean Sinclair, the environment superintendent. Kofi Boa-Antwi, regulatory specialist, Louis Beland, legal counsel. In the back, Mark Nelson, the Diavik environment advisor.

Behind me are some of the key experts that are advising Diavik on this project. Rainie Sharpe, from Golder Associates, the fisheries expert. Shadi Dayyani and Jerry Vandenberg, our water quality monitoring experts from Golder who conducted the water quality modelling work for this project. And Erica Bonhomme and Colin Buchanan are experts in environmental assessment from Stantecs.

Rio Tinto is a multi-national diversified mining company in Canada. We have a team of fifteen thousand (15,000) people at thirty-five

(35) different sites.

Montreal is one (1) of Rio Tinto's three (3) global hubs. Diavik's Yellowknife office is shown as number 1 on the map, and the Diavik mine site is shown as number 2.

Rio Tinto is the manager of the Diavik mine and a 60 percent owner. Dominion Diamond Mines owns the remaining 40 percent.

We have produced over 117,000,000 carats since 2003, but unfortunately we'll be running out of mine-able ore in 2025, when we'll shift our efforts to completing the remaining mine reclamation closure.

Our presentation today will have four parts. The first will be a summary of the purpose of the project. And then Sean Sinclair will provide an overview of the project description and a summary of the results from the environmental assessment.

And finally, I'll provide a summary of commitments made by Diavik in response to intervener recommendations.

We are continuing to refine our plans for closing Diavik, which is a normal practice for any large project. We believe storing processed kimberlite in underground workings is a better option

for operations and closure rather than continuing to increase above-ground storage.

Diavik has requested amendment to our water license to allow processed kimberlite to be deposited in mine workings.

Recent updates to the mine plan for Diavik mean there are now completed mine workings that can be used for storing processed kimberlite. This wasn't an option under the plan that was considered during the original 1999 environmental assessment.

For this reason, the MacKenzie Valley Environmental Impact Review Board has required an environmental assessment of this project.

Diavik has published a summary impact statement that contains the findings of our environmental assessment. The findings, which we'll cover in more detail during this presentation, highlight that this project can be done in a safe and environmentally responsible way.

The proposal will reduce the amount of above -- above-ground storage and meet regulatory conditions. It will deliver the better environmental outcome with the lowest impact on Lac de Gras water quality.

Ensuring water quality meets approved

environmental standards is a key aspect of our proposal, and this has been validated by third party environmental experts, assessing the impacts on Lac de Gras, the Coppermine River, the Narrows, and traditional land users, and wildlife in the area.

If the MacKenzie Valley Review Board were to approve the project, the Wek'eezhii Land and Water Board would proceed with process -- with the process to amend Diavik's water license.

Diavik began engagement with communities and regulators on this project more than a year and a half ago. We were very interested to hear if there was any fundamental opposition to the idea of depositing processed kimberlite in completed mine workings.

We did not hear any fundamental opposition. What we heard was general support to put it back where it came from. However, in all cases, support was conditional on it being able to demonstrate that it can be done in an environmentally safe manner, particularly with regard to Lac de Gras water quality.

Deposition of processed kimberlite in mine workings is not a new idea. In fact, Diavik is the only operating diamond mine in the Northwest

Territories that does not have approval to deposit processed kimberlite in mine workings.

The Ekati Diamond Mine has approval to deposit processed kimberlite in Beartooth Mine and the Panda Koala Mines, cover them with fresh water and connect the pit lakes to the local watersheds.

The Gahcue Kue Mine has approval to deposit processed kimberlite in the Hearne Pit, cover that with freshwater and reconnect that pit lake with Kennedy Lake.

This is the first time Diavik has asked for approval because this is the first time that the Diavik mine plan has provided a completed mine workings, the 8418, that could be used to store processed kimberlite.

(BRIEF PAUSE)

MR. GORD MACDONALD: I'd now like to ask Sean Sinclair to provide an overview of the project -- of the project description and the results from the summary impact statement.

(BRIEF PAUSE)

MR. SEAN SINCLAIR: Thank you. Sean Sinclair, Diavik. Diavik Diamond Mine is a compact mine site located on the east island of Lac de Gras. Lac de Gras is roughly 60 kilometres long with an average depth of 12 metres and some areas as deep as 40 metres.

Lac de Gras is the headwaters of the Coppermine River system. And water flows in from Lac du Sauvage to the east, flowing past Diavik and into the Coppermine River to the west travelling hundreds of kilometres to the Arctic Ocean at Kugluktuk.

At Diavik, we mine four (4) kimberlite ore bodies, all of which are located under what was originally a lake. To access the ore, dikes were constructed out into the lake. And then water was pumped out to allow open pit and undergri -- underground mining access.

Overall, about 1 percent of Lac de Gras was diked off and drained to access these ore bodies. Other main facilities at Diavik include the processed kimberlite containment area, which is where all processed kimberlite has been stored to date, the north country rock pile which stores all of the country from the original A154 and A418 open pits, the south country rock pile which stores all the rock from

the A21 pit from the south, and the north inlet, which is part of our water management and treatment system.

The focus of our discussions today will primarily revolve around the A418 mine working. Pictured here, you can clearly the see the open pit -- the open pits which are benched conical holes mined using open pit methods.

Below these open pits we continued mining underground. The colourful lines are tunnels we created in the ground to access the underground ore.

The end result is a large open hole shaped something like an ice cream cone with an open bowl on the top half, and then narrow and near vertical walls in the bottom half.

So, today we're going to talk a lot about processed kimberlite. Kimberlite is an igneous rock that, in our case, contains diamonds. We remove kimberlite from the ground. And then we mechanically separate the diamonds by crushing and washing the rocks using various screens, shaking tables, floatation circuits and x-rays.

The leftover material, once the diamonds are removed, is called processed kimberlite, and we have two (2) main types. The first is called

coarse processed kimberlite. It's a granular sand-like material that's quite dry and can be moved in trucks.

And the second, which we're going to be talking most -- mostly about, is fine processed kimberlite. And this is transported as a slurry mixed with water. So, that's what I've got in this jar here.

Over the course of our presentation and throughout the day I encourage you to keep an eye on this jar and watch as the kimberlite settle. You'll notice it will settle into a sediment with water on top.

In general, there are two (2) main options for processed kimberlite storage for the remaining mine life at Diavik. The first pictured on the left is an -- is an additional upward processed kimberlite containment facility dam expansion, the second being permanent disposal in the mine or effectively putting it back where it came from.

The containment area on the left has been constructed over the last seventeen (17) years by completing six (6) dam raises. We are currently working on the seventh raise this summer.

As you can see, the containment

facility is located immediately adjacent to Lac de Gras on the east and west, so expansions are limited to going higher rather than wider.

To fit the processed kimberlite that we would produce for the -- from '22 to '25, 2022 to 2025, it would require an additional 4-metre raise around the full 6-kilometre dam facility.

While an additional dam raise has already been designed and permitted, we are challenging the status quo and following through with the recommendations from responsible authorities during the initial EA in the late '90s to continue in the pursuit of management options which present a lower risk and a more permanent disposal solution.

So, the PK to mine workings project is a proposal to deposit PK in the mine or refill the mine with the material that we removed. Our primary focus for the project is the A418 mine pictured here, and that is because it is currently scheduled to be complete in late 2021.

Diavik will continue to mine kimberlite until 2025, so this location would provide up to four (4) years of storage. We do still believe it is important to consider other options, such as the A154 mine, to provide maximum flexibility and avoid

additional permitting processes down the road should the mine plan change again.

So, in the middle of the screen is the A418 mine showing the predicted surface of processed kimberlite after four (4) years of deposition. The Robertson Head Frame, once the tallest structure in the NWT at 76 metres high, is pictured on the left for scale.

You could stack eight (8) Robertson Head Frames on top of each other in the A418 mine, which will be 630 metres deep when it's complete.

We also predict that the processed kimberlite surface will be over 150 metres below the ground surface. As you may recall, the average depth of Lac de Gras is only 12 metres.

So, essentially, Lac de Gras is as deep as the orange section of the Robertson Head Frame or just a tiny sliver of the total mine depth.

(BRIEF PAUSE)

MR. SEAN SINCLAIR: You may recall me saying that the pits at Diavik were once part of the lake before we created the dikes and pumped them out. The currently approved closure plan for Diavik is to

refill the mines with water from the lake until it is equal with Lac de Gras, as depicted on the right.

After the mine is full of water, we will monitor the water quality in the pit lakes. Once we've confirmed water quality is acceptable, we will dig out breaches or gaps in the dikes to allow water and fish to pass back and forth between the pit lake and Lac de Gras.

This is the closure plan for Diavik with or without the deposition of PK in the mine working. The main reason we plan to reconnect the pits to -- to the lake is to restore the 1 percent loss of fish habitat in Lac de Gras. This is required by current Fisheries authorization.

Overall, this project will not change the final closure landscape of the pits because the processed kimberlite will be greater than a hundred metres below the surface of the water.

The idea for this project was jump started by the traditional knowledge panel about five (5) years ago. Elders were up at Diavik considering closure options for the current containment facility and the idea for more permanent disposal of extra fine processed kimberlite in the mine was identified.

When updates to the (AUDIO CUTS OUT)

2017 identified the opportunity to use the A418 mine for this purpose, Diavik decided to host a traditional knowledge panel with this -- with a focus on this topic.

What we heard from the panel was support to put it back where it came from as long as it could be done in an environmentally safe way. The TK panel had requested toxicological studies on the kimberlite, and they were satisfied by the results.

TK holders told us that they know that fish generally go where there's food and oxygen, so they were unlikely to go to the deep depth where the PK would be in the mine.

The TK panel requested to monitor how water behaves when placed on PK. They had also requested to see PK in water in the mine as soon as it was safe to do so, so they could get a good visual of the material and monitor it at regular intervals afterward.

The panel concluded that, as long as there was no contamination or suspension issues, they generally supported us in continuing to research this topic.

It's important to note that part of the rationale for the TK panel guidance on this is that

they want the disturbance footprint for Diavik to be as small as possible. And this project would result in a smaller on-land containment facility.

This project will also open up the opportunity to investigate the removal of extra fine processed kimberlite from the containment facility and place it in the mine, allowing for a more stable closure surface in the containment facility.

The Diavik team is completing ongoing studies to address design questions about the physical characteristics of suspension, settling, and consolidation of processed kimberlite in water.

Pictured here are the results of a twenty-four (24) hour and two (2) month settling test of processed kimberlite. The column on the left is essentially the same fine processed kimberlite that we are proposing to put back in the mine. This is also the same material sitting in the jar in front of me.

When this material leaves the plant it's transported as a slurry in a pipeline. As you can see, within twenty-four (24) hours, it has almost entirely settled out into sediments with clear water above.

The column on the right is extra fine processed kimberlite. This material takes longer to

settle and consolidate. Within twenty-four (24) hours, there's only a small amount of settling; however, as you can see, after two (2) months, the extra fine kimberlite has consolidated significantly and forms a distinct layer between the sediment and the clear water above.

To give you a better idea of how fast processed kimberlite settles, here is an actual video of fine processed kimberli -- kimberlite settling over exactly twenty-four (24) hours. Do you know where the computer is?

This video is sped up to about one (1) hour per second. This is the same material that we're proposing to put back in the mine, and we expect the rate of settling and consolidation to be very similar when placed in the mine.

As you can see, most of the fine processed kimberlite settles out of the water com -- column almost immediately. After this, the processed kimberlite will continue to consolidate over time.

One (1) of the most important components of this project assessment and an area where we spent a lot of our time was water quality modelling.

Water quality modelling was completed

for all three (3) mine workings. We modelled the various realistic and unrealistic worst-case scenarios.

These scenarios included the addition of 5 million cubic metres of fine processed kimberlite to each mine, the option to add an additional 5 million cubic metres of extra fine processed kimberlite to each mine.

We even looked at extreme worst cases where we had more than 20 million cubic metres of processed kimberlite in the mines. And we also completed various sensitivity analysis to increase our confidence in the model assumptions and results.

So, what you can see here are actual model results for total dissolved solids in the A418 mine over a one hundred (100) year period post-closure.

Below this page is the consolidated PK surface that would have filled the mine. Above the PK, processed kimberlite, sediment surface, higher concentration and denser pore water squeezes up out of the processed kimberlite and rests on the bottom of the pit lake. And that's that thin brown layer you can see at the bottom.

This higher total dissolved solid water

is stable and remains isolated in the bottom of the pit due to a natural process called meromixis. Based on the traditional knowledge and scientific evidence we have collected, we believe most fish will live and eat in the top 40 metres of the water column, which is shown there.

Remember that Lac de Gras is, on average, only 12 metres deep or the thickness of the orange tip of the headframe. So, this pit lake and the high total dissolved solid water will be much, much deeper than any other part of Lac de Gras.

Our target to protect the environment is for the top 40 metres of the water column to be below what we call the Aquatic Effects Monitoring Program benchmarks. These benchmarks describe water that is safe for aquatic life, wildlife, and people.

All the dark blue areas contain very clean water and above -- and everything above 40 metres remains below those safe benchmarks.

Shown here are some sample modelling results for a few important water quality parameters that we monitor at Diavik. The second column displays the AEMP benchmark values. Any concentration below these numbers is considered safe for aquatic life, wildlife, and people.

The model results are shown in the next three (3) columns, and they are the maximum concentration that we found in the top 40 metres of the water column over a one hundred (100) year modelling period into the future.

As you can see, the predicted concentrations are much, much lower than those benchmark values. In general, the concentrations are at least ten (10) times lower than the benchmark, meaning that we're expecting clean and safe water in the top 40 metres of the water column under all the scenarios presented.

So looking a little bit at the assessment of effects to valued components, our assessment determined that water quality is the fundamental effects pathway to the other valued components of fish, wildlife, and cultural use.

Modeling results, both from realistic and extreme worst-case scenarios, demonstrated that water quality in the top 40 metres of the pit lakes and Lac de Gras would remain below AEMP benchmarks.

This means that water quality results are predicted to be safe for fish and animals, such as caribou, to drink and will not threaten individual animals or result in any population level effects in

the regional area.

Based on these model results and with the proposed mitigation measures presented in our summary impact statement including additional commitments in response to interventions and information requests, we have a high degree of confidence that the project will not result in a significant adverse effect to any of the valued components.

Overall, I would like to emphasize that based on the evidence on the record, our confidence in these assessment predictions is high. Looking at water quality, this assessment has demonstrated that water quality in the top 40 metres of the pit lakes will remain below those benchmarks.

Even in the unlikely worst-case scenario where water quality does not match modeling predictions, we have committed to only breaching the dykes to reconnect with Lac de Gras once monitoring results confirm acceptable water quality.

With implementation of the proposed mitigation measures, the magnitude of adverse impacts to water quality are predicted to be negligible.

Regarding water quantity, it is very important to acknowledge that the current closure plan

for Diavik already includes flooding of pit lakes with Lac de Gras before reconnection. By partially filling the mine with processed kimberlite, less water will be used from Lac de Gras to refill the mine. Therefore, this project will decrease any effect on water quantity in Lac de Gras at closure.

To reduce the potential for cumulative effects, withdrawal rates for the project that are protective of the aquatic environment and consider other operations within the Lac de Gras watershed will be established in discussion with regulators as a part of ongoing closure planning.

Regarding fish and fish habitat, water quality once again is the fundamental effects pathway to fish and fish habitat. As you know, modeling of the various scenarios has predicted that water quality in the pit lake will be acceptable for fish.

The mitigation measure for this scenario where a pit lake is not acceptable as fish habitat at closure is additional offsetting elsewhere in Lac de Gras or the larger region with the approval of Fisheries and Oceans Canada. This work would be informed by consultation with potentially impacted Indigenous groups and communities.

Overall, with the implementation of the

proposed mitigation measures, the magnitude of adverse impacts to fish and fish habitat are predicted to be negligible to low.

Water quality in the pits in Lac de Gras is also the primary effects pathway to wildlife. The water quality results are predicted to be safe for wildlife to drink and will not threaten individual animals, such as caribou including the population level effects.

It is also important to acknowledge that the project will not result in any additional loss of wildlife habitat because the project occurs entirely within the existing mine footprint and, in fact, will result in a smaller on-land processed kimberlite containment facility.

Overall, with the implementation of proposed mitigation measures, the magnitude of adverse impacts to wildlife and wildlife habitat, including barren-ground caribou, is negligible.

Finally looking at cultural use, negative project impacts to water quality, water quantity, fish and fish habitat, wildlife and wildlife habitat are the primary pathways that may impact cultural use of the area.

Based on the assessment completed and

the proposed mitigation measures that ensure negligible impact to all the other valued components, the magnitude of adverse impacts to cultural use are predicted to be negligible and reversible.

In addition, we have committed to ongoing engagement with potentially impact Indigenous groups to inform the project design in the construction, operation, closure, and post-closure phases of the project.

Two (2) accidents and malfunctions were assessed -- or the two (2) accidents and malfunctions that were assessed were a pit wall failure resulting in mixing of the pit lake and an uncontrolled release of processed kimberlite from a pipeline.

Regarding a pit wall failure, the addition of processed kimberlite material into the mine voids and the addition of water above that will actually improve pit wall stability in the mine working. The potential for a pit wall collapse with enough energy to de-stratify the pit lake is predicted to be rare post-closure.

Regarding a pipeline failure, DDMI also has a robust integrity management program in place on site that supports the safe operation of many pipelines, including regular pipeline maintenance and

monitoring, inspections, pipeline integrity management, emergency response planning, and operational training for employees.

On top of that, pipelines are generally located behind berms within our water management system to contain any liquids from entering Lac de Gras. With all this in place, the likelihood of a pit wall -- or a pipeline failure adversely impacting the environment is very low.

That concludes my summary of the project effects assessment on valued components.

MR. GORD MACDONALD: Finally, I'd like to -- the last section of our presentation is to summarize Diavik's commitments in response to the hundred and sixteen recommendations from eleven (11) Interveners that we responded to in writing.

Diavik also met one on one with five (5) of the Interveners to discuss and attempt to address recommendations. The following provide what we are considered -- what we consider to be the five (5) key areas of Diavik commitment made in response to Intervener recommendations.

The first is to expand engagement with non-signatory Indigenous groups. Diavik undertakes extensive community engagement with signatory

Indigenous groups. However, Diavik accepts that more could be done to engage with the Fort Resolution Metis Council, the Northwest Territories Metis Nation, and the Deninu K'ue First Nation.

Interveners expressed concerns that go well beyond the scope of this PK to mine workings project. But regardless going forward, Diavik commits to meeting with each group annually to provide updates on the PK to mine workings project specifically but also on closure planning generally.

We'd review recommendations made by the traditional knowledge panel and DDMI's responses to those recommendations, and we consider any recommendations and provide written responses.

Second with regard to reconnection criteria to define culturally acceptable pit lake conditions, Diavik recognizes the importance of the views of Indigenous groups so the decision on whether to breach the pit lakes and rejoin with Lac de Gras. This concern has been clearly expressed by Interveners and is something DDMI would like to address as a priority.

Diavik commits to working toward the development of acceptable criteria for reconnection that are traditional knowledge based. Diavik will

seek the traditional knowledge panel's permission to change the scope of the September 12th to 16th TK panel session to instead focus on developing TK-based reconnection criteria.

We will ask the Environmental Monitoring Advisory Board to facilitate the revision or support of the recommended TK-based criteria with the five (5) Indigenous parties represented on EMAB.

We think EMAB is the best organization to work with Diavik to integrate community alignment on TK-based criteria. We intend to bring this request to EMAB at the September 10th and 11th meeting next week.

We provide opportunity for Indigenous groups that are not represented on EMAB to review and comment on TK-based criteria. Finally, we submit that TK-based criteria to the Wek'eezhii Land and Water Board for public review and approval as a closure criteria.

Regarding fish habitat and offsetting plans, with the implementation of the proposed mitigation measures, residual environmental effects are not expected to significantly impact Lac de Gras fish or Lac de Gras fish habitat.

However, Diavik acknowledges that some

Indigenous groups have still expressed concern about reconnecting the pits to Lac de Gras. DDMI appreciates Fisheries and Oceans Canada's willingness to work with DDMI to consider alternate fish habitat offsetting plans should pit lake reconnection no longer be considered acceptable.

Diavik commits to considering alternative offsetting plans that are reasonable, practical, and provide fisheries benefits to Indigenous communities.

DDMI will advance alternative offsetting plans by February 1st of 2020 if there is a high likelihood that predicted lake water quality conditions will not meet traditional knowledge based pit lake criteria for reconnection or if it's determined that traditional knowledge base acceptance of pit lake reconnection can only be determined by visually inspecting the pit lake making it not possible to confirm acceptable -- acceptability --

THE CHAIRPERSON: Excuse me, Diavik, but there seems to be some technical problems here. Just one moment, please.

(BRIEF PAUSE)

THE CHAIRPERSON: I guess English is now on channel 1.

(BRIEF PAUSE)

THE CHAIRPERSON: Sorry, Gord. Continue, please.

MR. GORD MACDONALD: No problem. Thank you.

And finally, the other -- other outcome that would require us to advance additional offsetting would be if the Mackenzie Valley Review Board determines that Diavik should not breach the dykes and allow the pit -- and allow access to the pit lakes.

Number four (4) is the removal of A21 open pit from the review. Diavik accepts Intervener's recommendations to remove the A21 open pit from consideration for processed kimberlite deposition. DDMI believes it's prudent to continue to consider A154 to provide the maximum practical flexibility.

Finally, conditions to be included in an amended water licence or as follow-up measures. It's DDMI's view that most of the measures recommended by reviewers can be addressed as conditions to be included in an amended water licence.

These include additional modeling of the pit water quality. DDMI commits to providing updated modeling estimates at three (3) milestones: before any deposition, before flooding the pit, and before breaching the dykes.

The second is independent review of the final modeling predictions. DDMI commits as a condition of an amended water licence to submit a review prepared by an independent expert. Similar conditions exist in Diavik's water licence for independent geotechnical reviews of critical engineering designs.

The third relates to pit lake monitoring where DDMI believes that is sufficient alignment on the general scope of the proposed monitoring that they could be consolidated into monitoring conditions for an amended water licence.

On wildlife management, DDMI commits to revising existing management plans to include wildlife deterrents during pit filling.

In DDMI's view, the specific terms and conditions that will define the monitoring plans related to PK to mine workings should be established by the Wek'eezhii Land and Water Board through the water licence amendment process.

The terms and conditions may include updates to existing environmental management plans and monitoring plans for the Diavik mine.

Thank you , Madam Chair. That concludes our presentation.

THE CHAIRPERSON: Thank you, Diavik. Unfortunately, we are having technical difficulties as you can hear all the static when Diavik is speaking, and they have requested that they need to change the cables. So we would like to take a ten (10) minute break while they do that.

But before we do that, we now have video presentation services available and a note to file describing out the access to service has been posted to the Public Registry.

As well, the teleconference is now working. So there is some movement -- positive movement in the technical end.

So if we could call a break right now and then start with the questions with the Interveners with the GNWT up first after the break. Thank you.

--- Upon recessing at 10:52 a.m.

--- Upon resuming at 11:09 a.m.

THE CHAIRPERSON: We have several Interveners to go down the list today. So as a reminder, when you're asking your questions, please keep your questions to priority questions, and if there's time later tomorrow, you can ask those secondary questions. But please keep your questions to priority, and be direct to the -- to Diavik as -- as possible.

Our first line of questions is to the GNWT. Questions from the GNWT?

QUESTION PERIOD:

MR. BILL PAIN: Thank you, Madam Chair. Bill Pain, ENR. This is going to relate to the water quality modelling.

Can Diavik or their consultant kind of give a brief summary of the -- what modelling parameters or information will be included in the next iteration of the modelling update? I think you guys discussed the next modelling be part of the -- let me see, here -- part of the mine working design report that will be submitted as part of the regulatory side of it, and their opinion.

Could you just give an update, what will be included in the updated modelling report and,

like, what additional information will be included that hasn't been included to date? Thank you.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I'll try and do it briefly.

It will be a whole new model, actually, Bill. It will be -- it will properly consider all the way from the -- the time we start deposition, you know, model all that deposition period during operations, the -- the adding of water, and then into the post closure, and it'll deal with the proper consolidations of the PK level actually goes down in the -- in the modelling, and the -- instead of the poor water going up, as it does now. So it would be more realistic.

And that'll be in -- incorporated into the full lake hydrodynamic model. So it'll be a -- a -- the output from it will be within a hydrodynamic model of the full lake.

(BRIEF PAUSE)

MR. BILL PAIN: Bill Pain. Thank you, Gord. I'll just pass it over to our consultant, Barry Zajdlik, to -- he can maybe follow up on that.

DR. BARRY ZAJDLIK: Barry Zajdlik on behalf of GNWT. The modelling that's been done to date has been admittedly preliminary. There are many pathways that haven't been included, and one (1) of those is groundwater flow. Another is processes that happened in a fractured wall on the pit -- of the pit. And there are others as well, such as variation in groundwater TDS concentrations, and even possibly the composition of the TDS seasonally.

Is the updated modelling going to consider these more subtle processes that can affect the predictions? And if they are, at what stage in the -- the processes are those modelling -- that modelling going to be considered?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yes, Barry, on -- on groundwater, yes on pit wall, pit wall washing, if you will. The -- whatever reaction products would come off of the pit walls. Yes on surface runoff, the -- local to the pit areas. And with regard to timing, what I -- what I -- we had committed in our intervention was that it be a condition of the water license, and that it would be provided prior to putting any processed kimberlite into the mine workings.

(BRIEF PAUSE)

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. The next set of questions has to do with providing assurance to all the interested parties that there's not going to be effects associated with the deposition of PK into the mine workings. DDMI has provided an opinion that there won't be adverse effects, but it is just that; an opinion.

The question to DDMI is can DDMI state for any water quality analyte that has a benchmark, the probability that the benchmark will not be exceeded if PK is deposited into a pit lake?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Barry, it -- we didn't do probabilistic modelling. I don't think we could -- we could give you a -- if that's what you're looking for is a probability on any one (1) of those parameters.

DR. BARRY ZAJDLIK: Thank you for that answer, Gord. So what is the basis for your high degree of confidence, then, other than best professional judgment?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Thank you, Madam

Chair. Barry, it -- a lot of it revolves around the -- and I -- I could get -- go there to speak to it if you'd like, but the sensitivity analysis that was done where we -- we ran through quite a few -- changed a number of -- of assumptions in the modelling, or inputs to the modelling, and the results came out more or less the same, so it was that it -- it -- the model wasn't typically sensitive to a lot of those things, so it -- that give us a high -- a high -- much higher degree of confidence in the -- in the modelling.

Obviously if you'd -- if you -- it was very sensitive to certain things, it would -- that would have decreased our -- our confidence in the model.

(BRIEF PAUSE)

DR. BARRY ZAJDLIK: There -- there are quite a few things we could say about the sensitivity analyses and the -- the simulations that were conducted today, but they're all in the public records, so I'm going to waive those questions for the time being and maybe come back to that if we have time.

THE CHAIRPERSON: Excuse me, but for

the record, they need to record the -- the transcripts, so if you could please state your name again every time you speak, for both parties.

DR. BARRY ZAJDLIK: Thank you, Madam Chair. It's Barry Zajdlik, on behalf of GNWT.

(BRIEF PAUSE)

DR. BARRY ZAJDLIK: And I will speak more slowly.

The next set of questions refers to -- or pertains to the amount of information we've been given, and GNWT's interest in getting more information prior to a decision being made.

We are interested in uncertainty and the probability of an adverse effect, and one (1) way to -- to come up with a -- a number that's associated with a probability is to conduct what's called a Monte Carlo assessment -- or analysis, and Gord just alluded to that.

The question that I have for Diavik is can Diavik right now provide an order of magnitude estimate of runtimes for a Monte Carlo analysis that would include variation in key process inputs such as model coefficients, geochemical reaction rates, decay

rates, and settling rates, variation in groundwater flow, volumes and temperature, and variation in groundwater TDS concentrations, and possibly composition?

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

(BRIEF PAUSE)

MR. GORD MACDONALD: Madam Chair, I -- I'd prefer to get a Golder expert to answer that question for him.

(BRIEF PAUSE)

MR. JERRY VANDENBERG: Consultant to Diavik. I can give an order of magnitude estimate. I've done this once before. There's actually a report online that -- that documents this.

THE CHAIRPERSON: I'm sorry. Again for the -- you didn't turn your mic on, and our transcriber back there is standing up, waving his hand, so you need to say your name again, please.

MR. JERRY VANDENBERG: Sure. It's Jerry Vandenberg, consultant to Diavik.

Base -- based on a similar project where we've done this before, we ran a set of simulations, about five hundred (500) simulations looking at various inputs to pit lakes, various configurations. Because it's a large number of simulations, running a mechanistic model takes a lot of time. It took twenty-four (24) computers running concurrently about three (3) months, so that's sort of a -- a rough estimate of what it would be here.

DR. BARRY ZAJDLIK: A follow-up question. If --

THE CHAIRPERSON: Please state your name again.

DR. BARRY ZAJDLIK: Yes, Barry Zajdlik, on behalf of the GNWT. If we were to add refinements, the -- the PK consolidation model to be a 3D, large-strain model, how would that affect your estimates of the Monte Carlo analysis simulation time?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. They go up significantly, Barry.

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. Can you provide an order of magnitude

estimate?

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. It's getting very difficult, and I mean many months. We haven't even run the models yet for the -- that we're talking about, and we don't know what the specific run times will be for those.

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. So at the end of the day, if we were to wait for probabilistic statements about how significant the effects would be, we could expect to wait three (3) to six (6) months. Is that correct?

THE CHAIRPERSON: Diavik...?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. To see the -- for -- for -- to have all of that work done to the -- to the level of being able to release it, be more like a year, Barry.

What we were referring to is specifically about run time, like modelling run time

versus documenting and -- and preparing results.

(BRIEF PAUSE)

MR. BILL PAIN: Bill Pain, ENR, for GNWT. Two (2) quick follow-up questions or kind of continuation questions.

Can Diavik just give us a kind of estimate or time, how much more time they have putting PK in the PKC -- PC facility?

(BRIEF PAUSE)

MR. BILL PAIN: I apologize. Bill Pain again. How much more time do you have in the facility before it is essentially full and can no longer deposit to that facility?

THE CHAIRPERSON: Diavik...?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. If we don't do the -- the further raise, and it -- November '20/21.

(BRIEF PAUSE)

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. With respect to the determination of significance of the project, Diavik used the 1999 EA definitions.

Although Stantec, their consultant in this matter, was correct in that the EA paradigm hasn't changed significantly since the new 2012 CEA guidance, there are details that have changed, and some of the details involved a level of change that's acceptable.

The EA conclusions right now are predicated upon a one (1) kilometre local study area as opposed to what's more typically accepted as a mixing zone of a hundred or two hundred (200) metres, and GE and Meg -- AEMP benchmarks, those are the CCME water quality protection numbers that are allowed to be exceeded by 20 percent.

GNWT asked Diavik to provide assurance that if the Environmental Assessment of environmental significance was conducted using the 2012 document, that the conclusions would be the same, but we haven't got an answer.

So I'm hoping that DMI can provide some

more information on whether they'd be willing to look at the 2012 document in detail and provide us with a table of concordance between the 2012 and 1999 procedures, and then verify that their conclusion of significance remains the same.

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Madam Chair, I'd ask Erica to give a response back on behalf of Stantec, who did the Environmental Assessment.

MS. ERICA BONHOMME: Erica Bonhomme, Stantec, consultant to Diavik. The -- the methods used in Environmental Assessment to step through, you know, how -- what potential effects may happen, what baseline conditions are, what potential pathways we may see, how we characterize residual effects, is really designed to meet what the Board is looking for in terms of making a determination about significance. I don't see the relevance of the CEA 2012 in an MVRMA

process.

The question was asked to Diavik, whether those principles and guidance has been considered.

The response, it remains the same, which is the -- the methodology that is used in the summary impact statement is appropriate and relevant to this process and the -- the use of various study areas and indicators and significance criteria has been defended and presented in that SIS, and, you know, I think is -- is fundamentally -- would meet the requirements of any process, but in particular the one that we're looking at right now, which is the one set up under the MVRMA.

MR. GORD MACDONALD: Madam Chair, if I could just add one more piece that might maybe help answer the question for the GNWT.

THE CHAIRPERSON: State your name again, please.

MR. GORD MACDONALD: Apologies. Gord Macdonald, with Diavik.

Your specific examples of the size of the local study area and the definition of the magnitude of effect, even if -- even if you change those -- those -- the -- the size of the local study

area or the magnitude and remove that 20 percent over CCME or AEMP benchmarks, because we're not predicting exceedances of AEMP benchmarks anywhere. The definition -- the determination of significance would not change for -- for that water quality.

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. Yes, I was aware that that's the case, but that presumes that the model predictions are correct.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: I think that's a true statement. Gord Macdonald, Diavik.

(BRIEF PAUSE)

MR. BILL PAIN: Bill Pain, ENR, for GNWT. This will be my last question, at least regarding modelling, and I think it might be our last one here.

Diavik is committed to having an independent review, the model predictions moving forward as their list of commitments.

Can Diavik further elaborate how they see an independent review being conducted? Like, for example, how will a third party person be selected or

approved or will there be a public participation -- sorry, I speak quick here. I will just start again.

Diavik is committed to having an independent review of model predictions. Can Diavik further elaborate how they see an independent review being conducted?

For example, how will a third party person or independent group be selected? Will Diavik ask for approval of their choice? Yeah, thank you.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Bill, I haven't thought fully through it, but what we put in our -- in our commitment would be that we could see it as a condition of the water licence that any modelling that we provided to the Wek'eezhii Land and Water Board include an independent review in the same manner that independent reviews are included in our water licence for geotechnical reviews of -- of critical engineering designs.

We do have a board that does our geotechnical review, so we haven't gone through the process of -- of getting an independent reviewer approved by the Wek'eezhii Land and Water Board, but we'd be open to what that -- whatever that process would be. We certainly want it to be an independent

expert that everyone would be comfortable with, including Diavik, but all the Interveners.

To be clear on the independent expert, we -- we have no issues with doing independent reviews. We wouldn't want to go forward with this project if the modelling results -- if the modelling was -- was wrong. It's -- it's something that would be benefi -- beneficial to everyone.

(BRIEF PAUSE)

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THE CHAIRPERSON: Questions? GNWT?

(BRIEF PAUSE)

MR. BILL PAIN: Bill Pain. Thank you, Gord.

Just a follow-up on that. I just want to speak to the timing of that process. As you mentioned, you just mentioned this, we have until November 2021. If this is a -- PKC facility isn't expanded or this moves forward, we'd like to be part of that process to alleviate time and make sure we were all on the same page.

Can you just maybe quickly speak to

what kind of time frames you're looking at this? Because it -- it would take a -- quite a little bit of time to -- to do an independent review, or even set this up. Thank you.

(BRIEF PAUSE)

MR. GORD MACDONALD: Madam Chair, we're just -- we're just looking for a schedule that we'd submitted that include -- that includes how we saw all these things following out going forward that we can reference for everyone.

(BRIEF PAUSE)

MR. GORD MACDONALD: Maybe, Madam Chair, in the interests of time, there is a schedule, Bill, that's -- that's published in the -- in the -- in responses to IRs to try and lay out when all -- when all those -- we anticipate all those activities being, and the deadline would be, obviously, to have it all approved, the modelling results and independent review approved prior to November 2021. So it's the time line leading up to that that's presented in there.

It's -- what's the reference?

(BRIEF PAUSE)

MR. GORD MACDONALD: Yes, on the schedule which is in table 6 of the response to the MacKenzie Valley -- the Review Board IRs, it's table 6 and we say in there to be in the first half of 2021 when the modelling results and all the -- and all the engineering design reports to support and actually implement in this project would be submitted for review.

So I would guess if that was the case that it would be somewhere leading up to the later half of 2020 when we'd have to -- we'd do that selection of an independent reviewer.

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT.

This speaks to the process of model review. There are many decisions that have to be made when a model is built and we're concerned about delaying the process by reviewing a model that has been built and presented. So we think that it would be helpful if interested parties were involved in the building of the model and consultation and some of the

steps that are involved so that there are no unnecessary process delays.

THE CHAIRPERSON: Diavik?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

We'd support that, Barry, I think it would be very helpful to have everyone and find those right stage gates for those reviews versus the final product.

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT.

This morning a statement was made that the deposition of PK to mined pits will deliver a better environmental outcome than adding it to the PKC facility.

What is the basis for that statement?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Yes, thank you, Madam Chair.

It's a number of things, Barry, that contributes --

THE CHAIRPERSON: State your name again, please.

MR. GORD MACDONALD: Didn't I? Gord Macdonald, with Diavik.

It's a number of things that would contribute -- that contribute to that statement and I can go through them if you like, Madam Chair, but we -- we did do the last couple of nights advantages, disadvantages, but the -- you know, the sum of them are it's a -- putting it in the -- in the mine workings is a more secure storage location.

And on the -- on the caribou perspective it would reduce the amount of material that was available for caribou to have direct contact because we could start the closure of the PKC facility earlier.

It would provide more closure options for the -- for the PKC facility if we had the ability to put processed kimberlite into the -- the extra-fine processed kimberlite into mine workings.

On -- we think it would be the lowest -- the lowest or the better -- the better water quality to Lac de Gras but the poor water being released from the bottom below it, the chemocline would be better than that same poor water being released over time into a surface facility and -- and contributing to local run-off that would still go to Lac de Gras.

That in a nutshell, Madam Chair.

DR. BARRY ZAJDLIK: Barry ZAJDLIK, on

behalf of GNWT.

That's -- that's a helpful summary, but it's maybe a bit difficult for the room to digest, especially if they're not familiar with all the details.

Is it possible for Diavik to provide a written answer to the question and all the supporting details?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik, I got it right this time.

And -- it -- it is on the record from the last -- from last night's session at Dettah where we went through all the -- the advantages and disadvantages and -- and that transcript I think would be available today, so I think that could be the record of that.

(BRIEF PAUSE)

DR. BARRY ZAJDLIK: Barry ZAJDLIK, on behalf of GNWT.

One (1) of our team was at the session and said that it would be helpful for us to review it, what's on the record, and then get back to you on

that.

So that's what we'll commit to do.

THE CHAIRPERSON: Questions from GNWT?

MR. BILL PAIN: Bill Pain. Thank you, Madam Chair, we have no further questions.

THE CHAIRPERSON: Thank you.

Questions from EMAB?

MR. JOHN MCCULLUM: Thank you, Madam Chair. I'm John McCullum with EMAB.

I have online Friederike Schneider-Vieira as well, our -- our fisheries and aquatics consultant. And so how would you like me to -- when she wants to ask a question or -- or follow something up, how would you like me to approach that before we get into this?

THE CHAIRPERSON: You will just introduce her and she would say her name and she can ask the question.

MR. JOHN MCCULLUM: Okay. Thank you very much.

So John McCullum with EMAB here, to start things off, Gord, you had mentioned that for the next iteration of modelling you will be doing a whole different model that shows more accurately how things will -- will work and incorporating it with the whole

lake and that kind of thing.

Can you explain why you didn't just do that in the first place?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

It's -- it's not unusual and we did the same process here to step into the -- to step gradually into it.

The first modelling was done as preliminary modelling and intended to scope out the issues and find out whether the -- whether it was a viable project in itself.

To -- to take it to the next level requires another round of additional information like the consolidation testing that's being done at the University of Alberta and we don't think it made sense to jump straight to the -- the most complicated, most detailed work until we've got -- until we've identified what the -- what the critical information is and how best to proceed with it.

MR. JOHN MCCULLUM: Thank you, Gord. John McCullum, with EMAB again.

I -- I guess I appreciate what you're saying is -- is more convenient from Diavik's

perspective. My reading of certainly our concerns and the concerns of many of the people who have commented on the proposal is that there's a lot of uncertainty about the -- the results of the water quality modelling and that the -- all of the predictions, as -- as Barry mentioned earlier, all of the predictions that say that there will not be significant adverse effects rely, essentially, on those model results.

So how much of those uncertainties do you think will be reduced by this new version of -- not even a new version. This -- this entirely new model that -- that you will undertake over the next period of time?

THE CHAIRPERSON: Diavik...?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

There are a lot of conservative assumptions and when I say "conservative" it means -- means a worse environmental prediction when I -- when I use the word conservative that have gone into the preliminary modelling.

So we -- we tried to -- to stay on the

conservative side of those estimates. So when we do the more detailed modelling it -- it will be less conservative, so it will take -- it will be more realistic and you'll probably end up -- we expect to end up with better water quality predictions.

So we think that will help, I would expect it would help people with the -- with the uncertainties.

MR. JOHN MCCULLUM: Okay, thank you, Gord.

I'll -- I guess I'll leave that line of questioning for now, unless Friederike, you have any -- anything you want to add?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (by phone): It's Friederike Schneider-Vieira on behalf of EMAB here. Yes, Gord, I'll just ask a couple of questions.

THE CHAIRPERSON: If she could speak up again?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (by phone): Okay. Can you hear me now?

THE CHAIRPERSON: Yes.

MS. FRIEDERIKE SCHNEIDER-VIEIRA (by phone): Okay. It's Friederike Schneider-Vieira on behalf of EMAB and I, during the review process we had

asked quite a few questions about effects to the fish and also monitoring the fish.

As was discussed, the impact assessment was based on water quality modelling, which makes sense. And then the results of that were taken into consideration of how that might affect fish.

Now, when dealing with uncertainty it is always good to back up that with actual monitoring and one of the key assumptions that Diavik has had is that fish will use the upper 40 metres of the water column, which may very well be the case.

But we were wondering if Diavik could describe or how far their planning has gone for what monitoring will actually be done for fish in the pit lakes.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Madam Chair, it's Gord Macdonald, with Diavik.

We're just looking up the -- that might be helpful to provide the reference. We did respond to EMAB's request on -- on fish habitat monitoring, and we're just trying to look up the reference for it as part of the response.

(BRIEF PAUSE)

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So, I believe we -- we responded to this intervention question number 43 from EMAB. So, we believe that the specific terms and conditions that would define these monitoring plans for fish and fish habitat should be established through the Wek'eezhii Land & Water Board process, through review of the process kimberlite to mine workings amendment.

And the specific monitoring plans should be established through updates, reviews, and approvals to our closure and reclamation plan and our aquatic effects monitoring design plan.

In general, we believe there's sufficient alignment in the general scope of what EMAB is proposing and what we envision happening. And, in general, if monitoring of fish use inside the pits is determined to be necessary and valuable, we expect that acoustic monitoring is likely the most effective method to monitor for fish use.

We would like to emphasize that fish use of the pit lake cannot become a requirement as we can't guarantee that fish will access the pit lake regardless of water quality.

Thank you, Madam Chair.

(BRIEF PAUSE)

THE CHAIRPERSON: Questions, EMAB?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): Friederike Schneider-Vieira here, on behalf of EMAB again. So, I understand the commitment and that it's very good to hear.

Does that mean then that Diavik would be open to hearing recommendations for what should be included in the fish monitoring plan? Would that be helpful to Diavik?

THE CHAIRPERSON: Diavik...?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. Yeah, we're -- we're certainly open to hearing, you know, recommendations and -- and working as we update those design plans, so, again, the closure and the AEMP design through the Wek'eezhii processes.

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): Friederike Schneider-Vieira here for one (1) last question.

On one (1) of your slides, slide 7, I believe, in your presentation, to -- to clarify, you noted that Diavik is the only operating mine that doesn't have approval to deposit PK -- processed PK in

the mine workings.

Do the other mines -- I'm aware of the -- some of the mines are proc -- depositing the PK. Do any of the other mines include reconnecting them to surface waters as part of their closure plan?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yeah, as we -- as we mentioned in the -- in the presentation, all of the -- all of the mine -- mine -- pit lakes that we mentioned reconnect to surface -- surface watersheds.

In the case of the Ekati -- the Ekati mine pits, they're connected through watersheds, so smaller rivers or streams. And in the case of the Gahcho Kue, it's in -- connects with Hearne -- or with Kennady Lake.

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): Friederike Schneider, representing EMAB again. Thank you. I'm online. And that part of the presentation didn't -- it wasn't -- I wasn't connected at that time, so thank you for that clarification. That's all the questions I have.

THE CHAIRPERSON: Questions, EMAB?

MR. JOHN MCCULLUM: Thank you, Madam Chair. John McCullum, EMAB. I'm going to -- I'm

going to start by following up Sean's answer on the fisheries monitoring.

So, I -- I heard you say that Diavik's and I'll -- I'll just say EMAB's, views on monitoring are the same, but -- or sufficiently aligned that they can be dealt with elsewhere.

To my knowledge, Diavik doesn't propose any fish monitoring at all. And so, that seems like our views are not all that aligned with fish monitoring. Could -- could you clarify, please?

THE CHAIRPERSON: Diavik...?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So, John, the current Aquatic Effects Monitoring Program, which would be updated again through the Wek'eezhii process to incorporate this project, I mean, a very large part of that program and design is fish monitoring.

So, we -- we certainly monitor fish, fish health, water quality, impacts to fish.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: Thank you, Sean. I think we'll just have to agree to disagree that the AEMP, as currently designed, would cover the issues

related to fish monitoring, particularly inside the pit lake.

THE CHAIRPERSON: State your name again for the record, please.

MR. JOHN MCCULLUM: My apologies, Madam Chair. John McCullum, with the Environmental Monitoring Advisory Board. Shall I continue? Okay.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: These questions are just going to -- they're -- they're not all in a clear order, so I'm just going to murk -- work my way through them.

Can you describe the -- the work Diavik has done in terms of looking at the -- the pore water from the PK and its -- its effects on aquatic organisms, fish, benthics, et cetera, and what the results of those were?

In other words, does the pore water seem to be toxic to aquatic health?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We've done quite a bit of -- of geochemical work on the -- on the pore water that

exists inside the PKC facility.

So, Madam Chair, it's actually taking measurements of the pore water in that facility as a -- - as a possible surrogate for what might happen if you use that same kind of material and -- and generate pore water in a deposition mine workings.

And it's -- it's a different process when it's been deposited on land than when it's been deposited in the water, so we also underta -- have undertaken some studies with the University of Alberta to try and test that in a more specific way to get that geochemistry.

So, quite a bit on the chemistry, which is a big part of understanding what the potential environmental effects of that -- of that material would be.

The other study that Sean mentioned in his presentation came as a request of the traditional knowledge panel was -- was a more -- of a more conventional toxicological assessment of the -- of the water and the material itself.

And that was done by the University of -- of Saskatoon. And -- and they ran typical toxicological tests on aquatic organisms, so fish and small benthic invertebrates that live on the -- would

live on the bottom of the lake.

They took processed kimberlite out of our -- out of our facility, or we provided it to them. And they treated that material in a number of ways. They, you know, separated the solid from the water and tested the water, exposed fish to both, that kind of a thing.

The report is available and it's in the -- it's -- it's on the record. I'll -- I'll try and give a very lay summary -- general summary of it. It's mildly toxic, meaning it -- meaning it had low level responses to things like chronic effects.

So, my -- a benthic invertebrate, so a bug that lives -- I'll try and slow down -- on the bottom of the lake would not do as well. It would not reproduce as well on processed kimberlite as it would on the bottom of Lac de Gras, like, not a -- not a surprising result.

But it wasn't what you would call toxic, so it would not -- it was not acutely lethal to any of the organisms that were there. And that -- that was why Sean was saying it generally provided that satisfaction to the traditional knowledge panel, that this wasn't -- this wouldn't create a toxic zone or anything like that.

And this directly on that material, which is -- now we're thinking about it being a hundred metres below the lake surface where we don't expect benthic invertebrates to be living.

I -- I think that's a fair summary, but I'd encourage you to read the report itself if you've -- for that information.

MR. JOHN MCCULLUM: Thank you. John McCullum, with EMAB again.

Could you -- could you describe Diavik's proposed approach to continuing to evaluate the potential pore water quality and the time line, so kind of the U of A study and anything that you've got planned further along from that?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. So, the -- the main program right now has been the work done at the University of Alberta, as I mentioned. And those results are now complete.

We've -- we're getting a draft -- we have a draft report of that -- of that program. We're just -- we're just starting to go through it now. I expect it'll probably be a few more months before we -- before it's in a form that we can -- we -- we can release that information or that we can use that

information to -- to update any modelling work that we're doing.

It's -- it's quite possible that the outcome of that -- and -- is -- would be that there are additional tests that we want to run. We haven't looked at it yet to make sure that it's -- it's provided the information we were look -- we -- we need, so it's quite possible that it would advance beyond that.

We do continue the pore water monitoring of the process kimberlite containment facility itself. We did another round of it this summer, again, to get another -- to get more information on how it behaves in that environment as a surrogate for what it might be in the -- if put into the mine workings.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: Okay. Thank you. Slightly rela -- John McCullum, EMAB. It's my understanding that, as you're filling the pit with PK, that you will be decanting some of the water that gets pushed out from between the pores of the -- you know, the pore water into the north inlet and, I guess, from

there through the water treatment plant to Lac de Gras.

We've talked about this extra fine processed kimberlite and how that forms sort of a fluffy layer on top of the -- the processed kimberlite.

So, how much of the EFPK will be in the pore water that you're going to decant to north inlet, and then eventually to Lac de Gras, and how much of it do you think will end up in Lac de Gras?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Gen -- generally correct in the -- the description you gave, the -- the difference being it would either go to the -- it would go to the north inlet and to treatment or it would go to the north inlet for reuse in the -- in the process plant.

And that -- the water that -- the decant water that we call it in the -- if it's coming from the mine workings is exactly analogous to the pond in the PKC, so -- where we do the same thing.

So, we reclaim the water in the pond in the PKC, send it to the north inlet or to -- or to the process plant for reuse. So, it's -- it's exactly the same process, it's just a different location.

So, if -- if there's -- if there's some processed kimberlite, if there's some turbidity in the water, it would be the same as what's happening currently.

No different in the mine working -- if it's in the mine workings than if it's in the processed kimberlite containment. They both go to the same place, they're just now physically located in two (2) different places.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: Thanks, Gord. John McCullum, with EMAB. I -- I have to think about that a bit more. I -- I would have thought the process was a bit different because it's -- it's being stirred up as you -- it's being continually stirred up as you're depositing more PK into the -- into the pit, but I'll -- I'll just leave it at that.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: Going back to the -- the water quality monitoring, so Diavik's proposed that they would -- they would have a water quality

station in the middle of the -- the pit, and -- and you're calling it an SNP station.

Is there a particular reason why that would be an SNP station as opposed to a special study or something where it was more specific, like if there's a specific protocol for doing that kind of monitoring?

THE CHAIRPERSON: Diavik...?

MR. SEAN SINCLAIR: Yes. Sean Sinclair, Diavik. So we've proposed it as an SNP station because, I mean, we see it as a -- like a regulatory requirement to monitor -- to continue to monitor that site. We don't see it being a one-off special study sort of as you've suggested.

We would -- and we have the schedule outlined in some of our earlier responses. So yeah. That's why because we would plan to continue to monitor that for our regulatory requirements.

MR. JOHN MCCULLUM: Okay. Thank you. Yeah. We'll -- I guess we'll talk more about our thoughts on monitoring -- sorry; John McCullum, EMAB -- we'll talk more on our thoughts on monitoring during our presentation later on.

A couple more questions. On wildlife management, there were two (2) different responses

about -- or for Diavik commitments to revise, I guess, the wildlife monitoring program. One was made in response to a Environment Canada question where DDMI said that it committed to update the wildlife monitoring program to include this project, and it would -- it would support the monitoring to determine whether migratory birds, including water fowl, et cetera, would interact with pit mine workings during the infilling and prior to stabilization of water quality. So kind of a monitoring aspect.

And then a second one, the commitment that Diavik made in its responses to the intervention letter that you went through at the end of your presentation, Gord, where Diavik said that it would revise its standard operating procedure to include wildlife deterrents during the pit filling.

And so the first question is: Is Diavik committing to both of those? They don't seem to be the same to me.

THE CHAIRPERSON: Diavik...?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. Yes, John. We're committing to updating both our wildlife monitoring program and our wildlife deterrents, sort of standard operating procedures, as required.

I mean, I will say that we don't expect any greater potential for wildlife harm, like including caribou, during this process if this project goes forward though.

MR. JOHN MCCULLUM: Thank you, Sean. John McCullum, with EMAB again.

The second part of that question is that in your commitment on updating the standard operating procedures, you say that you will make these revisions and then submit them to the Government of Northwest Territories and EMAB for review and will address any recommendations that might come from this review as governed by the Environmental Agreement.

So I guess the first question there is: Why would you not submit them to the other Interveners or parties or at least affected communities who have equally, if not greater, concerns about wildlife?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yeah. Sorry, John and Interveners. We weren't trying to exclude anyone from that. We were just noting that the wildlife -- wildlife management and wildlife monitoring aren't necessarily addressed under the Wek'eezhii Land and Water Board.

And so the -- the regulatory

authorities, if you will, are the -- is through EMAB and the GNWT, not that the review shouldn't include other people.

MR. JOHN MCCULLUM: Thank you, Gord. John McCullum, with EMAB again.

And the second part of that is that -- and I -- maybe you've answered this already -- but that you would address any recommendations that might come from this review as governed by the Environmental Agreement.

Now, the way the Environmental Agreement is structured is Diavik is not required to implement any recommendations from EMAB or the GNWT but simply to consider them and respond.

So I think there probably could be a stronger commitment to responding to those recommendations.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. No. I think it's exactly what it says in the agreement that we would commit to responding to those commit -- to those recommendations and providing our reasons for not making a change.

MR. JOHN MCCULLUM: Okay. Thank you, Gord. I have a few more questions, Madam Chair. I

just want to make sure my -- how am I doing for time here?

THE CHAIRPERSON: Not that well, but we'll listen to the questions.

MR. JOHN MCCULLUM: Okay. I will try to not talk too fast but get it done quickly. John McCullum, with EMAB.

A number of Diavik's responses state that DDMI also emphasizes that the development and maintenance of meromixis -- sorry -- a chemocline is not required for the protection of aquatic life. Rather, water quality in the top 40 metres of the water column should remain below AEMP benchmarks.

Is -- I wasn't sure why that was included there, and I wonder if that has -- if you're implying there that you're not sure that meromixis will take place and a chemocline will form.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. No. It's looking at that possibility that there is very limited pore water being released out of the -- out of the bottom, and that it's very clean water throughout the water column.

And so if there is no chemocline in which case there wouldn't need to be one, so a

chemocline will develop if there is a different -- a denser pore water being released, and it won't form if there isn't one.

And so -- you don't want to make it a necessity to have a chemocline if there is no different water quality with depth.

MR. JOHN MCCULLUM: Okay. Thank you, Gord. So is that a "yes" or a "no"?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Maybe if you could rephrase the question so that I can answer as a yes or no.

MR. JOHN MCCULLUM: John McCullum, with EMAB. So you've done a lot of water quality modeling. You've made a bunch of predictions. Here you're kind of saying that it doesn't really matter whether there's a chemocline or not.

So I'm just asking if the reason you're say -- I don't know how to rephrase the question. I think it basically says what it says.

We don't have to -- we don't have to beat this one to death. I just wanted to see if you -- what you thought about that, and I guess I have an answer even if it's not entirely clear to me what it is.

THE CHAIRPERSON: Diavik, did you have another answer, or do we want to go on to the next question?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. No. Please proceed.

MR. JOHN MCCULLUM: Okay. Just one (1) final question, Madam Chair. John McCullum, with EMAB. So Diavik will -- if this project is approved, Diavik will pump the processed kimberlite slurry from the process plant into the pits.

Does that -- does removing that portion of the flow that now goes into the PKC -- does that reduce the hazard that's associated with, you know, like a potential -- I don't know -- an earthquake or something like that affecting the dam with PKC and some kind of catastrophic failure into the lake?

And if it does, how much would it reduce it by? Just in order of magnitude.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. To give you a sense, John, I think it'd be reasonable to say that it's -- it represents -- the amount that we would not put into the processed kimberlite containment represents about 5 million cubic metres of tailings versus the 32 that's there.

So it would reduce that -- that risk or that consequence by 5 over 32 if you want to take it simply.

MR. JOHN MCCULLUM: Okay. Thank you. I'm just going to check with my consultant here, but I think that's all my questions, Madam Chair.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: Maybe I'll just ask. Friederike, do you have any followup questions?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): I said I didn't have any more, but I think you're not always hearing me.

MR. JOHN MCCULLUM: Okay. Thank you.

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): You're welcome.

THE CHAIRPERSON: Okay. Thank you for the questions, EMAB. We're going to break for lunch for one (1) hour. We'll come back right at 1:00, and we'll start with questions from Lutsel K'e First Nations. Lunchtime.

--- Upon recessing at 12:10 p.m.

--- Upon resuming at 1:09 p.m.

THE CHAIRPERSON: Okay, we'll call the meeting back in to order, the -- or the hearing back into order after that great lunch. We hope the afternoon will be exciting, and not so drowsy, but we'll make sure that we that we stop for some good Starbucks coffee and have a nice break, there.

We would like to continue on, then, with the lines of questioning, and I would like to ask Lutsel K'e Dene First Nation if they have questions.

MS. LAUREN KING: Lauren King, for the Lutsel K'e Dene First Nation.

The Lutsel K'e Dene First Nation is deeply concerned about the consequences of this proposed project being approved based on a preliminary water model, and if the results from the new water quality model shows that the water quality within the pit lakes does not meet AEMP benchmarks, that the project will be approved, and the water quality and other VCs (phonetic) will be compromised.

So my question to Diavik is: Will you commit to not depositing processed kimberlite in pit lakes if the new water quality model does not support doing so?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald,

with Diavik. Yeah, we commit to that. I could say the whole thing. The -- the idea being that we -- we prop -- we understand it's preliminary modelling. We know -- we know we need to do more modelling, and demonstrate that it's going to be there, both to us and to everybody else, but if the outcome of that revised modelling shows that we're going to be exceeding AEMP benchmarks, then that would be an indication to us to not proceed with the project.

MS. LAUREN KING: Okay. Thank you. Lauren King, LKDFN.

So do you -- does Diavik feel that the Review Board and the Interveners have enough information based on a preliminary water quality model to make a sound decision on potential socioecological impacts?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yeah, yeah. I -- we think that the level of information provided is appropriate for an environmental assessment, and to make that determination for an environmental assessment. We -- we'd agree that there needs to be more detail to make the final -- the final determinations under the regulatory, but yes, we think there's enough for this

level of approval.

MS. LAUREN KING: So can you please clarify -- I think that --

THE CHAIRPERSON: State your name again, please, for --

MS. LAUREN KING: Sorry, Lauren King, LKDFN. To echo EMAB's comments, why was a more thorough water quality model not undertaken for this process, and yet you'll undertake it for the -- in the next phase?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. That's generally how these processes work. The -- we mor -- we move from the more conceptual to the more detailed as the -- as the project advances through -- through permitting and approval. It -- it wouldn't make a lot of sense to put a whole lot of time and energy in at the very beginning if -- if it's not a project that's -- that's acceptable.

It's -- it's also why we started at the very beginning with engagement with communities to find out if it was, as I said before, was that -- if there was any fundamental opposition to it before we'd done any modelling.

MS. LAUREN KING: So that makes it

difficult for LKDFN to determine what the impacts will be --

THE CHAIRPERSON: Sorry, state your name again, always, please.

MS. LAUREN KING: Lauren King, LKDFN. The preliminary results make it difficult for LKDFN to really determine what the potential impacts will be without more complete information.

My next question is if meromixes is not established, is there any actions that Diavik can take to promote the establishment of meromixes, and can you speak to the likelihood of their effectiveness?

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Yeah, Gord -- excuse me, Gord Macdonald, with Diavik.

So it -- it's a bit of a -- a bit of a conundrum. If meromixes doesn't form, it might mean that there's -- there's no difference between the water at the bottom and the top that's -- it could all be very -- very clean, low -- low dissolved solids water, in which case there'd be no reason to introduce meromixes.

And if you wanted to introduce meromixes, it would -- one (1) option would be to pump saline water -- more saline water to the bottom to introduce that gradient. But you -- begs why you would do that if -- if there wasn't alre -- if there wasn't already -- if it was all clean water, why you would do that.

It -- it would be a -- that would be very effective. Other ways might be to -- to monitor the temperature of the water that you're putting in at the top to create a thermostratification at the top, and -- or more sheltering, but that would take a lot of -- like wind sheltering, but that would take a lot of -- a lot of mass, obviously, to create that kind of a wind shelter.

The -- the key thing is why would they -- why would the meromixes not be there, and the reason why that meromixes would not be there would be the key thing.

(BRIEF PAUSE)

MS. LAUREN KING: Okay. I'll have to think about that response. In the meantime -- Lauren King, LKDFN.

Can you please clarify why Diavik used the Canadian water quality guidelines for protection of aquatic life instead of pre-mine baseline conditions in Lac de Gras for AEMP benchmarks?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, Diavik. So we -- we used the AEMP benchmarks, we -- what we call the AEMP benchmarks, and I don't mean to be pedantic about it, but it's a collection of water quality guidelines for the protection of aquatic life. I think that's what you're meaning by the Canadian water quality guidelines.

We use that as a -- as sort of an upper level of an -- of a -- a level at which -- threshold of an effect level. It's -- that's what was determined in -- it was determined for in the Aquatic Effects Monitoring Program, and we use that as a -- as a limit in what's called our -- our Trigger Action Response Plan in our Aquatic Effects Monitoring Program.

So it sets a -- it sets out a threshold that as we start to approach it, we need to take -- we need to take an action. And it relates to geographic extent, as well as that -- as well is that magnitude. So the -- the notion is that there is a nul -- there

is a level of change that can occur before it would have an effect on the environment.

And if -- if your alternative was saying that it's baseline, that it's zero change, then the mine wouldn't have been able to develop in the first place without an ability to have a change -- a level of change of water chemistry in Lac de Gras.

MS. LAUREN KING: So if the water quality in Lac de Gras changes --

THE CHAIRPERSON: State your name again, please.

MS. LAUREN KING: -- Lauren King, LKDFN. If the water quality in Lac de Gras changes, then that affects cultural uses. And so you're saying it's inevitable that water quality will change for the negative, and therefore affecting cultural uses by LKDFN.

I have a question based on slide 30 in your presentation. Is it correct to say that the TK and unpaid participants in public meetings in Indigenous communities will be responsible for developing the reconnection TK base criteria?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. First, I just want to finish on the previous point. There are changes in water chemistry

in Lac de Gras. I -- I'm not sure what level of change in water chemistry would create a cultural effect. If you say it's any change will create a cultural effect, that -- that's obviously your -- that's your -- valued, your opinion. We -- we did not understand that any change would -- would result in a cultural effect.

What we're saying -- what we're saying here is the process for developing these -- these TK base criteria would be to start with our traditional knowledge panel, and we think that's our -- our best collaborative window into how these -- these criteria might be developed. And the -- a concern that's been raised by the -- by the panel and others is that the -- the panel members don't want to necessarily be representative of their communities; they're representative of their knowledge, and they're participating on that -- on that basis.

So it would then take a level of verification back with each of the communities themselves, and we've proposed to use EMAB for that -- as -- as that vehicle, because the five (5) Indigenous groups all sit on EMAB, and then we think that would be a very useful forum for getting that -- that level of alignment.

Then to make sure that we included Indigenous groups that are not part of EMAB, we then do that vetting through -- through those separate communities. But then the final -- the final approval, if you will, would be through the Wekeezhi Land and Water Board as a closure criteria. So they are the -- the Board that reviews our closure plan, and our closure plan includes criteria, and is expected to include traditional knowledge base criteria.

I -- I hope that answers your question.

MS. LAUREN KING: Lauren King, LKDFN. It is my understanding that Diavik was responsible for determining the perceived cultural use impacts on te Indigenous parties, so I don't see how that was possible without engaging with Indigenous parties to determine if a change in water quality in Lac de Gras would affect cultural use.

As for the TK panel and the five (5) Indigenous parties represented on the EMAB Board, I think that the engagement activities differ from developing plans, our aspects of plans. That's a consultant's job. So hiring traditional knowledge experts would be more appropriate.

(BRIEF PAUSE)

MS. LAUREN KING: And I would just like to --

THE CHAIRPERSON: Diavik...?

MS. LAUREN KING: Sorry.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Sorry, I -- I didn't -- I didn't mention that the -- the TK panel is facilitated by, I think what you are referring to as consultants that are experts in traditional knowledge, or experts in facilitating traditional knowledge. So they are the ones that would be helping with the -- with the traditional knowledge panel to develop these criteria.

MS. LAUREN KING: Thank you. My recommendation is that they provide advice rather than be creators --

THE CHAIRPERSON: State your name, please.

MS. LAUREN KING: Lauren King, LKDFN. My next question is regarding slide 31. You state there is a high likelihood that predicted pit lake water quality conditions will not meet TK best -- TK based pit lake criteria for reconnection. Can you tell me the basis for that comment?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Sorry, you have to read the end of the first one; it says if, if there is that.

So you asked previously -- you said if -- if we did additional water -- water quality modelling, and it determined -- and so that's what -- it's an if. It's not that we expect that to happen. It's just that if that would happen.

MS. LAUREN KING: Thank you. And my -- Lauren King, LKDFN. My final comment is that LKDFN supports GNWT/ENR's request for a written statement regarding the risks of placing PK in a containment facility versus the pits.

THE CHAIRPERSON: Any further questions from Lutsel K'e Dene First Nation?

MS. DORIS ENZOE: Doris Enzoe, Lutsel K'e Dene First Nation, Wildlife Committee.

My questions to Diavik, about a year -- about a year ago, I went to Diavik for traditional knowledge. I never knew that they were going to take my traditional knowledge and use the information that was okay to put that PKC into the tailings pond. And we're only allowed two (2) people from my community for making decision for my community when -- when it should have been consulted with them -- the rest of my

-- my people in my community, just not use only two (2) people. For me, it's not right.

I can't make decisions on my own. I have my leadership. I have a committee. I have my membership that I have to consult with when I got home, but today, it seems like when I went over there, I was -- I said it was okay, but it's not just me.

I did go on -- I did go halfway underground, and there was people that went underground, said water does leak, and they put it into the -- into the water where they clean the water before it goes back into the lake.

When I asked a question yesterday to see if you -- what will happen to the PKC that you put in there at the bottom, I asked if you can drink the water, and you said no. So now I'm thinking the water that's on the bottom of where you're going to put the PKC, on the bottom of the lake, that's not healthy. You know, living -- living close to all the mines, we have current. We have rivers. So it does affect us. And I also went a year ago to do a fish tasting. And in there, the fish were not healthy. And there was worms in the fish, too.

When I see things, I do talk about it. It's not just my say. And the fish are not healthy.

Now I ask them, can you send me the -- the results of how the fish are? Maybe they sent it to Wildlife, I don't know, because I've been busy.

So if we're going to be doing stuff like this, putting the tailings pond back in the water, and when you say that brown stuff is not healthy, well, the -- the lake is not going to be healthy. And we all know there's climate change, and we already see it.

And when you say to me, we're putting this stuff underground, it's going to be frozen forever, I don't believe that, because things that you move around will never go back the same. Never.

I'm sitting here. I'm speaking on behalf of my community, my family members, my young generations. I have to speak for them so they can stay healthy and live a good life. The mine's not going to be there forever, but you guys are going to close it down, leave, destroying everything that was healthy there before. That's not right for me.

I wanted to say something, but it -- I don't think it's the right way to say it, but if you come to my community, you only went there once and consult with us. We live close, and the water flows right around Copper Mine and everywhere, down to

Artillery Lake, into Lockhart River, where Grat -- Lady of the Falls is, into McLeod Bay, into Great Slave Lake. People from Copper Mine said their fish are unhealthy already, and they're not sitting in here, KIA, I wonder why.

I travelled to lots of meetings. I watch people, what they say, and what they talk about. I write notes down, even the notes that my late mom used to sit in the meetings, I still keep their papers because that will help me for the next generation She's no longer with me but she told me, one day the mines, whenever they promise you things, thinking that it's going to go back to the same way, it's not going to be like that, my girl, and today it is, because we don't see caribou and maybe destroying our fish, maybe our fresh water that we live on.

In some places you can't just go out there and drink water. In my community you can, and I would like to keep that safe, and anywhere I go, the land is my pillow. I could sleep anywhere but if it's not healthy I wouldn't go there.

Same with Giant Mine that used to be here, now people can't pick berries, but then I heard it's not going to be the same as that, Giant Mine. How can you tell me it's not going to be the same?

How do you know it's not going to be the same? It's all talk.

THE CHAIRPERSON: Doris, if I could interrupt, please. I truly appreciate -- the Board is truly respectful of your comments that you are making, but at this technical hearing, we are here to ask questions and later on you will be able to make public comments, but if I could just interrupt and if we could just try to stay to the agenda so that we can ask questions.

MS. DORIS ENZOE: Okay. Then I have another question. My name is Doris Enzoe.

I want to ask a question about the water, if it's going to be healthy or not for future generations.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Madam Chair, Doris, I think the best way I can answer that is that our definition of healthy is whether it's below or above that aquatic effects monitoring point benchmark, and what we're saying is that it would -- it could exceed that benchmark at the very bottom, a hundred and fifty (150) metres below the -- below the surface, but it would not exceed that benchmark in the upper forty (40) metres.

So with that we'd say that that surface water which would be used by people, by fish, by caribou, would be healthy.

THE CHAIRPERSON: Questions from Lutsel K'e Dene First Nation?

MS. DORIS ENZOE: Doris Enzoe again, and I have another question. So when the pit is close (sic) and after you put your PKC in there, after it settles, you're going to fill up the water and then open it up to the whole lake, how long will that take before it gets full?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I think the numbers we're looking at right now is about three (3) years from the time we finish -- we finish mining operations in 2025, until we'd be at the point where we'd all be evaluating, measuring that water, it's full, and we're deciding whether to reconnect it or not, so 2028, three (3) years from the time we end operations till the time we'd be reconnecting it with Lac de Gras, if the conditions are all appropriate.

MS. DORIS ENZOE: Doris Enzoe, Lutsel K'e Dene First Nation.

So after you fill up your water, you

guys are only looking at or monitor that for only three (3) years, or you're going to monitor it long?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We -- we -- well, we said we'd monitor it for two (2) years before we breached it, before we -- before we cut those openings, so we could make sure the water was healthy before reconnecting with Lac de Gras, and then we would continue to monitor it after that.

It'd probably be at least ten (10) years but it'll depend on the results of that monitoring and the results of other closure projects, closure work on the island as to how long that monitoring would continue.

MS. DORIS ENZOE: Doris Enzoe, Lutsel K'e Dene First Nation. So after closing ten (10) years, are you going to consult with our First Nations of what -- how it is, like if it's healthy or not?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Doris, yes, we will.

MS. DORIS ENZOE: Masi cho.

THE CHAIRPERSON: Questions to Lutsel K'e First Nation.

MR. ROBERT PAISHEGWON: Robert Paishegwon, Lutsel K'e First Nation. Thanks, Doris, for your -- your comments and questions.

So -- so as you can see, looks like your numbers already are being impacted by mine activities from the Diavik Mine.

So how was cultural impact determined by Diavik? Can you provide some more details on this?

(BRIEF PAUSE)

MR. ROBERT PAISHEGWON: Sorry, if I could add further. And how is it determined to be insignificant?

THE CHAIRPERSON: State your name again, please.

MR. ROBERT PAISHEGWON: Robert Paishegwon.

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Thanks, Madam Chair. I'll get a response from -- the air impacts assessment group that -- that did the work.

(BRIEF PAUSE)

MR. COLIN BUCHANAN: Colin Buchanan, consultant to Diavik.

So in considering effects on cultural use, we assume that cultural use is important and that the health and abundance of traditionally harvested species and the continued availability and access to traditionally sites and areas were important.

So in looking at cultural use we assess the -- any change to the availability of traditional use species and access to species or sites or areas that would be important, recognizing of course that people may choose not to use an area for all sorts of spiritual, cultural, or aesthetic reasons.

Our conclusions were based on information that Diavik has collected through consultation they've been doing for twenty-five (25) years, through information provided in TK Panel reports, and to -- and through information that was collected for the 1999 Comprehensive Study Report, as well as the results of the biophysical VCs.

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. So in summary we -- we can only -- we

could only assess if there was a change in use or a change in availability of resource, and that's how we determined that it -- that there wasn't a cultural impact.

We -- we couldn't assess whether there was a perceived or whether would be a change in use. We expected that would be the information that -- that you would bring to this -- the Indigenous groups would bring to this session.

MR. ROBERT PAISHEGWON: So that doesn't answer the question.

THE CHAIRPERSON: State your name, please.

MR. ROBERT PAISHEGWON: Sorry, Robert Paishegwon. So that doesn't answer how it was determined that the perceived impact is not insignificant.

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald. Is there a reference? I'm not sure we've ever said the perceived impact was insignificant. I think -- I think what we're saying is that there was -- there was

no -- we didn't identify a cultural impact because we didn't identify a change in availability of wildlife or of water chemistry or of fish.

THE CHAIRPERSON: State your name.

MS. LAUREN KING: Lauren King, LKDFN. So in the scoping document it said that Diavik was responsible for assessing actual and perceived cultural use impacts. So it's unclear how you evaluated perceived impacts from the -- from the Lutsel K'e Dene First Nation without working with us or hiring us to actually do so.

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I -- I take your point. I think that's the purpose of these hearings is to -- is to share that perceived impact. I take your point.

MR. ROBERT PAISHEGWON: Thank you.

THE CHAIRPERSON: State your name.

MR. ROBERT PAISHEGWON: Robert Paishegwon, LDKFN (sic). So have any other options been considered for PK storage? For example, have you -- or I'm sorry, have -- has Diavik explored covering

the PK with an impermeable layer prior to adding water to the pits to further reduce potential for contamination?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We have -- we conceptually have looked at that. It's -- it's material that level keeps changing, so it's difficult -- it would be technically quite difficult to put any kind of a -- a barrier. The most effective barrier that's there is the chemocline. That difference in chemic -- in gradient of density is the most effective barrier between the water chemistry at the bottom and the water chemistry at the top.

MR. ROBERT PAISHEGWON: So you're saying that --

THE CHAIRPERSON: State your name, please.

MR. ROBERT PAISHEGWON: Robert Paishegwon, LDKFN (sic). So you're saying that it would be more -- or it would be better than impermeable layer over top of the PK, correct?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. No, I don't think I would categorize it

quite that way. If you could physically build that, then clearly that would be a better -- a better method.

MR. ROBERT PAISHEGWON: Robert Paishegwon. So then you did not consider that -- that option for this project, correct?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. That's correct.

(BRIEF PAUSE)

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. I have a couple of questions for Diavik.

I have some questions about your model, thinking about things overnight since the community hearing yesterday, but this morning I heard that you haven't actually run your models, and so I'm a little bit confused. And it sounds like there may or may not be an opportunity for Akaitcho Dene First Nations to participate in -- in building that model or contributing to what kind of models are used and -- and so forth in the future.

I wonder will your models include areas of uncertainty like how are you going to include in

your model the constraining of seep and groundwater volumes and chemistry?

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with -- with Diavik. Sorry if there is confusion on whether we have or haven't done any modelling.

It's -- it's levels of modelling, so we have done a first level of modelling but we've committed to doing three (3) more -- three (3) more steps in this modelling before we're actually at closure, and the next one is the one we were discussing with the GNWT this morning, which would be done before we were -- before we could be permitted to put any processed kimberlite into the mine workings.

And we do expect that there would be -- could be involvement for anyone who was -- who was interested, and we would include the seeps that are currently in the mine workings where groundwater seeps into the mine workings. Those would be included in the -- in the next round of modelling. It would be included based on our -- the monitoring that we've been doing over the last seventeen (17) years on

observation on volumes and locations for where those seeps come in.

MS. STEPHANIE POOLE: Stephanie Poole. Do those -- does that data include -- like, that historical data, does that include chemistry?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yes, we monitor that...we -- we -- we monitor that -- the chemistry of those seeps on a -- on a two-week basis, and it's -- all of that information is on the Wek'eezhii Land and Water Board, but that would form the basis for the inputs to the model.

MS. STEPHANIE POOLE: Stephanie Poole. So you monitor volume and chemistry. And anything else on a biweekly basis? Do you measure temperature?

THE CHAIRPERSON: Diavik...?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So just to clarify, so we -- we sample for chemistry, including temperature, every two (2) weeks, and we do flow daily, and that's -- that's historical. We have all that available and it's online.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. Do you do any on-site meteorological monitoring?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. Yes, we do, the normal suite of meteorological parameters.

MS. STEPHANIE POOLE: Does that include the measurement of the light extinction coefficient?

(BRIEF PAUSE)

MR. GORD MACDONALD: Stephanie, I think -- Gord Macdonald, with Diavik.

Stephanie, are you talking about light extinction into water? Yeah. It's -- I mean, we do -- we do measure that as part of the AMP. That's what's called a Secchi depth, so that's the depth, right, which you can differen -- differentiate between black and white on a -- on an indicator which you can correlate to that, but that's not a meteorological measurement that we apply.

MS. STEPHANIE POOLE: So --

THE CHAIRPERSON: State your name.

MS. STEPHANIE POOLE: Stephanie Poole. So the answer is no, that you're not using meteorological data to -- to find that, you're using a different kind -- method to determine that. Is that

right?

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, for Diavik. Correct, we don't measure it directly. We'd have to calculate it use other -- using other methods.

MS. STEPHANIE POOLE: Stephanie Poole. So that might be something you want to consider when you're developing your next round of models in areas of -- of uncertainty around all models.

My next question is about meromictic lakes. Meromictic lakes turn eventually. All meromictic lakes eventually turn. Could take years or decades or larger amounts of time. Do you agree?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Stephanie, I think you probably want to talk with Jerry about this one.

(BRIEF PAUSE)

MR. JERRY VANDENBERG: Jerry Vandenberg, consultant to Diavik. I don't agree with that statement. There are about three hundred (300) meromictic lakes naturally worldwide, and I'm not aware of any evidence that shows they all eventually

turn over.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. I'll endeavour to provide you with that evidence.

The next question. In a meromictic lake, on the bottom layer, where there's very low oxygen, it sounds like you were trying to say that most of the living things inside the water, I'm paraphrasing, occur in the top part of the Robertson Head Frame.

So, in that bottom later where there is very low oxygen there is purple sulphur bacteria that grow on the bottom of meromictic lakes. And when they do their thing, the result is sulphur. And that sulphur could be oxidized and turned into sulphuric acid.

Where in your environmental impact statement is this issue discussed?

MR. JERRY VANDENBERG: Jerry Vandenberg, consultant to Diavik. The conditions you're describing do exist in some lakes; however, those are very unique situations that only exist where the geology has that sort of conditions already.

So, in other words, in a -- in a high sulphur environment, there are bacteria that will

cycle the sulphur and change it to hydrogen sulphide or sulphate depending on the conditions. But that is not something we would find in a pit lake where the pit is excavated into bedrock.

And we don't expect to find high amounts of sulphur the way we would in, for example, some lake sediments that are thousands and thousands of year old in a natural meromictic and it's had, you know, deposition coming into the lake for many lake of many minerals and it sets up these conditions for these unique bacteria, but we don't expect to see that in a pit lake.

MS. STEPHANIE POOLE: Stephanie Poole. Is -- is your answer to my question that this issue is not described anywhere in the environmental impact statement?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord MacDonald, with Diavik. So, we can maybe allow the con -- conversation to keep going, we'll get you the reference to where we don't -- where we address those. I think -- I think we address those questions in one (1) of the IR response.

MS. STEPHANIE POOLE: Stephanie Poole. You think you do or -- like, where is it? Can you tell me?

MR. GORD MACDONALD: That's what we're just looking up. Do you want us to take a pau -- Gord MacDonald, with Diavik. Do you want us to pause while we look for it, or keep going?

THE CHAIRPERSON: Stephanie, if you have another question while they're looking it up, the have enough people over there to look it up. And if you can ask another question.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. Let's see. Where am I? Just a couple more.

So, it's our experience with lakes that when you have a shallow lake or a shallow area that suddenly becomes very deep, that that is usually an area where strong current occurs.

Have you considered the effects or impacts of creating this deep pit lake in an otherwise described shallow lake and the current that will be created there from that?

MR. GORD MACDONALD: Gord MacDonald, from Diavik. This -- if you just -- I think you might be correct if we just dug a big hole in the middle of

the lake with nothing around it, that -- that kind of a phenomenon may occur.

But remember the -- the dike's still all the way around the pit lake with limited size breaches, like, limited size cuttings into the -- into the dike intentionally to try and keep the current in the -- in the pit lake as calm as we can.

That was the whole -- that was the whole premise behind constructing the fish habitat in that -- in that sheltered area in there, is to create a condition in Lac de Gras that's calmer and less exposed than it was before we built the dikes.

Much of Lac de Gras has quite -- is quite open and exposed to wave action and there aren't a lot of calm, more productive areas for fish ha -- as a fish habitat, which is -- which was the be -- the -- the premise behind the construction in the first place.

So, we -- we think that those -- those currents would be -- would not be significant within the -- within the pit lakes.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. Did you say that you have historical data on how the currents flow in Lac de Gras?

MR. GORD MACDONALD: Gord MacDonald,

with Diavik. Going back all the way to baseline colle -- data collection, we do. We have some current current, as in flow velocity, measurements from back then.

And then, since then, it's just been observations from construction activities and -- and things like that, and mostly integration through -- through mathematical modelling of the -- of the currents in the lake.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. Is that just for in and around your ex -- exploitation site or the entire Lac de Gras?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. The -- the data collection I'm referring to would be just around the -- would have been just around the east island.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. Would you commit to undertaking those studies and having a full understanding of how currents work in Lac de Gras?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. If we thought it was necessary to understand what's going on in Lac de Gras, we would, but, again, we've been there for -- we've been there for a while.

We have monitored how water chemistry changes within Lac de Gras and how it moves. And the next work that we'll be doing will be with -- with modelling to be able to integrate how all of that works within the lake.

We haven't yet identified a need for additional monitoring of -- or measurement of -- of velocities within the lake.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. When you visited my community in April I asked you some questions about your client change model.

And your response to me that -- was that your climate change model only includes temperature and precipitation. Is that still the same and why is that?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. Yeah, what I was referring to is the -- the models that we have approved by the Wek'eezhii Land & Water Board for use in desi -- in closure design.

And -- and you're correct, it was temperature and precipitation. Those were the only two (2) variables for -- for the closure mo -- for the closure design work that -- that we thought was

important.

And for the -- for this -- for this PK deposition -- PK to mine workings deposition work, the -- the other condition that we looked at was wind because we thought that that might be a possible climate change condition of -- of higher winds and whether that would influence the breakdown of meromixis in the lake.

But we don't have a model for that. We just made assumptions of extreme wind events.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. That brings me to my -- my next question, which is around engagement.

And -- and how -- when you're doing your engagement activities and community members bring forward what they believe to be fundamental and significant concerns, how -- how do you record these engagement endeavours? How do they inform ada -- adaptation of your environmental impact statement or your proposal?

Where is the table that shows me your engagement activities, what you heard from Indigenous people and how you incorporated that into your plans?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. It is appended to the original water

licence amendment application. And I can -- I'll confess that it's -- it's a very challenging thing to do because -- mostly because it's -- it's difficult for us to try and put in what -- in our recollection or our meeting notes what someone's stated concern was or wasn't and whether that's something that should be reported publically or not.

So, we -- we do it at a pretty high level, a summary of what was -- of what was described, but we -- we intentionally try not to be specific for respect for the people in the -- in the meetings.

And -- and we expect that, if there was a concern that we haven't addressed or that -- that matters to -- to the community, that they would bring those forward on their own in a process such as this.

THE CHAIRPERSON: Just a reminder to Lutsel K'e, if we could keep our questions in a timely fashion. So, we have several developers -- or Interveners here yet that would still like to ask questions to the developer, so if we could move on shortly, Ste -- Stephanie.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole. Yeah, I'm just trying to get all my questions out there while they're looking for the answer to the other one (1).

My -- I guess my final question to Diavik will be, have you received consent from any of the Akaitcho Dene First Nations for this proposal to proceed?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Nothing that I would -- I would classify as being consent. I think what -- what we -- what I expressed in the opening slides was that we -- we heard general support, but all conditional upon being able to demonstrate that it was acceptable, it can be done safely from an environmental perspective.

And I -- I took that to mean that we haven't done that. So, I would say that, no, we don't have consent.

Stephanie, just to answer your other question, it's -- it's Mackenzie Valley -- it was the -- its was the Mackenzie Valley IR number 18 is where you'll see our response about anoxic conditions in the bottom of -- of a mine working with kimberlite and how that -- that decline -- that reduction in oxygen could affect other concentrations.

THE CHAIRPERSON: Okay. Final question for Lutsel K'e Dene First Nation.

(BRIEF PAUSE)

MR. CHARLIE CATHOLIQUE: Thank you, Mr. (sic) Chair. My name is Charlie Catholique. I'm from Lutsel K'e. How many minutes do we have?

THE CHAIRPERSON: Two and a half (2 1/2)? Wow. I just want to ask a question to Diavik here. Just before -- did you guys ever did experimental on fish with -- anywhere around the mind, whatever, in the dirty water, whatever?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Charlie, I -- I experiment with fish -- I -- I think this might be what you mean. Like, we did toxicity testing with fish.

So, we -- we put fish in with processed kimberlite water as a part of a toxicity test. I think that's the only experiment I can think of.

MR. CHARLIE CATHOLIQUE: What kind of fish is that? Charlie.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I think they were all -- they were the -- the fish tests in the toxicity work that was done at the University was -- was with Rainbow trout, which is a common -- a common test fish species for -- for laboratory work.

MR. CHARLIE CATHOLIQUE: Okay. And the next question will be because I don't have much

time --

THE CHAIRPERSON: State your name again, please.

MR. CHARLIE CATHOLIQUE: Charlie.

THE CHAIRPERSON: Charlie --

MR. CHARLIE CATHOLIQUE: Yeah.

THE CHAIRPERSON: -- do you have a last name?

MR. CHARLIE CATHOLIQUE: Catholique.

THE CHAIRPERSON: Catholique. Good. Thank you.

MR. CHARLIE CATHOLIQUE: And do you think before you put anything in the pit, water, whatever, is the pit free of oil, all that, in the pit, diesel, whatever, from the equipment?

(BRIEF PAUSE)

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So, I guess to -- to answer that question, Charlie, so whenev -- whenever there's a spill onsite at Diavik, it's reported sort of immediately to the GNWT. And it's also cleaned up immediately by staff onsite.

So, we have, you know, a series of

procedures and we report on all those cleanups. And there's also follow-up by the inspector on -- on those cleanups.

So, yeah, there -- there will be no sort of leftover spills when we -- when we fill it up because we will have already cleaned those up.

MR. CHARLIE CATHOLIQUE: Thank you. Charlie, from -- Catholique, from Lutsel K'e. One (1) more. What kind of toxic in -- I mean, the -- that rock, the one that's going to put in the pit or whatever, is there any toxic, whatever? I mean, is it dangerous to fish, wildlife, whatever?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. That was the -- I think that was the basis for why the traditional knowledge panel asked us to do the toxicity testing in it.

And in your -- your sense of toxicity? No, it's not -- it's not toxic. That doesn't mean it is as good a material as a natural lake bed sediment for aquatic health, but it's not -- it's not toxic in that sense of the word. It wouldn't kill the things on the bottom of the lake.

MR. CHARLIE CATHOLIQUE: Okay. Thank you very much. Thank you very much. That's it.

THE CHAIRPERSON: Okay. Thank you,

Lutsel K'e Dene First Nation. I would now ask, questions from Environmental Climate Change Canada?

MS. GEORGINA WILLISTON: Thank you. Thank you, Madam Chair. It's Georgina Williston, with Environment and Climate Change Canada. I'll just also let you know that we have Anne Wilson on the phone. She's our water quality expert.

So, I'll ask the questions. And then, at the end, I'll give Anne Wilson an opportunity to see if she has any followup questions.

So, our first question is, while the pit is being filled, there is a fair amount of groundwater inflow. Once the pit is full, the -- full of water, there will be pressure from the water in the pit pushing back on the groundwater coming in, and it will slow or stop or maybe even reverse and have water move out.

Is this something Diavik has considered or will be considering in their models?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I mean, the -- the short answer is, yes, we've considered it. And we've considered it both from the -- how we'll try to include it in the -- in the modelling -- the next round of modelling coming up and how it would influence that DCAT -- DCAT volumes.

It's also -- understanding that the groundwater regime in the -- in the 418 put is -- is of significant importance to us, as well, because we do have an adjacent operating mine in the 154, which is through the same conditions.

So, we have to have a very good understanding of how to keep that area de-watered so that we can continue to mine next door, as well.

THE CHAIRPERSON: When speaking into the mic, could you put the mic closer to you? It's a little bit difficult to hear. Thank you.

MS. GEORGINA WILLISTON: Thank you, Madam Chair. Georgina Williston, with Environment and Climate Change Canada.

So, our second question is, when, Gord, you were presenting about the advantages to the in-pit disposal, you had mentioned that -- something along the lines that Diavik has concluded that pore water quality would be better in the pit than on land.

So, we were just kind of wondering what the basis was for that conclusion.

MR. GORD MACDONALD: Yeah, Gord MacDonald, with Diavik. And I guess the easiest way to think about is if, for any given volume of -- of processed kimberlite it's going to release -- it's

going to release pore water over time.

That pore water is either going to be released at the bottom of a -- of the mine workings and released below a chemocline, so it would very, very slowly ever get into -- it get into Lac de Gras versus if that same cubic metre of processed kimberlite was sitting the processed kimberlite -- on land processed kimberlite containment facility, and that pore water then get -- becomes part of runoff which goes into Lac de Gras, it would get into Lac de Gras more directly and at a higher concentration than if it was at the bottom of -- then if it was at the bottom of a mine workings.

MS. GEORGINA WILLISTON: Thank you, Madam Chair. Georgina Williston. Those are our two (2) questions. And maybe now I'll just defer to the phone to see if Anne Wilson has any -- anything she would like to follow up with.

MS. ANNE WILSON (BY PHONE): Thank you. It's Anne Wilson, ECCC. Is the volume okay on this?

THE CHAIRPERSON: Yes. We can hear you.

MS. ANNE WILSON (BY PHONE): Thanks very much. Anne Wilson, ECCC. Just to follow up on

our first question, Gord, did -- does Diavik have a sense of the direction of groundwater flow post filling up a pit? Will it be recharging to the groundwater or will that be a discharge zone?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. Anne, at -- at that closure, so at post-closure, once the pits are full with water, so the water level's the same within the pit as in the lake, it's a very neutral groundwater. There's very limited flow.

The -- the topography there and the -- the water table there is very static, and so it's unlikely to be either a recharge or a deposit -- or a surcharge area.

MS. ANNE WILSON (BY PHONE): Thank you. Anne Wilson, ECCC. Then my next question is, to what extent are you expecting any diffusive processes to alter the meromixis over time?

Just looking on slide 18, over the next hundred years, it looks like it's modelled that there will be probably through -- diffusion variation in the level of PDF within the lower larry -- layer of the lake.

And is this a factor in the stability of meromixis that's going to bring any changes in the

far future?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. And I'm just getting Jerry to answer this question for you.

MR. JERRY VANDENBERG: Jerry Vandenberg, consultant to Diavik. Hi, Anne. It -- it is possible that there would be upward diffusion. If -- if there is -- and -- and I just want to clarify. We're talking about molecular diffusion, which is different from the type of diffusion that predominates in a -- in a lake, which is advective dis -- diffusion.

So, with molecular diffusion, essentially what you've got is -- is a layer of more salty water in an -- in -- in the meromictic lake and you've got this denser layer of water, and you have molec -- molecular diffusion diffusing mass upward.

And that is possible, that over probably thousands of years you could have upward movement of mass. And, eventually, after probably several thousand years, the -- the lake would have such a low mass at the bottom that it would mix.

At that point, there's really no consequence to the lake water column because, at that point, there's nothing to mix with. And it's -- it's very difficult to predict that because it's such a slow process. And, at that point, you're talking about very small movements of mass.

So, all we really can say that -- is, if it does happen, it would turn the lake over at such a time when there's very little mass, very little constituents of any kind left at the bottom.

Does that answer your question, Anne?

MS. ANNE WILSON (BY PHONE): Anne Wilson, ECCC. Yes, it does. Thank you. And that's all my questions.

THE CHAIRPERSON: Questions, Environmental Climate Change Canada?

MS. GEORGINA WILLISTON: Thank you, Madam Chair. It's Georgina Williston, with Environment and Climate Change Canada. We have no further questions.

THE CHAIRPERSON: Thank you. Questions, Department of Fisheries and Oceans?

MR. DANIEL COOMBS: Thank you, Madam Chair. It's Dan Coombs, with Fisheries and Oceans Canada. I have one (1) question in regards to slide

31.

(BRIEF PAUSE)

MR. DANIEL COOMBS: Just the first two (2) sub-points of the fourth point. I'd just like Diavik to clarify whether that is just in regards to if a pit receives PK or -- or not.

MR. GORD MACDONALD: Gord MacDonald, with Diavik. It was intended in the context of processed kimberlite, but the same thing would apply if it was not because we'd need your approval first before we can upwater chemistry first. And I presumed you'd be doing the same kind of evaluation.

MR. DANIEL COOMBS: Dan Coombs, Fisheries and Oceans Canada. Thank you.

(BRIEF PAUSE)

THE CHAIRPERSON: Questions, DFO?

MR. DANIEL COOMBS: Dan Coombs, DFO. That's all for me.

THE CHAIRPERSON: Thank you. Questions, Tlicho Government?

(BRIEF PAUSE)

DR. GINGER GIBSON: Thank you very much, Madam Chair. Ginger Gibson, Tlicho Government. We have two (2) questions for you about -- from Tony Pearse about pore water.

So, it's stated that -- in your documents, it's stated that pore water will form above the PK solids as they're being deposited in the pits and that this will be decanted as the pits are filled with kimberlite.

So, two (2) questions. Can Diavik confirm that this pore water will include the EFPK slimes portion that does not consolidate?

And, furthermore, in your summary statement you indicate that pore water will be decanted or pumped out during the fill -- filling process.

Is this still the plan or is this -- is the plan now to leave this material in place permanently? Masi.

MR. GORD MACDONALD: Gord Macdonald, from Diavik. And thank you, Ginger, for providing the comments to the questions in advance so that we could have an answer ready for you.

Just to be clear, the -- you -- you're correct about the pore water. But the -- the question about pore water, whether it's from the extra fine processed kimberlite or the fine processed kimberlite, it does need a bit of clarification.

So, all pore water -- or all processed kimberlite will create a -- will create a pore water. The -- the material that we intend to deposit operationally that we're calling fine processed kimberlite also has extra fine processed kimberlite as a part of it; it's both.

So, the pore water that's generated from that would be generated from both of those fractions. And so, to be -- so, I think the answer's, yes, it would include that material that would come from the extra fine processed kimberlite.

But I don't agree with the statement that it -- that it would not consolidate. Extra fine processed kimberlite does consolidate, it just consolidates much more slowly than the -- the fine processed kimberlite.

You asked about the -- whether the plan is to decant the water. And I'm sure there's the -- in those -- the videos that we were showing, it's that -- what we call the decant water is that clear portion

that develops on top.

So, that will continually develop during operations. And that volume of water will be pumped out from the mine -- from the mine pit as soon as it gets to a level that we can actually access it.

And that water would -- would go to our north inlet and be used as either recycled and reused in the process plant or treated and discharged to Lac de Gras.

And there -- there was not a plan to leave it in place. What -- what made them confusing is, at the -- at the end of operations, it wasn't clear how much water would be left at the bottom; obviously, it wouldn't be zero.

And so, we were asked by the Wek'eezhii Land & Water Board to consider two (2) different scenarios. One (1) was where there was a 5-metre level of water at the bottom of the -- at the bottom of the pit before we started flooding, and the other would be if there -- if there was 15 metres of water left at the bottom before we had flooding.

So, those are the -- those are the differences between some of the scenarios that are in the summary impact statement. Thank you.

(BRIEF PAUSE)

DR. GINGER GIBSON: Masi. Ginger Gibson, with the Tlicho Government. The -- we've -- you've made a commitment to independent review. And I'd like to explore that a little bit with you.

I'd like you to discuss a little bit of what you think the -- the different kinds of expertise that needs to be in place in order to conduct the modelling that you've identified.

And then I'd like you, please, to comment on your comfort with that independent review process being something that's conducted and supervised by the Wek'eezhii Land & Water Board, much as we've seen in the past.

We've seen many independent peer review panels associated with different technical reviews. So, Fortune Minerals has two (2) independent review panels as a condition of the -- as a measure of the environmental assessment.

And I'm sure people are familiar with the ammonia panels that have been in place for other processes.

So, I'm wondering if you can comment on, as I said, the expertise that needs to be in place

and your comfort with that being something that is conducted externally and supervised through the Wek'eezhii Land & Water Board. Masi.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Again, my expert -- my expectations, and it's obviously open for -- open for discussion, but my expectation would be that that independent expert would -- would be a mod -- a water quality modeller, someone with expertise in modelling, the derivation of the modelling, the applications of the modelling, an ability to sort through to what are the -- what are the critical drivers of that model and be able to speak to the confidence in the -- in the model predictions.

With regard to the -- the "supervision" of the -- or direction of the independent panel, we have a pa -- we have an independent panel that works -- that reviews Diavik's program.

Sometimes they're externally shared with regulatory -- like, regulatory bodies, like the Wek'eezhii Land & Water Board. Sometimes they're just internal, for our own assurance processes.

We're very comfortable working directly with an independent panel and reporting externally on its processes. It could also work that it's the

Wek'eezhii Land & Water Board that wants to administer that, but I guess we sort of feel it's our responsibility. It should be our burden to manage and finance.

It's -- we don't think belo -- it needs to Wek'eezhii Land & Water Board's role.

(BRIEF PAUSE)

DR. GINGER GIBSON: Masi. Ginger Gibson, with Tlicho Government. I understand that you made a presentation last night in Dettah and that on slide 7 there was a list of the up sides and the down sides of the technology of the approach that you're suggesting.

And then, furthermore, that there was some deep conversation and some more elaboration on those slides by your experts as well as possibly some discussion.

And I think we're really interested in that record and we'd like to be able to show that record to our Elders and -- and verify and generate new commentary from the Elders that are here with us.

And so, we'd like to ask you to make that an undertaking so that that's something -- to

actually develop that list as a -- as a two (2) pager or a three (3) pager so that we're able to share that with the Elders and generate our own understanding of what Elders' views of those -- of the approach of both placing the -- the kimberlite in the pits versus keeping it in the tailings.

We'd -- we'd like -- we'd like to know if you'd be able to do that. Masi.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. If it's helpful, we're happy to provide a copy of the slide. And I'll provide my speaking notes, which is verbatim what I -- what I said.

But I think to -- we -- we certainly -- I don't think we had any expert opinion added to any of it during the sessions last night, but there is a full transcript that would be available sometime today, I believe, that -- that could be forwarded.

I'm happy to provide what we have in writing. And maybe while we're on that, I -- I was told by someone that, in two (2) places, I said 500 million instead of 5 million in the transcript, so my speaking notes will be able to correct that, as well.

(BRIEF PAUSE)

DR. GINGER GIBSON: So, pardon me, Madam Chair, can I ask? I -- I'm not clear if whether my colleague is agreeing to put this together in three (3) short pages or two (2) short pages tonight so we can look at this as a submission, not just the slide, but to give it a little bit more depth.

I am asking for an undertaking so that we can look at this in -- in a detailed way. Masi. Sorry, Ginger Gibson, Tlicho Government.

THE CHAIRPERSON: Legal counsel...?

MR. JOHN DONIHEE: Thank you, Madam Chair. It's John Donihee. Mr. Macdonald, you're -- you've offered to -- already to provide it. I -- I assume then you're comfortable if we record that as Undertaking number 1 for the proceeding, that you'll provide your speaking notes and any materials that went into your description of that particular slide number 7 from last night to Tlicho Government?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. There was -- you -- you needed it tonight, Ginger, was that the...and you'd add that we'd provide it tonight.

THE CHAIRPERSON: Legal counsel...?

MR. JOHN DONIHEE: Madam Chair, well, perhaps just we'll -- we'll record it anyways, Mr.

Macdonald. And perhaps TG will be good enough to know when they have it in hand so that we know that it's satisfied before the end of the Hearing.

DR. GINGER GIBSON: Ginger Gibson, Tlicho Government. That's -- that's fine with us. We'll do so. Thank you.

--- UNDERTAKING NO. 1: Follow-up to advantages/ disadvantages slide 7 from Dettah hearing. Diavik to provide speaking notes along with slide 7 to the TG.

MS. GINGER GIBSON: Ginger Gibson, Tlicho Government. This is an -- I guess it's a bit of an esoteric question, Gord. I'd like to -- you're in a situation where by 2022 you need to decide to put the -- the kimberlite into the its or to increase the size of the -- the tailings facility.

Did you also consider no further mining? Masi.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. No, we didn't consider no further mining. If -- if we're not able to take advantage of the -- of putting processed kimberlite into the mine

workings, we'd proceed with continuing to put it into the processed kimberlite containment.

Just to clarify, it's -- we -- we can't wait until 2022 to actually make that decision. We have to make a decision sometime next year on whether we're going to continue with dam raises or not.

MS. GINGER GIBSON: Masi. Ginger Gibson, Tlicho Government. Gord, could you please comment on what -- I mean, I think we've today discussed how there's a high level of scientific uncertainty assoli -- associated with the modelling that's been done.

And the GNWT has usefully described to us some of the missing information. Can you describe to us what you think could be the outcome, the worst possible outcome, of independent modelling? Masi.

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, from Diavik. I think I answered this already this morning. But, personally, I think the worst case would be an unequivocal result, that it's not clear whether -- whether the water quality would be acceptable or unacceptable.

And I -- I think that would be the worst outcome.

DR. GINGER GIBSON: Masi. I'm -- I'm going to try and frame a question referring to the Review Board's In -- Information Requests. So, the Review Board issued Information Requests during the public Hearings -- or the earlier phase of this -- this review process.

And they asked us, as the experts, to discuss the question of cultural use and what is the meaning of the area and how it might impact on the Elders and the Elders' use of the area if the processed kimberlite was placed in the pits.

In our intervention, in our response to the Review Board's intervention, we indicated that the Elders pointed out that the plans will change the way they use and view the area.

One (1) Elder in particular stated that, if the pits are then -- if the dikes are broken and the pits is connected after the kimberlite material is placed in the pit and the area is turned into fish habitat, it is unlikely that they would use the area for hunting, fishing, netting or anything like that.

The Elders tomorrow will speak of their

concerns with respect to cultural use of the area. But I wanted to ask if the -- you if -- I mean, ultimately the Tlicho are the experts on cultural use, and we're not asking you to be the experts on how it will impact their perceptions of risk or their use of the area.

But your finding that there will be no impact on cultural use seems to be -- we didn't share that finding, and I think that's what we said in this intervention in response to the Review Board.

So I wondered if when you reviewed our report if you were -- if your team was able to use that information and how it impacted your -- your description of -- and the confidence that you hold in the prediction that there will be no impact on cultural use. Masi

MR. GORD MACDONALD: Gord Macdonald, with Diavik. So, Ginger, as you know, those -- those responses to IRs came in after we had done the assessment, so we couldn't -- obviously, it couldn't reflect in it.

Our confidence, as Sean was mentioning, is in the -- in is in the predictions of conditions that would occur. I share your view that it's not our -- it's not our place to say what the -- what the

perceived change in use would be as a result of that.

Our confidence is in -- is in the predicted water quality and that it wouldn't lead to a change in ability to drink the water or ability for caribou to use it from -- from our knowledge base.

(BRIEF PAUSE)

ELDER JOSEPH JUDAS: My name is Joseph Judas; I'm with Tlicho. And, Chair, I want to say this in my language. I don't know where all the people...

(INTERPRETED FROM INDIGENOUS LANGUAGE INTO ENGLISH)

ELDER JOSEPH JUDAS: Through the public sharing that's here, we hear a lot of good information that -- you know, that it affects us and including the water.

Most of the Aboriginal people, I guess, relay a message to (INDISCERNIBLE) about how important the water is. And then the -- since the operations of the mine is in existence for almost twenty (20) years now and now that the history told us that it's up to date and then through our -- the outline, you know

exactly what's happened up from a point behind us started about twenty (20) years ago until to date.

Yes. That -- knowing that the -- most of the people in the community are awaiting the answers and are probably concerned about the operation of the mine. And a lot of people in the past that worked around that area regarding for trapping and out in the white fox back in the early days and then the -- when the land was really clear, the land wasn't touched or disrupted by the mining companies.

And to date, I guess, you know, like according to the processed kimberlite, it has to be, you know, put back into the mine into the open pit and then eventually fill up with water.

The -- this is the essence and probably, I guess, when -- and the only thing that we are concerned about is the -- what might happen down the road if the -- there was a minor earthquake or supposing if the dyke itself have a breach or broken and then the -- and then all that -- the affluents inside the -- the dyke itself, I guess, will eventually, you know, reach out into the Lac de Gras.

We know that most of you have already asked you the same question already. And then the one thing that I'm quite concerned about is the affluents

from the water. There must be some kind of a chemical in there that maybe there are some smell of some sort that -- you know, that maybe it's not very good for the -- what's in the water like fish.

The -- now that the way I look at it and then after saying that, I guess, you know, like do you there right now, the processed kimberlite is on the ground. And then if you look at -- in the area where the containment is -- I guess, you know, you all could see for yourself what's there and then what -- eventually could always smell the affluents from the -- while standing in that area on a moist day.

So the smell that might have an impact on the fish or the wildlife by use is down the road, and then the -- to me, I feel that maybe we should try to fill up the dyke in the future, and we should try to -- don't have to fill right down to that -- down to the top. We should leave some space there for the -- eventually the dyke and the water and the -- and those things that could be aired out by solving to the future.

So these are the things that I am concerned. And then the -- in order to breach the dyke into the future, I suggested maybe we should try to put some boulders around the area where, you know,

the dyke is -- if the water happened to be to that -- right to the brim.

So this is my concern, and I probably might want to ask some more questions probably in my -- you know, ask some more question probably tomorrow because the primary comment, I guess, you know, that, you know, you certainly got our message about the -- how much of the Aboriginal people love the land, I guess, you know, especially our ancestors that usually about -- on the land a long time ago and on the tundra. Thank you.

(INTERPRETATION CONCLUDED)

THE CHAIRPERSON: Questions from Tlicho Government?

DR. GINGER GIBSON: Tlicho government. I think if Gord could answer Mr. Judas' question that -- this is Ginger Gibson, Tlicho Government -- could you please answer the question about the affect of earthquakes on the movement of material within the dikes or within the lake and then thereafter if the dike is breached into Lac de Gras. Masi.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. One (1) of the reasons we talk about the

term that it's a more secure place to store material in the underground versus on the surface is not that we're in a high earthquake zone, but it is kind of what she's asking about.

Honestly, if there is -- if there was a devastating kind of earthquake on site, the most exposed would be the processed kimberlite containment area where it sits on the island well above the lake level. That's the most likely place where kimberlite would flow from into the lake.

The safest place in an earthquake would be at the bottom of those pits because an earthquake -- in that point, there actually is no -- there's -- the material can't flow into the lake. It's lower than the lake, and so it would be most likely to stay where it is.

So for that scenario -- and it's a very unlikely scenario; I think we all agree with that -- the safest place would be for -- that kimberlite would be at the bottom of the pit.

The question about if the -- if the dykes broke or seeped or something post-closure, post-closure, once we've breached them, they're actually not doing anything to contain any of the processed kimberlite. And so they're not engineered

structures anymore; they're not doing anything. They're more like a series of small islands in a -- in a lake than they are a dyke. So they're not actually stopping the -- containing any of the material.

What they -- what they do provide is some shelter, as I explained earlier, from currents which helps with the fish habitat and helps reduce any of the potential mixing in the lake. I hope that answers your question, sir.

MS. VIOLET CAMSELL-BLONDIN: Violet Camsell-Blondin, from Tlicho Government. About the second week in this past June and also on another trip that I went with EMAB -- June the 16 to 17, around there -- we went to the site, and we look at the kimberlite area there. That's a huge area taking just about all of the upper side of the island there.

And I think on two (2) occasion and on these two (2) different trips, Gordon, I ask -- and I think about that now because what if there's a probability that the water modeling is not favourable? Have you considered other sites on the island that -- I think it was by the north inlet or in that area -- have you considered other sites that Diavik would consider to deposit the reminding of the kimberlite for the rest of the mine life?

And I know at one point, you said, well, we're still doing calculation. So I would like, at this point, ask that question, and I look forward to your answer.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Violet, thanks for reminding me of that question you did raise when we were there.

And you -- I think at the time, we were specifically referring to pond 3, which is -- well, Sean finds that; I'll look at it.

And we did do our homework on it, Violet, and it's not big enough. It's only about 20 percent of the volume that we would need to store the remainder of the -- of mine life. So it's not big enough to -- it is engineered, and it is a large collection pond that could take some material.

But right now, it also -- it also works as an emergency store -- emergency water storage pond so that if the -- by engineering design, the processed kimberlite has to have.

If there's a massive rainfall event, there has to be a spillway and a place where the water can exit that facility safely, and that is through the pond 3. And pond 3 is used for storage of that emergency water.

So it -- so the answer to your question is no, it's not big enough. And no, it's already being used. So that was the most logical other place on the island.

MS. VIOLET CAMSELL-BLONDIN: Violet Camsell-Blondin, Tlicho Government. But if you look at that map on the right-hand side without the white area there, if you see all that brown space on the left-hand side and above the -- near the north inlet and by the north inlet there and way on the left-hand side, it appears to be a lot of space in there. Can you speak a little bit about that?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Where Sean's pointing right now? Is that where you're referring to? Or outside of that?

MS. VIOLET CAMSELL-BLONDIN: Violet Camsell-Blondin. Out of those area that has the map, identify that. Yeah. And all -- all down -- down there up to 418 I think it is. Yeah.

MR. GORD MACDONALD: And yeah. Gord Macdonald, with Diavik. No -- yeah. You're talking about whether we take up additional footprint and build a completely new -- you're talking about whether we take out -- like build a completely new structure on the island. Yeah. No. That -- that wouldn't be

feasible to -- I mean, certainly you could do that, and there is room for that kind of thing.

But we would not do that. We'd continue to raise -- raise the dam versus building a new one.

MS. VIOLET CAMSELL-BLONDIN: Violet Camsell-Blondin. So basically, it's not favourable because of economics reason. Is that it?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. That and we -- it's not part of our original project description, so we'd have to go through all the permitting and approvals for that.

We've had quite a bit of comment and feedback from everyone about keeping the footprint small, so there would be quite a reluctance to make that footprint bigger.

I still think that on balance, the -- the better approach -- if we weren't allowed to put it into the mine workings, the better approach would be to stay within the existing footprint and raise it up.

MS. VIOLET CAMSELL-BLONDIN: Okay. My final questions. Violet Camsell-Blondin, Tlicho Government.

In the event that the various water modeling is not favourable, like I said, would you go

back to raising the PKC dam higher until the mine life?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. That's correct.

MS. VIOLET CAMSELL-BLONDIN: Madam Chair, Violet Camsell-Blondin, Tlicho Government. We have another elder that wants to ask a question: Louie Zoe.

(INTERPRETED FROM INDIGENOUS LANGUAGE INTO ENGLISH)

ELDER LOUIE ZOE: An elder from Gameti. Yes. As I'm not a geologist or anything like that, but now less -- that I'm concerned as any other citizen. The -- talking about processed kimberlite, I guess, you know, why don't you just leave it at the side without -- instead of putting it inside the pit and then, you know, put water into the future?

Yes. That maybe the -- if the processed kimberlite is sitting in the containment as it is, and then maybe it could -- it might dilute itself and it clean itself out over time.

So yes. At the -- once the -- even itself, I guess, you know, the wall of the -- the pit itself, I guess, and all that it's -- some chemical

might be in there that, you know, I'd be -- even though it's supposed to give you -- fill up with natural water, and then the water itself might not be safe, then for the animals and fish and that.

And then the -- even the -- after you -- we know that the water itself is a living thing, and then he said that's a current to make it alive. And then once that's -- you know, it's too deep inside a pit, I guess. The water's not moving. Maybe -- we might find the water is just -- they just dead.

So this is my concern. And then the -- definitely he says if you see a modern regular lake outdoor, I guess, you know, at the -- through some kind of irrigation, I guess, you know, that the water itself is always moving because of the current, either that, or the wind makes it, you know, living water, like I said earlier on.

And so the -- if you have an open pit and then eventually filled up with the processed kimberlite and, I guess, you know, that the -- it might not be safe, you know, for the future animals and fish that will be living in there. I don't know how far deep it -- the animal -- the fish could go.

But at the same time, too, the

permafrost -- not only permafrost but should a climate change, yes, we know that the -- there's a lot of tunnels inside the open -- open pit. And, I guess, you know, that the amount of water that might take to pull it up, and this is all my concern.

So this is my -- my comment regarding the -- what I think about the whole operations of the mine. Thank you.

(INTERPRETATION CONCLUDED)

THE CHAIRPERSON: Thank you. Final questions from the Tlicho Government?

DR. GINGER GIBSON: Masi. Ginger Gibson, Tlicho Government. No further questions.

Oh, pardon me. That was incorrect. Joseph Judas, one (1) more question.

(INTERPRETED FROM INDIGENOUS LANGUAGE INTO ENGLISH)

ELDER JOSEPH JUDAS: My name is Joseph Judas; I'm from Wekweeti. I'd like to ask Diavik after closure -- post-closure -- well, how long would the monitoring continue?

On page 9 -- if you look at page 9,

when you are bringing things from underground to the top keeping it on top, that's what we're talking about.

You're saying that within twenty-four (24) hours -- like within that whole area around the mine, there's always things going on at the mine. But after closure when there's no one working at the mine or monitoring that area, I'm sure that -- will change that landscape, will change -- it'll work on itself.

So after closure, how many years will they continue to monitor -- who will be involved in the monitoring program? Maybe they have set up these monitoring programs, but if you don't work on something -- if you leave something alone, it just becomes dead.

And so we want to also try to know exactly how the water is. Also if there's any changes happening on that area of that island, this is what we want to know.

I have been there just recent. I looked at that mining area. There is places where there's -- you say that there's not a lot of rock structure. And sometimes when you look at those big rocks structures, you wonder how wildlife will even get past that area, and it's just so amazing to see to

what immense work that would take to fix this.

So after closure, how will you continue to monitor and try to bring it back to its natural state? If no one monitors that area, how long will this monitoring after post-closure will continue?

(INTERPRETATION CONCLUDED)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Those are very good questions. It's going to be dependent upon where we're monitoring and what we're monitoring.

But in simple terms, we'll continue with the lake monitoring, which we call the AEMP program, which generally does an assessment of the health of Lac de Gras and the water chemistry of Lac de Gras.

And we'll keep doing that -- we're expecting it's going to start -- it's going to start changing from operations and actually getting better from the conditions that they're in today.

Then we'll do more direct monitoring right on the island of those facilities, like the north country rock pile that you're referring to and the pits, in a more direct way to make sure that

they're exactly right.

We think it's going to be in the ten (10) to twenty (20) years of monitoring. That kind of a time frame. But it will depend upon the results.

So if we see results that show that the performance of those areas are working the way we expected they would and the aquatic effects monitoring program is showing the health of Lac de Gras is there and the caribou monitoring is showing -- giving us information about how the wildlife interacts with those structures that are still on site, we think we can start reducing those programs.

If they're not, then we'll have to keep going with them. I think as we mentioned before, it's something we'll have to work with you on on how long we should be monitoring for and whether we're -- whether it's at a point where we can stop.

THE CHAIRPERSON: Questions, Tlicho Government?

(INTERPRETED FROM INDIGENOUS LANGUAGE INTO ENGLISH)

ELDER JOE RABESCA: Madam Chair, I will speak in my language. We see that -- I thought

everyone knew me. I think everybody knows me. Joe Rabesca.

When you look at that -- when you look at that mine site, there is two (2) areas where there's two (2) pits there. You look at the two (2) pits, and they're going to put PK in there, and then fill it in with water.

When we realize that maybe in ten (10) years they're going to continue to monitor in the future after post-closure, we talked about this in Behchoko and Dettah yesterday.

But we still haven't talked about things in global warming. And over time, we know that global warming is upon us.

And so when we live in the Northwest Territories, wherever there's a mine -- we're not saying no to development. If there is a possibility that -- and can development will happen, with development comes employment, and that's how we like to work. We like to earn and make money and work for ourself. Everybody feels that way here in this room. We're not against development.

But at the same time, we need -- we need to do it our way. We need to do it protecting the wildlife. We need to protect the waters. We need

to take -- protect the air. And everybody wants to protect those things. We're not against development. We need to put in some really good plans that protect everything.

And so after post-closure, they're talking about continuing monitoring. We know that there's lots of mines in the Northwest Territories, and those are all old abandoned mines. And many -- many abandoned mines that left underground holes existing, and we've seen that in many of our lands.

And one (1) Elder who was -- could see into the future talked about -- had insight into the future -- name Alex Arrowmaker -- had talked about many things in the past. They had said that if you're going to develop up in any area in the north, the caribou would avoid that area over time.

And so now we have experienced that caribou is not going in that area because it was their main migration areas ever since we were young. We've lived in Wekweeti. And when caribou come down to -- to our areas, we would see about half a million caribou coming down from the arctic and -- and going to Wekweeti. Sometime they would travel through our area for about -- and that herd would travel through for about one (1) week.

And today now, the caribou is continuing to stand up in the arctic up in the barren land instead of going to the -- down to the treeline. So the caribou's continuing to stay longer up in the barren lands.

We're wondering also whenever there's any kind of catastrophe in the world, like an earthquake, Madam, we need to kind of look at all kinds of scenarios that could happen in the world. And this is the kind of scenarios that we're looking at.

It's not only this mine but maybe in future mines that may come up to be developed. We need to put these kind of ideas in development mind and their way that they're planning the mines up in the north. Even though they're predicting that it's okay, even though they -- they finish post-closure after monitoring, and something happens, then the PK will eventually mix with local water.

And so we really have to kind of look at these kind of situations that could happen. So over time, maybe if these kind of scenarios happen, will they come back to the area and clean up the mess? Will they come back to try to fix something that's gone wrong?

It's okay that they're monitoring ten (10) years, twenty (20) years. It's not right. We need to monitor our lands into the future. Like, look at our young people in our communities: future generations, their children. Where that land exist, they'll still -- that land will still exist when our future generations come.

And so we want them to use that area even after we're gone. Whatever land we have, we would like them to use it. In 1921 when -- in 1921 when government had made treaty with the Dene people, they had made treaty not thinking what would happen after these kind of processes happen.

And so today, our knowledge and our way of life is what we will continue to hold onto. We have a lot of adverse people in our communities. We're not concerned about them. We're helping them. We're helping each other as we live in our communities.

And so what if in any of your communities, there's a big disaster and everybody gets involved in that disaster. We don't want our -- to face disasters. We don't want to miss something that will create something bigger for tomorrow.

And so, Madam Chair, I'm getting off

topic. But we're talking about land negotiations now. Our elders used to say: If you miss one rule, if you miss one step in important process while we have the time, while we have the attention of a government and industry people, we need to talk together with them, make sure that they hear us well so that we avoid something bigger that may become disastrous to our people.

And so we need to decide how we're going to negotiate, how we can agree -- come into agreement when people are not worried about the future. We're talking about long time ago. Things change over time, and so that's why we have to prepare for the changes that's coming over time.

And so we have to look at those areas and those thoughts. And Diavik, they have created a mine on our land. And from the time that they started till closure, as long as they are following rules, as long as they're doing it in a sustainable way, we are working with them also. We're working together.

But if they are going to think that they're going to develop another mine that is like this, they may have a difficult time to do that kind of mining in the future.

We have to make sure we know their

plans: What are their thoughts? What are their way of thinking as they develop mines?

But we really need to talk more about water. There was somebody here that talked about eventually it reaches a copper mine area -- the Inuit people -- into the oceans, and it flows out into the oceans. How do they feel about that kind of water? Because they, too, use the land and wildlife and water.

And so when we include those kind of concerns about those people in that -- near the ocean, we have to think about what are their concerns? And so anywhere where there's development, we're also talking about the Mackenzie River, the people that live along the river systems.

So wherever you're developing any mine, you have to think about all the river connecting systems that are flowing to the people. You don't want to create unhealthy environment for the people in the Northwest Territories. I'm sure you have that in mind as you work.

So because we live close to the waters, all the communities live so close to the water, and we depend on our fish and all the other wildlife that prey on each other, that's how we live and in that

whole area.

So when one (1) thing changes, it's like a domino effects. It affects everything. It's not only we that live on water. All things exist on water as well as wildlife.

Madam Chair, that's what I wanted to bring up. We're -- we would like this kind of monitoring program to go for as long as we can. Thank you very much.

(INTERPRETATION CONCLUDED)

THE CHAIRPERSON: Masi cho for your comments. Is there a final question from Tlicho Government? Because we would like to take a break at this time.

We are very far behind on the agenda that's ahead of us. It'll probably be another 9:00 at night meeting here, but we don't want that to happen. It's tiring for everyone all the way around.

I would like just to remind everyone that if we could keep it to the questions. And the comments could be made at the public comment period that's on the agenda today.

Final question from Tlicho Government?

ELDER CHARLIE JIM NITSIZA: Masi, Madam Chair. My name is Charlie Jim Nitsiza, Tlicho Government. I have a question for Diavik.

I see that the pit is about 640 metres. I'd like to ask Diavik if they could tell me around that pit area -- that lake area how deep is it?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So the -- Lac de Gras, on average, is 12 metres deep. So quite -- quite shallow.

Some areas we found are as deep as 40 metres, but most of it's less than that -- sort of more in that 10 to 20-metre deep range.

ELDER CHARLIE JIM NITSIZA: Thank you. The reason I ask is because of that other mine called Snap Lake Mine closing because of a -- the pit is under water. It's all -- the water coming, so they have to shut the mine down.

Just want to know if Diavik done any study like that to have where water could come into -- into the pit from the lake. Have they done any study like that to -- because of 640 metres too deep, and the lead water's only 40. And may come -- water may come in from a lake.

So the question is: Do they have -- have they done any study on those thing -- the water

coming from the lake? Masi.

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. Yeah. So we have done a lot of studies on how much water enters our pits and how much water we expect to enter the pits into the future of 2025.

Just to give you an idea: So we have a water treatment plant onsite and a whole water management system. So we have the capacity to treat 90 million litres of water per day. And currently, on average, we treat about 45 million litres per day over a given year.

So we're currently not using nearly the full capacity of our system, and we don't expect to ever need to use the full system. Yeah. And most of that volume, probably about eight-five (85), ninety (90) percent of it is from the water going into the pits and the underground.

ELDER CHARLIE JIM NITSIZA: Thank you. I have no further question.

THE CHAIRPERSON: Thank you. Masi cho. At this time then, we'd like to call a short break, and then we'll come right back with the Yellowknives Dene First Nation.

And if we can -- again, just a reminder to keep it to questions, please. Thank you.

--- Upon recessing at 3:07 p.m.

--- Upon resuming at 3:21 p.m.

THE CHAIRPERSON: Okay, we are ready to start. First up is going to be the Yellowknives Dene First Nation. So questions from Yellowknife Dene First Nation?

MR. MACHEL THOMAS: Machel Thomas, YKDFN. Question to Diavik. There have been many questions here from Inter -- other Interveners relating to groundwater. I just want to firm up something that was said -- or not said.

At what elevation will groundwater enter the pit?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. Currently, Marcel (sic), the groundwater enters at almost all levels of the pit except for the most very shallow, but it's -- so it seeps in through the walls, and the closer it gets, the amount of flow gets greater as you go down.

And then at the -- at strategic locations, we actually have drainage galleries where we've put in pumps and -- and drilled holes back into the grid -- into the walls to try and collect as much

of that groundwater as possible. But so it's multiple elevations.

MR. MACHEL THOMAS: Machel Thomas, YKDFN. Thank you, Gord. So my follow-up question to that is if there is water seeping into the pit, and you are expecting that meromixes would give you some type of stability, is there any potential for the groundwater at the lower depths to disrupt this?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. So again, the -- the seepage is occurring now because the pit's dewatered, and so there is -- there is a -- what's called a driving head. So the lake is pushing the water down, and the groundwater into the pit.

Once we fill the pit back up, there'll no longer be that driving force of -- to -- to push the water into the pit. And -- but if there was -- if there was groundwater coming into the pit, we think it will probably help -- it would probably help meromixes, because it is a more saline water, and the greater volume will come at the greater depth, so it would be more on the bottom than on the -- on the top.

MR. MACHEL THOMAS: Thank you. Machel Thomas, YKDFN. I'd like to ask another question in terms of the TDSs in the poor water.

SI know that the meromixes process states that the more dense water will stay, but my question is if this will have -- if there'll upper diffusion after time. So could you speak to that, please?

MR. GORD MACDONALD: Gord Macdonald, from Diavik. I -- I think that's the response Jerry gave. Do you want -- did you want it repeated? It was the response Jerry gave to Environment Canada's question.

MR. MACHEL THOMAS: Thank you. Could it be repeated, please?

MR. JERRY VANDENBERG: Jerry Vandenberg, consultant to Diavik. So I'll try and repeat the whole answer.

There are two (2) types of upward diffusion that we need to understand. One is the most dominant type of diffusion, which is advective diffusion, which is when water moves and TDS moves with it, and that's by far the dominant type of diffusion in a surface water system like a lake or a pit lake.

And that's the type of diffusion that we've looked at in the modelling. So over time, we do see a small amount of that diffusion.

Now over many thousands of years, for example, we might see molecular diffusion, which is when molecules can diffuse from one area, usually a -- a high concentration to a low concentration without any movement of water, and that type of diffusion is difficult, possibly impossible to predict accurately over -- over that type of timeframe.

And it is possible that that could occur. If it does, what would happen is you would get a very, very slow movement of -- of mass from the lower layer of the lake to the upper layer of the lake. It would be almost certainly unmeasurable, it would be so slow, but over perhaps thousands of years, you might get a movement of all of the mass from the bottom of the lake to the top of the lake, and then a turnover.

If that were to occur, there would be no consequence to the water quality, because there is no longer any mass at the bottom to be stirred up when the lake turns over. So it's -- it's possible. To summarize, it's possible, probably impossible to predict, but of no environmental consequence if it does happen many thousands of years in the future.

MR. MACHEL THOMAS: Thank you.

(BRIEF PAUSE)

MR. MACHEL THOMAS: I have a question again to Diavik.

Are there any lessons that can be learned from the existing PK facility in how EPK and EFPK operate within a contained environment in terms of putting it -- how -- and how that would relate to putting it into the pit?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I -- probably the -- the most relevant is that difference in consolidation that we'd identified out of the PKC that would apply to how it behaves into the -- into the mine pit. I -- I think that's probably a key one.

And the other learning, I guess, we get is that we -- the -- the decant water, so the -- in the -- in the PKC itself, that pond water shows those same behaviours. It clarifies very quickly. I -- I'm continually amazed at how clear that water stays in the PKC. So we think that's, again, a helpful sign and a lesson learned for the ability to decant the -- readily decant the water in the -- in the mine workings.

MR. MACHEL THOMAS: Thank you. Machel

Thomas, YKDFN. I'd like to ask another question.

Is it practical to see that if PK was deposited, it would be safer if a cap similar to what is proposed -- or normally proposed to have -- to be put on lake pits at closure be put on the PK in the pit?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord -- Gord MacDonald, with Diavik. And I think what you're asking is if we could put a cap like what we're putting on the PKC, which is just a cover of rock, on the deposited PK in the pit, would that be a -- a practical thing.

And if -- if that -- if that's your question, the answer is it's not. And the reason it's not practical is it's -- imagine, even once it's fully consolidated, this material might have the composition of -- of -- what do they call it, dewatered bannock?

I think the translators were calling it "overwatered bannock," if that gives you a good description. I would have called it toothpaste, but it's -- it's got that kind of a consistency. So if you put rock on it to build that cover, the rock's

just going to sink down in it. It won't make a -- it won't make a cover. It's not strong enough to hold it up.

MR. MACHEL THOMAS: Thank you. I have on line 2 on conference our consultant, Doug Bright. I'd like to go to him to ask if he have -- has any questions.

MR. DOUG BRIGHT (by phone): Thank you, Machel. Doug Bright, from Hemmera on behalf of the Yellowknives Dene First Nation.

A couple of quick contexts, and I won't belabor this, Madam Chair, just as a -- as a context to the question. We, in our review, we were generally supportive of -- of the interim disposal and concept, but based on the documentation provided, we, like many others we've heard today, have concerns that the case has been -- case has been made about future water quality in -- in the upper layer when the -- the flooded pit is connected back with the lake.

My first -- my first question is, there's an unstated assumption, and -- and this is for Diavik -- that the lakebed productivity and biodiversity doesn't matter, that -- that if we isolate the upper system and fish from -- from the lower lake bed, that productivity that would be lost,

and that ability for the breakdown of (INDISCERNIBLE) organic matter, phosphate recycling, and supporting of primary productivity is not really relevant. And I -- I wonder if Diavik can comment on that, please.

THE CHAIRPERSON: Just a reminder, please slow down when you're -- you're asking your questions. We have translation going on as well.

MR. DOUG BRIGHT (by phone): Thank you, Madam Chair. I'll -- I'll do better.

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord MacDonald --

MR. DOUG BRIGHT (by phone): And I--

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I think that it was -- a bit difficult to hear the question, but I think you -- you asked there -- there are other processes that will go on in a -- that would go on in a very deep hole in the lake, and that -- that we haven't accounted for in the modelling, and why we didn't.

And -- and presuming that was what your question is, that all of those processes that you described about how it would become a, you know, a

sink for phosphorus, it could be a sink for other organic material that would deposit into there.

In relation to predicting the -- what the water chemistry would be on those top 40 metres, the -- those will be also good examples of where we've tried to be conservative in the modelling. So if you -- if you accounted for all of those other things, it would likely end up making the water chemistry in that top 40 metres better rather than worse.

MR. DOUG BRIGHT (by phone): Thanks. Doug Bright. My question is really about the -- any productivity that occurs within the lake bed. This is in the flooded pit after reconnection. Would -- it's basically discounted as part of the -- the significant determination.

I wonder if you could comment on that?

THE CHAIRPERSON: You can't hear? Okay. If you could repeat your question, please? And if you listen to this headpiece on -- on channel 1, you would be able to pick it up a little bit louder. But please repeat your question

MR. DOUG BRIGHT (by phone): Yeah, Doug Bright, YKDFN. My question relates to the productivity in the lakebed. And I've been referring to the flooded pit after reconnection.

The -- that productivity is assumed to -- to be negative to (INDISCERNIBLE), and that's not, as far as I can tell, taken into account in a determination of significance. Can you comment, please?

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Can you just confirm you're talking about the -- the fish productivity is your -- is your conc -- is the question? It's not considered as a part of the -- the no net loss calculation of fish productivity?

MR. DOUG BRIGHT (by phone): Doug Bright. To clarify, well, it's not -- fish productivity or habitat and processes that support fish productivity. So that could be things happening in the lakebed, including microbial activity, for example, and breakdown of (INDISCERNIBLE) organic matter, those kinds of things.

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yeah, that -- the no net loss calculations, in terms of the amount of fish habitat being created on the inside of -- in those inside areas, assumes that all of that is -- all of the area where the -- where the pit is is what we -- what we refer to as deep -- deep water habitat, and it was given a -- a, you know, a lower habitat value because it's of -- of lower use to a fish -- to fish than not.

And it's really just saying that it's only that surface water that would be utilized by fish, and not the -- not the full depth of the water. So most of the -- the habitat gains -- the habitat unique gains that are in those calculations are for the area between the pit crest and the inside tow of the dike.

MR. DOUG BRIGHT (by phone): Thank you. Doug Bright, YKDFN. Second question, there was a comment in one (1) of the written submissions that lake trout, whitefish, grayling, other valued fish species are less likely to use the pit lake environment once reconnected.

And the question is, does that -- can that undermine the value of reconnecting the pit in

terms of the overall concept?

(BRIEF PAUSE)

MR. GORD MACDONALD: Okay. Were you able to cite the -- the specific reference?

MR. DOUG BRIGHT (by phone): Sorry, I -- I don't have it on hand, but it's, you know, if that's not a major part of your submissions, then -- then we can agree to ignore the question and move on.

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik, did you have a response?

MR. GORD MACDONALD: I -- I think he said if it wasn't an important part of our submission, we could move to the next response -- or the next question.

THE CHAIRPERSON: Okay. All right. For the person online, was there another question?

MR. DOUG BRIGHT (by phone): Yeah. I have one (1) final question. Doug Bright, YDKFN.

My final question relates to meromixes, and modelling, and -- and the theory about upward flux

of things like nitrite, and -- and sulphate, and molybdenum in the kind of pit post-closure environment.

And certainly from discussion and -- and Jerry talked earlier about the two (2) different kinds of (INDISCERNIBLE) that some (INDISCERNIBLE) can move from the lower water in the pit and from basically the -- the pit bottom to the upper water layer, where fish might reside. And he talked about advective flux, that flux associated with the bulk movement of water and water currents, and he talked about diffusive flux.

And the impression I get is diffusive flux has not been calculated. Diffusive flux is very easy to calculate based on Fick's law of diffusion, and there are many geochemists that don't write it off as -- as being unimportant in terms of the cycling of many things in -- in small lake and large lake ecosystems.

The -- one (1) of the things I had a problem with in my review is -- is that if we actually assume that the only real transportation mechanism from lower layers in the flooded pit lake to the upper layer is diffusion, then there's no reason to believe that the rates of diffusion from this core water that

would (INDISCERNIBLE) layer, that would fit as an intermediate layer, and directly from the lakebed core water would be any different per unit time.

So the question is: Has anybody included in the estimate so far an actual simple prediction of diffusive flux based on Fick's law, for example, and why should there be any difference in upward diffusion of the substances of concern between the pit lake, from its bottom, and the cold water layer?

(BRIEF PAUSE)

THE CHAIRPERSON: Diavik...?

MR. JERRY VANDENBERG: Jerry Vandenberg, for Diavik. I've got a couple of parts to the answer to this, I think.

So Fick's law certainly can be used to calculate a rate of molecular diffusion. However, it's a purely hypothetical rate without some sort of a field calibration. There is a coefficient involved in that calculation, which is a diffusion coefficient, which can only be calibrated through empirical measurements.

So I can calculate that number. You

can calculate that number. Anybody in this room could calculate a molecular diffusion rate, but without an actual measurement, we're all just essentially putting in some guess number. And that -- that coefficient can vary by orders of magnitude. So it's -- it's not something you can get any sort of accuracy around without -- without empirical evidence.

Now I have done other models where I've compared a diffusion rate of molecular diffusion with advective diffusion using -- using empirical values, and the molecular diffusion has always been orders of magnitude lower than the advective diffusion. And that's a common assumption, but it's more than an assumption. It's an assumption I've verified in other settings that are similar to this.

So I do believe it's a -- a sound assumption, which in fifteen (15) years of doing this, I've never seen that assumption been wrong. So I -- I do think it's a -- it's a pretty safe assumption that advective diffusion will be the dominant type of upward diffusion compared to molecular diffusion, and that it will be essentially negligible compared to what we've already predicted.

So, I mean, it is something that can be calculated. But again, without a true measurement to

validate it -- it, I just don't see any value in -- in doing so. It would be a purely hypothetical number subject entirely to the assumptions I put into it.

MR. DOUG BRIGHT (by phone): One (1) final --

THE CHAIRPERSON: Was that your final question online?

MR. DOUG BRIGHT (by phone): One (1) -- one (1) final question, and then I'll turn it back to Machel, if he's got anything. This is Doug Bright, here, YKDFN.

I don't -- I certainly won't argue that --

THE CHAIRPERSON: Excuse me again. We're having difficulty hearing you. If you are speaking on a speakerphone, we would ask that you just pick up the line and use the -- the line instead of on a speakerphone.

MR. DOUG BRIGHT (by phone): My apologies for that. Is that better?

THE CHAIRPERSON: Okay. Continue.

MR. DOUG BRIGHT (by phone): Thanks, Doug Bright, YKDFN. I -- with a follow-up question. I don't -- and I certainly agree that -- that the -- the advective component will always be far, far

greater than the diffusive component. But by extension, that doesn't mean if you turn off the advective component, that the diffusive component is not an important contributor to water quality in the environment. And so I think it needs to be considered on its merits. Can you comment on that, please?

THE CHAIRPERSON: Questions from Yellowknives Dene First Nation?

MR. BLAKE RASMUSSEN: Blake Rasmussen, YKDFN. And pardon my ignorance a little bit. I haven't spent a lot of time on the -- Diavik's site.

With your pointer, can you direct me to the pit in which you wish to fill with PK, or partially fill? Thank you.

(BRIEF PAUSE)

MR. BLAKE RASMUSSEN: Blake Rasmussen, here. And the pit to the north of that, is that the one where it's -- been taken out of this proposed project?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. No, that's the A21, which is down at the bottom.

MR. BLAKE RASMUSSEN: Thank you.

Blake Rasmussen, YKDFN. So the more southernly pit, you're going to put a -- an amount of PK in, and the one to the north, you will be putting no material in that pit? Is that correct?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. As the plan currently stands, that's correct. We would only put it into 418. We've included it in all of the assessment, and we'd like to include in the permitting, so that if something changes in the mine plan, that we'd have the ability to change to putting the -- the PK material into -- into 154, because it would -- that would be something we'd have to do on short notice and not have to go through the -- the whole permitting and evaluation process again.

MR. BLAKE RASMUSSEN: Blake Rasmussen, YKDFN. So essentially, what we're looking at today is that you're going to put PK in one pit and not the other? Is that correct?

MR. GORD MACDONALD: Correct. That's the current plan.

MR. BLAKE RASMUSSEN: Blake Rasmussen, YKDFN. And these two (2) pits are connected through the underground workings? Is that correct?

MR. GORD MACDONALD: Gord Macdonald,

with Diavik. Yeah. If you can see the -- the purple lines on the left, which are the ones around the 418, and then the -- the lines joining them, particularly the ones John's pointing at right here. Those are the underground tunnels that would join 154 on the right-hand side and 418 on the left-hand side.

MR. BLAKE RASMUSSEN: Thank you. Blake Rasmussen, YKDFN.

And the elevation for which you are proposing one (1) pit to be filled with processed kimberlite would be through the upper levels of your underground workings. Is that correct?

MR. GORD MACDONALD: Yeah. It's about where Sean's point is -- his pointer right there. It's Gord MacDonald, with Diavik.

MR. BLAKE RASMUSSEN: Thank you. Blake Rasmussen, YKDFN. So I guess another question I want to ask, just to clarify all of this, and I'm not familiar with the geology of -- between those two (2) pits, but are there any natural faultlines or geological dikes possibly running through or in between these two (2) pits?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yes, there are some.

MR. BLAKE RASMUSSEN: Thank you.

Blake Rasmussen. I'll -- I'll take tonight to think about this a little bit.

But I want to move on to the surface, the breaching of your dikes. And the question I have to is -- if we could bring up -- if you have exactly where is that -- that you choose to breach the dikes, are these engineering -- or designed by engineer and through hyd -- hydrological studies, and water currents, and what have you? Thank you.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. And the -- the dimensions of the -- of the breaches have been selected to be as small as possible so that we can have as much protection for that fish habitat inside the dikes. But the minimum size has been specified by -- actually specified by Transport Canada, and to ensure that there is an ability to navigate through the -- through them.

So it's -- it's 30 metres of width, and -- and the -- the depth has to ensure that it goes below the ice level.

MR. BLAKE RASMUSSEN: Thank you. Blake Rasmussen, YKDFN. Just a quick comment from our experience with the water currents, with regards to the water currents.

And oftentimes that we find -- and it

doesn't matter what size of lake and how much water flows through it, when you come to a point in the land, you will have significantly more current in that area than other areas -- or a peninsula, I should say.

So I'll just -- I'll just leave that comment alone and go back to your underground just for half a second. What mechanism will you have in place to isolate one pit from the other through your underground workings if you were to fill only one (1) pit with -- or partially fill one (1) pit with processed kimberlite, and the other not, because it will be filled with water, then. Is that correct?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. And we have described in the -- in the application that something called bulkheads will need to be constructed, and we've done the initial prefeasibility assessment on what those bulkheads would look like, and those will still need to go to final design before we proceed.

And those are one (1) of the submissions we'd intend to make to the Wekeezhi Land and Water Board would be the design and locate -- specific locations of those bulkheads.

MR. BLAKE RASMUSSEN: Blake Rasmussen. No further questions for today.

THE CHAIRPERSON: Questions, the Yellowknives Dene First Nation?

(BRIEF PAUSE)

MR. PHILIP LISKE: My name's Phil -- Philip Liske. I'm Weledeh Dene First Nation.

The kimberlite you're -- that you're going to put into the pit like you said -- but before I speak on that, Snap Lake, had a -- the underground -- kimberlite underneath the water, the lake there, and the last time I went to the -- to Snap Lake there, or -- yeah, the last time -- they -- I noticed that when we were boiling the water, making tea, around the top was just -- just brown reddish colour. I'm sure this is from kimberlite and don't --

And I ask the question about, that why this happening, why that caused that, and they were giving all kinds of different story, you know, and I didn't buy that.

So -- so if you decide to put this kimberlite in the water -- I mean into that pit, like, run it, it's going to leak. Like, you got tunnels around the -- the cone. You get a tunnel because you blast it. You get tunnel -- you know, you blast it

and you blast it, blast it, and it cracks all the rocks, and it's going to mix -- it's going to mix with kimberlite and -- and the water is going to -- spoil the water.

And so that my question, this is, did you guys ever experience that, you know, with water changing colours and that?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I'll let Sean or Mark comment on that. They live at site, they drink, so they drink the water all the time. I don't think it's ever been discoloured water.

MR. SEAN SINCLAIR: Yeah. Sean Sinclair, Diavik. So, I mean, as Gord said, I -- I sort of live at site.

Anyhow, we -- the whole mine site is -- all the water we drink is straight from Lac de Gras, just right off the island, and, yeah, we've never experienced any discolouration issues.

MR. PHILIP LISKE: Because at Snap Lake they don't because they have -- they ship the water in from --

THE CHAIRPERSON: Please state your name again for the record.

MR. PHILIP LISKE: Oh, sorry. My

name is Phil Liske. At Snap Lake they -- they ship the water to the -- to a (INDISCERNIBLE) drinking water there now. I'm sure that Diavik is going to do that pretty soon.

And, you know, the water -- like, the kimberlite, that you say you're going to put into the pit, it's going to, you know -- it's going to damage and it's going to damage the -- the fish.

I wonder if you guys have any changes in the fish -- like, you know, some people are saying that, you know, they could notice the change and -- when had that fish tasting in that area. So did you notice that?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. One of the -- probably the most significant change that's -- that's been occurring in Lac de Gras as a result of -- of the Diavik -- of Diavik's operation is an increase in nitrogen and phosphorus that has -- it increases the primary productivity so the -- the growth of -- of -- of primary producers, which is the base of the food chain.

So it -- we haven't measured it, but if there was a change, it would on -- in fish, it would likely be into -- to enhancement to fish versus

detraction to fish.

I know from the parasites that are a common aspect of fish in Lac de Gras, have been always, they continue to be, and I think one of the Elders on the TK Panel mentioned that in -- in Behchoko, and that's on the first day when -- that was one (1) of the things that she observed. She didn't observe that it had changed, that it -- that it was a continuing condition, but I'd invite any of the other Elders who might be here from TK Panel to comment on that.

MR. PHILIP LISKE: My name is Phil Liske again. Now that a change going to occur, the fish will be deformed eventually like it did here in Giant Mine at the bay. The people are fishing said the fish are deformed. If that occur, what are you going to do about it?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. So we have quite an intense monitoring program called the Aquatic Effects Monitoring Program that we do under -- as part of a regulation under our water licence. It's a -- it's an annual monitoring plan, and it evaluates a number of components of the aquatic ecosystem.

And what we've developed and had

approved is an action response plan based on nine (9) levels where -- where nine (9) would be somewhere near your -- your point of -- of a level that would cause deformation and -- or some kind of a change in the -- a significant change like that in fish, and our action levels require an escalating level of response as we get closer and closer to a level nine (9).

Right now on -- the highest level I think we're at is a three (3) or a two (2) on -- on those action level responses. Sorry, two (2). And we don't anticipate that it's going to exceed beyond that, so we're -- we're -- the -- the measures that would have to be taken would be well in advance of anything that would cause fish to be deformed.

THE CHAIRPERSON: In light of time, we'd like to ask if you can just wrap up with a final question, please.

MR. PHILIP LISKE: Yes, okay. My name is Phil Liske again. Not just the fish that's going to be deformed but how about the other animals like, you know, the small game, the big game, in that area, and eating berries or grass and that and they get sick and, you know, or they start changing their habits and that. What are you going to do about it?

MR. SEAN SINCLAIR: Sean Sinclair,

Diavik. So we have other programs to monitor, like terrestrial animals, like caribou, wildlife. So we have a lichen and vegetation study where we go out on the land nearby and far away from the mine site and we -- we sample the lichen and vegetation and we look at what kind of chemicals are in it, if it's changing over time. And that -- so it's a similar sort of program, but for the land, inclu -- yeah, that -- and that includes dust deposition as well, any impacts from dust deposition.

THE CHAIRPERSON: One (1) final question from Yellowknives Dene First Nation.

MR. PHILIP LISKE: My name is Phil Liske again. This kimberlite that you're going to dump into the -- into the pit, you got your expertise like you said, did they recommend that to you or you got -- how many options did they provide before you -- you settled for this one here?

MR. GORD MACDONALD: Gord Macdonald, from Diavik. As we had mentioned originally, the -- the idea of finding an alternate place for processed kimberlite came up originally from the TK -- from the Traditional Knowledge Panel.

Once -- once we identified that the four one eight was a -- was going to be available as

an alternative, that's when we started approaching different experts to evaluate the -- well, the technical feasibility of doing that, and that included all of the modelling and everything.

So it was -- it was our ask of them to say is this -- is this technically feasible, does this make sense, would the water chemistry -- would the water chemistry be -- be safe. Those were their instructions, was to evaluate those options for us.

MR. PHILIP LISKE: The last question -- my name is Phil Liske again. Okay. It was mentioned that we recommend that you -- that -- that you transport kimberlite to another place to -- to the mainland, to other pits, like to -- to Ekati Mine. Yeah, they got open pit there.

So can you transport that into that area or suggest that -- will you do that?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We haven't looked at it in detail. The concept of moving -- of piping tailings or processed kimberlite off the island onto the mainland was looked at originally in the Environmental Assessment, citing all of the -- the storage facilities off of the island, and it -- without -- without actually building a causeway, like a -- a full land road off of the

island, you -- you wouldn't be able to put a floating pipeline across Lac de Gras, given ice conditions and all that occurs there, to safely dispose of materials off the island.

So, no, it would not be feasible or practical to pipe tailings off of the island and store them in Misery or one (1) of the Ekati Mine workings.

THE CHAIRPERSON: Thank you, Yellowknives Dene First Nation for your questions.

In fairness to the other groups, we would like to move on now so that they would have an opportunity to ask questions.

The next people that are on the list is the North Slave Metis Association.

MS. JESSICA HURTUBISE: Hello. This is Jessica Hurtubise from the North Slave Metis Alliance. I'm the Regulatory Analyst at NSMA. I have two (2) questions for Diavik and then I will pass the microphone to one of our technical experts, Andrea, who is on the line.

So my first question is in regards to Slide 25 of the presentation this morning. One (1) of the points says that proposed mitigation and monitoring would include wildlife deterrence to limit wildlife protection interactions.

I just want clarification. Is that proposed from Interveners or is that an actual accepted and planned process for closure?

(BRIEF PAUSE)

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So -- so we do currently employ, like, a variety of wildlife deterrent actions on site, sort as needed, and this commitment is really a commitment to update those to address this, you know, specifically the PK to mine workings component, but yeah, it's operational.

So I think the concerns, a lot of the concerns we heard were while it's being filled, not -- not post closure when it's a lake. It's more keeping them out during the process of filling, so between 2022 and 2025.

MS. JESSICA HURTUBISE: Jessica Hurtubise, with North Slave Metis Alliance. Okay. Thank you for the clarification.

One (1) of the main reasons I bring it up is, although we've heard a lot of information about the water quality be -- had a state that wouldn't impact any wildlife if they're in the area, we'd still

be concerned, or members are still concerned about any caribou in the area or perhaps even waterfowl migrating into the area and landing or falling into the pits, so it would be of interest to potentially look at longer-term wildlife deterrence.

I can pass on to my next question, unless you wanted to add something. Okay.

My second question is in regards to further community participation. So we have -- our members have been very happy to participate through the TK Panel. We've gotten a lot of interest in passing information, and that collaboration has always been very valued.

However, we're -- we have heard from members that there'd be interest in a broader pathway for input, for example, perhaps community-based monitoring during the closure process.

And one (1) of the reasons I bring this is up is although the TK Panel has been a very important method of discussion between members as well as Diavik, we have seen that the middle generation would like to be better represented because the TK Panel, thankfully this year we were happy to see, has been brought in to, not just others but to youth, but there's a lot of members in the middle generation that

do not get represented through these pathways, and a lot of them have a lot of valued experience in environmental monitoring and they would be very interested in working on site through the closure and working with you either directly or input those monitoring plans.

So my question is: Is there any consideration for membership participation, different from just a TK Panel?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with -- with Diavik. It's certainly something we've been discussing -- we've been discussing with the TK Panel but just the concept of -- and other Indigenous communities said the same thing, that the -- their desire particularly at closure to be able to come to site and see for themselves how that's going.

So we haven't -- we haven't figured out exactly what that's going to look like, but that's definitely something we're expecting to -- to be able to do. It's something that we hope people will be able to participate in.

The one (1) other avenue that you

should be aware that some groups are not, is -- is EMAB, so NSMA does have a -- a Board representative on EMAB and it's also a very good forum for engagement back and forth with -- with the community and into the -- into the project as well.

MS. JESSICA HURTUBISE: Jessica Hurtubise, with North Slave Metis Alliance. Thanks, Gord. I appreciate the clarification through EMAB and happy to hear that there's being consideration for other input than the TK Panel. We appreciate the work that's been gone into -- or put into the TK Panel so far.

Those are all of my question. Madam Chair, I'd like to pass the microphone to our consultant, Andrea Buckman, who's on the line right now.

MS. ANDREA BUCKMAN (BY PHONE): Hello. Andrea Buckman here, from (INDISCERNIBLE) Consulting, on behalf of North Slave Metis Alliance.

We have a few questions. Thanks again for your very thoughtful responses on our technical questions earlier.

I'd like to start first by talking about some of our concerns with how the magnitude ratings were defined in the EA. The -- significance

in the EA was defined by a high magnitude rating, and it was clarified that a higher magnitude rating is based on 20 percent above the AEMP benchmarks, which are derived from various water quality guidelines.

THE CHAIRPERSON: Excuse me, could you slow down for the interpreters, please?

MS. ANDREA BUCKMAN (BY PHONE): Sure, no problem, sorry.

We wanted to just point out that the AEMP benchmarks are derived from water quality guidelines. These various water quality guidelines are -- they're designed to be protective of aquatic life. So they do have a 10 percent protection measure in them, but that measure is there for protection of aquatic life.

And so our question is, what is the scientific basis for defining the significance rating based on a 20 percent above that -- that guideline value?

MR. GORD MACDONALD: Gord Macdonald, from Diavik. I wouldn't say it was a scientific basis. It goes back to the original Environmental Assessment in 1990 -- 1999, and I think if you look into the language there, that -- that addition on top of it was just to avoid the situation where you've got

a marginal -- something that's marginally above a threshold. That's the only language I'm able to find in there to -- to describe why that 20 percent is there.

As we answered this morning -- sorry, I can't remember who it was to, even if you removed that -- that 20 percent, that magnitude, we stay below that AEMP threshold in all of the assessments. So even if you would change that magnitude to being a -- a definition of -- was the AEMP benchmark versus the AEMP plus 20 percent, it would not change the conclusions.

(BRIEF PAUSE)

THE CHAIRPERSON: Questions, North Slave Metis Alliance?

MS. ANDREA BUCKMAN (BY PHONE): Andrea Buckman, on behalf of the North Slave Metis Alliance. Yeah. I -- I can see your point with that. I do agree that it won't change your conclusion, however, our concern is that if significance is only defined by using that 20 percent above the guidelines, then when you're looking at your effects and monitoring for your effects, how will you be able to determine and -- and

implement mitigation measures, an adapted mitigation to protect aquatic life, wildlife, seabirds and (INDISCERNIBLE) birds from anything that would become greater than -- than the guideline, should that happen?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yeah, back to the -- the Trigger Response Plan that Diavik has as part of its Aquatic Effects Monitoring Program, where I mentioned before it was this -- this Level 1 to Level 9, and Level 9 is in fact that 20 percent greater than -- greater than benchmark in -- measured in the far field of Lac de Gras.

But below that, where we actually take action, and we mention we're only down at Level 2, there are actions that are taken well in advance of that where we're only at a -- even -- where we're only at a fraction of those AEMP benchmarks, and only very close to the island.

So just because that's what the 1999 definition of significance was, doesn't mean that that's the action level at which point Diavik would in

fact, the Wek'eezhii Land and Water Board would require that action be taken.

(BRIEF PAUSE)

MS. ANDREA BUCKMAN (BY PHONE): Andrea Buckman, on behalf of North Slave Metis Alliance. How do those action levels compare to the baseline conditions that are currently in Lac de Gras?

I know that most of the compounds that you -- the predictions that you mention in your water quality model are well below the AEMP benchmark. So we're just concerned that there's -- there's quite -- various degree of area or room for elevation of those COPCs.

So do have an idea of how that might compare to current levels when an action level would be triggered?

MR. GORD MACDONALD: Gord Macdonald, from Diavik. I'm sure we don't want to dwell on this too far, but, for example -- for example, the definition of a magnitude of Level 2 affects when we would -- when we would take action at Level 2, is when the fifth percentile of the near field value, so the -- those are -- the near field are very close to --

very close to the East Island, are greater than two (2) times the median of the reference dataset, so that'd be -- that'd be baseline, there'd be pre-development, if you will, and the normal range.

So we do take action related to a -- a much smaller increase in water chemistry relative to background well before it got to -- it would get you any kind of an AEMP benchmark in the monitoring of -- of Lac de Gras.

(BRIEF PAUSE)

MS. ANDREA BUCKMAN (BY PHONE): Andrea Buckman, on behalf of North Slave Metis Alliance. We feel that for monitoring of water quality, it'll be quite important, so monitoring often can be used to trigger adaptive management processes and also to check for your predictions for correctness.

Is there no ability to update the definitions based on newer science, or are we stuck with -- are we stuck looking at the definition from 1999?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. The definitions you're referring to are, if you will, live and constantly under review. They're under review every three (3) years, and those are the definitions that we -- we work to.

I think it's kind of a moot point what -- what Level 9 is when we're only operating down at Level 2. So I think those are the definitions that -- that we have worked with everybody with, to come up with so that we understand why those levels fit.

(BRIEF PAUSE)

MS. ANDREA BUCKMAN (BY PHONE): Okay. I guess we'll agree to disagree on this one for now.

Andrea Buckman, for -- on behalf of the North Slave Metis Alliance. We'll move on to my next question.

In terms of your modelling and the meromictic conditions within the pit lake after -- after breaching the ground, in the modelling itself you mentioned the climate -- the climate factor that you considered for temperature and I believe -- what was the other one again?

(BRIEF PAUSE)

MS. ANDREA BUCKMAN (BY PHONE): Sorry. I'm just trying to find it. Oh, sorry, and precipitation. One (1) consideration that we have is that there is some evidence with climate change that there will be an increase in upwelling of (INDISCERNIBLE) from underground, and we wonder if there's any potential for upwelling to occur within the pit itself, and having an effect on upwelling with the PK that is settled at the bottom of the pit whereby mixing into the waters above that -- that chemocline level, and then being able to accessible (INDISCERNIBLE) organisms that are then in the area.

Do you have any comments on that and -- and whether that can be included in the next set of (INDISCERNIBLE)?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. I don't want to take up the time to look up a response but I think we -- I think that was a question from the NSMA that -- that came in through one of their Information Requests that we did respond to already.

(BRIEF PAUSE)

MR. GORD MACDONALD: Sean is much quicker. It's NSMA-4, and so there's a written response there, Madam Chair.

THE CHAIRPERSON: Final questions from North Slave Metis Alliance?

(BRIEF PAUSE)

THE CHAIRPERSON: Okay, thank you. Moving on, DKFN, questions?

MR. PATRICK SIMON: Patrick Simon, Deninu K'ue First Nation. Thank you, Madam Chair, for the opportunity.

I'd just like to ask Diavik -- I think on your Slide 7, there was engagement in other operations. You mentioned that -- that you didn't receive very much opposition and that the -- and currently what you heard was put it back where it came from.

And I'm just wondering to what degree or what level that -- that was amongst the communities. Was it, like, 10 percent, 50 percent, a hundred percent? And if possible, do you have records of who and -- and why?

MR. GORD MACDONALD: Gord Macdonald,

from Diavik. I'm not exactly sure who first coined that. I think it might have been the NSMA that first coined that, put it back where it came from -- from -- from the engagement we have.

I definitely wouldn't say a hundred percent of the -- of the groups that we spoke with said that kind of a phrase of put it back where it came from. But we -- the other statement, which I guess is not on there, is that we didn't receive any fundamental objection to putting it there at that time.

We received, I think unanimously across everyone, that it depended upon whether it could be done environmentally safely or not. But there was no -- there was no fundamental objection to doing it as long as it could be done environmentally safely.

That would be my characterization of -- of those -- those engagements. They're all appended to the -- this was part of the original water license amendment engagements, so it was prior to our water license engagements, so like a year and a half ago, and that's all -- those meetings and who we met with and when are appended to that application.

MR. PATRICK SIMON: Thank you. Patrick Simon, Deninu K'ue First Nation.

With these engagements, was it your community visit engagement with all the people in the community or was it any other lesser form of engagements that these words are -- these impressions were given to you?

MR. GORD MACDONALD: Gord Macdonald, from Diavik.

It depended on the community, Patrick, different groups have different ways that they like to engage with us. Sometimes it's a meeting with chief and council, sometimes it's meeting with a working group, sometimes Lutsel K'e usually wants to have a full -- full community meeting where they invite people in the evening. It depends on the community.

MR. PATRICK SIMON: Thank you. Patrick Simon, Deninu K'ue First Nation.

I know that in -- and I'm having trouble here, I'm a little tired, it's been a long day and we've had some bad news from our community and now they're passed this morning. So -- so I'm trying to -- to do this like originally how I would have it planned yesterday. So please be patient.

But I notice that you -- you alluded to or you mentioned that this -- this kimberlite that you are putting into the pits were -- were -- is that

clean or not clean and -- because as I mentioned, our world view of words such as that and your world view of words such as that I think we -- we differ.

So given that knowledge that you have, this is your world view -- view of this PK being cleaned. Is there any kind of my world view, opinion, within that statement?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

Patrick, I -- I'd rather not use the definition of "clean". We've described the chemistry of the material, we've described if we put it in Lac de Gras what we think the water quality will be in all of those -- all of the terms we use of all of the chemistries we use and we believe that it's safe on the surface in those top 40 metres for fish, for aquatic life, for human consumption, for wildlife.

I'm not sure how else to answer what "clean" actually means.

MR. PATRICK SIMON: Thank you. Patrick Simon, Deninu K'ue First Nation.

I heard that you say it is safe on top and it's safe if you put it in. Am I correct in -- in hearing that?

MR. GORD MACDONALD: Gord Macdonald,

with Diavik.

Yes, what our conclusion is if we put it into the mine workings and that closure when we flooded it, that that top 40 metres would all be below aquatic effects monitoring benchmarks, which we're saying it would mean that it's protective of aquatic life, including fish, wildlife, and drinking water.

So, yes, it would be safe.

MR. PATRICK SIMON: Thank you. Patrick Simon, Deninu K'ue First Nation.

I think that on -- I'm not quite sure what slide, but it's on page 16 at the bottom. You meant -- it's marked on the EFPK section that your water is very clear, decant water.

And on page 9 at the very bottom on slide 18, I believe, you mentioned what I imagine to be the same water would be dark, blue, and is very clean water.

And I'm unclear in -- in what you mean by "clear" and "clean" in relationship to being healthy and able for us to -- to drink.

Could you clarify that for me, please?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

Thank -- that's, Patrick, that's a very

helpful distinction. So if you go back to the previous slide, so what we're trying to show here was "clear" meaning that the particulate material, the processed kimberlite had settled out of the water column and made a distinct separation between water and sediment.

And -- but just -- to point out, just because it's clear doesn't mean it's clean. So "clear" just means that there's no particulate matter in there, that doesn't mean there aren't total dissolved solids, for example, that there aren't other dissolved elements in that water that might make it unsafe to drink.

So if you go -- now if you go to the other slide, and I think this was where Sean was trying to get at last night, is at the very bottom which we've -- we've coloured in a darker colour, that would be water that still had total dissolved solids in it, for example.

The pour water has been released there. It might still be very clear, but it would have dissolved elements in it. And it wouldn't necessarily meet that same criteria of needing the aquatic effects monitoring benchmarks.

So it might not be drinkable down at

the very bottom, 150 metres below the surface. But it would be, up at the top, in the -- in those surface 40 metres.

MR. PATRICK SIMON: Thank you. Patrick Simon, Deninu K'ue First Nation.

I realize the clearness and cleanness aspect of it, but I just want to get a sense of -- of the top surface water in relation to -- to health and for consumption.

Would you be able to -- because it -- it doesn't tell me that, so is there -- would you be able to clarify that?

My world view does not use clean water as a -- as a mechanism to be healthy. And I'm trying to get a sense of your world view in that -- in that relationship.

MR. GORD MACDONALD: Maybe we can try with numbers, Patrick. This -- this -- sorry, Gord Macdonald, with Diavik.

This table is showing that the predicted concentrations of a number of parameters or a number of elements that would be in the water were those A and B benchmarks are the -- the level at which -- as long as you're below that the expectation is that aquatic life, people, wildlife, would be able to

consume that water, so it would be safe.

The -- the three (3) columns to the right are showing the different predictions under a couple of different deposition scenarios. But they're all well below that threshold level.

That's what -- those are the maximum concentrations over 100 years of modelling in that top surface layer that would -- where you would be able to get water from for drinking or where caribou would get it from or where the fish would live.

MR. PATRICK SIMON: Thank you. Patrick Simon, Deninu K'ue First Nation.

I'll have to think on that because it -- I'll think more on that, but I also wanted to ask I guess a final question, given that all these good people asked all the good questions and I'm stuck with some crumbs.

But -- but after that my consultant, Marc will -- has a couple of questions, but I'll try to make it as clear as I can.

I was here at the beginning, 20 years ago, when I was younger and I could have stayed all night. I can't now, but -- but I will. And I wasn't as learned as really quick learning curve, but it -- but it was okay.

And you spent a lot of effort, a lot of time and a lot of money convincing the Board that the old method was the best method to go.

Given that you just told me that it's -- the top and inside, that it's okay that rock piling is okay, it's not -- it's not -- I'm not sure how to -- to phrase that, but I think you know what I mean.

And that now, because of opportunity, because you didn't realize that you'd finished this pit back then that -- and it just came up that it might be the best way to -- to deal with this matter and so your -- you're seeking to take advantage in that in your -- you're saying that it's -- it's now the best method and -- and I'm wondering of the two methods the savings that you have if you left it and the savings in terms of money that you have when you put it in the ground, and -- and the time line, in our world view you're responsible from the birth -- from the birth, from the cradle to the grave.

It's all done, your liability is all done and you get to go and nobody in this room can bother you ever again. My world view, that's the grey.

When you left it on top, the grave aspect of what I stated and if you put it in the

bottom, the grave aspect that I -- that my world view sees is -- is that longer or shorter up here, versus longer or shorter down here, does it cost less or more up here as opposed as it costs less or more up there.

And is there a -- a greater liability or a less liability. You know what I mean, in a -- so, I'd just like to -- to get that clarified, because I believe that -- that you -- you had that ability 20 years ago to -- to do this because you could have planned the extractions of it in a manner that -- that made you back 20 years ago, had that ability to have this particular plan.

And -- and I wonder about that because I -- I don't know if you -- you could have done it back then and people would have agreed. But right now we're kind of in a position where, you know, we -- you have more ability to gain approval and agreement because understandings have changed, things have changed and you -- we're sort of forced between a rock and a hard place or a -- or a good thing and a -- or a bad thing and a not so bad thing.

THE CHAIRPERSON: Thank you, Patrick. Would you be so kind, though, to just ask the questions? Thank you.

MR. GORD MACDONALD: Gord Macdonald,

from Diavik.

To try and be brief, Patrick, we think the longest -- the long-term securest, best place to put that material is in the mine pits.

So if you wanted to talk about that long-term ownership of the land, which we share with you, we -- we think the best place to put that kimberlite, putting all in, is in the -- is in the mine workings.

It is more expensive to raise those dams, we're not trying to deny that, building those dams are expensive. So the most expensive option is to put it on the surface. But the safest option is to put it in the -- is to put it into the mine workings.

That's our view, that's the view of all of our engineering and -- and consulting views and we're hoping that the Board agrees and we're hoping that you all agree as well.

It -- it genuinely is our belief and back to your question about -- about why wasn't it done originally. It was discussed a lot in 1999 and there was not a mine plan that was economic for the -- for the project that involves sequentially mining versus concurrently mining.

So there was never -- there wasn't an

opportunity to utilize any one of the worked out pits for disposal. And that was -- again, that was why the recommendation out of the responsible authorities at the time was that they recognized that that wasn't available then, but they wanted us to keep looking for that opportunity to -- to take advantage of a -- of a mine working if it became available, which is what we're doing now.

The change came, mine plans change, that's -- that's what happened was we were able to mine faster in -- in 418 than we ever originally expected we could. And -- and so we mined it out sooner so it can be used. Thank you.

THE CHAIRPERSON: DKFN questions?

MR. MARC D'ENTREMONT: Thank you, Madam Chair. My name is Marc D'Entremont with the DKFN.

So I just have a -- a couple questions about the fine processed kimberlite and extra-fine processed kimberlite.

So I think if I understood what you're saying today, you'll be depositing the fine processed kimberlite into the pit, but that will also contain extra-fine processed kimberlite.

And you've used, I think it was the

value of 5 million cubic metres in the pit.

So, of that mixture then, what proportion is fine and what proportion is extra-fine?

MR. GORD MACDONALD: That's a pretty hard number. Sean is saying one-sixth, it might be EFPK of the FPK might be EFPK.

Sorry, of the fine processed kimberlite might be extra-fine processed kimberlite. The -- the other thing, just to make sure we're clear on -- there's two -- there are two options being considered.

One is directly taking processed kimberlite and depositing it in the mine workings, that's what it would be, fine processed kimberlite.

There is also the -- the option that we're looking at of dredging material out of the processed kimberlite containment area and putting it in the mine workings.

The material that we'd be dredging out of the processed kimberlite containment area would only be extra-fine processed kimberlite.

So those are what's in -- if you look at the modelling results, those are what are included in scenarios 3(a) and 4(a) are ones that include an additional 5 million cubic metres of fine processed kimberlite.

Sorry, that's just 3(a).

DR. MARC D'ENTREMONT: Thank you. Marc D'Entremont, for DKFN. That was helpful. So my other question may or may not make sense then.

So if you're putting in the fine processed kimberlite that has extra-fine with it, I would deduce that the fine would settle and the extra-fine sits on top.

Okay, you're shaking your head, so that's good.

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

I don't know that it necessarily separates out that way. Those -- the columns that you saw there, I mean, that is settling of those -- both of those materials. So that has both fine -- extra-fine and fine in it.

How long it takes in consolidation over time, I'm not sure that it separates as -- as you suggested. We see it separate in the processed kimberlite containment facility, but that's because we deposit at the -- at the perimeter and it segregates as it runs -- as it runs down the beaches with the coarser material settling out first and the fine settling -- going to the very end.

Gravimetrically, I'm not sure that that happens.

DR. MARC D'ENTREMONT: Thank you. Marc D'Entremont, for DKFN. Great, that was very helpful.

So, just one more question, which is not related to the processed kimberlite.

In your commitments that you've mentioned in your presentation, you committed to better engagement with the DKFN, so does this include development of a engagement plan in collaboration with the DKFN?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

I -- I think that would be a helpful thing. We sort of put out the framework of what we would intend to do. We haven't discussed it further with DKFN, but I -- yes, I think something along those lines of what those expectations are would be helpful.

DR. MARC D'ENTREMONT: Marc D'Entremont, for DKFN.

Thanks, Gord. I guess DKFN would be interested in moving that along this -- as soon as possible, I believe there is a -- as you mentioned previously, an annual meeting, but if that were to

happen then or sooner, I think we'd be open for -- open to that conversation.

THE CHAIRPERSON: Final questions for DKFN?

(BRIEF PAUSE)

DR. MARC D'ENTREMONT: Marc D'Entremont, for DKFN. We have no more questions. Thank you.

THE CHAIRPERSON: Thank you, DKFN. And our condolences to your community.

I would now ask for questions from Fort Resolution Metis Council.

MS. KATY DIMMER: Thank you, Madam Chair. Katy Dimmer, Fort Resolution Metis Council. We'd also like to extend our condolences to DKFN at this time.

For my first question, I'd like to turn to slide 26 of Diavik's presentation. You proposed that mitigations proposed for water quality, wildlife, and wildlife habitat, fish and fish habitat will also help mitigate effects to availability of traditional resources and resulting effects to cultural use.

How will these mitigations address

impacts to cultural land users and cultural use related to perceptions of contamination, perceptions of risk, such as those expressed by Fort Resolution Metis Council members and our filings, as well as from other Interveners here today?

MR. GORD MACDONALD: Gord Macdonald, with -- as -- as we mentioned earlier, our -- our assessment of -- of cultural impact was based on whether -- whether the predicted water chemistry or wildlife use of the area would change as a result of the processed kimberlite deposition in the mine workings, and whether that would change the availability of any of those resources for future use.

And in that regard, that's why the mitigation of any one of those measures would also be mitigations to cultural use.

As we discussed before, the perceived is not something that we could do. The perceived is something that would need to come from the community.

THE CHAIRPERSON: Just a reminder to slow down when you're asking your questions for the interpreters. Thank you.

MS. KATY DIMMER: Thank you, Madam Chair. Katy Dimmer, Fort Resolution Metis Council.

Related to this, Fort Resolution Metis

Council proposed a recommendation 12 for a follow-up program for measuring or assessing impacts and the prediction confidence for impacts to cultural use in Diavik's response, in their intervention response they indicated that they would be supportive of developing and implementing such a follow-up program.

Could we or could you provide a strong commitment to such a follow-up program here today?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

I -- I think the best commitment or a clear commitment is the development of these -- of these measurement criteria, ways that we would evaluate the -- the quality of the pit lakes for cultural -- for impacts on -- on cultural useage.

I think it's very -- I think that's a very helpful starting place to doing that. How we would implement those in the future, whether it's through the traditional knowledge panel or through communities as we've discussed earlier.

It's clearly still to be discussed.

MS. KATY DIMMER: Thank you. Katy Dimmer, Fort Resolution Metis Council.

In relation to this, you also noted in your response that you were hopeful that such

reconnection criteria as well as other TK based programs and other programs such as caribou monitoring and mitigation will be developed with the TK panel.

You appear to put a lot of reliance on the TK panel for the development of these programs, and also a great hope that they will be relevant for all Indigenous communities.

My question then is: If Fort Resolution Metis Council knowledge holders are not directly involved in developing reconnection criteria, or these other TK based programs, how can Diavik ensure that these critera will address impacts specific to Fort Resolution Metis Council members and be relevant to Fort Resolution Metis Council member concerns?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

I -- we tried to address that and I -- I think it's point 3 in the bottom, were any of these criteria that are developed by the TK panel that, you know, as -- as Doris mentioned, clearly that's an individual making a -- a TK recommendation. We still need to -- to verify that or get input from -- from the Indigenous groups and we -- we put that first would be through EMAB and the five signatory agreement on Indigenous groups.

And then we'd take those -- the outcome from that to the -- to Fort Resolution Metis Council and try -- and get their input on a review of those criteria at that point.

So that's how we saw it -- that's our proposal and how we saw it coming forward. Obviously we're open to -- it's a tough thing trying to do these things and we are hopeful on -- that the TK panel and all the parties if we put our -- our heads together can -- can come up with something here.

Yes, we are putting a lot of reliance on this. We really don't have a plan B yet.

MS. KATY DIMMER: Thank you. We'll consider this further and address that point in our presentation tomorrow. Just in -- Katy Dimmer, Fort Resolution Metis Council.

Just returning to perceptions of this and impact characterization and significance characterization, you've acknowledged today in your response to LKDFN and Tlicho Government that you did not assess perception of risk as an impact pathway and you've also responded to Tlicho Government that you have not revisited your assessment of culture following the files of Intervener filings.

Given your commitment to reconnection

criteria, or assuming that you follow up with a recommendation for a follow-up program how will you address your acknowledged gaps in the perception of risk impact pathways in any reconnection criteria or follow-up program initiatives for changes to cultural use?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

I expect implementation of those -- of those -- those metrics and those programs to evaluate cultural and cultural impacts as a result of the -- of the project.

We'll come through in the monitoring and then we'll come through in the mitigations as we implement them.

MS. KATY DIMMER: Thank you for your response.

I'd also like to just follow up on a response to a question by NSMA. We -- regarding monitoring.

We understand that you do not have that program or idea in place, but we would just like clarification and a commitment that any opportunities for visual monitoring and boots on the ground opportunities will be open to all Indigenous groups.

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

I -- I can't make that blanket commitment. Sometimes these programs are recommended by individual groups and -- and sometimes they might be closed to that group.

So no, I don't think I can make that commitment.

MS. KATY DIMMER: That is unfortunate, because that is a concern.

THE CHAIRPERSON: Please state your name.

MS. KATY DIMMER: Apologies, Madam Chair. Katy Dimmer, Fort Resolution Metis Council.

That is unfortunate, as it is a concern of Fort Resolution Metis Council that we be involved -- they be involved in all programs.

Just moving on, just in thinking of time, I have two more questions.

Diavik noted in their response to Fort Resolution Metis Council recommendation 10, that they would be interested in understanding more about the proposed timing and scope of any Fort Resolution Metis Council traditional knowledge land and use occupancy study.

If FRMC is able to provide DDMI with further information in the form of a scope of work, which would include detailed timelines and relevancy, could they commit through an undertaking to review that document and provide a resp -- written response to FRMC before written arguments?

MR. GORD MACDONALD: Madam Chair, can we take that one as an undertaking, that's a bit of a loaded question that we'd like to consider and -- and get back to.

THE CHAIRPERSON: Legal counsel?

MR. JOHN DONIHEE: John Donihee, Board counsel. Thank you, Madam Chair.

Mr. Macdonald, I'm not sure what you're offering by way of the undertaking. Is it just to think about it?

MR. GORD MACDONALD: Correct.

MR. JOHN DONIHEE: Ordinarily --

THE CHAIRPERSON: Legal counsel?

MR. JOHN DONIHEE: -- we'd expect you to actually -- it's not -- it's not a very usual form of an undertaking, I just put it that way.

I mean, why don't -- can I suggest simply that you give some thought to it with your team and come back to us in the morning, if that's good

enough, and tell us on the record what your answer is?

MR. GORD MACDONALD: Absolutely, that's -- that's perfectly fine.

MR. JOHN DONIHEE: Thank you.

THE CHAIRPERSON: Questions, Fort Resolution Metis Council?

MS. KATY DIMMER: Thank you, Madam Chair. Katy Dimmer, Fort Resolution Metis Council.

In relation to the previous request, we would also request that Diavik, through an undertaking, commit to reviewing a similar scope of work document provided by Fort Resolution Metis Council concerning a caribou indigenous knowledge study and provide a written response before written argument.

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

We'll -- we'll include that in the response we give you tomorrow morning.

MR. ARTHUR BECK: Arthur Beck, Fort Resolution Metis Council.

I realize everybody is getting tired, so am I. We're the last ones, North Straight Metis Alliance isn't here.

Tomorrow I'm going to speak about the

plants and animals, about the birds and the trees and what I've seen, what I've learned over 20 years.

I spent 30 years on Great Slave Lake Advisory Committee, so I have a lot of experience with fish and water and the flow.

Also, I sit on the contaminants board in the Northwest Territories for quite a few years. I don't know how many contaminant sites are there in the Northwest Territories, there's lots. Only working on ninety-three (93).

I have lots to say, but we'll wait until tomorrow, let you think about it tonight. Thank you.

THE CHAIRPERSON: Final question from Fort Resolution Metis Council.

MS. KATY DIMMER: Katy Dimmer, Fort Resolution Metis Council.

Just to build off of DKFN's question concerning development of engagement plans with non-participant signatory Indigenous groups, can you give an idea of estimated timelines for working with us and other groups on these engagement plans?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

We've -- we've proposed our -- our

framework for it, we're happy to meet with you whenever you're available to discuss it further.

I don't have a specific timeline, we'll have to come up with those together.

MS. KATY DIMMER: Katy Dimmer, Fort Resolution Metis Council.

Thank you, Madam Chair. No further questions at this time.

THE CHAIRPERSON: Thank you.

Moving on to NWT Metis Nation. Questions?

MR. ARTHUR BECK: Yes, Arthur Beck, Fort Resolution Metis.

I'll have to answer for them, I'm part of the Nation. I am a Board member. However, they'll be in tomorrow. Ron will be here tomorrow with some questions, and so will we. I mean, there's lots. Everybody is tired, so I think it's time to go home.

Thank you very much.

THE CHAIRPERSON: Okay, we'll wait for tomorrow for their presentations then.

Questions from Board staff and counsel?

MR. MARK CLIFF-PHILLIPS: We're just moving some staff, but we do have some questions.

MS. CATHERINE FAIRBAIRN: Thank you,

Madam Chair. This is Catherine Fairbairn, Review Board staff.

Diavik, you've described how you'll mitigate adverse impacts to fish if water quality in the pit lakes is much worse than expected for some reason.

You mentioned that if the dikes were already breached you could potentially fill them back in, or that if the dikes aren't breached yet, potentially you -- you could look at options like fracturing the wall inside the dike to allow water to pass through without allowing fish to pass through.

Could you please describe the engineering and financial feasibility of these two options or other options that you're considering?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

The -- the financial and technical feasibility of filling the -- filling the breaches back in and/or fracturing the dikes, is that correct?

MS. CATHERINE FAIRBAIRN: Yes. Just to discuss how far you've progressed with looking into those two options.

MR. GORD MACDONALD: On the -- on the back filling we have looked at that, we've looked at

that from -- it's a similar program to what we're looking at for the -- for the north inlet dike.

So we've looked into that. It's pretty straight-forward earth moving. And we haven't looked into the economic feasibility of -- of fracturing the dike.

We've talked about it descriptively and it doesn't seem to be a -- there be an impediment to it, but we haven't -- we haven't actually costed it.

MS. CATHERINE FAIRBAIRN: Catherine Fairbairn, Review Board staff.

Have you discussed it with -- from a technical perspective, the feasibility of it?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yes, the recommendation came from the engineer of -- the dike engineer.

MS. CATHERINE FAIRBAIRN: Thank you. Catherine Fairbairn, Review Board staff.

So will that -- those two (2) potential mitigations could protect fish from water quality in the pits that is worse than expected.

It wouldn't necessarily protect Lac de Gras from that water. Is there -- if the water quality in the pits does get much worse than expected for some reason, what can you do to prevent adverse

impacts to the water quality in Lac de Gras from water coming out of the pits?

MR. GORD MACDONALD: Gord Macdonald, with Diavik.

Those are -- those are addressed in our -- in our closure plan, there's contingencies for if water chemistry is worse than predicted.

So it's not -- it's not unique to processed kimberlite, it could be for other reasons.

But the key mitigations in there are methods of treatment, either treatment in place and something -- as in -- as in depositing from a boat or something, elements like lime that could help settle any of the materials out or treat the water in -- in situ.

To treating the water to pumping from the pits through a treatment plant, discharging into the lake, replenishing what we've pumped out with -- with more lake water. Clearly not something we would want to do, but that -- in -- if there was an extreme situation like that, I think that's -- those are both technically viable options.

MS. CATHERINE FAIRBAIRN: Thank you. Catherine Fairbairn, Review Board staff.

Could you comment on why you believe

that complete isolation of the pits from both fish and water isn't possible? Just provide a bit more detail.

MR. GORD MACDONALD: Sure. Gord Macdonald, with Diavik.

And if we left the -- if we left the dikes fully intact, so still as engineered structures, and didn't cut any bridges in them or didn't fracture it, also it still works as a water retaining element, the water levels will continue to go up in the -- in those pit lakes until a point that they reach the top of the water retaining element within the -- within the dike, and it would then contro -- discharge a release uncontrolled to -- to Lac de Gras.

It would -- it would leave the dikes with a perched water table above the -- above Lac de Gras and leave those dikes as a water retaining element in perpetuity.

(BRIEF PAUSE)

MS. CATHERINE FAIRBAIRN: Thank you. Catherine Fairbairn, Review Board staff.

What is the driver of that increase in water in the pits? Is it primarily groundwater or surface water flow?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. No, it -- it would be surface water flow. So, the groundwater flow would be negligible once the pits are filled back in, so it's just local runoff to -- to that area.

MS. CATHERINE FAIRBAIRN: Thank you. Catherine Fairbairn.

Have you -- has Diavik explored other potential mitigations to keep water levels in the pit lakes down, things like diversion trenches on the island or something that would divert water away from the pit lakes?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. So, I should have said runoff as well as direct precipitation on the -- it's a very -- quite a small catchment.

No, we haven't -- we haven't looked at that.

MS. CATHERINE FAIRBAIRN: Thank you. I will pass it off to other staff.

THE CHAIRPERSON: Okay. Questions from legal counsel?

MR. JOHN DONIHEE: John Donihee, Board counsel. I -- I don't have any questions myself, Madam Chair, but my colleagues have a few more.

THE CHAIRPERSON: Okay.

MR. JOHN DONIHEE: Staff still have some questions.

THE CHAIRPERSON: Questions from staff?

(BRIEF PAUSE)

MR. ALAN EHRLICH: Thank you, Madam Chair. It's Alan Ehrlich, with the Review Board.

In addition to considered alternatives within your proposed project, the Board will also consider the no project alternative, which is, of course, what you already have permission to do, specifically raising the dam around the processed kimberlite containment facility and storing processed kimberlite in there.

Yesterday in Dettah you presented a helpful slide describing the environmental pros and cons of putting processed kimberlite into the pits. Could you please describe the environmental pros and cons of the no project alternative, in other words, without the currently proposed project, if you were not to put proposed kimberlite into the pits?

MR. GORD MACDONALD: Gord Macdonald,

with Diavik. As I understand it, as sort of the inverse of what presented last night, and -- and so I have written down some -- some points here.

So, this would be -- if you think about it the other way around, this would be the advantages of not -- these advantages and disadvantages of not putting processed kimberlite in the mine workings.

So, the -- from our perspective, the -- the three (3) advantages of not putting the processed kimberlite back into the mine workings would be that we would not require construction of a pipeline, that we have seventeen (17) years of experience with depositing PK on -- in a surface facility.

So, that's clearly an advantage. We have more experience with that method of deposition. The other advantage is that we not require an environmental assessment or a water licence to do it. It's already permitted, it's -- the -- and it's already engineered.

The disadvantages to -- to not doing the project, we would have -- the disadvantages, we would have to construct an additional 4-metre high dam over 6 kilometres around the perimeter of the processed kimberlite facility.

It would increase the size of the PKC

facility by 4 metres in height, containing an additional 5 million cubic metres of processed kimberlite.

It would increase the amount of PK that's stored in a -- in a less secure site, in a less secure location. And the long-term pore water release from the additional on-land storage would add to the -- to the surface runoff that's entered in -- that would enter Lac de Gras in the future anyway.

And there would be greater potential for direct contact of caribou with processed kimberlite because the on-land facility -- closure of the on-land facility of placing that cover would be delayed by three (3) years.

Another disadvantage would be that the options available for closure of the -- the on-land facility would be reduced because there -- there would no longer be an option to dredge the extra fine processed kimberlite from that facility and put it into the mine workings.

And finally, we'd -- we'd need to use more of Lac de Gras water. About 5 million cubic metres more would be required to fill the A418 pit at closure. Those are what we see the advantages and disadvantages of not doing the project.

MR. ALAN EHRLICH: Alan Ehrlich, for the Review Board. Thank you for that response.

It would be helpful to the Board if you could submit that in writing as perhaps part of Undertaking number 1, which you've already committed to producing the pros and cons of putting the kimberlite in the pits, and perhaps contrasting the pros and cons of what you've just describes were the pros and cons that you put into your presentation.

Are you -- are you open to doing that as part of Undertaking number 1?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We had Undertaking number 1 already complete to give you. And I know there was a time line on that.

(BRIEF PAUSE)

MR. GORD MACDONALD: Okay. Go ahead.

THE CHAIRPERSON: Legal counsel...?

MR. JOHN DONIHEE: Thank you, Madam Chair. It's John Donihee. Given that number 1 is already done, perhaps you'd agree to do that extra little bit of work as Undertaking number 2, Mr. MacDonald?

MR. GORD MACDONALD: We'd be happy to do that. Thank you.

--- UNDERTAKING NO. 2: Diavik will respond tomorrow, Sept 6 to the following request from FRMC: a) Through an undertaking, Diavik to commit to reviewing a scope of work document produced by FRMC which would provide information on the scope and timing of a Project-specific FRMC Traditional Knowledge and Land Use Occupancy Study. Diavik to provide their response in writing on this document to FRMC prior to the submission of closing arguments. (b) Through an undertaking, Diavik to commit to reviewing a scope of work document produced by FRMC which would provide information on the scope and timing of a Project-specific FRMC Traditional Knowledge Study for Caribou.

Diavik to provide their response in writing on this document to FRMC prior

to the submission of closing arguments.

MR. ALAN EHRLICH: Thank you for that. On a slightly related note, can you please describe what you see as worst-case type scenarios for your proposed project over the very long-term besides earthquakes, which we've already discussed a bit, for both your proposed project and your no project alternative?

So, I'm looking for low probability, high consequence stuff, the kinds of things that used to be called worst-case type scenarios.

MR. GORD MACDONALD: Gord Macdonald, with Diavik. The one (1) for the project is, I think, the one that we have assessed, which is a significant pit wall failure underwater that had enough energy to -- to stir up the processed kimberlite and bring it up to the surface.

I think that's the -- that's that very rare event, but it's not impossible over the long-term for the project. And I -- I think the one (1) for -- for the alternative, of storing processed kimberlite on the -- on the surface, would be some kind of a dam failure. It has to be some kind of a dam failure with

a large release of processed kimberlite and -- and water to Lac de Gras.

MR. ALAN EHRLICH: Thank you for that. It's Alan Ehrlich, with the Review Board again.

Now, I've got a separate line of questions that have to do with reconciling the large volume of storage space that you've asked for permission to use compared to the relatively smaller volume of processed kimberlite that you said you want to store.

So, first off, it -- it doesn't help the Board to understand what other activities may be occurring at the same time as your proposed project. Could you please tell the Board if you think there's any potential for finding ore bodies in the area that might extend your mine life?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We're always very hopeful that we'll find more ore bodies that would extend our mine life. We're not optimistic that we will.

We're doing our very last ticks and balances on -- on ore bodies that we know of, but we're still very much forecasting a 2025 closure, so a very low probability of anything that would be able to change the mine life of Diavik.

MR. ALAN EHRLICH: Thank you. It's Alan Ehrlich, for the Review Board. So, you already have an existing process plant and, of course, existing mine infrastructure.

In the future, if ample extra storage space was already available, is it fair to say that this could increase the economic feasibility of mining any future pipes you find?

(BRIEF PAUSE)

MR. GORD MACDONALD: It sounds very hypothetical and I'm not sure how to -- how to answer that. Can you maybe just repeat it again? Where is this extra storage space coming from?

MR. ALAN EHRLICH: Thanks. It's Alan Ehrlich, for the Board. So, you've asked for permission to store kimberlite in the pits. The pits have a considerably greater volume than the amount of kimberlite you've said you need to store, meaning, if you get that permission, you should have ample extra storage space for something else.

But we've seen no indication of the something. We know you're not proposing a something else. We know that good cumulative effects

assessments keeps an eye to the potential for induced development and looks to the horizon for what might be reasonably foreseeable, what might not be.

So, the Board is interested in what possibilities arise from you having the authorization to use more space for spor -- storing processed kimberlite than you have processed kimberlite to store. Thank you.

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. That's -- to us, that's purely speculative. That's not our intent for what we're asking for. I mean, we've been specific about what we're looking for, so it's not our intent to be creating some kind of a new value to Diavik by having additional storage space.

If -- if we had more ore bodies out there, we'd be bringing those forward as being the -- the purpose. Our water licence is very specific to the ore bodies that we currently have in the mine plant.

Even if we find a new one, it's a whole new environmental assessment to bring those into the

mine plant.

MR. ALAN EHRLICH: Okay. And then my last question -- it's Alan Ehrlich, with the Review Board -- is just a slightly less hypothetical version of that. It's still having to do with the future because all the impacts we're talking about don't exist on the ground yet.

If you did have this ample extra storage space, under what circumstances might you consider putting waste from Ekati into it?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Is -- is that rel -- a relevant question to this?

THE CHAIRPERSON: Legal counsel...?

(BRIEF PAUSE)

MR. JOHN DONIHEE: It's John Donihee. Madam Chair, we'll -- we'll pass on that question. Thank you.

MR. ALAN EHRLICH: Okay. That's -- Alan Ehrlich. I don't have other questions on this,

but Executive Director Mark Cliff-Phillips does.

MR. MARK CLIFF-PHILLIPS: Thank you. Mark Cliff-Phillips, with the Review Board.

Thank you for your answer earlier with regards to what potential mitigations you may have for if water quality is exceeded from the predictions and -- and you need to -- to look at different options for how to deal with the water quality.

We also ask questions around the feasibility of maintaining the dike, so no reconnection either hydrologically or in terms of fish passage.

Is Diavik -- you -- you said that you haven't considered any options for diversions or other ways of dealing with that. But if there was a no-connection scenario because of the -- the water quality or the modelling once you've already started to deposit PK into the pits, would Diavik have an option of maintaining a full enclosure of the pits both hydrologically and for fish passage?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We could, but that would -- it would sort of get around our closure plan, which would -- because it would require a presence onsite in perpetuity to manage that water level. So, it's, yes,

technically possible, but certainly not where we would want to go.

If we thought that was a high likelihood, we wouldn't be -- we wouldn't be doing what we're plan -- asking to do.

MR. MARK CLIFF-PHILLIPS: I think that -- thank you. Mark Cliff-Phillips, with the Review Board. I think that answered my question of would you do that if there was a scenario where you would have to undertake that.

MR. ALAN EHRLICH: Madam Chair, it's Alan Ehrlich. The remaining questions from staff and advisors actually come from Neil Hutchinson, who's the expert advisor to the Board on water quality.

DR. NEIL HUTCHINSON: Here we go. Hi. A question to Diavik. Neil Hutchinson, for the Board.

You've shown us videos and photos of the settling process of the fine PK in a lab setting. And then you've spoken in response to DKFN about the possibility that the extra fine and the fine might not even segregate as shown in -- in those graduated cylinders.

I'd just like you to comment. Like, what's the difference between the actual environment where the -- where the PK will be deposited and what

you're seeing in the lab and using to populate your model?

Is -- is the extra turbulence likely to change things?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. My -- my comment to the -- I'll let you get settled, Neil.

(BRIEF PAUSE)

MR. GORD MACDONALD: My comment on that -- on the -- wouldn't necessarily segregate between the extra fine processed kimberlite and the fine processed kimberlite was in the solids fraction, not in the separation between water and solids.

I -- I think -- I mean, a lab setting is always a lab setting relative to -- to a field environment. But really, if you think about something that's going to go on 150 metres below the water surface, it's probably not very different than a graduated cylinder. It would probably be very calm conditions down at the bottom, and that long-term consolidation would be quite similar.

What would not be similar would be that initial -- that initial settling because it -- it

wouldn't be quiet like that during operations. We'd have -- we'd have constant deposition going on at the same time as that initial clarification and settling.

So, during that period of active deposition it would be very different than a lab setting. But once you've -- once you've stopped that, it would become very similar to a lab setting.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Thank you.

So, is that possible then that some of the extra fine PK that people are worried about might, in fact, be buried in the fine PK during this turbulent period and the only settling would occur at the very end when you turned the pipeline off?

MR. GORD MACDONALD: Yeah, I think that's -- that's a fair characterization. It's going to happen at the same time, but most of it's going to get entrained over time.

(BRIEF PAUSE)

DR. NEIL HUTCHINSON: Thank you. Neil Hutchinson, for the Board. You've talked about one (1) of your -- your proposed advantages is that there will still be surface runoff for the existing PKC for

some period after the mine is closed.

How long is that period where you'd still get the runoff and -- and the pore water coming out of the existing PKC?

MR. GORD MACDONALD: Gord Ma -- Gord MacDonald, with Diavik. The current closure plan, it would -- it would go forever. I mean, whatever plans on the processed kimberlite containment facility will go by a designed overflow, follow an inland stream down and into Lac de Gras.

The composition of that -- of that water chemistry will change over time, but it'll be over long periods of time. That water will still be exposed bo processed kimberlite. It will still pick up materials that are in that -- in the processed kimberlite and will influence that water chemistry.

So, at no time do we see that the runoff would ever stop from that -- from that facility.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Thank you. So, that -- that thinking is behind your conclusion that it is probably better environmentally to store the PK in the pit?

MR. GORD MACDONALD: That's one (1) of the aspects, definitely, yes.

DR. NEIL HUTCHINSON: Thanks. Neil Hutchinson, for the Board. Let's -- let's imagine twenty (20), thirty (30) years from now when the Jay project is built and -- and closed and Ekati is built and closed and Diavik is built and closed and there are no more effluent streams coming into Lac de Gras.

Would there be a noticeable difference in the water quality from any -- any total dissolved solids that would be moving into Lac de Gras from your pit?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. This is -- you said this is after all of the operations -- all of the money operations in the area have gone and, basically, there's been time for anything that's there to move out of the Lac de Gras system?

DR. NEIL HUTCHINSON: Yes. Sorry, Neil Hutchinson, from the Board. Yes. We've returned to baseline, all -- all the effluent streams are turned off and -- and the lake is -- is back to where it was.

Would there be a noticeable effect from anything coming out of your -- your in-lake -- your in-pit storage?

(BRIEF PAUSE)

MR. GORD MACDONALD: Sorry, talked to in one (1) ear and listening in another. Gord MacDonald, with Diavik. And the question's just whether the change -- any influence from total dissolved solids from the pit lake itself versus the runoff from the island?

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Yes. I'd like to know what the influence of the pit lake is on the water quality in the long-term.

(BRIEF PAUSE)

MR. GORD MACDONALD: Neil, I'm going to give it you as a load because it's -- I -- so I -- you asked is it going to make a change in the water of chemistry. I'll give to you for a load, and maybe you can help with whether that would be a change or not.

But the -- our expectation is that, on average, the load from the surface runoff from the island would be about 1,800 kilograms per year of -- of TD -- of total dissolved solids -- sorry, 1.9 million kilograms.

Right, 1.9 kilograms per year from runoff versus the load from the -- from the 418 scenario, 2A, would be about 1 percent of that, so 1,800 kilograms per year.

This information's in response to -- to EMAB 17 on the Information Response. So, I -- I think there would still be a measurable difference from the pit, but most of any difference in Lac de Gras would be -- would be from local runoff.

DR. NEIL HUTCHINSON: Thank you. Neil Hutchinson, for the Board. What I'm trying to get at here is -- is concerns from some of the -- the other parties about return to baseline conditions and what the likelihood of that is.

Is this a scenario that you might be able to model in the upcoming modelling that you've said you're going to be undertaking?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Di -- definitely, it will be, Neil. And it's also part of what we're doing with our updated closure plan that'll be done at the end of this year.

DR. NEIL HUTCHINSON: Neil Hutchinson,

for the Board. Thank you. In your summary impact statement, you spoke to potential to modify the size and the spacing of the breaches in the dikes to optimize water exchange.

In your response to the supplemental IRs from the Board you -- you state that:

> "Diavik would expect that the water quality conditions to be largely the same regardless of whether the hydrologic connection is to fractures or it is excavated."

So, in one (1) point you're saying that -- that you'd like to excavate the breaches to improve your water movement, and in the other case you're saying it wouldn't make much difference.

How important is water movement through the pits at closure to maintaining your expected water quality?

MR. GORD MACDONALD: Gord MacDonald, with Diavik. Water movement back and forth is -- is very important to the -- to maintaining that water quality over the long-term.

Where I think the comment came from was we did originally look at the options of making those breaches bigger or smaller. And when we -- when we

modelled bigger -- bigger breaches -- bigger breaches -- bigger excavations, it didn't materially change the -- it didn't materially change -- improve the water chemistry.

What we didn't look at is making them smaller and find out how much of impact there would be. On the -- on the fracturing the dikes, we've assumed that there would be -- the same level of exchange would occur in -- in a fractured dike as there would be within an excavated, that we would excavate it to at least that level.

So, we didn't -- we didn't find that increasing the size of the breaches made any -- made any appreciable additions to the predictions.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Thank you. So, you're saying, if you were to fracture the dike instead of breaching it, you would engineer it to make sure there is the same amount of exchange as if you'd actually cut holes in the -- in the dike itself?

MR. GORD MACDONALD: Yeah, more or less. It has to -- it has to be able to fluctuate and level more -- very quickly with Lac de Gras.

DR. NEIL HUTCHINSON: Thank you. Neil Hutchinson, for the Board. I'd like to -- to get an

idea of what you've asked the University of Alberta to -- to undertake. What questions have you asked the University of Alberta in -- in these studies that are going to inform your next round of modelling?

Is it focussed on extra fine PK and its characteristics or is it just focussed on your general PK stream in general?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Those slides are actually -- the pictures of the graduated cylinder are actually from the University of Alberta study.

So, they have -- we gave them two (2) samples to work with, one (1) is the -- is the fine processed kimberlite that we expect in the period of 2022 to 2025, which is a 50/50 blend of ore from 821 and 50 percent from the 154 north pipe.

And each of the kimberlites at Diavik, the same as at Ekati, the same as, I'm sure, Gahcho Kue, each of them have unique physical properties, so they're -- they're made up of slightly different -- different kimberlites.

So, it's important that we get a representative mix. And -- and so, that's what one (1) of the -- one (1) of the text materials is.

The other is extra fine processed

kimberlite which we've collected from off the reclaimed barge sitting in the processed kimberlite containment area, in the middle, which is predominantly extra fine PK. And that's the material that we -- we'd like to consider dredging as a closure option.

So, we asked them to -- to evaluate both of those materials. We asked them to look at it. We sort of talked about initial settling and some initial consolidation.

There's a range of geotechnical measures they take on those -- on those samples so that they can forecast -- they can populate a consolid -- a long-term consolidation model to find out how that material will consolidate over long periods of time and what ultimate densities it will get to.

That was -- that was one (1) focus. And then the other focus is -- was water chemistry, so what's the -- as that pore water is -- is released in that -- in those -- in those columns, they're sampling over time the -- the chemistry of the supernatant, or that decant water, to see how that chemistry changed over time, again, and -- and how different it was between extra fine processed kimberlite and fine processed kimberlite.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Thank you very much. Just one (1) more question, Madam Chair.

We've heard some Interveners are -- are concerned about a layer of extra fine PK being disturbed and floating up into the water column or being moved up into the water column and bringing turbidity into the extra waters.

Given the segregation that you're showing on the slide and the fact that there'll be a layer of dense pore water overtop of extra fine PK, would that tend to inhibit any potential for this fluffy extra fine PK to move up into the water column?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Yeah, I'm not sure where this notion of fluffy extra fine PK comes from, but I -- I think we'll -- maybe we'll get to that.

But I'd ask -- I'll ask Jerry, from Golder, to talk to this. It was -- it was a question that was raised earlier, about the potential for raised suspension. And I think he'd be able to answer that question better than I would.

(BRIEF PAUSE)

MR. JERRY VANDENBERG: Jerry Vandenberg, consultant to Diavik. Yes, it -- it definitely would limit the resuspension having a layer of denser water overlaying the sediment. It would essentially restrict the amount of turbulence of water movement that interact with that sediment water interface.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. That's all my questions. Thank you.

THE CHAIRPERSON: Board, questions?

BOARD MEMBER KRUTKO: David Krutko, Review Board. Could you clarify the numbers in regards to the existing containment pond that's used for PK now? My understanding is, to date, there's 32 million cubic metres of fill.

With the extension on your licences, you've got room up to -- is it -- I think it was 8 metres, and then an additional 4. Can you clarify that?

MR. SEAN SINCLAIR: So, yeah, the current PKC is built up to --

THE CHAIRPERSON: State your name, please.

MR. SEAN SINCLAIR: Oh, Sean Sinclair, Diavik. So, currently the processed kimberlite

containment facility is -- the liner is at a maximum height of 465 metres above sea level. It's just a reference. The lakes at about 416.

We're currently constructing the phase 7 -- we call it phase 7A dam raise, so it's a 4-metre dam raise. So, we -- we started that last summer, this summer, and we'll be continuing that next summer. So, that's 4 metres. That's already happening.

And then what we call dam raise 7B which is already designed and approved would happen then. That would be the subsequent one (1), the next 4 metres. And that's the one (1) that we're talking about avoiding if we get approval.

BOARD MEMBER KRUTKO: David Krutko, Review Board. And with the number, I believe, five (5) more years you have left with mine life for production, you're looking at an additional 5 million cubic metres of space.

So, how much space are you short if you fill the existing pond that you have now with an additional add-on?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald.

Why we're -- why we're struggling with it, it's because it actually gets stored as -- as tonnes because it's how it deposits, and we reclaim the water, so it's -- it's difficult to mo -- move into -- into units.

But I think your asking is how many -- how much volume short are we if we don't build that raise. And -- and can we get -- we want to make sure we got this number right for, so we -- can we get you that number back?

(BRIEF PAUSE)

MR. GORD MACDONALD: Yeah, would you mind if we get back to you on that?

(BRIEF PAUSE)

BOARD MEMBER KRUTKO: Yes. On the site tour that we're at, we've -- we went on top of the rock pile and we looked down over, basically, at the PK pond. And I noticed it's quite a distance between the rock pile and the -- the pond. There's room in-between that.

I'm wondering why couldn't you go up

against the rock pile in regards to expansion of the existing PK pond?

(BRIEF PAUSE)

MR. GORD MACDONALD: Gord Macdonald, with Diavik. You're thinking along the exact same lines as -- as our -- as our engineers. The -- the challenge with it is the deposition -- when you just -- when you deposit from a higher elevation, you know, you -- you form those beaches. And that -- that helps with a deposition of that -- of the solid material.

The challenge comes in the -- the water level within the -- within it rises, as well. And it's that water level that actually sets the mi -- the minimum elevation.

So, we have to stay below the spillway elevation, which is basically at the 465, everywhere even though -- even if you can deposit some of the material up onto a slope.

So, it would help with storage, but it wouldn't -- it wouldn't alleviate it.

BOARD MEMBER KRUTKO: Thank you, Madam Chair. I believe I asked a similar question in Behchoko. And I believe you said you -- your licence

was up to 472, there was a difference between the 465 and the 472.

So, there -- is that in the licence? How -- what's the maximum height you can go in your licence?

MR. SEAN SINCLAIR: Sean Sinclair, Diavik. So, we currently have approval of a design going up to 473 metres above sea level, and we're currently at 465, so another 8 metres.

(BRIEF PAUSE)

BOARD MEMBER KRUTKO: Yes, since chart 15's on the board, I'm just -- my glasses might be dirty, but I noticed that after two (2) months there's a little sludge slurry or slime on top the tube. Is that the cork or is that something that is an unknown?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. Are you referring to this -- this material here?

MR. DAVID KRUTKO: (NO AUDIBLE RESPONSE).

MR. GORD MACDONALD: Yeah, I think it's just a shadow in the -- it's a shadow in the picture or a residual of the chlorite but it's not --

it could even be material from the -- from the processed kimberlite that was stuck up there.

I -- I -- again, this is -- these are fresh from (INDISCERNIBLE).

THE CHAIRPERSON: Questions from Board members?

(BRIEF PAUSE)

THE CHAIRPERSON: Okay. Thank you. Moving on. We're going to do one (1) presentation before we end the day. And EMAB is ready to their presentation. EMAB...?

(BRIEF PAUSE)

PRESENTATION BY EMAB:

MR. JOHN MCCULLUM: Thank you, Madam Chair. I'm John McCullum. Just before we proceed, I have, I hope, a couple of consultants online, and I just want to make sure they're there. They won't be part of the presentation, but they may answer some of the questions that come afterwards.

So, Bill and Friederike and Meagan, are you online?

(BRIEF PAUSE)

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): And Meagan here, as well.

MR. BILL SLATER (BY PHONE): Okay, I'm online.

THE CHAIRPERSON: We have two (2) people online so far. And if you're online, please do not go on speaker phone if you can help it because it creates that static.

MR. BILL SLATER (BY PHONE): Bill Slater. Can you hear me?

MR. JOHN MCCULLUM: You're very fuzzy, Bill.

MR. BILL SLATER (BY PHONE): Is it better now?

MR. JOHN MCCULLUM: Gord, can you understand what he's saying?

MR. BILL SLATER (BY PHONE): All right, let me -- it's -- yeah, it's Bill Slater. I'll -- I'll try and dial in with a different method, and hopefully that'll work. Thanks.

MR. JOHN MCCULLUM: Thanks, Bill. And just to confirm, Meagan, you're online, as well.

MEAGAN COOLEY (BY PHONE): Yeah, Meagan here. Can you hear me?

MR. JOHN MCCULLUM: Yes, I can hear you. And Friederike...?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): Yeah, it's Friederike here. And can you hear me?

MR. JOHN MCCULLUM: Yes, perfect. Thank you. Okay, I'm going to start.

(BRIEF PAUSE)

MR. JOHN MCCULLUM: All right. So, we have a lot of material here, and so I'm probably going to start talking fast, so just tell me to slow down if I do that. And we can -- there's a few things in here that we can skip over if necessary. You have our intervention.

So, basically, we're going to summarize the key points of EMAB's intervention here. We're also going to speak very briefly to Diavik's responses to the MVEIRB supplementary IRs.

And we're also going to speak very briefly to the commitments that Diavik made in its letter of response to all the interventions in as much

as they would affect or could -- could affect EMAB's recommendations. I think that's good for now.

So, let's -- okay, what am I doing here? So, to start with, a quick comment on the review process. We certainly found the -- the ma -- the ma -- the whole process difficult to follow. And I'm not talking about -- I'm not just talking about the MVEIRB process, but going back to the very beginning when this was simply a water licence amendment application.

The -- the original application was about a hundred pages long. Of that, about half a page or less was the actual description of the potentially significant environmental impacts, so essentially nothing.

And almost all of the project description after that has come through Information Requests, responses, responses to those Information Requests back and forth. And you've noticed a couple of times today that, you know, Diavik would refer back to some IR way long ago.

So the short message there is that it was difficult for EMAB to follow. We don't have a lot of resources, but we have a lot more resources than some of the other Interveners here.

And I think it would be worthwhile for the Board to ask itself -- I shouldn't say "I" -- EMAB thinks it would be worthwhile for the Board to ask itself whether the information provided was sufficient and understandable for them to fully participate.

And the other recommendation here was that the Board look into whether or not there are lessons for future information management and processes in terms of making them accessible for people without water resources.

The other thing I'll just say very quickly: We were really pleased about the participant funding being made available. EMAB's been advocating for this for a long time. And we would like to recommend that the Board consider recommending participant funding be established on an ongoing basis, both for things like environmental assessments but also for the regulatory end of things: water licence proceedings, et cetera.

I'm going to try and go through a summary of all of the main topics that we raised in our intervention. I might just suddenly jump over one if I start realizing I'm running out of time, and it's certainly appreciated if people could let me know when we're about halfway through time so I can figure out

what to skip.

The only other thing I would say is we -- EMAB did make recommendations about A21. We've removed them from our presentation because Diavik has made its commitment to remove A21 from the project proposal.

So the first area we want to talk about is the definition of significance. This has already come up a couple of times, but I'm just -- so I'll just make the points quickly.

The CSR definitions which Diavik is proposing for this environmental assessment date back to 1999. So we feel they should be reconsidered in terms of their relevance for this project and particularly how well they address the values of the affected communities.

We also have a concern that the definitions may be misused, and I'm going to use the map on the right-hand side of the slide here just to demonstrate this.

Diavik is proposing in this environmental assessment that the geographic scope of significance would be anything -- anything that's a regional -- of regional significance rather than local significance.

And the line between the two (2) is a one (1) kilometre zone all around the east island. So that works out to about twenty-five (25) square kilometres of water. It's a big swimming pool.

And they are also recommending that guidelines and standards would have to be exceeded by twenty (20) percent. So that would be twenty (20) percent above AEMP benchmarks.

Am I going too fast? Am I okay? All right.

So in terms of the environmental assessment, that's one aspect. But what we have seen is that in Diavik's interim closure and reclamation plan, they used the -- these definitions of significance to propose that that entire area around the east island -- that twenty-five (25) square kilometre area -- would be considered a mixing zone and that Diavik would be required to meet water quality standards at twenty (20) percent above AEMP benchmarks only at that one (1) kilometre line -- all the water inside that.

So we're concerned about that. And so in our recommendations, not only are we -- are we suggesting that Diavik should update its definitions and thresholds of significance to reflect current

conditions but that MVEIRB also look at that since you're the guys who ultimately agree or disagree with whether or not they reflect current conditions and that the Board also clarify its views on the implications of the significance definitions during this regulatory phase.

So the concern is that essentially -- in my previous example, Diavik said anything inside that one (1) kilometre zone is an insignificant impact, and so we don't -- it doesn't need to be considered.

Okay. Second thing that we're looking at is the reliability of predictions. We've had quite a bit of discussion about that today.

All of the assessment of significance are based on these model predictions. There are many uncertainties about the model accuracy. We've just listed a few of them here. I won't go into them.

And in addition, the sensitivity analyses that Diavik is relying on are also limited in that they looked at the effect of changes in one aspect at the time, not if there were changes in the range of inputs and how that would affect the model outputs.

So summary of recommendations:

MVEIRB should require confirmation of those predictions;

MVEIRB should engage an independent expert to review Diavik's modeling;

The refined modeling should be reviewed prior to any final approvals of the project; and

That if predictions change, Diavik should reassess potential for significant adverse effects.

And here we wanted to speak a little bit to the responses to the interventions that Diavik made. EMAB's view basically is that uncertainty regarding predictions should be minimized before allowing the project to proceed.

We think that any MVEIRB approval should be conditional on an independent expert agreeing that the modeling has been done to the standard of best practice.

And it's our view that the expert should be truly independent of Diavik -- so not involved with Diavik as a consultant ever -- and that the review be managed by an external party, not necessarily paid for by an external party, but managed by an external party and that there be no communication between Diavik and the expert without a

project manager's approval. So in short, Diavik's response does not change EMAB's recommendations on this topic.

I think I'm just going to skip this one.

Benchmarks were unanticipated mixing scenarios -- I'll go quickly through this. The point here is that again going back to the significance definitions, Diavik is proposing ecological thresholds twenty (20) percent higher than AEMP benchmarks.

We know that exposure to water above -- like AEMP benchmarks are what are protected -- protective. So anything above that, it's potentially -- could cause an adverse effect.

So EMAB's view is that the ecological thresholds for water quality should be protective of aquatic life. And the twenty (20) percent brings that into question.

The decision to reconnect to Lac de Gras: Diavik proposes the water quality will be the determining factor when connecting the pit lake to Lac de Gras.

We would like to see sediment quality also looked at, the stability of the pit walls in the case of this rare scenario of the possibly of a pit

wall failure, and, of course, traditional knowledge, which has also come up today.

So in summary, our recommendations are:

That they should monitor water and sediment quality comprehensively and ensure that the conditions are protective of aquatic life;

That MVEIRB should require sediment quality and pit wall stability to be also considered; and

That MVEIRB require there be TK criteria.

And we were -- so we're supportive of Diavik's commitment to develop TK acceptance criteria. As far as the recommendation or suggestion that EMAB should take on that review for the effected communities or for the Aboriginal parties to the Environmental Agreement, this was news to us when we read it.

I want to be really clear that EMAB does not speak for the Aboriginal parties to the EA. We do not represent them. EMAB Board members are independent.

It's our view that Diavik is responsible to work with the communities on TK criteria, so I would question whether that's -- if

that's mandated or not. And Diavik has the resources and the expertise and the experience to do that, including having managed the TK panel for years now.

Effects on fish and fish habitat: So the critical assumption or one of the main critical assumptions here is that fish will not go below 40 metres. That's just something to keep in mind, I guess.

The dissolved oxygen predictions which are critical for aquatic health have only been made for A418 pit. Diavik has noted that slimy scope in those little fish that live on the bottom in a very small area will not be able to move away from contaminants if they're exposed to them.

We're concerned that fish and habitat monitoring post-breach is not described at all. Diavik has indicated that if it's considered necessary -- if it's considered necessary, they would recommend using acoustic monitoring. But essentially, it's not part of the monitoring program as currently described.

And finally, fish tissue monitoring for metals is not described. And we feel that users -- users should feel assured that the fish are safe to eat and that that's a part of potential cultural

impact, I guess.

So the summary of recommendations:

Confirm the fish are only using the upper 40 metres of the pit lake;

Confirm the depth of the contaminated water in the chemocline before any breaching;

Monitor the fish use of the enhanced habitats, both A154 and A418 have these quite shallow areas that are -- have been designed, I guess, to be enhanced fish habitat;

Make sure to run the dissolved oxygen model for A154;

Do dissolved oxygen surveys throughout the pit lake;

Do fish tissue metal surveys on large bodies fish, such as trout; and

Should any aquatic life get into the pit lake before breaching, such as through filling or something like that, that that be sampled and see what its aquatic health is.

Looking at the responses to the interventions again, Diavik continues to not propose any monitoring of fish use at the pit lake below 40 metres or of aquatic health. Our view that this is a deficiency in the scope of the proposed monitoring

that needs to be addressed. And again, it does not change EMAB recommendations.

Effects to wildlife: The main concern we have is that the open water in the pits could attract wildlife. Particularly in the spring, it's likely that the pit lake will be open, at least while being filled before the rest of the lake is open. And so that would be an attractant to water fowl that were flying over if they could see open water.

Diavik didn't assess the potential effects on wildlife during operations, so any post-operations. And we note that Diavik committed to update monitoring and management plans.

So in summary, our recommendations are that:

MVEIRB should acknowledge the potential for the project to interact with wildlife during operations; and

MVEIRB should require the management plans to include specific requirements on wildlife and water fowl use of pit lakes during the operations.

And again, we acknowledge that Diavik spoke to this in their response to the interventions, but their response does not change either of those recommendations.

The next topic is monitoring, and this is both before the dykes are breached and after. In general, we feel that the current water quality monitoring plan is not adequate.

There's basically one (1) sample location in the middle of the pit lake that would be monitored over time at four (4) depths in the lake, and they are only proposing one (1) transect or line of sample areas before breaching the pits. And then they're proposing to reduce monitoring in the pits to twice a year after breaching.

I should say that the monitoring is probably the main area where EMAB made recommendations. We made nineteen (19) recommendations on this because we think it's really critical.

But in summary, there needs to be a comprehensive monitoring program, both to confirm the model predictions and to look at the water quality throughout the pit lake in all seasons and to look at the sediment quality monitoring. We do believe that there's potential for sediment to be present, and at the least, Diavik should look for it and sample it if it's there.

Before reconnecting, we feel Diavik

should sample for at least two (2) years throughout the pit lake, not just in one (1) area, and do that in all seasons. And we've defined seasons in our intervention.

After breaching, again at least two (2) years of sampling in the pit lake, particularly confirm that the chemocline is stable and as well as throughout Lac de Gras to determine the water exchange with Lac de Gras and the extent of effect.

Again, we acknowledge that Diavik did speak to this in its responses to the interventions, and again in EMAB's views, those proposals were inadequate in terms of duration, in terms of spacial extent and in terms of scope of the monitoring.

So again, MVEIRB should address monitoring in the followup measures to the level of detail that ensures that adequate data will be collected and analyzed, and that's in terms of scope, duration, and spacial extent. So this response also does not change EMAB's recommendations.

I'm going to skip the descriptions or contingency plans. I'm going to skip the revised closure objectives.

Cumulative effects on water quality: Short and sweet, we don't believe that Diavik provided

enough information on its methods in terms of predicting cumulative effects to water quality, and we think that MVEIRB should ask for more information there.

And the final item is the PK slimes. So one of the reasons that EMAB was initially -- one of the main reasons that EMAB was initially in favour of the proposal to move -- to put processed kimberlite in these pits was the possibility of moving the PK slimes out of the PKC and into the pits. I know that's beyond the scope of the review.

But in terms of the long-term closure success for Diavik, our feeling is that getting those slimes out of the pits is probably one of the most critical things that they can do. And the pits do provide a permanent and physically stable location for storing the slimes, as Diavik has said. We want to note that Diavik had proposed a feasibility study on this but that they've actually pushed it back a year as of the most recent schedule that we've seen.

So one short recommendation which is that Diavik should be required to evaluate the feasibility of moving the slimes from the PKC to the pits as soon as possible and that to be a condition of any approval.

And finally, just a couple of questions, I guess, on Diavik's responses to the MVEIRB supplementary information request.

We've been told that the pits will fill with water over time and eventually over top unless the -- unless there's some kind of a connection between the pit and Lac de Gras, and we'd just like to see the actual evidence that Diavik is -- has used to make that conclusion.

We're not sure how water movement can be the same between Lac de Gras and the pit lake. If there are breaches or if there are no breaches but just some kind of thing that's sufficiently able to keep fish out -- if it's able to keep fish out, the holes are going to be pretty small, and it's hard to imagine how that would work. So I just -- we would just like to see how that was arrived at.

And similarly, the support for the predicted extent of effects on Lac de Gras, which was that it would affect Lac de Gras for ten (10) metres if the pit lake is isolated and fifty (50) metres if the dyke is breached at the breaches.

And finally just a note, EMAB has not reviewed the responses to interventions as a Board. We've addressed the specifics under the individual

topics. Where that's been done -- so the Board has reviewed this presentation, but they have not formally approved it. And so the -- our responses to the -- to what effect these would have on our recommendations essentially are -- come from the already approved intervention.

And in general, EMAB would prefer the conditions be addressed by the Board as followup measures, and then if there's any additional work that needs to be done later that that be done through the water licence proceeding. But at this point, measures are reflective views of MVEIRB.

And that's what I have. So thank you.

THE CHAIRPERSON: Okay. Thank you for your presentation.

QUESTION PERIOD:

THE CHAIRPERSON: We have come to the part where there's questions for EMAB's presentation. Lutsel K'e Dene First Nation questions?

MS. LAUREN KING: We have no questions. Lauren King, LKDFN.

THE CHAIRPERSON: Questions, Environment and Climate Change Canada?

MS. GEORGINA WILLISTON:

Georgina Williston, with Environment and Climate Change Canada. We have no questions. Thank you.

THE CHAIRPERSON: Questions for DFO?

MR. DANIEL COOMBS: Dan Coombs, DFO. We have no questions.

THE CHAIRPERSON: Questions from Tlicho Government?

DR. GINGER GIBSON: Ginger Gibson, Tlicho Government. No questions.

THE CHAIRPERSON: Questions, YKDFN?

MR. MACHEL THOMAS: Machel Thomas, YKDFN. No questions.

THE CHAIRPERSON: Questions, NSMA?

MS. JESSICA HURTUBISE: Jessica Hurtubise, North Slave Metis Alliance. I do not have any questions. I'll just verify if Andrea on the line has any questions?

MS. ANDREA BECKMAN (BY PHONE): Andrea, from Redicom on behalf of NSMA. No questions.

THE CHAIRPERSON: Questions, DKFN?

MR. MARC D'ENTREMONT: Marc D'Entremont, for the DKFN. I would like to thank EMAB for their presentation, and we have no questions.

THE CHAIRPERSON: Questions, FRMC?

MS. KATY DIMMER: Katy Dimmer,

Fort Resolution Metis Council. No questions at this time. Thank you, Madam Chair.

THE CHAIRPERSON: Questions, NWT Metis Nation? Questions, GNWT?

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. Thank you for your presentation. Could you flip to slide 9, please?

MR. JOHN MCCULLUM: What question are you on? Number?

DR. BARRY ZAJDLIK: It's reliability of predictions, point 2. It's the one that has a green tab on the left. That one right there.

Bullet number 1, you say that there should be confirmation of predictions. Does EMAB have any recommendations as to what comprises adequate confirmation of predictions?

MR. JOHN MCCULLUM: John McCullum, EMAB. So in the -- essentially, what we're recommending here is that an independent expert confirm that the modeling has been done to the standard of best practice, and I think that that's the main recommendation that we're putting forward there.

I could check with our consultants if there's anything further that they want to elaborate on that, but that was the recommendation we made.

Bill or North South, anything to add to that?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): It's Friederike Schneider, with North South. No, we don't have anything more to add.

MR. BILL SLATER (BY PHONE): All right. It's Bill Slater. You probably still can't hear me well. I'm still on that (INDISCERNIBLE) work, but I'll maybe try again. I don't have anything to add.

DR. BARRY ZAJDLIK: Okay. Barry Zajdlik. So what I heard is the net corroboration is really the testimony from an expert that reviews the modeling results independently of Diavik. Is that correct?

MR. JOHN MCCULLUM: John McCullum, EMAB. Yes.

DR. BARRY ZAJDLIK: Thank you, John. Barry Zajdlik, on behalf of the GNWT. A second and final question: There has been concern regarding the definitions of use from the 1999 CEA document. Does EMAB have a recommendation regarding how the 1999 definition of a local study area should be changed?

MR. JOHN MCCULLUM: John McCullum, EMAB. You're referring to the local study area for water quality. No. I think our main concern there is

the potential for that being misused in the -- down the road, and that's one of the main reasons that we raised this.

We've seen what we feel is a misuse in relation to the ICRP, and so we feel it would be helpful to have clarity on how that works.

DR. BARRY ZAJDLIK: John, correct me if I'm wrong, but I think that your concern was predicated on the size of the local study area which is one (1) kilometre from the east island, right? So if you had an opportunity to change that number, would you have a recommendation?

THE CHAIRPERSON: State your name, please.

DR. BARRY ZAJDLIK: I am sorry. Barry Zajdlik, on behalf of GNWT.

MR. JOHN MCCULLUM: John McCullum, EMAB. The WLWB has issued guidelines for mixing zones. I think that would be probably the most appropriate thing.

EMAB did not discuss this as a Board, so I can't really go beyond that. But that might be a possibility.

DR. BARRY ZAJDLIK: Barry Zajdlik, on behalf of GNWT. Thank you. We have no further

questions.

THE CHAIRPERSON: Questions from Diavik?

MR. GORD MACDONALD: Gord Macdonald, with Diavik. We have no questions. Thank you.

THE CHAIRPERSON: Questions from Board staff?

DR. NEIL HUTCHINSON: Thank you. Neil Hutchinson, for the Board. John, you've recommended that the refined modeling should be reviewed prior to -- what you say are final approvals and that Diavik may have to reassess the potential for significant and adverse effects as a result.

I'm just curious what you mean by final approvals? Are you talking about approval by MVEIRB or by some subject and approval by the Land and Water Board?

MR. JOHN MCCULLUM: John McCullum, EMAB. That's a very good question, Neil. I'm not sure we've discussed that at the level of saying which organization we're talking about.

But the concern that came up was that basically that the project would be allowed to proceed and have all its approvals before they'd actually shown to the satisfaction of EMAB anyway, that the

modeling results were, in fact, true, and that the -- that there would not be a significant adverse impact on the lake.

We -- EMAB has said in our intervention based on the information that we've received from Diavik so far, we don't think there will be significant adverse effects, but it's all based on the modeling.

DR. NEIL HUTCHINSON: Thank you. Neil Hutchinson, for the Board. Diavik, I believe, have committed to not depositing any PK into the pit until all the approvals are in place. So presumably, would that address your concern?

MR. JOHN MCCULLUM: John McCullum, EMAB. I'm in a difficult position here because I can't really speak on behalf of the Board on something the Board hasn't actually made a decision on.

So my understanding from the discussions we had were that the project should not be allowed to proceed until people are satisfied and that putting those terms in as water licence conditions after the project was approved would not be satisfactory.

But again, I hesitate to put words in EMAB's Board's mouth.

DR. NEIL HUTCHINSON: Neil Hutchinson. Thank you -- for the Board -- thank you. So do your concerns with the modeling relate to the validity of the conclusions, or are you more concerned with fine tuning the water quality modeling? Do you have a fundamental disagreement with the conclusions that Diavik have made or the output from their models?

MR. JOHN MCCULLUM: John McCullum, EMAB. I'm going to invite my consultants to jump in on this.

But I'm just going to say that, you know, the modeling outputs that we've seen, if they're accurate, seem to indicate no significant adverse effects. But -- so we're -- but we're -- that's what we're entirely relying on to make that, I guess, conclusion.

So yeah. I think that that's it for me. I don't know if Bill or North South, do you have anything to add to that?

MS. FRIEDERIKE SCHNEIDER-VIEIRA (BY PHONE): It's Friederike Schneider here, with North South. Yeah. Just to reiterate John's point that the models are developed using fairly limited -- poor water quality data.

And if Diavik put out -- I mean, are

actively getting more information -- and they indicated earlier today that the University of Alberta study was just completed, and they also described how they're going to develop a more sophisticated model to, I guess, better understand the water quality results.

So certainly, the current water quality modeling results look good, and it looks like there would not be any issues. But you'd want to see what the results are when you have more information on poor water quality as well as the other refinements, which were discussed earlier today.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Thank you. That was very helpful.

Your slide 11 provides your definition of a negligible change as being a non-detectible change from the pre-development baseline. I note that Lac de Gras has already changed from baseline conditions and that that was part of th original approval.

If it's not possible to return it to a negligible change from baseline conditions, what would EMAB propose as something that was as a suitable target if it's not possible to bring it back to a negligible change from baseline conditions?

Diavik had proposed a threshold of water quality objectives for protection of aquatic life and wildlife. Do you have a comment on that?

MR. JOHN MCCULLUM: John McCullum, from EMAB. So the basis for this comment was the suggestion that it would -- that it'd be changes from baseline or AEMP benchmarks as I recall.

And so the concern was -- I mean, in some cases, the AEMP benchmarks are way above baseline. In some cases, they're not. So AEMP benchmarks did not seem like a reasonable indicator of whether the change was of negligible magnitude. We didn't make any proposals beyond that.

Again, any -- if Bill or North South want to jump in here, please feel free.

MR. BILL SLATER (BY PHONE): Hi. It's Bill Slater. And hopefully, you can make out the poor sound. I think, John, you've covered the point well.

The important distinction is that the comment was about the definition of what's the negligible change and not about the definition of water with significant effect. And those are quite different concepts within the environmental assessment.

And so sediment for -- for water

quality but (INDISCERNIBLE) a definition of negligible change as the AEMP benchmarks I find that kind of a used protection approach to water quality and sediment water quality as a valued component on its own appeared to refine a valued water quality.

So from the perspective of the unnegligible change, that would make -- aquatic AEMP benchmarks would make sense if you were talking about an aquatic ecosystem. But it doesn't make so much sense when you're talking about water quality as a value on its own.

DR. NEIL HUTCHINSON: Neil Hutchinson, for the Board. Thank you very much, and that's all of my questions, Madam Chair.

Neil Hutchinson, for the Board. Staff don't have any more questions.

THE CHAIRPERSON: Questions, counsel?

MR. JOHN DONIHEE: Thank you, Madam Chair. It's John Donihee. I think I just have one (1) question for our friends from EMAB.

You've made much of your concerns about the definitions of significance that Diavik complied to the evidence that they supplied to the Board. And as I'm sure you know, as of the advent of the Mackenzie Valley Resource Management Act, the Canadian

Environmental Assessment Act doesn't apply in the Mackenzie Valley anymore.

So, you know, any definitions from the CSR that was done before the MBR and make them into force don't really have any bearing necessarily, unless the Board choose to adopt them. They have no bearing on the matter that's in front of the Board right now.

And as an administrative tribunal, the Board's not even bound by its own previous decisions. If it makes more sense to reshape the definition of significance in light of the evidence that's in front of it right now, the Board has the power to do that.

So I guess I'd like just to ask you: In light of the concerns that EMAB has raised, you know, whether you have any suggestions -- Dr. Hutchinson addressed it a little bit or actually Dr. Zajdlik, I think it was, about the local study area -- but whether EMAB has any suggestions about, you know, what criteria the Board should be looking at -- from EMAB's perspective anyways, what criteria should the Board be looking at in order to make its determinations of significance with relation to particularly water quality and cultural matters?

MR. JOHN MCCULLUM: John McCullum,

EMAB. Thank you. That's a great question. And I'm just going to have to say it's not something we really considered at the time. We looked at the proposal and were concerned about it.

And so I'm kind of embarrassed to say that we didn't come up with any constructive suggestions on that, other than that the -- what we were seeing already had caused us problems in the past and that we hoped that doesn't happen again.

So sorry, nothing to add. It is a great question.

MR. JOHN DONIHEE: Thank you. John Donihee. Thank you, Madam Chair. One (1) followup, I guess. It's great to ask great questions, but I'm looking for answers that are going to help the Board, too.

And so I'd simply like to suggest to you, Mr. McCullum, if EMAB could help the Board by -- the evidence that's in the front of the Board is in the front of the Board. But there still will be a separate phase in this process where the final arguments are presented, and I'd like to encourage you to give that matter some thought and perhaps offer the Board your suggestions in argument.

MR. JOHN MCCULLUM: Thank you.

Great idea beyond question.

THE CHAIRPERSON: Questions from Board staff or no more questions? Questions from Board members?

Thank you, EMAB, for your presentation. At this time, we'd like to go into public comments.

As you know, the Board had -- for the past two (2) days, we've had community hearings in Behchoko and in Dettah. So at this time, we would like to give this opportunity to people that have not spoke for public comments.

Public comments? Last call for public comments? I know it's been a long day for everyone here, and tomorrow is another day where there's an opportunity for public comments. But one last call for public comments? Everyone wants to go home, I believe.

So at this time then, we would like to thank everyone; thank Diavik for their presentation; thank EMAB for your presentation as well.

As you can tell on the agenda, we are behind. So tomorrow, there'll be several presentations that -- and we start at 9:00 in the morning. So it'll be half an hour earlier. And we'll try to stick to the agenda because we only have --

tomorrow is the final day.

So with that, I'd like to adjourn the meeting until tomorrow morning at 9:00, and we'll start right with the presentations. Thank you.

--- Upon adjourning at 6:22 p.m.

Certified Correct,

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Sean Coleman, Mr.

H