

WEK'ÈEZHÌ  
LAND AND WATER BOARD

SPB Technical Session  
BHP Billiton

November 4 & 5, 2008

Workshop Participants:.....	3
November 4 Start – 10:30.....	4
November 4 10:45 – Lunch.....	39
November 4 1:30 – 3:00 .....	63
November 4 3:20 – End.....	98
November 5 Start – 10:30.....	122
November 5 10:45 – Lunch.....	152
November 5 1:15 – 2:45 .....	172
November 5 3:00 – End.....	201

**Wek'èezhìi Land and Water Board  
SPB Technical Session  
BHP Billiton  
November 4 & 5, 2008**

**Workshop Participants:**

<b>Name</b>	<b>Organization</b>
<b>RF - Ryan Fequet</b>	Wek'èezhìi Land and Water Board
<b>NH - Neil Hutchinson</b>	Facilitator
<b>KR - Kathy Racher</b>	Wek'èezhìi Land and Water Board
<b>JD - John Donihee</b>	Wek'èezhìi Land and Water Board
<b>CH - Claudia Haas</b>	ENR, GNWT
<b>EN - Erika Nyssonen</b>	ENR, GNWT
<b>BH - Bruce Hannah</b>	DFO
<b>HF - Heather Frederick</b>	INAC Legal Counsel
<b>JB - Jason Brennan</b>	INAC
<b>AW - Anne Wilson</b>	Environment Canada, Environmental Assessment Group
<b>LM - Lionel Marcinkoski</b>	INAC, ENC
<b>TB - Tim Byers</b>	Independent Environmental Monitoring Agency
<b>LJ - Laura Johnston</b>	Independent Environmental Monitoring Agency
<b>KOC - Kevin O'Callaghan</b>	BHP Legal Counsel (Fasken Martineau)
<b>LT - Laura Tyler</b>	BHP Billiton
<b>CC - Charity Clarkin</b>	BHP Billiton
<b>ED - Eric Denholm</b>	BHP Billiton
<b>ZN - Zabey Nevitt</b>	Wek'èezhìi Land and Water Board
<b>KOR - Kevin O'Reilly</b>	Independent Environmental Monitoring Agency
<b>MW - Mark Wen</b>	Rescan
<b>DW - Danielle Weske sp?</b>	BHP Lawyer
<b>TS - Todd Slack</b>	Yellowknives Dene First Nation
<b>AL - Angie Lantz</b>	Lutsel K'e Dene First Nation
<b>NR - Nathen Richea</b>	INAC, Water Resources
<b>MC - Marc Casas</b>	INAC, Water Resources
<b>EE - Eddie Erasmus</b>	Tli Cho Government
<b>CH - Caroline Huskey</b>	Tli Cho Government
<b>VS - Velma Sterenberg</b>	INAC, Mineral Development Division

## November 4 Start – 10:30

### *Start of Tape 1*

**KATHLEEN RACHER (KR):** Welcome Everybody. Thank you for coming to this out of the way location for a new boardroom. Just to let you know there's a washroom in the back of the room here, for our use. And help yourself to tea and coffee whenever you need to.

Okay, so I'm just going to do a little bit of a background and just a chronology of events to get us all on the same page. As hopefully all of you know, BHP has two water licences for their project. One licence, called MV2003L20013. We call that the main licence. That's the original licence that BHP got and covers the development of most of the pits at the Ekati Mine Site.

The second licence is the MV2001L20008. Are you impressed that I remembered that? Thank you. And we called that Sable Pigeon Beartooth Licence because it covers the development of those three pits, which I think at the time were considered an expansion of the original project.

On the main licence, just to remind you all is set to expire in 2013. Sable Pigeon Beartooth Licence is set to expire in 2009.

On April 2<sup>nd</sup> of this year BHP submitted their application for renewal of Sable Pigeon Beartooth Licence. Within a few weeks really of receiving that renewal application the Board also received letters from Fisheries and Oceans, Indian Northern Affairs, Environment Canada, the Independent Environmental Monitoring Agency and the GNWT. All expressing their interest in trying to amalgamate or bring together the two water licences, just for reasons of efficiency and so nobody had to remember so many numbers I guess.

Because of the amount of interest in bringing the two licences together, the Board decided to request comments from all the parties on the concept of

bringing the licences together and those comments were received by the Board on June 30th.

Reviewers were also asked to submit their comments or their major technical concerns with the renewal application of Sable Pigeon Beartooth in particular. And those comments were received by the Board on August 1<sup>st</sup>. The company responded to all of those comments by August 29<sup>th</sup>.

On September 24<sup>th</sup> the Board issued a letter, stating its intention to bring the two licences together through an amendment of the main licence. And the idea is then to attach the Terms and Conditions of Sable Pigeon Beartooth to the main licence. The Board was very firm when it made this decision that it would not consider changing any of the terms and conditions that apply to the pits covered by the main licence. And only consider changes to the terms and conditions that apply to Sable Pigeon and Beartooth pits.

Many reviewers in their comments on amalgamating or bringing the licences together stated that they would be satisfied just to leave the terms and conditions of both licences as they were and just put them together and then let everything go until 2013 when the main licence would be up for renewal anyway. However, it's clear the company in their application has made a number of requests for changes to the, to the terms and conditions of Sable Pigeon Beartooth and that's what brings us here today, to discuss some of those proposed changes.

When we received the initial comments from everybody, back in August and did a thorough review of them the single issue for most, for all reviewers, commented on by all reviewers was: they didn't agree with BHP's proposed changes to the Effluent Quality Criteria. That will apply just to the Sable Pit. So, given that this is the biggest area of disagreement I sort of tried to devote the first day of our technical sessions to a discussion of that. There were a number of other issues or points of disagreement, either between reviewers, or between reviewers and the company and day two is devoted to all of those.

I just wanted to say the technical sessions, the ideas behind it is just to have relatively informal discussion of the issues. Just an opportunity for everyone to meet face to face and ask questions and get clarifications on what the issues really are. And we'll have a chance to discuss some of the back and forth that's already gone on the comments from reviewers and the response from BHP. BHP has also agreed to do a presentation this morning which may give reviewers a little more information and help the discussion today. And yes I just want to encourage everyone to use this as an opportunity to clarify things and to help you write all better interventions and very well informed ones. It would be great if there was some issues we could come to agreement on but it's certainly not necessary here today. The formal hearing process will allow you all to make your presentations to the Board later on this year. And our main intention is for discussion and for information for your interventions.

Just before I pass it over to our, Neil, I would just let, someone let me know that there's 15 copies of BHP's presentation, that BHP printed off and they're behind us here. So, there is probably not enough for one per person, if you could kind of divvy it up amongst yourselves that would be great.

Next I'm going to pass it over to Neil who's going to allow for introductions and then opening comments from all the reviewers.

**NEIL HUTCHINSON (NH):** Okay, my name is Neil Hutchinson. I'm working with the Wek'èezhii Board as a technical facilitator here, today which means I get to guide discussion but because it's technical, I get to ask questions too, I think.

I've been, this is probably the tenth, I think 10 years ago today, about the first time I ever came to Yellowknife and I've been working on the Diamond Project since then as a consultant, first with Gartner Lee Ltd. and now with ACOM who are the same company, just bought by a different group. So, we're going to start with the introductions. In addition to the hand out from BHP that's behind us, there is also a summary of Effluent Quality Criteria that Bruce Hanna prepared from DFO and a copy of today's agenda and tomorrow's agenda as well. And

Kathy I think we also have John Donihee is coming in tomorrow, to talk about process a bit. Yeah.

So, I'd like everybody to go around the table and because this is being recorded we'd all ask that you introduce yourself and the organization that you represent. And to do that each time you come to the microphone with a concern. And then also, I'd like each party, each speaker to say what they hope to get out of the next two days, what their kind of pressing concerns are. There are times for specific questions on technical issues later. On EQC's this afternoon and on other aspect tomorrow as Kathy said. But just, your overall concern, what you hope to bring out of the next two days, would I think get everybody going. So, I'll pass it over to Ryan.

**RYAN FEQUET (RF):** Ryan Fequet, with Wek'èezhii Land and Water Board. We're just here to hear and get some clarification for you guys between the reviewers and the company.

**ZABEY NEVITT (ZN):** This is Zabey Nevitt, with the Wek'èezhii Land and Water Board. Just a quick welcome and thank you everybody for coming along. The Board's been watching this process so far with a lot of interest and is looking forward to all the comments and interventions that will come out through the hearing process here, so thank you and welcome.

**JASON BRENNAN (JB):** Good morning, Jason Brennan, INAC Operations. What I hope to learn is essentially why the, what BHP is proposing for the Pigeon Beartooth Sable water licence criteria, effluent criteria. And more importantly why, why BHP's requesting these changes to the existing water licence.

**BRUCE HANNAH (BH):** Bruce Hannah, Fisheries and Oceans. Just to reiterate what Jason is saying, I'm just here to get a better understanding of why BHP is requesting the changes to the QCs.

**NATHEN RICHEA (NR):** Nathen Richea, at INAC Water Resources, kind of the same thing, hoping to have some good discussions over the next couple of days and hopefully you get some things better, clearer in my head, thanks.

**TIM BYERS (TB):** Tim Byers with Independent Environmental Monitoring Agency. And we look forward to learning more in depth the technical rationales behind the proposed, or BHP's proposed EQC changes. We are ultimately concerned with keeping in mind the aquatic life protection downstream of the pits. Thank you.

**KEVIN O'REILLY (KOR):** [phone ringing] Sorry. Kevin O'Reilly, Monitoring Agency, as my cell phone goes off. Ditto to what Tim said in terms of why we're here, thanks.

**LAURA JOHNSTON (LJ):** Laura Johnston with IEMA as well. And the same thing to gain a better understanding of the rationale behind the EQCs but also a wider look at what everyone's concerns are just to make sure that we caught the majority of them. Thank you.

**LIONEL MARCINKOSKI (LM):** Elano Marcinkoski with INAC. I guess the same thing, here to see, to get a better understanding of some of the technical proposals and changes that BHP plan on proposing.

**MARC CASAS (MC):** Yeah, Marc Casas, Water Resources for INAC. I've similar thoughts, I guess. Just listen to what BHP has to say about the EQCs and also hopefully settling some of the concerns that we have and at least moving towards resolutions on the ones that maybe won't be able to settle, right away.

**LAURA TYLER (LT):** Laura Tyler, with BHP Billiton. I'm going to give you a different expectation, I guess. Really, the expectation of us while we're here, is that we'll have an open and honest dialogue that we'll be able to share with you some of the reasoning behind why we asked for some of the changes and that we'll be able to get some honest opinions and feedback from you guys as to



where you see the problems being and why you believe that the QCs shouldn't actually change. Because you know, there has to be a reason why they shouldn't change as well. And we'd like to understand that from your perspective. Because where, where I come from, or in my department shall we say, because that's how it's always been isn't always an answer that I am always prepared to take, because that's not how we move forwards. So, today I think is a really good opportunity and I commend the Water Board for having actually, for having done this. I missed a good opportunity to get together, rather than just trading letters and going backwards and forwards with letters before we have the public hearing, so I think it's going to be a very interesting morning. Thank you.

**CHARITY CLARKIN (CC):** Charity Clarkin with BHP Billiton and I guess I'm going to lean more towards what Laura's expectations were. I'm here today to hopefully help clarify BHP Billiton's position on some of the proposed changes that we have out there. And also to get back from the rest of you, some thoughts on those and hopefully ways that we can move forward to resolve those several issues.

**ERIC DENHOLM (ED):** Yeah, Eric Denholm, BHP Billiton. I won't just repeat that, but I think it sounds like for a start we're all going the same direction and I'm glad about that. We want to do our best to explain where we're coming from and then do our best to understand where you're coming from and that's what, that's what I'm looking for in this workshop, myself. Thanks.

**EDDIE ERASMUS (EE):** Eddie Erasmus, Tli Cho Government. It's a, pretty well the same thing, why change this late in the game? Like this, why change, that's my only question.

**ERIKA NYSSONEN (EN):** Erika Nyssonen, Department of Environment, Natural Resources, GNWT. I just wanted to let you know that we don't have a water mandate, so we will not be participating in any technical discussions of the effluent and quality criteria, however we're here to be part of discussions to just make a better licence. That's it. Thanks.

**VELMA STERENBERG (VS):** Velma Sterenberg with Indian and Northern Affairs, Minerals. Basically I'm here to listen to what all the stakeholders have to say and take the information back to our division and hope that we can find some balance, get the water licence happening, thank you.

**ANNE WILSON (AW):** Good morning, my name is Anne Wilson, with Environment Canada and I want to thank the Board for the opportunity to have these discussions. It's always so much better to talk face to face and hash things out. My goal is to have the shortest intervention that Environment Canada's ever put in, by getting a lot of the EQC stuff off the table now, or understanding what we need to take forward. Thanks.

**CLAUDIA HAAS (CH):** I'm Claudia Haas for Environment Natural Resources. I work for Environment Assessment Monitoring, so I'm just here to learn all the stakeholders' opinions and I'll be collating a letter at the end for ENR.

**LAURA TYLER (LT):** I'm Laura Tyler, with BHP Billiton. I just wanted to introduce a couple of the guys that we have sitting behind us as well, so if we could just bring them maybe to this microphone and then they can just introduce themselves.

**MARK WEN (MW):** Mark Wen with Rescan Environmental Services, consultant to BHP Billiton.

**KEVIN O'CALLAGHAN (KOC):** Hi, I'm Kevin O'Callaghan, with Fasken Martineau; we're legal counsel to BHP Billiton

**DANIELLE WESKE (DW):** Danielle Weske from Fasken Martineau, Legal Counsel to BHP.

**HEATHER FREDRICK (HF):** Hi, Heather Fredrick with the Department of Justice, Legal Counsel with INAC.

**TODD SLACK (TS):** Hi, my name is Todd Slack, I'm with Yellowknives Land and Environment. I'm looking for broad strokes, trying to, we often let IEMA

speak on our behalf, through our representative and I'm just trying to understand the broader disagreement or discussion that's happening.

**KATHLEEN RACHER (KR):** And I realize I never said my name, I'm just coming up, incognito to the meeting. It's Kathy Racher with the Wek'èezhìi Land and Water Board. As I think someone mentioned, this meeting is being recorded and transcripts will be made of the meeting and we're trying to have those transcripts expedited so that you'll be able to use the information, if you need to for your interventions. So, we'll send that out as soon as they're done. As part of that, again, just to remind you, to always say your name before you start speaking. And finally, can everyone turn off their cell phones, Kevin, oh sorry.

**NEIL HUTCHINSON (NH):** Okay, Neil here with Wek'èezhìi Board. BHP are going to make their presentation now, on the project itself. We have time, we've got today a lot of your questions of EQCs, tomorrow for technical questions, but I think, jot down any concerns you have, maybe points of clarification that you need to make regarding the presentation now and if we have time, at the end of the presentation, we can take some brief questions then. But save the technical meaty questions for later, if you don't mind. Okay.

**LAURA TYLER (LT):** Okay. Just as we get going, I just wanted to say, thank you to everybody for being here. And as I said in my, my kind of opening comments, we see this workshop as being exactly what's needed to move this kind of process forwards. As I noted before we just want to recognize the Board for managing to find a room that we could all meet in because I know it's not easy these days, in Yellowknife. And I just wanted to make sure that everyone knew who the team was. I'm the Manager for Environment Community Communications and Planning for the Ekati Diamond Mine. My name is Laura Tyler, most of you have seen me around for quite a while now. And I have, we also have here, Eric Denholm who is the Superintendent, who looks after permitting for the Ekati mine and Charity who works with him, who is our permitting specialist. We also had Fasken Martineau who are our legal counsel

and they introduced themselves and they're really here so that they can hear what people's opinions are directly rather than hearing it from us later on. And they'll also just be keeping a record for us of comments and things like that as they come up. Mark Wen is also here, you will have met him from, quite a lot through the ICRP process and those sorts of things. And he works with Rescan Environmental Services, does a lot of the consulting work for us for the Ekati mine, runs a lot of our projects. So, he's got a lot of the background, technical knowledge that we'll be able to call upon today to answer the questions.

So, I just wanted to run through a quick agenda on what we're putting together today. We've got, initially I'm just going to run through what our approach to the licence renewal is and the role of Sable Pigeon Beartooth in the Ekati mining operations, so that's really just a short review of our life of mine plan. Charity is going to go through the mining plans for the Sable Pigeon Beartooth kimberlite deposits. We're going to have a short break and then Eric will get into a review of the, oh sorry, Charity will run through the review of the Sable and Horseshoe aquatic environment. Eric will go through the EQCs, why we're asking for the changes and then we'll come back at the, after that and just do a quick summary of what we've presented. And then we can see how we get through this and we can run, do questions straight after it, but then as Kathy said, we'll get into the really meaty questions after that. So, if everyone's okay with that, we'll kick it off.

So, really, we do want to renew this licence. We need to finish mining at the Beartooth Pit and proceed with the planned mining of the Sable and Pigeon resources. The three points up on the screen are the key to our approach that we've taken with the renewal of this licence. So, firstly one of the things that we really want to reiterate is that we, there have actually been no design changes to the project since 2002. Beartooth has been mined to plan and is due to finish shortly and I'll show you that on the mine plan in a moment. And Sable and Pigeon are still at relatively early stages in the design process and haven't had any significant changes, or haven't had any changes to the project since it went through environmental assessment. The Wek'èezhìi Land and Water Board

have kind of, basically acknowledged this through the exempt, through the acceptance of our application for exemption from preliminary screening. So, Charity will go through the details of the designs in a few moments. But it is important to note though that it is basically unchanged.

Secondly, the changes that we have actually proposed to some of the terms and conditions in the Sable Pigeon Beartooth water licence are the result of experience gained, working, not only with this licence but also with the main Ekati licence, since we started mining diamonds. We've actually been mining diamonds there now for 10 years. We had our 10<sup>th</sup> year anniversary on the 14<sup>th</sup> of October. So, basically the experience that we've got over those 10 years and also the experience that we've gained through operating under this specific licence with Beartooth, we have used all of that experience to inform the request that we're making. We'll go through some of that detail a bit later on, but that was just one of the things we wanted to make sure you realize, it's not just an ad hoc, we want to make the changes, we are actually basing it on experience and data that we've collected over the last 10 years.

And lastly, as I said in my opening comments, this workshop is an important part of the renewal process, it's something that we encourage going forward, so I'm not sure if it's been done before but I think, as Anne Wilson said, it's a very good opportunity to meet face to face and actually discuss some of these things rather than going to the slightly more adversarial process of the public hearing. So, I appreciate the opportunity here and hopefully through everyone's, it will help clear up everyone's submissions through to the public hearing, so that should make it easier for the Board to actually hear the submissions.

So, I'm just going to run through, lots of you will have seen this life of mine plan. We regularly talk glibly about our Life of Mine Plan and expect everyone to know what's in it, so we just thought we'd, we'd just pop it up there so that we can go through the, I only hope at this point it works, so that we can go through the, where we are today. So, this red line is where we are actually, in the Mine Plan

at the moment. So you see we have Panda underground in operation, Koala underground in operation, Koala North is in planning, Fox and Beartooth are in operation. Beartooth was due to finish in April. It's been mined according to plan, it's been a good pit, about one carat per tonne and is, we're struggling with some of the ground conditions now but it's, but it's been a very good producing pit.

And you can see here is the Sable and the Pigeon pits which are due to start actual mining between, around 2012 to 2013, but this white area at the front here is actually the construction of infrastructure so this is where we need to be building the Sable road and dams and dikes and all those kinds of things. And for Pigeon, where we need to be completing that road and starting there, completing the fish diversion channel. So, you can see we've only got a few years before we actually start that work. So, one of the things that we just wanted to bring out here is that you can see that the Fox open pit is starting to wind down around 2013 to 2014 and the Koala underground will actually start reducing its tonnage around here. And you can see that Panda, Pigeon and Sable actually become two of the main all sources after that. So they are important in our mine plan, which takes us out to 2020. And so we do actually want to make sure we get a licence that is renewed and that is one that we can operate to.

Now I have had comments made to me, that, well why not just wait until 2013 and when we do the main licence renewal and the amalgamation and we can review it all then and you know, let's just get it through. We have to have a level of certainty for us to go through and get that capital investment from our corporate masters. It's not just money that we can apply to and say that we hope we'll have the right criteria, so this is why; we just want to make sure we have a good and honest discussion around the EQCs going into this water licence renewal.

So, really, the key points that I just wanted to emphasize from this discussion is that Pigeon and Sable resources play an important part, role, in the Ekati Life of Mine Plan. They continue to supply all, for right through to the end of the mine life. The value of ore and the distances from the process plant and the capital costs make the economics poor for Sable. Sable is the riskiest of all the resources that we have on our books. It has the highest capital cost of any project left. It has quite a long, its 26 kilometres I think it is, from the process plant, which all adds to the cost of, for haulage of the ore. And so you know we want to make sure it's right before we go ask for that capital. And we need to know that we can mine the whole resource. And so we want to make sure that we have certainty in those water licence conditions, to ensure that planning of all those new pits proceeds in a way that provides for a continuous mining operation at Ekati.

And now, over to Charity, who is going to run through, Charity is going to run through each of the individual plans for the different pits just to give people some background.

**CHARITY CLARKIN (CC):** Thanks Laura. The map we have up here illustrates the two water licences as Kathy discussed this morning, so BHP has what we call the main water licence, which covers the Panda, Koala, Fox and Misery pits. As well as the main camp area, the process plant and the Long Lake containment facility and then there's the Sable Pigeon Beartooth Licence. We have Sable, north of the main site. As Laura said, I think it's about 26 kilometres as the road goes. And Pigeon and Beartooth, just on the north edge of the main area.

Kathy also touched a little bit on this, but I'm going to go into a little more detail about the water licence process that Ekati has gone through. In 1995, Ekati initiated the environmental assessment process. And that went through to 1997 when that main site, water licence was first received. And then a year later, in 1998 was when Ekati began processing. So, we're in our, 10<sup>th</sup> anniversary this

year. And in that same year 1998, BHP Billiton applied for a water licence for the expansion of Sable Pigeon and Beartooth. And in 2000 the environmental assessment process for that began and it took two years of that until BHP received a second water licence for Sable Pigeon and Beartooth. And then it was 2005 when the first renewal process went through. That was for the main licence and that is now good until 2013. And earlier this year is, again as Kathy has already stated, BHP Billiton submitted a renewal application for Sable Pigeon Beartooth water licence as well as the land use permits. And just again, to remind everyone, it's August 2009 when this permit expires.

I'm just going to talk about each of the pits individually. There's a picture up there of the Beartooth Pit. And in particular actually I'm going to talk about the waste, sorry the water use and waste disposal as that's what's authorized through the water licence. So, for Beartooth, that required a dewatering of Beartooth Lake. That was completed in 2003. At that time as well, water from Bear Claw Lake, it's just north of the pit there, it was diverted around the pit and empties into Upper Panda Lake, which then goes into the Panda and diversion channel flows. All the pit water from this pit goes to the Long Lake Containment Facility which is managed under the main water licence. The waste rock is trucked to the main Panda, Koala rock pile. Again that falls under the area of the main water licence. And all of the ore goes to the main processing plant. And as Laura mentioned, I just want to reiterate that Beartooth has been mined according to the original plans.

Next we have a design plan up here for Pigeon. So, this will be the future, this is slated for future development. The future pit will reside here. This is Pigeon Pond. So, to go through the water use and waste disposal at this site, will require a dewatering of Pigeon Pond, as well as the removal of a small portion of Pigeon Stream, so there'll be a diversion channel constructed. This shows you where that will be located. So, that will allow clean water and fish habitat to be maintained and flow around the pit. A water diversion berm will also be constructed between the stream and the pit just to, as another precautionary



method to keep water from flowing into the pit. The waste rock pile design for Pigeon is shown here. This incorporates Big Reynold's Pond. This area was utilized for the waste rock as it's a low lying region that all flows towards the Long Lake containment facility which you see here. So that will ensure that all run off from the waste rock will be managed through the Long Lake containment facility. And as well, all of the mine water from the pit will be pumped into the Long Lake containment facility. And similar to the other pits, all the ore goes to the processing plant, the main processing plant. I think that's everything there.

Okay for the future Sable Pit, this map here shows you a good view of where it's oriented in relation to, at least Pigeon pit you can see down here, so the main areas south of this and this road travels again, about 20, oh sorry, 23 kilometres up to Sable. So, to touch on the water use and waste disposal aspects associated with this development, it will require the dewatering of Sable Lake and as well the use of Two Rock Lake, so here's Sable which will be the location of the pit and you can see Two Rock. And I'll show you some better maps of that on the next slide, but Two Rock will be used for a settling pond for mine water. The waste rock pile design is dissociated around the pit, the Sable Pit and the Two Rock Lake to minimize run off into the surrounding environment. That again will be shown better in the next slide. Water will also be used just to water the Sable road. You can see here the access point for that. The water will come from Falcon Lake. And all the ore again, as all the other pits will be trucked back to the main site.

Okay, this figure shows a more detailed design for the Sable development. Here's the, where the pit will be located and this is a, this is the Two Rock Pond. So it will be turned into a settling pond by constructing a filter dyke through the centre. So, that's a flow through permeable rock berm, which is similar to those constructed in the Long Lake containment facility. And there'll be a frozen core dam constructed at the outlet, so that all water would be pumped from Two Rock, over the dam into the outlet stream. I guess just to go into a little more detail here. The mine water from the pit will go into the first cell and allow for time to

filter through that dyke until it gets to the second cell. And then water of course would be tested and released from Two Rock, once all the water meets the licence discharge criteria.

Oh, there was one more thing I wanted to clarify here, just a little bit of an aside but, it was brought to our attention, one of the review comments, it was from the Lutsel K'e Dene First Nation, that we had a typo, graphical typo on this graphic. This graphic appeared in our application. In this corner down here, the rock pile actually crossed this drainage boundary and it was stated in our commitment and it remains BHP Billiton's commitment that all of the waste rock, will remain within the single watershed, that being Horseshoe watershed, so we've corrected that design drawing and you can see it remains within the watershed boundary there.

**TB:** Sorry, Charity?

**CC:** Yeah.

**TB:** Sorry, Tim Byers, Monitoring Agency, just for clarification, the diagram we see before us now, That's the corrected one?

**CC:** That's correct. .

**TB:** Oh, okay. Thanks.

**CC:** I just have a couple of pictures to further illustrate this here. So, this is a dyke. See I believe in the Long Lake containment facility, I think this just really illustrates the performance of a filter dyke. You can see the suspended sediments on this side and a much clearer, water on the other side.

This picture here shows you the outlet dam of the Long Lake containment facility. A similar structure will be built at Two Rock though on a much smaller scale, so this is the dam and the water's pumped around that into the receiving environment. In reality Two Rock is a, is much more analogous in size to King Pond, which many of you were familiar with as a sediment pond down at the Misery development.

Okay. So the three key points for the Sable Pigeon, and development plan summarized here on the screen. All of the kimberlite ore from these three pits will be processed at the, one Ekati process plant. Sable is the only area where mine water does not flow into the LLCF, so we have the Two Rock Pond and that's where the EQCs from the Sable Pigeon Beartooth water licence apply. Sable mine water, like I said, flows through the Two Rock Pond and that flow goes north and west into the Exeter Lake and Yambala Lake water sheds.

And now, it's time for coffee. That's a little faster than we anticipated.

**ED:** If I could, it's Eric here. So we had planned to do a presentation, to do this and lead into the break. We're a little ahead of schedule, so I leave it to you if, what you'd like to do at this point?

**NH:** Anybody need a break?

I should know better. Neil Hutchinson, Wek'èezhìi Board. A question for Ekati; Is the stream between Two Rock Lake and Horseshoe Lake considered fish habitat? Where the discharge goes?

**ED:** If we're postponing break, that answer is coming right up.

**KR:** Eric, I was just going to say, maybe, is it you giving the talk? Or Charity?

**CC:** It's me with the next one.

**KR:** Oh Charity, so if you find a natural place to break in 20 minutes or half an hour or so, then I'll leave it up to you to decide where is a good place.

**CC:** It's relatively short, so it'll probably only take half an hour anyway.

**NR:** Hi, it's Nathen Richea, INAC Water Resources. I just had a quick question and it's probably a simple answer. I was just wondering, if you go back to the Pigeon Waste Rock storage area, the pile, I just had a question and I'm not sure, that's why I'm asking is, if seepage potentially could go from Big Rock, or Big

Reynold's, sorry, Pond down to Little Reynold's Pond, is it going to be pumped from the Toe Berm, or whatever it happens to be at the edge of the Waste Rock pile to the LLCF, will it follow the natural discharge through that creek?

**CC:** It will follow the natural discharge through there.

**NR:** Okay. Thank you.

**CC:** Okay, if there's no more questions then I will go on to the next section.

**ED:** If we could just go through that again.

**CC:** Okay.

**ED:** Where we are.

**CC:** Sure, we'll just recap where we are, going through the first three points there... had a virtual coffee break and now I'll go through a quick review of the Sable Horseshoe aquatic environment.

And just before actually before I get into the details of this, I just wanted to mention that the effluent quality criteria's were, well obviously stated earlier, the primary concern that we're here today to talk about with this licence renewal, but I thought it was important to review the aquatic base line information as this is what we're, the EQC's are working to protect. And protecting the fish has been deemed to ensure that it will also make, ensure the water is safe for both people's use as well as other animals.

Okay, now to get into the details. This map here shows you the Horseshoe watershed, which you remember from the previous slides there, is where the Sable development will occur, so you can see down in the corner there, it's a schematic of Sable development. This watershed is a medium sized watershed, approximately 87 square kilometres in size. The landscape here is typical to the rest of the Ekati claim block, dominated by low lying tundra topography with a high percentage of the watershed covered in lakes.

So I just want to go through the flow pattern here. Water goes from Sable Lake into Two Rock Lake and then into Horseshoe. So we've got that sort of system here. And during operation, Horseshoe Lake here, will be the receiving environment for the effluent from the Two Rock Sedimentation Pond. I'll just show you a neat little thing here, shows you the flow path. I'll just do that one more time for fun. So the water flows from Horseshoe, continues westward through a series of lakes including Ross Lake, into the terminus lake of the watershed there, that's Logan Lake, then it enters the receiving environment for the Horseshoe watershed that's, would be Lower Exeter Lake.

Okay, there's been quite a lot of aquatic base line data collected in the Sable area. Samples have been collected in 16 lakes and 10 streams. They cover four watersheds. There's been a number of parameters looked at, stream flow measurements, we've got water and sediment quality ...inaudible... phytoplankton, zooplankton, fish communities and fish habitat, just to name a few.

This batch shows you all the sampling locations, hard to see there but the majority of those sampling locations are focused on the downstream receiving environment. In order to provide base line data for future monitoring programs such as the aquatic effects monitoring program and the surveillance network program. Samples have also been collected in a few adjacent watersheds other than the Horseshoe watershed and this is to ensure that any negative changes to the aquatic environment were not observed due to unexpected run off from waste rock or other infrastructure such as the truck line up. You can see here down in this, down on the edge there is where the truck line up is and this would be the Ursula watershed, so we've taken samples in the, like I said, in those adjacent areas.

This table here provides a little background in the water quality and since the hot topic of water. The existing water quality in Two Rock and Horseshoe Lakes is consistent with other lakes of that size on the Ekati claim block. I've just listed

here the parameters of concern, those are the ones that have the effluent quality criteria in the licence. The majority of them have, have values that are below this Canadian quality, the Canadian water quality guidelines, CCME is stated up here. There's a few exceptions to that, Cadmium is one. Cadmium has levels recorded above the CCME guidelines. And the other is PH, it's right on that lower boundary of the water quality guidelines at 6.5, approximately and this is though is very typical of lakes that, on the claim block.

This is going to answer your question, Neil.

This map here shows you Horseshoe Lake in the middle, it highlights all of the inflows and outflows so there's I believe four inflows and one outflow. So Two Rock stream got a couple of flow paths from Two Rock Lake, that's an intermittent water course with sub surface flows and other barriers to fish passage. Therefore, it's unlikely that there's accessible fish habitat in this stream. Just want to note however that there were fish in Two Rock Lake. It was fished out a few years ago. But sort of an interesting note, that there were no Grayling in this lake, as many of the other ones here have, and possibly due to the lack of stream spawning areas, habitat associated with that lake.

Another one I just wanted to talk about here is this inflow one stream which flows from southwest into Horseshoe, intercepts with the Two Rock Horseshoe stream. This stream has reaches of defined and non defined channel structure but overall there are, does provide a good rearing habitat through cover of in stream vegetation, so I think that covers off the fish habitat and those two inflow streams to Horseshoe. There are a couple of pictures to go along with that.

This is the Two Rock Horseshoe stream, just showing you the sort of typical section of an undefined channel, boulders and we have a helicopter shot here. This is Two Rock and that's the Southwest Lake, so we've got sort of flow path here, which dries up in summertime and then the other flow paths were connecting up with Southwest this way and going into Horseshoe over here.

Just to give you a little more information on Horseshoe Lake as well. This map shows the bathymetry lines, contrary lines for the lake, as well as the habitat zones. So there's been habitat mapping done in the lake. The lake is approximately 74 hectares in size. Has a maximum depth of 9.4 metres. The northern basin up here is where the deepest areas occur. And the overall average depth is 3.6 metres.

The presence of stream habitat in this particular lake does support spawning and ...inaudible... for Arctic Grayling. Other fish species captured beside the Arctic Grayling in this lake include a Round White Fish and Lake Trout. It's also likely that there are additional small body fish like Slimy Sculpin, Nine Spine Sticklebacks but they haven't actually been captured during survey.

There's 12 habitat zones identified in this lake. About 40% of that being, like the sublitoral or basin habitat, so those are the deeper ones we've got that in this zone. And these three pockets down here. And the remaining litoral zone is divided into those, the remaining 11 zones, about a third of that is defined by a coarser substrate, so ...inaudible... and gravels and then the remaining being fine sediments.

And in general the habitat and the species present here in Horseshoe Lake is similar to what we see in other lakes of that size in the Ekati claim block.

And that was even quick, that was too quick, we're done with that. Any questions at all?

**NH:** Question from Neil, Wek'èezhii Board. The previous slide, is there only one water quality sampling station shown in Horseshoe Lake? Am I missing something?

**CC:** This one here?

**NH:** Yeah.

**CC:** I was worried about having that up, this just happens to be an old map with the sampling stations, but we've done more sampling since then. The one might be better if I go back to the one that we spoke to the sampling stations.

**NH:** Okay.

**CC:** Yeah, it just shows one as well. Does that sound right to you Marc? One sampling station at Horseshoe?

**MD:** Yeah, typically.

**CC:** Yeah, the northern basin of Horseshoe.

**NH:** So, that's what that, Neil here, it's correct, there's only one sampling site in the north basin?

**CC:** That's correct.

**NH:** Okay.

Any other questions? Kevin?

**KOR:** Thanks, Kevin O'Reilly. I think you mentioned Charity that Two Rock Lake was already fished out and maybe you can tell me why? And what was ...inaudible... I think there was no Grayling but what else did you find there when it was fished out?

**CC:** That's a good question. Well, Two Rock was fished out because Sable was slated for development if you recall in earlier years, may Laura can go there.

**LT:** Yeah, I can give you a bit more about the, Laura Tyler at BHP Billiton. I can give you a bit more of the history of why we fished out the, this Sable, because we fished out Sable Lake and also the Two Rock and the reason for doing that because at the time we were, we'd started the Sable road and we were heading towards building the Sable Pit. Unfortunately during the planning process, when the economics were run, it was found to be less economically



viable than the Fox Pit which was to the, sort of like to the southwest, so Ekati was actually a closer pit, so we went to Fox instead of Sable, so it was really that they were getting on and doing the work that was needed to, in order to bring Sable into production and instead we went to Fox, so there was basically a halt was put on which was why the road only got as far as Pigeon stream and then had a stop put on it. So that was the history about why it was fished out. And Charity will hopefully be able to tell you what they took out of it.

**CC:** Unfortunately, I don't know off the top of my head, but I'm going to assume, I know that we, it wasn't Grayling, so it was probably Lake Trout, Whitefish and Burbot, but I would want to clarify that before I said for sure.

**KOR:** Sorry, Kevin here. You could let us know then what was found?

**CC:** Yeah.

**KOR:** Okay, thanks.

**NH:** Lionel?

**LM:** Lionel Marcinkoski of INAC. Do you have any details on the waste rock pile there? I mean there is no drainage directions of where the, does all the run off water from the waste rock drain directly into the sedimentation pond? Or does it flow towards the Horseshoe Pit there?

**CC:** That's a good question.

**LM:** And like I say, you know, it doesn't, you know, it's in the same watershed, which you indicate by the boundaries there, but I was just wondering if it was diversionary ditches or what's the flow pattern or where? Is some of that flow from the waste rock and again we don't know what, details on the waste rock, if there's any other contaminants or anything else there.

**LT:** Laura Tyler, BHP Billiton. If we, it's a very good question, if we just look at this, the plan that's up here. What you can see is, these little red lines that we

have around here are toe berms that are planned to be constructed in the same way that we've built them at Fox. And we've built them around part of the Panda Koala waste rock pile. And they, we have found that they actually, basically that we put them in before we build the waste rock pile, they freeze in place and they have a fine, a fine rock core, which fills with ice and basically stops water from flowing out of the waste rock piles. It slows it down long enough that the water freezes in place. We found them to be quite, quite effective. And then these areas around here, where you can see there isn't a red line is because in these areas, the natural flow is towards the sedimentation pond. So, these areas around here, with the natural flow is that way, so therefore we have a toe berm in there, so that will, that water flow will be stopped before it leaves the waste rock pile and will be retained as a, become an ice core in the same way that we're seeing happening in the Panda Koala waste rock pile, down in the main Ekati licence. So we're using that experience to say that these areas then would become, the water would basically not just filter straight out of the waste rock piles.

**LM:** Thanks Laura. So, that's natural drainage? Or is it pump drainage? It's all going to be natural drainage to the sedimentation pond?

**LT:** Yep. Laura Tyler. Yes, it'll all be, it'll naturally drain in these areas here, naturally drain towards sedimentation pond, these areas that would naturally draw towards Horseshoe or to Ulu, will have a barrier in the way to stop the drainage from flowing out.

**LM:** Thank you.

**TB:** Tim Byers, Monitoring Agency. On that same graphic you have there, I just find one thing curious, about the placement of the Waste Rock pile. I know back in the day, before the, even before the water licensing, original water licensing for Sable Pigeon Beartooth, the Yellowknives Dene were very concerned about the original idea of where it was placed, very, very close to Ulu and the company, to your company's credit, you did take it back 100 metres. So

you did create a 100 metre buffer, off of both of those lakes, one Ulu and Horseshoe, so that's great. But one of the things I find interesting is that you did not leave the same buffer for the Ulu Horseshoe stream which feeds Horseshoe. And I find that very curious why you wouldn't have kept that same buffer for a stream feeding one of those two lakes. I wonder if you have any idea on that.

**LT:** Laura Tyler, BHP Billiton. Yeah, the original, original design actually called for the waste rock pile to cover part of Ulu Lake, so, and we pulled back. And we have a commitment to stay 100 metres away from natural water bodies, like all of our waste rock piles. You know, so, I don't know if this is where you'll go and prove me wrong, but as to my knowledge, we don't actually come closer than that for, I think, it's 50 metres, I think is the very minimum that we agreed to do. Why that is there, we would have to go back and have a look at it in the detailed design, we would fulfill our commitment to staying back from the water course, so that's something that we would need to, we need to review because that is a commitment that we've made. And I would tend to think that this could just have been an oversight in putting together this schematic. We don't have a final detailed design yet, for this waste rock pile, so this is based on a preliminary design and that may have just been something that was overlooked, so we'll take that back and we'll have a look at it.

**NR:** Nathen Richea, INAC Water Resources. I was just curious about the resolution of the contour lines on the, on this figure. Can you, do you have an idea what the resolution is, or do you know, is it one metre?

**LT:** ...inaudible... the edges on there and I can...

**NR:** Okay. Looks quite rugged, there.

**LT:** I think its one metre, yeah.

**NH:** Just a reminder everybody to please use the mike and speak your name first.

**Unknown Female voice:** Who are you?

**NH:** Yeah, me too. Bruce?

**BH:** Yeah, Bruce Hannah, Fisheries and Oceans. Just wondering about the fish habitat between, on the Two Rock outflow, has it been looked at in the Spring, as far as during freshet whether it's being used for spawning? And with that connector channel between inflow one and the Two Rock outflow if there's rearing habitat in there, would there not be rearing habitat in the outflow? And are the EQCs being set that would actually protect that habitat in the connecting channel as well?

**CC:** Charity Clarkin. Bruce you're asking about these streams? And whether they were looked at in the Spring?

**BH:** Yeah, Bruce Hanna. Just for Two Rock outflow, just as far, I think you were saying there were barriers and all that, but I'm just wondering, in Spring flows? And then the connector channels, that's rearing habitat, could that also be rearing habitat in the Two Rock outflow? And those EQCs taking that connecting channel into account?

**CC:** Well, yeah, the stream has been looked at, in the Spring. I actually went out there this Spring. But the Rescan, actually I believe Dillon was the consultants who did the first habitat assessment on that particular stream, whereas Rescan looked at this inflow one. So to speak to the Two Rock Horseshoe one, there really is very limited availability, I believe, for habitat there. There's, it goes subsurface even in the Spring, meanders about through thick willows where there isn't the boulders and there, up above here there is a pond but there's this, like a little waterfall actually between that, it's about a half a metre high, I believe, 60 centimetres. So I believe this, this has been deemed not representative of any kind of fish habitat. But again, like I said, there is, it has been classified as providing rearing habitat in this other stream. Marc do you want to add anything to that?

**MW:** [inaudible]

**CC:** Yeah. Okay.

**MW:** I'll follow up...

**CC:** And I think Eric's going to follow up with the second part of your question, if that answers, your first bit? Yeah.

**ED:** Yeah, it's Eric here. So, just, you know on the EQC's, what I wanted to say Bruce is that the balance of our presentation here this morning, is going to go into how we view the EQCs and so then in the afternoon we'll be discussing that specifically, so maybe that will just come along. The EQCs we have now of course were what was determined by the Board when the licence was issued, so, that's where they came from. Thanks.

**NH:** Neil here, just to follow up to Bruce's question to Charity, what is the flow path for discharge from Two Rock Pond? Going to be through the connector channel, or through the outflow channel down to Horseshoe Lake? Or will it go both ways?

**ED:** Sorry, I got started there and it's not my turn to talk yet, but I got it started, now I'm grabbing for the microphone. Yeah, it's Eric here. It appears that the stream channel goes either way, it's an ill defined channel, not, there could be some sheet flow areas and it appears that it has opportunity to go either way. And if you want to add something.

**CC:** Well, I guess I was just going to state that the pipe I believe will just be at the, just on the other side of the dam basically, so the water will go the way it will choose to go. It's not like we will be piping in any particular direction, if that adds to that. Again, that was Charity, sorry.

**NH:** Thank you. Anne, you had a question?

**AW:** Thanks, Anne Wilson. I was curious about the southwest lake water quality and flow volumes going down and I couldn't get on the web site, so I wonder if it would be possible to get a copy of the water quality modelling report, it's 2007 that was cited in Peter Chapman's memo?

**NH:** Neil here. Anne, could you just clarify that's water quality modelling for which water body?

**AW:** Anne Wilson, the report is cited as Rescan 2007A Ekati Diamond Mine, Two Rock Lake, Water Quality Modelling Report.

**ED:** It's Eric here. We just want to check on which report you are referring to. The data is, it's for the various chloride report submissions, one going to January 2007, I think has, would have that in it, and that data. But specifically we can pull that data out Anne and just give it, for Southwest Lake and just give that to you. That's not a problem.

**AW:** Anne Wilson, that would be great, thanks. And, but the full modelling report is in with the chloride materials to reference that as well? Okay, thanks. ...inaudible...

**MC:** Marc Casas, INAC. This actually is just going to go back, if we have to flip through to Lionel's comment and I just, it's not clear in my head about, if there were the toe berms that go around, and I understand that that's to capture any drainage that would potentially leave the watershed. But what I'm not sure about is if it does go into the toe berms, how is it going to get back into the Two Rock Pond, or will it just sit in the toe berms, or how, what happens to it I guess, ultimately?

**LT:** Yeah, Laura Tyler, BHP Billiton. It, what we found is that the construction of the waste rock storage areas actually ends up generating an air temperature that's actually colder than the permafrost and the existing air temperature. And the water that actually goes in there really doesn't have time to flow too far before it freezes in place, so it doesn't drain to anywhere, because it basically will

become a block of ice and will remain frozen inside the waste rock storage area. So, and looking at some of the longer term modelling that we did for the closure plan work, the temperature of the waste rock piles is likely to remain at a lower temperature than the permafrost for what is expected to be a very, very long time, so and that even if we have even through Global Warming, it's likely to be amongst the last permafrost left on the Tundra. So that's the, we're using the cold temperatures to allow us to slow down the water flow to the, sorry the toe berms slow down the water flow and retain it within that really cold area, so that it actually freezes in place. So it doesn't drain back towards a pond, it basically freezes inside the waste rock pile.

**MC:** Okay. Thanks for that. Now, in terms of, is this the same kind of toe berm? Because I thought that there was one in that, the waste rock pile by the Seep 18 and 19, was it a similar type of toe berm? Or like, I guess what are the differences with that, because if memory serves I thought that there, it did actually get through the toe berm? Is that, is that I mean maybe I'm wrong, feel free to correct me, but I just, the question would be then, what's the difference between these toe berms and the one in there?

**LT:** The original design for toe berms was developed for that, in that area for Seep 18 and 19, where there were issues with seepage flow. It was put in after the fact and there were some minor issues with some continual, continue flow that we kept looking at. That flow is really dropped right away now, so that, as the water was built up in there, we believe that it's actually now starting to function better. But we actually took the experience we got from that, we've used them around the Fox waste rock storage area and we're monitoring their behaviour there. And they, there, the monitoring that we're doing there shows that the actual berms themselves are freezing in place and that they're behaving as we expect. And they're the ones that were put in prior to any of the waste rock, so they weren't something to, initially they were designed to solve a problem and now we're able to put them in, in order to stop a problem if you get my drift. So there was some initial, I guess not necessarily design issues but if

there was we did go back and review the design and then, but when we were able to put them in before the waste rock was already there, then they're, have been a lot more effective because the method of construction is a lot more assured. And we can check it and do the quality checks a lot easier than when you try to add it on at end of the, like as an after, after the fact design add on.

Yes?

**LJ:** Laura Johnston, IEMA. I had a question on these two diagrams, the filter dyke, in the Two Rock settling Pond, it states that it's there for settling solids, is there information on what that will do to the chemistry of the mine water? As it works its way through the system, has there been modelling or, a look at what the impact on the chemistry of the mine water? Sorry to throw that one from left field.

**ED:** It's Eric here. The filter dyke, we're just, the design of the filter dyke is simply to remove the suspended materials and so I think the effect on chemistry would be, we would anticipate on any ions that were, you know strongly associated with the suspended material, such as an aluminum, so that would be the one we'd probably point to, where we would, we would think total aluminum might track along with suspended solids in being removed at the filter dyke.

**LJ:** Thank you. Laura Johnston, IEMA. I guess that's what I would have expected but, in terms of something like chloride it wouldn't be affected by the filter dyke, but is there an understanding of what the potential fate of any chloride that's added through mine water is through that system?

**ED:** No, it's Eric here. I think, I think that we wouldn't anticipate chloride ions would be substantially affected by the filter dyke, if they're going to go through.

**LJ:** Right, I agree. But is there an understanding of the fate of the chloride ions through that system? If you encounter high chloride in the mine water has that been factored in to the operation, because eventually it will be discharged,



so is there an understanding of any potential problems that could occur, if high chloride waters are encountered?

**ED:** Okay, well, this is Eric here. On a couple of different, in a couple of different angles to that question then and I think I'll start just, so we don't anticipate having, at Sable Pit, substantial chloride concentrations coming out of the pit. I think we, because the pit is within the permafrost zone, this is something that was, we were going to hit on a little later in our presentation. But this, it's all good to get it out so, at the Sable pit, the mining plan remains within the permafrost zone. So we're not anticipating to see the, any, the scale of chloride concentrations we're seeing from the underground mine for instance. Okay? So, that kind of, I think that's the bulk of the answer. The other, I think the other thing I was going to point to was that we do have the reports and the proposals that's out there for chloride which does, is our description of what chloride [inaudible] may occur in the system, where it will go and what we think is protective of the environment. So, and that's, that was I think, I'm pretty sure it was January 2007, if it wasn't January it was to February. We put, the result of the toxicity test work on chloride out into the Board's hands and just on Friday we provided to the Board the follow up report to that which has a test work on the hardness toxicity relationship for chloride, continuing to work towards water quality objective, receiving water quality objective. So that report, you know we've just put it on their desks, so nobody's seen that yet of course. But, but so that's, that's where our thinking on chloride is.

**LJ:** Thank you that's very helpful.

**VS:** Velma Sterenberg, Indian and Northern Affairs, Minerals. Referring to your two slides on the Sable development base line sampling location and then the following slide that has some of the water quality data? With regard to the Horseshoe watershed would you, would BHP be able to comment on the average PH of the entire watershed and how that might compare to Exeter Lake

PH, because I notice you've got the PH for Two Rock Lake and Horseshoe Lake and I was just wondering if there's much variability within the watershed?

**CC:** Charity, BHP. I don't know the answer to that, off the top of my head, but I can definitely look it up. As you can see on all the sampling locations, I, water quality is usually one of the most, the first sampling parameters that we would look at so I would imagine we have PH for most of those, yeah. We can definitely look at that.

**VS:** Thank you very much.

**NH:** Neil here. Charity is that something you can provide today?

**CC:** Yeah, likely.

**NH:** Okay, thank you.

**JB:** Jason Brennan, INAC.

**CC:** Yeah.

**JB:** Charity, I have a question for you. I was just noticing that Two Rock Lake is a sort of a small holding, or settling pond. And I was just wondering perhaps, ...inaudible...

**CC:** What...

**JB:** Okay, yeah, like I was saying Two Rock Lake is a small settling pond. And I'm just wondering in terms of mine water from Sable, if for instance it didn't pass the EQCs for criteria, for discharge to Horseshoe Lake, what would be the holding capacity in terms of time, like the reserve capacity? And secondly, what would be the contingency if, you know water did not pass the EQC criteria for release to the receiving environment?

**CC:** Charity, BHP. I can at least speak to the first part of your question as far as the holding time of Two Rock. It has been designed to accommodate one in a

hundred year flood, so that's pretty significant amount of volume so I imagine we'd have, if were to experience that one hundred year, year we'd have quite a lot of time to think about what we could do as far as contingency measures. And do you want to speak to contingency measures?

**ED:** Yeah, it's Eric here. I mean the contingency measures would be, this isn't, this is the short answer. The contingency measures would depend on what the circumstances were, which parameters you might be having issues with at that time, so there could be the whole, a whole raft of them depending on the situation. That may, I don't know if you want to get, do you want I, Jason, talk about the particulars or, but it's, that's what comes to my mind initially anyway.

**JB:** Jason Brennan, INAC. Yeah, I'm just looking for a figure like in terms of months for example. Like I say if you could not release to the receiving environment at Horseshoe Lake, for instance how many months of holding capacity would you have to, for instance take adaptive measure, adaptive management measures or what not to correct the problem? Because like I say it does appear to be a small settling area, settling pond and I just want to get some type of indication of, in terms of months or years, like how much mine water can you hold back, and for what duration?

**LT:** Yeah, Laura Tyler, BHP Billiton. Obviously, the amount of, it will depend on what level the flow, the water is at, at the time. When we discover that there is an issue. However, I would also point out that we don't, we don't sort of like test once in a blue moon, we test regularly. And adaptive management is, is how we like to manage the mine, so the fact that we would be taking regular tests, is, and checking the water quality means, that if there is a rising issue, then it should be something that we are aware of and would be able to go actually ahead and carry out amendments to, before we actually get to the point where we're saying we have to hold back water. BHP Billiton will not release water that is contrary to our licensed EQCs and the ultimate, ultimately we would stop mining and we would have a hold pit that we could fill up with mine water before, to deal with

before we would actually release water downstream. So, bearing in mind that we do actually have the, we could actually say, we just would stop pumping mine water out of the pit until we'd sorted out the problem in the, in Two Rock. There is always that, so we'd have that holding capacity actually within the pit as well. But we have to come back to the fact that we do work with adaptive management, we do monitor, we do model where we think the parameters are going and we make sure that we provide that information, like to all of you guys. So you actually do get to see on a monthly basis what all of our SNP results are. So that tracking of, is done in a very open and transparent way, so I think if there were any problems, that we should be seeing them early enough that we can put in place mitigation plans, that mean we're not looking at holding back water. But saying that, it would really depend on how much water we pumped down, how much rainfall we'd had, so what the volume was actually at. But we can get back to you, and have a look at it, and see what calculations were done to assume that if we had a low, if we were at a low water level, how much additional water could be stored before we would reach, you know, the overflow of the dam, kind of thing.

**JB:** Jason Brennan, INAC. Thanks Laura. I hadn't considered the pit being used as a potential reserve and that BHP could actually suspend operations if that problem was encountered, so thank you.

**NH:** Neil here, I saw Nathen with his hand up. I think lots of people are bouncing for a break here. Do you have any more questions, Jason? Or Nathen? Why don't you ask your questions now?

**NR:** Nathen Richea, INAC Water Resources. I was just, I guess I have a couple of questions. The first one being, has there been a water balance done for the Horseshoe water shed? On inflows, outflows, what contribution of flushing rates, retention times, that kind of information?

The second question I have is, how much data do you have on the baseline conditions? We see the locations of the sampling, but how many samples do

you have, what's the variability of the data? Has this been submitted as part of your application for renewal? We kind of need to look at that information to help assess what you're proposing for EQCs and if we don't have that information maybe we could get that later today or sometime so we can talk a bit more about those aspects. I'm assuming as part of your design for your Two Rock Lake facility, you've done like a water flux. You know what the free board's going to be, you know all that information. In order to help kind of the technical aspects of the discussion, we kind of need to know that information. So, I don't know if, maybe we could get that information later today, but it's pretty hard to have a discussion on different aspects when sometimes, we ask questions but we don't have all the information, so that's all I have. Thanks.

**NH:** Neil here, I think I heard two questions there really. Is there a water balance done for the water shed and can that be made available? And secondly how much water quality sampling has been done to support this application and is that available as well for review?

**MW:** Marc Wen from Rescan. So, just to answer the first part about the water balance, there is a water balance done through the modelling work that was done for chloride but it only considers up to Horseshoe Lake, so for the, the entire watershed, the water balance hasn't been done yet.

**CC:** Thanks Marc.

**NR:** Nathen Richea, INAC Water Resources. For the water quality information, do you, do you know what years this, the information was collected? Do you know, like you know how many samples you have? Do you have that information?

**CC:** Yes. Charity here, we have at least two years for all of this, sampling stations, some of them we have more. It would have started back in 1999. It isn't consistent for each station from that time forward, but some of them have

been done more recently, but it's all in the baseline reports, some of which are already out there, where they went out with the application for the original project.

**NR:** Nathen Richea, INAC Water Resources. Were they attached to the CD? Because I was looking through the CD and I didn't find the baseline information.

**UNKNOWN MALE VOICE:** No, but I think, I think one of the points is, this baseline, put it this way, the bulk of the baseline data would go back to the original water licence applications and the environmental assessments, so absolutely. If we're going forward from here and embarking on more work that needs to bring that information forwards, it's there. And we'll bring it forwards and work with it. But that was, you know, initially that information is wrapped up in the previously licence, previous licensing efforts and that's so, no we didn't put it again in this latest application, if that's, if that helps.

**NR:** Nathen Richea, INAC Water Resources. So, basically, the information that was provided for the first applications is still what you're using for this application and you haven't done any further assessments of some of the information, as part of this submission package?

**CC:** Charity, BHP. We have continued to collect data beyond the time of the original applications, so we do have more data than what is currently, what's been submitted in the past, so if that becomes needed to be presented we have that available.

**NR:** Nathen Richea, INAC Water Resources. Yeah, I would request that, if we could get a copy of that information.

**CC:** Water quality?

**NR:** Yeah, please.

**NH:** Neil here. I think, does that answer your questions Nathen?

**NR:** Yeah.

**NH:** I just wanted one clarification if I could. The water balance was done up to Horseshoe Lake? So that includes the Sable watershed, the Two Rock Pond watershed? And up to the outflow of Horseshoe Lake, but nothing downstream from there? Okay. Thank you.

I think it's a good time for a break. We'll come back, if anybody has any other questions on this aspect as soon as we get back we can ask them, but other than that, Eric will be talking about the EQCs.

It's 10:30. We'll go until 10:45.

**BREAK**

***End of Tape 1***

**November 4 10:45 – Lunch**

***Start of Tape 2***

**NEIL HUTCHINSON (NH):** Okay, Neil here with Wek'èezhii, just a reminder to myself as much as anybody to please state your name, before you speak. BHP Billiton are going to present their presentation on the EQC's right now. Were there any other questions on the first stuff from this morning, that we had to get off our chest before we proceed?

Okay. Eric.

**ERIC DENHOLM (ED):** Okay, thanks Neil, this is Eric speaking. So, just to recap a little bit after our break. What we've tried to do here is, is to give a little bit of an overview. We had a review of what the project is, what the project components look like. And we provided a review of the aquatic baseline information as a kind of a precursor to the next stage of our presentation which is, which is to try our best to walk you through our thoughts on the EQC's. I think there was a lot of common themes here and the expectations for them, for this workshop included trying to understand where we're you know, where we're

coming from on the EQC's. And that's, that's what we would like to do here is try to walk you through our thinking process as to, as to why we are saying what we are saying. And this presentation, this should take us up, pretty close to lunch time, just so you know.

Okay, so as a starting point that we will start with and then get into the details. I wanted to make the point and remind everybody, the QC's play, the EQC's of course, Effluent Quality Criteria, they play a key role in protecting the aquatic environment. But they're not the only means of protection. Okay, the EQC's are, are one of the means we have of making sure that the environment is protected. We have, we also have the surveillance network program in the licence which focuses on monitoring information collecting around the mine water sources. We have a schedule, every three years an environmental impact review, to review what is going on around the mine site in the receiving environment against the predictions. We have an aquatic effects monitoring program which focuses on collecting data in the receiving environment itself. And we have a, what we've titled a watershed adaptive management plan which is, which provides the early warning system to prompt action before you would reach an EQC limit in your water licence. So the point is, this, the EQC's play a big role in protecting aquatic environment. They work in conjunction with all these other things as a, to make a complete package.

And this is a little, a sketch just to illustrate this, one of the important points about EQC's. EQC's you know they apply at a point of control of your mine water, so we have, pardon me, we have the Two Rock Pond here, with its filter dike in the middle. And here at what would be the frozen core dam at the outlet of Two Rock Pond is equivalent of a tap that we can turn on and off. That's a point of control of the mine water, where we can turn it on and off. So, it's a tap.

Okay, now let's look, just start to look a little more detail at the EQC's that we have, and currently have in the Sable licence. The origin of EQC's that we have in the licence, this is a table that shows the Diavik water licence and then the



Sable Pigeon Beartooth water licence. Our observation here is, is Sable EQC's appear to have been generally adopted from the Diavik water licence, okay. The circles here, are just circling those that are not the same. In the case of aluminum, the Board's reasons for decisions on the Sable Pigeon Beartooth licence, they speak to aluminum in that the Board chose to continue the aluminum limits that were already in the Ekati main licence, rather than 1.5 and 3.0 that were in the Diavik licence.

Phosphorous in the Sable Pigeon Beartooth licence was expressed in a concentration format, whereas in Diavik licence it's loading. The Ph has a slight difference. Oil and grease is expressed as a, simply as a grab sample rather than both an average and a grab. So for the Diavik case there was a technical advisory committee, it made certain recommendations to the Board. Finally EQC's were selected by the Board and written in to the licence and a few, a couple of year's later Sable Pigeon Beartooth licence came along. Okay. So this is one of our observations.

Another way to look at, to try and understand these, the EQC's that we have is, how do they compare to other NWT diamond mines? So, on this table, we've got four diamond mining water licences, in the order in which they were initially issued. The Ekati main water licence was initially issued in 1997, then was, it was renewed with no changes to these EQC's in 2005. Diavik water licence issued in 2007 renewed, sorry, issued in 2000 rather, renewed in 2007 with changes to the ammonia limit. Sable Pigeon Beartooth licence issued 2002 and of course we're in the renewal process right now. And Snap Lake issued in 2004.

So one of our key observations from just simple comparison, just observation, is that ammonia is noticeably lower than Diavik and Snap Lake licences. Just to look at that in a graphic way, what we see here, what we see here is the various EQC's that are expressed for an allowable average concentration, Ekati main licence is here at 2, Sable Pigeon Beartooth water licence is at 2, Diavik is now

at 6, since their amendment. Snap Lake water licence does not express an EQC for an average concentration. And the EQC's for an allowable grab sample, the Sable Pigeon Beartooth water licence, Ekati Licence are here at 4. Diavik water licence is now at 12, Snap Lake Water Licence is at 20 for an allowable grab sample. Just observations at this point.

The final way here just to make some observations, just to try to understand what we have to work with at the moment is to compare the Sable current EQC's from the Sable Pigeon Beartooth water licence to two common standards that are out there and are the basis for a lot of standards.

What we have here is a metal mining effluent regulations which of course don't strictly speaking apply to diamond mines. And we know that Environment Canada is in a process to create something, presumably something similar for diamond mines. But nonetheless there is something that is established for the mining industry and do get referred to and can provide a little bit of a benchmark. And then we have of course, the Tier One Water Quality Guidelines from CCME. So, for all these parameters, these are all the parameters that are EQC parameters in the Sable Pigeon Beartooth water licence, this is how they stack up.

And here's a couple of the key observations that just jump out at us, just from this simple comparison. For Ammonia, now of course we're all fully aware I've put a number of 10 value, of 10.3 here as a Tier One Water Quality Guideline for ammonia. We're all aware of the table, I think in the CCME guidelines that relates to pH and temperature, 10.3 is a guideline value for pH 7.0, temperature 10°C (ten degree Celsius). And just to remind you all, because I reminded myself of this. As either the pH would decrease below 7.0, or the temperature would decrease below 10° this guideline value increases, okay. So, just so, granted on that basis of pH 7, temperature 10, the Sable Pigeon Beartooth water licence is five times less than the guideline value.

If we go down here and look at zinc, discharge, effluent quality criteria 0.01, 0.02. The Tier One Water Quality Guidelines 0.03. We're three times less than the water quality guidelines.

And then we could also point out cadmium, the effluent quality criteria is actually 88 times. It's well above, sort of what appears to be a typical kind of range, 10 to 20% greater than. It's 88 times greater than and that's, this would relate back to, background and baseline concentrations of Cadmium, both in Lac de Gras, which was a source of the Diavik derivations and in the case of the Sable watershed. So these are ...these are simply observations at this point. This is just another way to illustrate the observation on zinc. If we look at the graph on the right, I'm sorry the print is not larger. If you look at this graph on the right, we can see here's an MMER concentration for copper. You see the water licences here and over on the right side, the CCME water quality guideline is barely visible there, but it is there, it's a very small line. For Zinc this graph on the left, we see the MMER value here. We see the water licences here and there's the water, you know, the water quality guideline a little bit greater. So that's the observation. Similar observation for ammonia. Again Snap Lake is listed with, on this graph as no EQC because it's not, because we're looking at the allowable average concentrations and the licence does not have, does not express an average EQC.

Okay, so those were just observations so that we could understand what we have, what we're facing here in the current licence. What we did was we have estimated what the water quality we expect to see in Two Rock Pond in the future when mining is underway. This is a, it's a, somewhat looks like a fish bone diagram of the water model that simply is just showing that there is natural run off that goes into Two Rock Pond and also into the pit. There's runoff from the waste rock storage area that goes into Two Rock Pond and a little bit into the pit. The pit water from Sable Pit would be pumped into Two Rock Pond and it would all flow out. Very simple system to model in this sense. So, the steps we went

through then to do this modelling exercise and a few, a few of the key parameters, input parameters, you might be interested in...

The first step, natural runoff water was estimated based primarily on experience gained monitoring around the Ekati site. On a ten year average, we have ten year average runoff coefficient in undisturbed areas 0.5. That's what's used in our Two Rock model. The runoff coefficient for pit benches is a little higher at 0.7. What that means is that the pit benches are hard-packed rock surfaces, you get more runoff off a pit bench off an undisturbed area where the water can be held-up in soil and in the vegetation and evapotranspired back to the atmosphere. The runoff coefficient used for the waste rock storage area is little less at 0.1-0.25 and this is getting back to what Laura had talked about earlier. Water infiltrates into the rock pile and freezes into place as permafrost and less of it comes out. In the model, precipitation was varied using Monte Carlo simulation, we know that, our ten year monitoring confirms what, that over 80% of the annual flow comes during the brief period during freshet and the Monte Carlo simulation worked with an annual average precipitation 330mm a dry year of 162mm and a wet year of 621mm.

The next step was to understand the baseline water quality to use in the model and we have that direct measurements from Sable and Two Rock lakes that were used. The runoff from the waste rock storage area was estimated, most of you will know SRK is a consulting firm that specializes in waste rock and waste management and so they looked at the kinetic testing that had been done on samples of Sable waste rock and they verified that against the observations around the Ekati site from the seepage monitoring programmes and that data was used in our model. Water quality for the Sable Pit was estimated using data from the Beartooth Pit what we know is that the Sable and the Beartooth pits have similar geology, it's predominately granitic waste rock. Both pits are fully within the permafrost zone, unlike for instance Panda Pit which was substantially deeper and went into the underlying rock. And for the purposes of our modelling exercise we used both the median and the seventy-fifth percentile water quality

data from the Beartooth Pit. The seventy-fifth percentile, of course, being... erring on the conservative side.

So, that was just to walk you through the steps and this is what we found. For the various EQC parameters these are the values of the actual Sable baseline data samples. These are values estimated for the waste rock, from runoff from the waste rock storage area. These were the values that were from the actual, from the actual samples from the Beartooth Pit which are used as a surrogate for the future Sable Pit. And when we run that through the model with the varying, with the runoff coefficients and so-on and varying the precipitation and the drainage areas and so on, this is what we see. Two Rock Pond average, best estimate, and keep in mind that these are average concentrations we're working on here. And this is what we see. [Anne Wilson request to ask a question] Yup, go ahead.

**AW:** It's Anne Wilson, Environment Canada. Which flows did you use? I know in the license application the flows for Sable were something over half a million cubic metres. But, in truth for Beartooth, the flows were a lot less than anticipated, they were about 20% of what was anticipated. Which ones did your model use?

**ED:** We used, it was based on the Sable estimated hydrology and runoff for Sable.

Okay, so not to belabour the point, but just to make sure we'll all clear, let's just look at ammonia, just for an example, just because it's the top one on the list here. The baseline measurements were 0.009mg/L so that would be applied to the amount of water estimated for natural runoff. Runoff from the waste rock storage area estimated at 0.035mg/L that would be applied to the runoff from that area. Based on experience at the Beartooth Pit, ammonia is between 10-19mg/L and the model is then telling us, in Two Rock Pond on an average basis we're expecting to see between 3-6mg/L ammonia. And that's the case for all these parameters.

So, to take this then the next step, we've now predicted what we expect to see in Two Rock Pond on an average basis. What does that mean as compared against the current EQCs in the Sable Pigeon Beartooth license? And that's what's, that's what we see in this table. And our key observations from this, just lining these numbers up side-by side is 100% compliance on an average basis appears unlikely or uncertain for [counting] 1, 2, 3, 4, 5, 6 – six parameters: ammonia, aluminium, copper, nickel, nitrite, and zinc. And all the metals of course are expressed as total metals in the license and in all these tables.

And this is the first time or I think it's the first time that we've seen this phrase "100% compliance" and I really need to emphasize that this is a, what an important consideration this is for us, we need to know that a project we're going ahead with, we can be in 100% in compliance all the time with that project. If a couple of years into the Sable Pit life we're coming to the Board with an application for an emergency amendment of some sort because we can't make an EQC that means we didn't do our homework properly before we went ahead with the project.

**NH:** Eric, Neil here – a question. I'm not quite sure I agree with the conclusions on your slide, in that your high range of some of your estimates that you've said 100% compliance is unlikely are actually lower than the license limits. Such as copper, zinc, and nickel. Is that a typo?

**ED:** No, Eric here again. No what we're saying is... let's take a look a couple of examples. We'll take ammonia as one, and we'll take two examples one that shows either way. Ammonia – you know we're anticipating 3-6, the EQC for average concentration is 2. So, it's telling us 100% compliance appears unlikely for ammonia. Now, on another parameter such as copper, we're thinking, our model is telling us 0.008 – 0.009mg/L, the limit is 0.02mg/L. And we've called that, we've made an observation here for that one appears that 100% compliance is uncertain – This is because we're recognizing that the model is robust in what it is constructed to do, but it's based on the observations from

Beartooth Pit and there's some uncertainties built-into all the input parameters put into the model. There are ... by inherent to the nature of constructing a model, and so what we've said is, we've generated a safety factor, that if we're getting in the same order of magnitude, or within approximately 2-2.5 times the EQC, then to us that means that we don't have a lot of certainty of 100% compliance. Okay?

**KOR:** Eric, it's Kevin O'Reilly, maybe I'm jumping the gun, and I haven't flipped-through the rest yet, but it seems like ammonia's perhaps the one that might cause you the most difficulty. Did you run different scenarios with the model, looking at best practices for ammonium-nitrate management?

**ED:** What we're, what we've done Kevin is just, as I say, just taken the Beartooth experience, where we feel we've already, I mean we look at this on an ongoing basis, but we feel we are doing a good job and doing best practices in the Beartooth Pit. Okay, so that is our actual experience from the site with the practices, with the good practices that, operating practices that we have.

So, what, and I didn't say this at the outset, but I mean, what we're trying to do here, very much trying to do is take advantage of the years of empirical data we have to work with here. We're trying to use the actual data we're collecting from Ekati all the time as best we can.

Okay, so that was a little look at specifically at [another question from the floor]

**NH:** Sorry, Laura -

**LJ:** Laura, IEMA, could you go a little bit more into the safety factor that you employed. You said it was 2-2.25 or the same order of magnitude, just to give a little more background.

**ED:** Yeah, sure, this is Eric again. Just to back-up I think I saw, I think, as I say, I try to be careful when I refer to the model because it is a robust model and we work with it and rely on it. But, I think as everybody, as we all hopefully are

prepared to accept, a model is, you have inputs into it and there's uncertainties that add-up onto each other. And you have to take the results in that context of what went into it. So, when we see a number like cooper for instance 0.008-0.009 in Two Rock Pond that's our best estimate, that's what we, if we really had to say, what do we think the chances are greatest we're going to see – that would be it. But it doesn't provide any kind of comfort or any kind safety factor to tell us that we're really got a high level of certainty, we're going to be in 100% compliance for cooper. And so, we don't think it's unreasonable to take a safety factor of 2.5 for instance and use that for this screening, for what is essentially screening these parameters for achievability, if that was a phrase that would, that worked for you.

**LJ:** Laura, at IEMA. Have you looked at that in other models or models for other areas on the site that you have a bit more certainty about the modelling and then the verification of the modelling? Have you sort of checked-it against one of those?

**ED:** No, Eric here again. No, the short answer would be we haven't really been able to work-up for instance from, I think if what you're getting at work-up from another site, what safety factor might pop-out of calculations for one of the other discharge sites. We haven't been able to get our, to make that work as yet. So no.

Okay, so, that was great, that was a look at the EQCs for average concentrations. Of course, there's a second column in the EQC table and that is for grab samples. And here's just a few comments as to how we view, you know, these grab samples EQCs.

The first point, normal mine operations will result in some short-term variability. This is, I think, the essence of why you have an EQC expressed as both an average and a grab-sample, it's in recognition that you will have some variability in your water quality. BHP Billiton needs to be in 100% compliance with the grab samples EQCS as well as the average EQCs. I think that's a little, hopefully that



would go without saying, but it's important nonetheless to make sure that we don't lose sight of that. The possible variability in grab samples from Two Rock Pond was estimated, again using the data collected at Beartooth Pit. Just as we just walked through how we estimated what expected to see the average concentrations in Two Rock Pond to be, we did a similar exercise. And the actual daily data collected at Beartooth Pit was run through the water quality model—that's just a little detailed point as to the exercise that we went through.

There's, just picked out two graphs here just to illustrate this a little bit about this point about the variability that we see in the mine water. This is the actual data set from the Beartooth Pit sump. And what we see in this, both these graphs are for ammonia, and I guess I had incorrectly thought that these numbers would be readable [chuckle] when we put them on the screen. The upper graph shows the entire range of samples collected, right up to 200mg/L is a top line on the graph. And then the lower graph is just focused on the range from 0-50mg/L. And the point here is just to simply show the kind of variability that we see in the mine water data. And this is the actual data. This is real, real-life experience. And a similar story for nickel, again the upper graph shows the entire range covering all the sample concentrations up to 2mg/L the lower graph just focuses down on the lower concentrations. Okay?

So we went through, this is the results of the exercise we went through then. In these columns we see the basic stats from the Beartooth data set, the media value, the 75<sup>th</sup> percentile value, the 95<sup>th</sup> percentile value, because now we're specifically looking for some of the shorter durations spikes and variability that we might see. And when we size all those up, this is, these columns are what we think we might see in terms of grab sample concentrations in Two Rock Pond. [Pause] Sorry, and then the next step, just as we had done with, when estimated the average concentrations, what do those look like when we put them next to the current EQCs for grab samples? And this is what we see... and a couple of our key observations that jumped out at us here, again ammonia and aluminium, we're using the word, the phrasing, "unlikely" apparent – 100% compliance

appears to be unlikely. For instance, for aluminium let's pick on aluminium for a chance, we're predicting that we may see grab samples in Two Rock Pond from 2-4mg/L and the EQC for maximum allowable grab sample is 2. Zinc – we're predicting we may see grab samples from 0.01-0.02, the limit is 0.02. That doesn't give us a lot of comfort that we're 100% certain we'll have 100% compliance all the time.

Okay, this is just simply to, just to list out what we've, you know all these, the various observations I've been speaking to so far. This is just to list them out, so

- So we went through an exercise
- we estimated what we thought average and grab sample concentrations might look like in Two Rock Pond,
- we compared those to what the current effluent quality criteria we have in the license and these are the parameters that were suggest to us as needing a little bit further work: ammonia, aluminium, copper, nickel, nitrite, and zinc.

**MC:** Marc Casas here from INAC, water resources. Um, I'm just trying to get my head around a lot of these figures that are sort of just coming at me sort of quicker than I can think, anyway. But, I guess what I am confused about is some of the water quality graphs that you are using are from the actual pit data, right? And I guess you're taking the pit data saying that it is very similar to what you think Sable is going to be like, based on geology and stuff like that. And then, you're extrapolating somehow to guess what the Two Rock Pond water quality is going to be like. Is that correct? But what I guess I'm not sure about is, is the water coming out of Beartooth that much poorer than the other pits, because if you look at like say 161630 which is the one in Leslie Lake or just before Leslie Lake that is the main sort of water quality one or compliance. The numbers don't seem to be nearly that high. So I'm just confused, and the orders of magnitude lower, like some of the recent ones for aluminium, uh the average is I don't know around, actually aluminium is tricky, but a lot of them are like 0.02, 0.028, they

seem to be quite a bit lower, and so I'm not sure why, why it wouldn't be similar to the water quality say coming out of the LLCF. Like does that mean that Beartooth has really poor water quality coming out of it, or like why is there a difference there, I guess is my question.

**ED:** Okay, and that's, that's a good question and I didn't really speak to that, I probably could have just answered that upfront if it had occurred to me. So, a couple of things come to mind for that question. And one is – we're not using 161630, the water release from Long Lake containment facility as a reference in this exercise. Because the Long Lake containment facility is simply not analogous to Sable and Two Rock system. The Long Lake facility is by comparison a huge facility, with huge retention time, several filter dykes. So, when you take water from the Beartooth Pit sump, and it mixes with all the other water as well as a process-plant discharge water, and goes through LLCF. That's not analogous to Two Rock Pond, and so we don't, we're not using that as kind of a reference point. As I mentioned, bear in mind also the LLCF, a major and very substantial influence on water quality in LLCF is the water from the process plant. So, those are the reasons we're not using the LLCF and 161630 as a sort of a reference point for this exercise.

So the Beartooth Pit data itself as you say, it's not being used to represent Two Rock Pond, it's being used to represent the Sable Pit as an input into the Two Rock Pond model, to be mixed with the estimated of runoff and so on. So the Beartooth Pit data is simply being used, the concentrations observed in Beartooth Pit are simply being used as one of the inputs into the model for Two Rock Pond and then the model works with the hydrology and the runoff coefficients and things to generate what Two Rock Pond will presumably look like.

**CC:** Hi, Charity here from BHP. I just want to add that it's not that Beartooth is not any worse than any other pit, it's not why we chose it. It's just that, the main point being that a lot of the other pits, Panda and Koala have gone

into below the permafrost zone and that changes the water quality of the pit water substantially, and Beartooth has stayed within the permafrost zone, as will Sable. That's why we've used it. Main reason it's a [inaudible, maybe "circuit"] is because the geology as well as that fact that it remains within the permafrost zone. It's not that Beartooth has much to substantially, like it's not poorer water quality.

**MC:** So, sorry Marc Casas INAC, water resources again. Just to continue from that, so are you saying that there's something going on in the LLCF that's helping, I guess maybe like size, retention time, stuff like that that's the main difference there?

**ED:** Yes, absolutely the size and the retention time and the series of filter dykes and that all adds up to make a substantially different facility than Two Rock Pond.

**KOR:** Thanks, Kevin O'Reilly here. Eric, I think is really helpful information, wish we had this maybe 6 months ago, but this is really good stuff I think is what we were hoping to see at this session. I wonder though, I understand that you're trying to use Beartooth as a proxy for Sable Pit water quality, so you're looking at the pit water quality for Beartooth from the sumps, and it's some sort of an average of all of that that's coming out of Beartooth and you're trying to say that's what you're expecting to come out of Sable. But in your modelling did you actually look at what you expect to be the water quality from the discharge from Two Rock sedimentation Pond at the outlet? Or is that's what's here now?

**ED:** Yup, let me just back-up to this one [referring to slide]. Because you're absolutely right, you know these were the three fundamental inputs into the model, the baseline water quality, waste rock storage area and then we put a range of values for the pit because it does have higher variability. And this is what, this is the outlet of Two Rock Pond. This is what the model is giving us, based on these input values, this is what we expect to see at the outlet of Two Rock Pond. That's right.

[Someone of the floor explains more details – perhaps Laura Tyler]

**ED:** That's right so I'll just say that into the microphone [laughter]. But that's right, it's a simple system to model in this sense. So we had natural runoff to which, our actual baseline water quality data was applied to this, we have an estimated runoff from the waste rock storage area, we had the estimated water quality from SRK and the runoff coefficient factor I quoted to use to represent this. We have water quality data for Sable Pit using Beartooth Pit as a surrogate data for that. It all goes into here, Two Rock Pond, all that water goes into Two Rock Pond and the model adds it up in its various proportions and predicts then what we expect to see, right here at the outlet.

**KOR:** Sorry, Kevin here, just to be really clear then, the figures in here that you've used then. I'm trying to figure out how the Beartooth data relates to what we might expect from Sable and whether when you say that 100% compliance is unlikely or uncertain, you're talking actually about the compliance point being the point of discharge from Two Rock Sedimentation Pond.

**ED:** Yes, absolutely.

**KOR:** Okay, Thanks

**NR:** Nathen Richea, INAC Water Resources. I think you mentioned earlier and I can't recall, but the mine water inflows that you put, or that you used for the model, were they from the Beartooth Pit? Or they're projected from the Sable Pit?

**ED:** Just on that one, the volumes of water come from the precipitation and catchments areas and runoff coefficients at Sable, so the volumes of water are not the volumes of water we saw from Beartooth Pit. We're using the actual volumes calculated for the Sable Pit.

**NR:** Nathen Richea, INAC Water Resources. So you're talking about precipitation and runoff, but have you also factored in the inflows from the pit

development itself? Through fractures or fissures or that kind of thing, those kinds of things?

**ED:** In the model that's really assumed to be minimal because the pit stays in the permafrost zone. So, so we have, as I was saying, we have the runoff from the surrounding areas, the undisturbed area, at a runoff coefficient of 0.5 and that's a little bit represented by the use of the higher runoff coefficient of 0.7 – right? Assuming 70% of the rainfall actually reports down into your pond, that's what's applied to the pit benches. So the area of the pit, it is recognized that in that way. But the inflows into the pit through fracture zones and things are expected to be negligible.

**NR:** I just have one more point of clarification. I was looking through the water license application, and I don't know if it was the supporting information or whether it was the questionnaire, but it broke down the expected line water precipitation and etc.. for the Sable, Pigeon and Beartooth pits. The Beartooth Pit expected line water precipitation and so-on was 82,440m<sup>3</sup>/year. For the Sable Pit it's 740,600m<sup>3</sup>/year. So I was just curious how those numbers are in there and if they are used in this model or if you can explain that.

**CC:** Um, Charity here from BHP. That number for Sable incorporates the dewatering of Sable Lake as well, so it's not very representative of an actual operating volume. But it will be a volume of water that will need be within the water license as what's coming out of there.

**NR:** Thank you, Nathen Richea, INAC water resources. So I gather than you do have a physical model of the expected inflows and the results in the Two Rock settlement Pond. Can you provide that model as part of your information and some supporting information on what was used and how it was used?

**ED:** Yeah, you're absolutely right, what we're describing here is a working model that gave us these results. What we have at the moment, and that's kind of how we kind of refer to it is a kind of a working model which means that we

work Marc and his colleagues at ResCan and SRK and others that will work with us and give us some results and things to work with, which is not necessarily to say that all the time we do an exercise we ask the consultants to go through and document everything to the degree in the report that's sort of can be put out there and understood by others and reviewed, because we work closely with these folks and for us to develop a working model with them, we don't necessarily need to see that report. So, the short answer to your question is we don't have this documented with all the appendices and methodology in a report that really we would put out there, but it is a working model that we use. What I would say though carrying on from that is that you know, we're here, this is a workshop where we're here to try to tell you where we're coming from and hear your thoughts, and I think towards the end of this workshop, what I'd like to suggest is that we take stock of all the discussions we had and if there's something or some direction or something that's helpful to the conversation that we can do and work towards then we're willing to do that, and can work towards something of moving this whole process forward. To me, that would be a little more productive thing to revisit at the end of the workshop and see what direction we might have come up with.

**NR:** Nathen Richea, INAC water resources. I agree with you Eric, thanks for saying that. It's just hard for me to kind of critique something when I don't have the information in front of me. But we will work together with you and maybe this is something that will come out at the end of the workshop to try to have some information in front of us so we can have some information to look at and make informed decisions, cause we do have the same goal, trying to protect the environment. Thanks.

**AW:** It's Anne Wilson. That would be an excellent idea, I would really appreciate more information on the modelling you used. And one of the things we'd raised earlier, a long time ago, and this was – are we going to see a loss of dilution capacity in Two Rock Lake and has the model been taken through the steps of life of mine to get actually what it's going to be like in year 6. On that

vein what is the discharge strategy? Is it going to be for several months each year? How much time is it going to be in the open water for natural degradation to help? So I've got lots of questions.

**ED:** Okay, what my suggestion is Anne, I would really like to talk about, follow-up on those and see where you're going. What I'm going to suggest though and back to Neil, I see it's 11:38 here on my watch, so I don't have that much more on the presentation, and I'd like to finish-off the presentation before we take our lunch break. And then we have afternoon for discussion of things. Would that be alright?

**NH:** That's fine with me, Neil here. Is that okay – do you want to park that question and raise it again after the lunch break? Is that OK?

[agreement]

**ED:** Okay, so that was great discussion, thank you everyone. Just to get back to finishing-off the information we have prepared here for you. We've gotten this far: we ran through our exercise of predicting what we thought we would be likely see in terms of average concentrations and grab-samples and in Two Rock Pond. And these are the parameters that jumped-out at us where 100% compliance appeared to be unlikely or uncertain – ammonia, aluminium, copper, nickel, nitrite, and zinc. So, these should be reviewed further. So we have one little bit of discussion for each of these parameters, to close out our presentation here.

So for ammonia, the very basics that we're all familiar with, ammonia originates from residual blasting agents, that's where it comes from. Two Rock Pond model as we've been talking about it so far, it does not consider the loss of ammonia to the atmosphere, natural volatilization. It is an extremely difficult item to predict – those of you who have tried to work with this or seen reports on this, it is extremely difficult to get a handle on this, but nonetheless, we know that this is a process that takes place in the open water season. So we wanted to do what we



could to look at that mechanism of ammonia loss. So for Two Rock Pond a possible rate of ammonia loss of approximately 40% during the open-water season was estimated, based at the experience at the Misery Pit – King Pond system. The King Pond and Two Rock Pond are somewhat similar in terms of surface area, they are quite different volumes and depths, and different mine water flows but nonetheless, it was analogous in terms of giving at least some kind of empirical handle on what kind of ammonia loss we have been seeing at the Ekati site. So, if we take, again a very simple calculation, these are the numbers we saw before in Two Rock Pond, 3-6mg/L average, 6-6.5mg/L ammonia as a possible grab sample, if we simply apply an estimated ammonia loss factor in the open water season of 40%, we might then think that Two Rock Pond will be between 2-4mg/L on average and 4mg/L on grab sample. Now this is very imprecise modelling and predictions, but nonetheless, we wanted to do what we could to get a handle on it. So if we gave Mother Nature the benefit of the doubt, that she was going to provide us a 40% loss of ammonia in Two Rock Pond, we would see these concentrations. Once again, compare those to what we see in the water license 2 and 4. So we're looking a little better, but it's not giving us, it certainly doesn't give us a lot of certainty of being 100% compliant, even yet. So, even with the estimated loss of ammonia from Two Rock Pond to the atmosphere, 100% compliance continues to be unlikely, that's our observation, even after having considered that mechanism. And I think I won't spend time on this, it's getting closer to our lunch break, but this is the table that was put out in the water license application as essentially a water-quality objective if you like for ammonia that simply attempts to express an EQC for ammonia in terms of the pH. That would be valid up to temperatures up to 14°C.

Aluminium was the next alphabetized parameter that we had talked about. Total aluminium originates from the natural soil and rock particles, strongly related to total-suspended sediments. The Two Rock model does not take into account the action of the filter dyke. And as Laura and I were discussing earlier the filter dyke is completely intended to remove suspended sediments. Since the filter dyke is designed to removed suspended sediments, it will also reduce total aluminium.

We're quite confident of that in our general experience. So on this basis, BHP Billiton feels that 100% compliance for total aluminium is likely. We went through the exercise for all the parameters, and yet, when we really think about it, we don't think aluminium is a compliance uncertainty for us going forwards. For this reason, it is strongly related to suspended sediments.

Regarding copper, copper originates from the mined rock. There are no anticipated reduction mechanisms for copper in Two Rock Pond beyond the mixing that the model provides for, so there's really no change to our observation that 100% compliance continues to be uncertain. These points speak a little bit to the best available treatment technologies for copper – what's reasonable? In the derivation of the Diavik EQC for copper, which was 0.02 and 0.04 that was arrived on the basis of an assumed best-available treatment technology of 0.02 or better. And it also included discussion of the specific mixing ratios and configurations at the Diavik site. In that report from that TAC committee, they were taken as showing that this was reasonably achievable. There is a second reference report that was readily available and we looked at, and this is a 2002 report by Senes and Lakefield, it was specifically a review of best available treatment technologies for northern mining industry. They indicated an average best available treatment technology performance in the range 0.0140-0.17 but also specified a 95<sup>th</sup> percentile confidence factor of .25. And the way I read that was to say, telling me in this report they had done a survey of various mine water treatment plants and in that survey those treatment plants on an average achieved this level of copper, meaning it would be there approximately 50% of the time. But if you wanted a higher level of confidence, where am I going to be 95% of the time, it's 0.25. So, on this basis the EQC for copper may not be reasonably achievable for the Sable site. All these statements, whether they say it or not could be appended with "for the Sable site." So for these reasons BHP feels their EQC should be reconsidered.

Nickel – Nickel is a similar story to copper, there's no anticipated reduction mechanisms for nickel within Two Rock Pond. If we look at the BAT technologies

for nickel, these points are expressed in the same way as we just talked about with copper. First a review of what was documented for the Diavik derivation – a treatment performance of 0.05 or better, and a consideration of the pond and the mixing ratios and things at the Diavik site. The Senes – Lakefield report put a similar number out there, on an average basis, but a 95<sup>th</sup> percentile confidence range of 0.43 for nickel. On this basis we're not sure that the EQC for nickel is reasonably achievable. And as a final observation regarding nickel, the EQC is only 2 times the water quality guideline, and as simply an observation, this is quite a bit lower ratio than we see for a lot of other parameters. Raising in our mind a question, is such a low value necessary to protect the environment at the Sable site?

Nitrite is a little different, being part of the nitrogen family. Nitrite originates indirectly from residual blasting agents. It's a species in-between ammonia and nitrite for those who know the nitrogen cycle. There are no anticipated reduction mechanisms for nitrite into Two Rock Pond, so on this basis our initial observation hasn't changed. Again, a consideration of what's reasonably achievable for nitrite, in their derivation of Diavik EQC they believe that 1mg/L was achievable as a BAT. The second report that was available to us to take a quick look at didn't identify any BAT technologies or performance standards for nitrite. So following a similar line of thought, is this EQC reasonably achievable using best available technologies? We suggest that this could be reconsidered by the Board.

And lastly, because these are alphabetized, so zinc is the last one. Originates from the mined rock. Again, there's not anticipated reduction mechanisms within Two Rock Pond for zinc. And we go through a similar set of observation. Pardon me, in the case of zinc there is one additional observation regarding Diavik as an example. In the case of zinc, the Diavik the TAC committee recommended an EQC of 0.1 and 0.2 mg/L. The EQC written into the license was 0.01 and 0.02 which is the same as in the Sable Pigeon Beartooth water license. So the following observation is based on the technical derivation of the TAC committee,

in that case, they assumed a bad performance of 0.02mg/L with the same qualifier that based on the configuration at the Diavik site, they came to the conclusion that 0.1 and 0.2 were reasonably achievable. The Senes Lakefield report had these numbers for zinc 0.13-0.22 on an average basis and 95<sup>th</sup> percent confidence number 0.44. So given all these various numbers is the EQC reasonably achievable at the Sable site? Final observation regarding zinc: we had already made this previously, EQC for zinc is actually less than the water quality guideline. This is atypical and inconsistent with other parameters. On this basis, is such a low value necessary to protect the environment at the Sable site?

Just to quickly remind you, this was the slide where I was going to summarize for the presentation to walk-through our thinking of EQCs and we've talked about all these points already,

- a very high degree of confidence in achieving 100% compliance while ensuring that the environment is protected is necessary. This is the balance that we're striving for.
- Sable EQCs appear to have been adopted from the site-specific derivations conducted for the Diavik site.
- Currently, from our observations, 100% compliance appears to be unlikely or uncertain for five of the sixteen EQC parameters, those being ammonia, copper, nickel, nitrite, and zinc.
- BHP has suggested in their application what we feel is a simple solution that provides consistency across the entire Ekati operation using EQCs that have been demonstrated over a 10-year period as having protected that downstream environment.

I've got 11:52 so I think at that point we were going to close-off our morning of presentation here with just Laura just having a bit summary, just to close-off our presentation and then I presume it will be our lunch break.

**LT:** Laura Tyler, BHP Billiton. So we just wanted to close-off just here at the end with just a brief summary of the four main points that we wanted to make sure that we've discussed.

So, the first one is around, we want to make sure that we can confidently mine all of the pipes within our life of mine plan and that includes Sable and in this case the EQCs that are Sable Pigeon Beartooth water license actually have more relevance to the ability for us to mine in Sable than either Pigeon or Beartooth so that's why there's been a lot of focus on that Sable projects. So we want to be able to go ahead and confidently mine those, but we also want to be able and confidently mine them whilst protecting the environment. So we're not really saying, we're not asking for EQCs that are at a level that let us go ahead and mine, but that let us go ahead and mine and still protect the environment. So we just want to make sure that we're reviewing these and where they are, where we think that we're going to be running-up against them in a relatively short time we want to make sure that they are the right numbers, that we're not using a figure that is lower than is necessary to protect the environment. Mining at Ekati, we want to have a, is part of a stable and long-term operation, so getting EQCs that we have for the long-term for all of our projects that allow us to get-on and do the planning that we need to do now is what allows us to build that sustainable business going forwards. We are looking at lots of alternative techniques and how we can do things differently, how we can mine differently, and that's something that we'll keep everyone abreast of as we go forwards with new ideas. But at the same time, we do have to be able to go ahead and plan these projects now and we can't live on the promise that there will be something that will be innovative and new and that will allow us to meet EQCs in 5 or 10 years time, because we actually need to be doing that planning now in order to bring those pipes into production. So the proposed changes to the water license are really important part of this overall process. It is a part of our planning process that we have to be able to bring good permitted projects to the table in our corporate offices to ask the capital to spend. We don't get the capital before we got the license – let's put it that way. They don't just hand us the money and then on the

hope that we'll get our licenses, we have to have that as part of our planning process. So this is all part of our engineering process that we need to take the projects forward. We really want to make sure that we discuss the way of achieving the goals of the company, but also making sure that the environment is protected for the long-term. Because BHP Billiton is not interested in a project that is going to result in the long-term damage to the environment, and ultimately if we cannot mine, then that is the way it goes, and we have to find alternative ways of investing our money and making profits for our stakeholders through alternative projects. So we really want to do the four points that are up there. We're seeking ways to ensure the Sable kimberlite pipe can be confidently implemented as part of our mine plan.

We want to continue to generate the benefits to all parties that a stable and long-term mining operation can provide, and that includes being able to bring-on other pipes. So a lot of this process that we go through gives us an idea of how we go forward with future pipe licensing, because we do have other pipes out there that we'll be looking to permit in the next 5-10 years. The proposed changes are important to us and we would really like to make sure that we keep an open and honest dialogue going. That's really just what we wanted to summarize at the end of the day, at the end of this presentation this morning, and we're looking forward to getting into some of the nitty-gritty of the detail this afternoon so that we can try and answer the questions that people have. I guess if there is any kind of final questions before we go for lunch, then we're prepared to go for it, it's up to you guys now.

**NH:** Neil here, I think that if we started questions now, we'd go right-through lunch. We had planned lunch from noon – 1:15. I know we are a bit further away from the downtown than we usually are, do people want to come-back at 1:15 or do you need time until 1:30? Okay, we'll reconvene at 1:30 then. Have a good lunch, and think of some good questions.

## **LUNCH**

***End of Tape 2***

**November 4 1:30 – 3:00**

***Start of Tape 3***

**NEIL HUTCHINSON (NH):** Okay, it's Neil from the Board here. [joking on the floor] Okay, I myself, Neil here, think that we had a very good morning. Is everybody happy with how things went? What we want to do this afternoon is talk a bit about process. We recognize that Anne had some questions, I think that the time to ask those questions will fall-out of the process that we talked about over lunch. I just want to thank everybody, I think the questions and the answers, I think everybody's been listening, thoughtful and respectful, and I think we're on a good roll here. So let's keep it that way. Good work everybody.

Over lunch we've heard from BHP and they think there's merit in re-examining the EQCs for Sable Pit and I think that before we proceed too much further we have to find-out what everybody else thinks about that idea. They provided the reasons why they think this is a valid thing to do and I'd like to go around the table from person to person and see if anybody agrees or doesn't agree that there's merit in re-examining the EQCs. That doesn't mean that they would be changed, but at least that they should be re-examined. So we have to make-sure we make that distinction. So we'll start at this side with Anne, or Kathy.

**KATHY RACHER (KR):** Kathy Racher, Wek'èezhii Land and Water Board. I just wanted to point-out that we just want to do a round-table on whether you're open to re-examining the EQC, and I'm sure you'll have all sorts of provisos as to what information you would want and stuff like that. And we are going to be explicitly addressing what information you would want and we're going to be making a list and getting it all down. I think the first go-around wasn't to hear all your provisos, just a general sense of agreement or not.

**NH:** Thank you, Neil here, yes that comes in the rest of the questions. Everybody will have time to give their qualifiers and their reasons later on. But we

just want to go around the room first and see if there's a general sense that this is something that we want to pursue. So if you don't think it's a thing, please tell us why not and if you do think it's a good thing, hold your provisos and we'll get to them later. Anne -

**ANNE WILSON (AW):** Anne Wilson – yes. [room laughs]

**NH:** Do we need to keep score Kathy? Okay, Eddie –

**EDDIE ERASMUS (EE):** Eddie Erasmus – I don't know yet.

**NH:** Eddie, Neil here. What do you need to know to make-up your mind?

**EE:** I need to know more about what the EQC and more about the stage that we're at, at changing it right now.

**NH:** So, Neil here, more information on the process that would be required to change that, and more information about the EQCs themselves? Okay. I think we've got that on the next couple of pages. Thank you. And you've got that Kathy and Ryan?

**KR:** Yup

**NH:** I think we know BHP's answer. For the record...

**ERIC DENHOLM (ED):** Yes, I believe it could be relooked at. Eric Denholm.

**NH:** Okay. Mark, DIAND –

**MARC CASAS (MC):** I guess it can be looked at. I think that there's a lot of information that we'd like to see in terms of detail, and some of the modelling and like to see exactly how they came-up with the numbers that they did come-up with. I don't think that our heart was set necessarily on the numbers that were there. We just said, well they're there, why should we change them. But if it is going to be opened, then I think we are willing to listen to them. But we certainly have a lot of questions. I'd like a little more time to provide like a detailed answer



in terms of how much, like what we'd actually be looking for, and what our major concerns are. But we could certainly provide that information. I don't think I speak out of turn when I say that we would at least consider it.

**NH:** Okay. Laura.

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. Yes with the provisos we'll be talking about later this afternoon.

**NH:** Okay, very good. Kevin – [Kevin suggests Laura already gave IEMA's answer] Okay ... Tim... Laura's speaking for IEMA or?

**TIM BYERS (TB):** She did, IEMA is always open to any suggestions that the company brings forward, however IEMA wants to be a part of an informed decision-making process. Emphasis on "informed" with all the information all the stakeholders need to know before we support any changes.

**NH:** Great, Thank you. Nathen –

**NATHEN RICHEA, (NR):** Nathen Richea, INAC water resources. I agree with what Marc was saying. Yes, I think that we could take a look at the EQCs. I'm not sure if they can be changed, but maybe they can, and the only way we can tell is if we look at the information that's provided on what's protective of that receiving environment and until that information is provided, it's kind of hard to talk-about whether they can or can't be changed. But, we're open to looking at it and working with BHP to set EQCs that are protective of the environment for that receiving environment.

**NH:** Thank you. Bruce-

**BRUCE HANNAH (BH):** Bruce Hannah, DFO. As everyone else has said I don't think there's a problem with looking at them just as long as the EQCs at the end of the day are protective of the aquatic environment.

**NH:** Jason –

**JASON BRENNAN (JB):** Jason Brennan, INAC. Yes I feel that the EQCs can be revisited. Erring on the precautionary side within reason based-upon supporting evidence or research.

**NH:** Very good. At the back, on the side here.

**TODD SLACK (TS):** I wish I could be...

**NH:** Please identify yourself

**(TS):** Todd Slack, Yellowknives. I'm sure we would consider the information that's put in-front of us, but I can't commit to anything at this point. I want to hear more before we have any position.

**NH:** Okay. Anything else? No. Okay I think just in response to the last comment – everything we're doing here is predicated on more information, and you're certainly entitled to withhold your final decision until you hear more information. But I'd like to talk a bit about that type of information. So the second questions, of course, that we came-up with over lunch. Do the parties have the information they need to support re-examination? I think we've heard no, right. But everywhere there's information requirements with an arrow here, we're going to be documenting that over here. And some of the technical questions and themes that we heard this morning and that we heard in preparation for the workshop, first of all is information requests that are related to the predictions of water quality that BHP has made for Two Rock Pond and for the discharge from that. Are we comfortable with those water quality predictions? Can we support them, and agree with them?

The second question was, we've heard that BHP has some issues with the existing EQCs, we haven't heard exactly what they are proposing, so at some point we'd ask BHP in the process to provide some supporting information and some specific EQCs that they might recommend.

Thirdly, BHP have said that the existing EQCs in the main water license are protective of the Long Lake Containment Facility, Leslie Lake-Slipper Lake drainage, but they have yet to provide any information on how any proposed EQCs would protect the Horseshoe and Exeter Lake drainage. They're different watersheds, different water bodies, different hydrology, and different effluent. So, I think BHP, we're going to take some information requests from people around the room on what we need to validate or to test this prediction that BHP have made, that they can come-up with EQCs that will protect this watershed. I think among the Board staff, we're not convinced that we've seen that information yet. So that's something that we're going to want to hear, and a theme that people can address. So again, for any three of these questions, we'll probably go through them in order and we'll take information requirements.

And finally, people talked about process, at some point we'd have to come-up with timelines.

- There would be formal information requests come-out from the Board in response to the information requirements we hear today.
- We get responses from BHP.
- There would have to be time for review by all parties.
- There'd have to be time to formulate interventions from those reviews
- And then bring them forward to the hearing.

And so, more details within here would be developed by the Board as time went by, including dates and things like that. We have some timelines out there now, but we just have to respect that there's several steps that have to go through.

So, are there any other categories of information requirements that people think that we need to get on this list before we start?

**TIM BYERS (TB):** Tim Byers, monitoring agency, one of the things that is a huge question mark in my mind, when we're dealing with EQCs and water-quality within horseshoe lake is when we look at the point of compliance for the main

license at 161630, so in other words the point at which water is pumped from the LLCF into Leslie Lake, when any of you look at that particular point, you see during discharge that there are huge volumes of water pumped-out at very, they're pumped-out in a torrent that is very strong into a water body. Now in this case, if you're using the same pumping mechanism, I don't know if you are or not, then in my mind I have a vision of that torrent of water, when you're pumping it from Two Rock, not channelized into a small stream into Horseshoe, but probably being in a sheet. And so, when we're thinking water quality, does that mean that there's going to be an awful lot of erosion of tundra substrate into Horseshoe? And that, of course, will affect your EQCs as well, if there is a lot of erosion into Horseshoe, so I think that's a huge question that needs to be addressed.

Do you want to do that question?

**NH:** I've kind of put that into a classification Tim of suggested mitigation that might be associated with this. You've raised not about the EQCs but the implications of discharge. So, does that capture that for now?

So as a fourth theme we might say 'can the discharge be supported', but then what conditions might want to be put on it.

**TB:** Thanks Neil, Tim here. I guess my reason for asking it at this stage in the process is thinking of EQCs and what it means for the downstream environment and so I think that does have a bearing on EQCs.

**NH:** [directed to Eric] You want to respond?

**ERIC DENHOLM (ED):** Yup, I do. So it's Eric here. Okay so a couple things that came to mind there Tim... one is that basically that to release the water at Two Rock Pond it would be a pumping arrangement, something that looks somewhat smaller but generally the same type of arrangement at the outlet of LLCF. The water level at Two Rock Pond would be quite a ways down-below the dam freeboard and so-on. SO we would control the water level by how much we

pumped-out. So, everybody will be aware that at 161630 when we pump water out of the LLCF the license specifies how much volume can be pumped at a given time, it's 2.1 or 2.2 cubes per second through freshet through Spring and then it's 0.52 other parts of the year. So we anticipate that at Two Rock Pond there would be a similar nature of seasonality to the discharge. Usually the phrase that is used to describe that is, you know, trying to 'mimic the natural hydrograph' where we saw, we always see in these northern systems, in the order of 80% of the flow comes in freshet months. So that's what it's trying to mimic a little bit. In the case of Two Rock Pond the EQCs would in our vision would clearly apply to that water that's being pumped-out at Two Rock Pond, that's where the EQCs would apply. That's that point of control that we have. The same as at LLCF 161630. So, if the discharge water from Two Rock pond is going into the little creek section from Two Rock down to Horseshoe Lake, then you're right, if I'm understanding what you're saying, you're right one question is, does that creek section, does that have the hydrolic capacity to take all that flow? Is all that flow you're going to put in there going to stay in the creek and not cause a bunch of erosion? So the bottom line is that we couldn't and we wouldn't have any sheet flow that caused erosion and sedimentation down into horseshoe lake, that would be an impact in the receiving environment that would be, we would not be allowed to do it and we wouldn't do that. So that situation, if it arose, then that would be a reason to stop discharging and to sort-out what's going on. But the point of application, where the EQCs would apply would be that water that was being pumped-out of Two Rock Pond. That's how we see that.

I'm not sure if that hit all aspects of your question. Did you guys want to add something more?

**LAURA TYLER (LT):** Laura Tyler, BHP Billiton. From a engineering perspective we would have to build something in that would obviously not allow for erosion to occur. We have to bear in-mind that there are other regulations beyond just the water license and I'm sure Bruce will back me up that us putting in-place something that actually results in pushing sediments downstream is

actually gets DFO crawling all-over our backs so, that's something obviously that we're not going to be doing in a hurry. So as we go through these and we carry-out environmental risk-assessments on more than just the actual water-quality is but all of the engineering aspects, when we go into final design actual have risk-assessments carried-out, and one of those risks that we review is around environmental impact as well as safety and cost and all of those other things, it is around environmental impact. At that point, when we do the detailed design is where we would look at ensuring that the engineered design took into account, put in place, the measures to prevent that kind of erosion occurring. Because we are aware that DFO would not permit us to be sending sediment downstream into Horseshoe.

**NR:** INAC, water resources. I'm just not aware, so I'm just going to ask the question, anyone can answer. Is there a discharge rate for the outlet of Two Rock lake in the current water license? Maximum discharge rate?

**KATHY RACHER (KR):** Kathy Racher, Wek'èezhii Land and Water Board. I think that's one of the questions I have for BHP tomorrow, as part of the overall discussions there's several changes to the license asked-for, that to me have the sum-total of asking for the rates that you asked-for Eric, the 2.2 I think in freshet and 0.5m<sup>3</sup> in winter. I think that what I was getting from a number of different changes throughout the water license was that that would be the prescribed rates there. There's also the question of, or that's what you were requesting. There's also the question of the existing licenses' "no under-ice discharges" and BHP has been asked to be allowed to under-ice discharges because they have been doing them at other sites and they say that they can do it in a way that protects the environment. Those were some of the questions I also had for tomorrow's discussion. But, whatever part of that impinges on today, maybe that's an information requirement, for example, for me I was wondering where those rates came from and what the evidence was that those rates were protective of the environment as well as the under-ice discharges that you said that the environment was protected and I'm not sure what the evidence was there either.

And frankly, I don't know why it was in the original license to not allow under-ice discharges, I couldn't find anything on the record as to why that was so clearly forbidden in the license. So, that's a question for anybody who knows.

**NH:** Neil here. Kathy, I think we do have that to one of tomorrow's conversations. Is it really and EQC-type question do you think?

**KR:** Kathy Racher here. I think that speaks a little bit to, demonstrating that their protecting the environment with the EQC and frankly I don't know what the relationship between the discharge rate and, other than what Tim's already mentioned, and the EQC and whether it's under-ice or not and how that all fits together. I'm not familiar-enough to know how closely related they are.

**BRUCE HANNAH, (BH):** Bruce Hannah, DFO. I think, and Anne might be able to help me on this but the under-ice discharge wasn't allowed before because it could trigger spawning activity by grayling thinking it's Spring freshet, but I could be wrong on that.

**ANNE WILSON (AW):** It's Anne Wilson, just to supplement what Bruce said, there's a letter in 2002 July 22<sup>nd</sup> from Marc Lange, at DFO at the time, to the Board expressing concern with icing overflows and glaciation and then Julie Dolend [sp?] had identified what Bruce just mentioned as well for winter discharges.

**KR:** Kathy Racher, Land and Water Board. So it seems like it's not strictly-related to EQC. It's more of a physical thing. I still want information on it, but anyway.

**NR:** Nathen Richea, INAC water resources. It might be a bit of an aside, but I was noticing in the presentation the picture of the outlet between Two Rock and Horseshoe, it doesn't seem to be, from a hydrological perspective, a significant depth so it may freeze to the bottom at it's current state.

**ED:** Sorry Nathen, were you referring to the stream from Two Rock down to Horseshoe? Ya, it dries-up through the year, it's not a well-defined stream, poorly-defined channels, dries-up intermittently through the year. It probably does freeze to the bottom in the winter.

**NR:** Nathen Richea, INAC water resources. So when you requested the under-ice discharge what were you referring to?

**ED:** Ya, it's Eric here. So, we also had some uncertainties as to what was under-ice discharges that were being prohibited. "No under-ice discharge", we weren't sure what that was about. There's clauses in the licenses and other measures of protecting against erosion, there's general provisions in the license that protect erosion against anywhere that we're releasing water. So, I don't think that under-ice, we didn't see that under-ice discharges spoke to that particularly. Now triggering a spawning response, that's something that we would, if that was the reason why this appeared in the license in the first place, that's an issue that we could then research and come-up with more information. Off the top of my head I think I've kind of picked-up that there's more than just flow that triggers a spawning response, but I'm not debating that here now, but I think that there's, there might be avenue to discuss that.

**CHARITY CLARKIN (CC):** Charity from BHP Billiton. Can I just add further to that. First off, the request in the water license, we have to remember that we're not only talking about Sable, cause we have Pigeon and Beartooth as well, and Beartooth is near completion. One of the other ain avenues for looking at under-ice discharges is when you're dewatering, the initial dewatering aspect of the lake can help a lot with erosion if you're discharging under-ice instead of creating erosion on the site, so there's another point to keep in mind.

**NH:** Neil here, okay. Any other kind of general questions and comments, I want to focus people on this first issue of the predictions that BHP made for water-quality in Two Rock Pond. And any questions or information requests that people have relating to those.



I know Kathy has questions.

[silence]

Okay Neil here with the Board, this morning BHP presented the filter-dyke and their assumption, their understanding that that would reduce the amounts of aluminium in the water, of course because particulates would be taken out of the water by the filter dyke. And noted that their predictions have been based on total metals and had not yet accounted for the action of the filter dyke. So my question is, why wouldn't you apply some of that same rationale for zinc, copper, and nickel, which can also be found in particulate form and would be settled-out or removed by the filter dyke.

**ED:** It's Eric here, I think the answer is because aluminium is much more strongly related in a suspended form. I think that's why the EQC for aluminium for instance is fairly high compared to some of the other standards CCME guidelines and things, it's because of a discussion of total undissolved in a recognition that aluminium probably originates mainly from the soil particles that are the suspended material. The clay particles is where the aluminium resides. In the other metals, zinc, copper, the base metals, lead and so-on dissolved in total fractions are typically very close. The amount of suspended metal compared to the amount that is dissolved into the water is extremely small so the removal out of suspension will be a small proportion. For aluminium it is quite the opposite, it's strongly related to total suspended solids and falls-out with the clay particles which is where the aluminium is, is in those clay soil particles.

**NH:** Neil here, thank you. Could you, would you be able to demonstrate that with data from Beartooth Pit? Or, if we were to ask of that in an information request?

**ED:** Ya, I guess the only thing that says anything about it, if not the Beartooth data set there is demonstration of that certainly that would be relevant. Yup, if that was necessary to convince you then sure.

**KR:** Kathy Racher. I wasn't thinking Beartooth actually, I was thinking of another operating filter dyke. You know, just the concentrations of total aluminium on one side versus the other. You've got several filter dykes and just wonder, you must have reams of information on that, just to help us to know what the EQCs should be, because when I was looking at the max. average for aluminium that you were coming-up with originally you said 1.5 and then you didn't give another prediction for the, based on the action of the filter dyke. But, based-on your discussion on what you consider safety factor of the EQC versus the concentration you might expect to encounter, were you going to ask for an EQC of 4.5 or 5mg/L of aluminium? Or not. And so I just wanted to help us all to understand that the EQC for aluminium doesn't have to be at 5, it could be at 1.5 if we could look at some actual data, operational data on the action of a filter dyke.

**ED:** Ya it's Eric here, we can put that together. We would have information from LLCF that would support that.

[silence]

**AW:** It's Anne Wilson. Similarly, just thinking of attenuation of some of the parameters of EQCs I'm thinking of nitrite and in oxygen-deficient systems then you can have the possibility of it staying in the more toxic NO<sub>2</sub> form. I'm just wondering if you could say a little bit about the timing of the annual discharge. Would that ever be when we would be oxygen-deficient? How serious a problem is nitrite going to be? And I was also thinking perhaps a Diavik North Inlet might be give us some information or experience on the degradation of nitrite, because I'm not convinced that it's going to persist in the open water season.

**ED:** Okay, it's Eric here, and I might ask Mark [Wen] to speak to the nitrite in detail a little more. But I think one thing I'll remind everyone of is in our license, in our application for renewal we included in there as part of the ammonia discussion, was recognition of questions we had had previously about the relationship between lower levels of DO and ammonia toxicity, so I think it's

essentially the same thing, the cycling of nitrogen, unionized and total ammonia and so-on. And so in the application we have proposed that there would be a clause whereby we would write dissolved oxygen into the adaptive management plan with a trigger and a threshold so that we would have a pre-prepared action-level for dissolved oxygen. In that case it was written towards ammonia, but it could also be considered to be written towards nitrite as well. So that's in the application already, that aspect of it.

**MARK WEN (MW):** Mark Wen, Rescan. I can maybe speak a little bit to the nitrite question. So nitrite is a more toxic form, and oxidizing to nitrate is less toxic so and in the under-ice conditions for Two Rock, it's likely that the oxygen levels will be lower than the open water conditions. So, there could be a build-up of nitrite, or not a build-up but the nitrite wouldn't be oxidized as efficiently to nitrate. So there is a potential for nitrite to remain system in the LLCF and the discharge there are measurable concentrations of nitrite, so it's not like it all get oxidizes. The removal mechanisms for nitrite are there, but they're not nearly as efficient as something like ammonia. So nitrite can persist even in an oxygen environment.

**ED:** Okay thanks, it's Eric here again. And also Anne I realized I didn't answer one part of your question and it's also a little bit linked to Tim's question earlier so. As it is with the LLCF, our preferred strategy for managing Two Rock Pond would be open water discharges, to mimic the high freshet flows. There are times when at LLCF there has been requirements to extend the discharge into the fall season, but as a general rule the management plan would be to discharge in the open water season when oxygen is a bit replenished.

**NH:** Neil here, I had the same question and it was related to your prediction of nitrite in the discharge. Can you provide us with oxygen information in response to Anne's question which would demonstrate the validity of your prediction of nitrite in the Two Rock Pond outflow. Our concern, it seems to be more stable

than it may actually be, so we'd be asking for more information on the stability of nitrite and to support your concern about it being so high. Is that okay Anne?

**ED:** Okay, so just as a clarification. To understand the question, is what you're saying you think that the oxygen conditions in the pond may lead to reduction of nitrite that we haven't accounted for in the model. Is that the idea?

**NH:** Neil here with the Board. Yes that's a good way of putting it, yes.

**ED:** That was my non-scientific way of putting it. I think maybe we should just regroup and we'll talk about that among ourselves and get back to you on that to see what we think is possible and helpful in that regard. Is that alright?

**NH:** Sure. Neil here. I think what I'm trying to is just capture that this is an information requirement that might be forthcoming in the future, that we would ask you for this information. We don't want the answer right now.

**ED:** Ya no, that's good because we don't have the answer right now. [laughs from floor] But we'll talk about it and see what it is we think we can come up with to speak to that questions and maybe get back in the morning with an idea on what we can do.

**NH:** Neil here from the Board. The floor is open to anybody else's questions of the predictions of water quality, the quality o the discharge from the Two Rock Pond that BHP have made.

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. I hate to do this, but that last response was related to a question I had that it's very difficult to get a real handle on the predictions that are being made when we don't know what the assumptions within the model are. So it's sort of related to the discussion that we were just having, but it's a much bigger issue that it's all very well, you showed us the inputs and provided the predictions but it's hard to know without having a grasp of what's in the middle. Whether the input leads to the predictions.

**ED:** Okay, it's Eric here, I guess when you say the assumptions, I'm not really sure when you say the model assumptions what is it that you're looking for I mean, because as I say it's not to diminish it, but it's a relatively simple model to set-up and to visualize and the input parameters we went through, and we saw the output parameters. So, what specifically is it that's missing?

**LJ:** Laura Johnston, IEMA. For instance, in your presentation this morning you said, talking about aluminium that the Two Rock model does not take into account the filter dyke. Well, if I didn't know that then I wouldn't know whether I thought that was a good prediction or not, if you hadn't told me that. And there were other places for instance in discussing ammonia, the model does not consider the loss of ammonia to the atmosphere due to natural volatilization. So those are all useful things to know, that it makes it really difficult to assess the predictions if you don't know that. So those may be the only examples, but I guess what I'm saying is, I don't know how you get from the input, it's this sort of black box model without knowing what the assumptions are that are being used to massage the data, if I'm allowed to say that, it's hard to know whether they got a good massage or a bad massage.

**NH:** Neil here with the Board. Laura, would a written report showing how they derived their predictions that they've presented today, showing the assumptions and the input terms, would that address your question?

**LJ:** Yes, Laura IEMA. It certainly would and I know there's a question about what level of detail is required in that, but for instance with the LLCF modelling, the kind of information that was in those reports was extremely useful and having something similar available for the, maybe not on such a large grand-scale, but that same sort of idea of what does the model do to the information on the way to making the predictions.

**NH:** Neil here. Eric, Mark is that a reasonable request? Is there something you could do?

**MW:** Mark from rescan. So I think what Eric was getting at is probably what we see as the key assumptions, were listed earlier on, the type of precipitation runoff coefficients, and people need to know what those things are, because if you use a different value, you come-up with a different result. And there are probably other assumptions in the model that we've just taken for, you know, the Ekati site we just understand that this is an assumption we live with. So we could come-up with a list of assumptions or something for the model to document more appropriately all the assumptions we feel are relevant. And the idea of Two Rock being considered with no filter dyke, no removal processes included, we thought that would be a lot less black box actually than including a removal percentage of 40% and the next question would be 'where does the 40% come for ammonia?' It was a lot better just to do it conservatively, come-up with numbers, and then you can see what the numbers are, and then to say well now we consider 40% and you may not agree with 40% removal of ammonia, we can talk about that. Rather than putting it all in there and come spinning up with one number, you know it's easier for you to tease out. Thanks

**LJ:** Laura with IEMA. Thank you, I'm not questioning the assumptions that were made, I simply don't know what they are, and so it's having a grip on what the assumptions are made. And then we can have that discussion of, you know maybe you didn't need to be that conservative, or what were you thinking.

**NH:** Neil here with the Board. Again, I'll just reiterate I think what we're looking for is a documentation of how you derived those estimates that you made, and what assumptions when into them, and if you choose to be conservative that's your choice, but if you then later want to revise your estimates of conservatism, you should provide some substance around why you did that. It's fine to have a conservative model, but if it's unrealistically conservative, and gives you effluent limits that wouldn't possibly happen, I think we need some input on that. So I think we're looking for a documented report of some form. Again, I don't want to put words in Laura's mouth, but I know what I'd like to see.

**NATHEN RICHEA (NR):** Nathen Richea, INAC water resources. I guess from our perspective too, consistent with Laura, what Laura's bringing-up, we'd like to get a sense of how confident you are in these predictions and maybe a bit of how accurate you feel that these predictions would be, and if that could be incorporated into the report, that would be really useful too .Thank you.

**MW:** Mark Wen from Rescan. On the question of the accuracy of the model, you know one of the models we have running for Ekati is the Long Lake Containment Facility model and with that model we have years and years of data to calibrate the model to, and so our level of confidence is much higher, so be warned that for Two Rock we're using surrogate inputs for sump-water, we're using met-station data that seems to be valid for that area, and so there's a number of things that, and the main thing is that we don't have data on-site in Two Rock operating to calibrate against and to validate the model. You know that answer is going to be very hard to come-up with.

**NR:** Nathen Richea, INAC water resources. I understand.

**AW:** It's Anne Wilson. And just on the subject of the model, and the boxes, I mean arrows going into it, for the dewatering inputs, if we could have a sense of the expected water quality in the inputs and that, just thinking back to the drilling days for Sable, there was quite high phosphorus in the water column. There was also very very very fine [inaudible] that never settled out after the disturbance from drilling. We don't know if those were sediment-based or kimberlite-associated, so there are a few unknowns with water quality there that we should at least be looking at the historical data to use if we can.

**NH:** Neil here, from the Board. I'm not quite sure that I understand what you're asking Anne. Just so I can document it properly. You talked about drilling results from before, or dewatering.

**AW:** Anne Wilson. I'd like to see the model include contributions from dewatering because that's going to affect the initial quality of the water in Two

Rock settling Pond. And my reason for the concern was the high phosphorus and the very very fine [inaudible] seen earlier. So the input numbers should reflect those if they are of concern.

**MARC CASAS (MC):** Marc Casa, INAC water resources. I'm going to actually get off maybe the modelling train that we're on right now and ask another question about a lot of times we've spoken about being protective of the environment, but it seems a lot of the way you guys arrived at what the EQC values, or the values, you're explanation for not being able to.... The reasons you think you're not going to be able to always meet the EQCs, a lot of it was based on the water quality that you predict, and not necessarily what you predict of being protective of the water quality of the environment. Just when I go back to one of the tables that you have with some of your Sable baseline data, I guess that's probably not the same necessarily as the Horseshoe baseline, I'm assuming those numbers may be a little different, but there's several orders of magnitude difference between some of the baseline and what you guys are predicting. So I guess what I would personally like to see would be some kind of justification in terms of maybe past toxicology reports and stuff, sort of justifying how a change from baseline that high would not affect the environment. So that's something, I don't know that might take a while to pull together, but those are initially just looking at it, those are certainly some of my concerns.

**NH:** Neil here with the Board. A clarification Marc, so are you talking about some kind of analysis of what the discharge will do to Horseshoe lake, some kind of a prediction? When you say toxicology, are you asking for a prediction of the response of the receiving environment?

**MC:** I guess I'm looking at the baseline here and comparing it sort of what their best estimates are of effluent leaving the Two Rock Pond and I guess I'm sort of assuming that the Sable baseline is similar to the Horseshoe, which it might not be, but I guess what I'm saying is just to get a look at how close the Horseshoe numbers are, or the baseline in Horseshoe are to what the effluent is coming out



of Two Rock, so that we don't just base the EQCs on what we think we can meet but rather what we think Horseshoe can handle.

**KR:** Kathy Racher, Wek'èezhìi Land and Water Board. I understand your point Marc, and that's kind of why we wanted to know the information requests under those two categories and BHP has also stated that they're committed to EQCs that are going to protect the environment. They don't want to do something that's not going to be protective of the environment. So I guess the question is, what piece of information do you need to know that those EQCs are protective of the environment? What's going to satisfy you as a reviewer that those EQCs will be protective? And that's not a question just for you Marc, but for everybody, that's kind of where [joking that the whole process is up to Marc]. Just to frame the conversation.

**KEVIN O'REILLY (KOR):** Sorry, I want to go back to the modelling train for a minute. I'm looking at page 21 of the handouts, slide 42. And this is a graph that shows ammonia measurements from Beartooth over a period of years. And I don't maybe one is an average and one is maybe a grab sample table, if we were to do a regression analysis it looks like the level of ammonia is declining over time, although you had a huge spike in 2008, if my feeble eyes can read the bottom. So I'm wondering if you'd expect to see the same sort of trend in Sable through time and what is the explanation for this? Is it because initially there's a larger surface area at the top of the pit that is being blasted and as you get down smaller you're using less ANFO? Or is it a reflection of better ANFO-management or what's going on there and how might that be applied to what's going to take place at Sable. I guess based on all of that, are there any management practices for ANFO that can help you reduce the amount of ammonia that gets into Two Rock Sedimentation Pond in the first place? Particularly based on what the experience that Diavik had to go through, is there any lessons to be learned there for you folks? Because I don't know if you guys talk back and forth about this.

**ED:** Well okay, it's Eric here. I mean first off, so those two graphs on that slide are both reporting all the samples from the database. The top graph just shows the whole range of concentrations, the bottom graph simply focuses-in on 0-50mg/L, the finer, the lower portion of it, if you like. So they're both showing all the individual grab samples that have been collected from Beartooth. I guess at a glance I don't, I understand what you are saying about if there were a trend of decreasing over time, but at a glance I don't see that trend to be perfectly frank. We can look into that if it's of interest, we'll check-up on that and see if there is a statistical trend there. What we can see is that in 2007 or towards the right-side of the graph there's for some reason fewer clusters of samples, and the one very high, the highest concentration just this past year. Maybe there's a trend there, I mean I think that we could do, as I say, we could do some statistics on that and see if there is and think about that.

But just in terms of a more general sense, explosives management in the pits and underground I mean is a topic that we do work on. Just this past summer we've had some engineers from Golder Associates come to site and just, among other things, help with blasting practice underground and rock breakage and so on, just look at our explosives use. So that it is a topic that gets some ongoing attention because obviously ammonia spilled on the ground just ends up in our ponds and becomes an environmental issue. As I said earlier, I think that at Sable Pit what we're anticipating is that the practices we've been employing at Beartooth are what we're going to see at Sable. Now, will we always be looking for sort of improvements in going that direction, well sure we will.

The last point sort of related to the Diavik experience, and to my mind, from what I recall about the Diavik experience, fundamental difference there is that they have a fault-zone in the bottom of their pit that delivers water. We have nothing analogous to that. So as I recall, the origins of their issues was directly related to the water coming-in through Dewey fault zone. Our pits are tremendously drier than that. So, some of the potential solutions talked-about for the Diavik case,

about lining blast holes and things would have no real application in what we have seen in our pits at Ekati. They're very dry by comparison.

So, getting back to your point though about the trend, I'm not trying to say there isn't one, I'm just saying it didn't jump out the page at me and we can do that work and look at that. And if there is a trend over time with ammonia there, well that would lead to the next step of saying, well is that something we can identify why that's happening and can we repeat it at Sable Pit. I agree with that, but first I think we'd need to do some math and see if that trend's there.

**KR:** Kathy Racher, Wek'èezhìi Land and Water Board. Ya, the ammonia question was one I was going to ask too about the best management practices. I mean from all your other pits, what's coming out of those pits is going into Long Lake. SO you have the luxury, if you will of a whole other waiting for more volatilization of ammonia from the Long Lake. You haven't had to worry too much about the levels coming out of the pit in this case, you don't have that same luxury, you've got just Two Rock Pond, it's much smaller than Long Lake and so it is, I think it's worthy of a look at your management practices for ammonia. Because the two things that you're going to have the greatest trouble with are nitrite and ammonia. And both of those have to do with something you're adding to the environment as opposed to what's coming from the rock naturally. So that something you actually have some control over, it's one of the few that you do actually have source control over as opposed to treatment necessarily. And I think that we would be interested in seeing, you probably have SOPs for how you handle explosives, and the Board has hired experts to help Diavik out in that case to really at all the things Diavik could do. Point taken that it's a different situation, they had the wet hole problem that was quite different, but I think quite a few recommendations were made to Diavik that have been helpful in managing their ammonia. I don't think that it hurts to have another peak at those management practices.

**LAURA TYLER (LT):** Laura Tyler, BHP Billiton. There's quite a lot of talk about basically our explosives management and how this impacts on the environment. BHP Billiton as a mining company is very interested in its costs. Explosives is one of our highest costs, and obviously the amount of explosive that basically goes to waste because it doesn't get used as an explosive, but just gets washed away is of prime concern to us because not only do we have to pay for it, we also have to move it over winter road, etc etc... So this is an ongoing mining engineer's focus, no matter what mine they work in and where they work, as a way of improving our explosives-use because it's something that we look to minimize. So from day one BHP Billiton has always looked to reduce the amount of explosives that it uses, any opportunity that it can to take advantage of modern advances, we've moved to making sure that we use emulsion, because that has a much better, is a much better explosive, it uses-up more of the ANFO, the ammonium-nitrate that's within the explosive, it's much better than the prills, so we've moved towards a lot of those kind of things, made those, taken onboard the latest technology. It's something we continue to look at as Eric said, we've had engineer's up this summer, going through exactly the same process again, coming-in with an outside set of eyes and reviewing all of the way that we manage our explosives. We currently have less than 3% of our explosives that don't actually go off, which is a remarkably low number, it's lower than most of the mines that I've come-across, that I've worked-in because there has been this ongoing focus. So, we do, we accept that people like to see us checking that we're not having basically unexploded chemicals being able to be washed in the system, I can assure you that we have a real interest in making-sure that that doesn't happen not only from an environmental perspective, but also from a cost and a obviously if you're putting-in a certain amount of explosives and it doesn't go off correctly, like not enough of it goes off, then you actually don't get good-sized rocks either for putting through your system, so there's a lot of things that feed into it, an interest in making sure that we maximize the use of our explosives and minimize the sort of like material that doesn't get used, and the losses. So, while I take onboard the point, it should also be recognized that it's something

that is a continual focus for all mining companies and we just had that re-done, re-looked at that this summer. So we're just waiting on the results of all that work so that we can go back again and try and reduce further below 3% loss, which is quite low.

**NH:** Neil here from the Board. So all this comes down into the certainty of the predictions of your ammonia levels in the Two Rock Pond. I think that was a good answer, and in your documentation if you could provide the rationale for your certainty that would help people with this, Kevin is that, ya? Bruce I think you.

**KOR:** Sorry, Kevin here. I think I heard Eric say that they would look at doing some trend analysis for the ammonia levels in Beartooth through time and see how that might be applied to Sable. Thanks.

**BRUCE HANNAH (BH):** Bruce Hannah, Fisheries and Oceans. Just wondering if predictions were made for moly. and nitrate. And I know moly was more related to Misery Pit. Was that predicted beforehand or was that only identified through monitoring? Therefore, unless we monitor it would we actually know if there's an issue there?

**ED:** Eric here. I'm not sure I fully got the second half of your question. But yes, moly. is definitely linked with the Misery metasediments and kimberlites there. So, when we see molybdenum coming through the LLCF system, that's where it's coming from and since we've finished all the Misery ore a year ago roughly, last fall almost a year ago, then it's slow, because again the LLCF is such a large facility, there's a lot of lag time before changes find their way through. But I believe that we're starting already to see a little bit of a downturn in moly concentrations there. So the proof is in the monitoring results.

Now, whether, I'm not sure if I follow the second part of the question. For Sable we've done kinetic test-work on our waste rock there. That was done some years

ago, and did not identify moly as a potential contaminant. So we think it's specific to the Misery kimberlite.

**BH:** That's possible for sure. Just thinking if it was measured, that way we'd know for sure, then instead of dropping things off early maybe drop them off later after we have a few years of data.

**ED:** Okay, well I mean. Okay at one level molybdenum is going to be on the list of parameters that are analyzed in all of the various water quality analysis that would go on. I mean in the SNP, AEMP, and everything else that would be collecting water samples, moly's on the list of ICP32 so it's going to be reported and be able to be tracked, in that sense. Is that ?

**NR:** Nathen Richea, INAC water resources. Ya, I guess if we're monitoring it sort of as part of the scan, the only thing I'd have to add to that though is changing or adding an EQC mid-term with a license is a lot difficult and probably a more onerous process than having it dealt with during renewal, say for example. And I'm not just speaking about moly, I'm also thinking about nitrate. Anne mentioned earlier the potential for phosphorus from the sediments. A loading potentially for phosphorus and the addition of nitrate and the discussion of the possible inclusion of moly, if it is or isn't I guess is to be determined. Maybe something that if you have a rationale for why you don't think they should be included maybe that could be brought-forward as a further information.

**ED:** Well it think I'm going need to sort of turn that one around on you. I think the onus is to demonstrate why something *should* be on the EQC list. The reason we don't have EQC lists of 80 parameters is because we picked the EQCs that we think are a high-risk item that need to be, need to have that level of legal limits set on them. So, I mean I'm not trying to be difficult by any stretch, but I think that I would view that in the opposite sense. If there's a reason for moly to be added on the list of EQCs, then that's what should be brought forward.

**NR:** Nathen Richea, INAC water resources. If BHP is quite confident that moly is not going to be an issue at the site, then I don't understand why an EQC for moly would be an issue, if it's not going to be increasing. But that's a different discussion.

The only other thing I wanted to talk about was nitrate, as in the case that we nitrate increasing from the LLCF and we're also seeing other aspects of mining that may introduce phosphorus into the Sable watershed, and as phosphorus is a nutriment, can cause enrichment in the receiving environment. A loading for phosphorus may be warranted.

**ED:** And I'm honest, I'm not trying to be difficult on a case like moly, but I mean the argument that we don't expect to see any, I don't think that's a valid argument as to why you would have it on the list, otherwise we'd have 80 things on the list, 70 of which we never expect or have an issue with. I think it works the other way around, in all honesty.

So phosphorus, in terms of phosphorus it is on the list.

**KATHY RACHER (KR):** Can I just cut-in for a second?

**ED:** Yes

**KR:** Just to finish the moly discussion. The onus, we're putting an onus on BHP they requested changes to the EQC and we want information to back-up that request for change, and the same onus is on a reviewer who asked for a change to the license, that there has to be evidence that the change is warranted, and a rationale. If there's some piece of information that Bruce, they may have already got, like the kinetic test for example, what we're boiling this down to that is if you just want to request a reference to that material and then you could see for yourself and if you're not convinced, then maybe, if you still want to bring it up, you bring it up with a rationale would be acceptable. Okay.

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. It's a related question to that that it would be useful, and perhaps it already exists, a comparison of the kinetic testing for the various ores, because the issue seems to be if there is a high level of molybdenum in the Misery ore, what's the relative concentrations in the other ore, and that may help to resolve that question if it isn't in the ore then it's probably unlikely to be in the effluent. But without knowing the relative levels, and that information probably exists, but not in one place, but not that I know of.

**ED:** Anyhow, so I was just saying, I think you're right Laura that that information is out there, and it's not wrapped-up in this, it's not all wrapped-up in this sense to be in support of the absence of an EQC for the Sable site, it's not sort of written-up in that sense, but if that, again, if that's really an important thing that people want to see, then we can find that information and we can put it together in a little format of some sort.

**LJ:** It's Laura at IEMA. Can I nod on the record. [Laura nods head 😊]

**NH:** Okay Neil here from the Board. I just want to confirm what you're nodding to. I think Eric has agreed that there is information out there on kinetic testing of the ore from different sources at the Ekati mine and you're going to provide the information on the kinetic testing from that to support your position on what parameters should be included in the EQC. Did I get that right?

**ED:** No, I would say not quite honestly. What we would be doing is answering a question on molybdenum specifically.

**NH:** Neil here. Laura – is that still okay with you?

**LJ:** Yes

**KR:** And sorry I interrupted an emerging conversation on nitrite just to close-off the molybdenum thing. So, and Eric you probably what you were about to, what brilliant thing you were about to say on it. [Eric heard in background] Okay – then please carry-on



**ED:** I remember it probably it wasn't tremendously brilliant but... the phosphorus discussion about whether it should be a loading-based EQC or a concentration-based EQC I mean, again we have a concentration-based EQC now. Honestly I didn't go back and try to recreate why this one was expressed as concentration, Diavik was expressed as loading. In all honesty I didn't go back and recreate that bit of history. But again, as Kathy says, I mean if there is a reason why loading-based is preferable and helpful in terms of the water license of this case, then we haven't brought that forward, but if somebody else brings forward an argument, that's something we talk about. At this point, haven't done that homework and looked at that as something that we would, that we've put-forward for a change.

**KR:** Kathy Racher. Eric, you keep forgetting to say your name. The reason I know that is because I do it too, and you were Nathen you had also asked a question about nitrite, and I just didn't want to lose that thread.

**NR:** Nathen Richea, INAC water resources. Ya, I just, over the past three or four years, we've noticed nitrate increasing in the LLCF, even though it does have a vast storage capacity, you know for dealing with nutrients. And the potential exists for nitrates to accumulate in the Two Rock facility and potentially have problems for the receiving environment at the Sable site too. I was just wondering if BHP has made any consideration of adding nitrate to their EQCs for the Sable license.

**ED:** It's Eric here. No we didn't put it forward as an EQC. We're working with it in the LLCF as everyone is aware. Where the nitrate management comes to the forefront is in the adaptive management plan. Now, regardless of the fact that the plan is under review and so-on, that's where we have early warning threshold for many parameters of which nitrate is one that will kick-in some responses, some activity, the adaptive management progressive level of responses, presumably the whole process is designed for all that to kick-in and take-place before you

would get to an EQC level or an ecological impact. So that's where we see the appropriate, where nitrate is being managed.

**NR:** Nathen Richea, INAC water resources. I acknowledge the fact that you do have that in the watershed adaptive management plan. However, you know, EQCs are set-up for parameters that are of interest and could significantly affect the receiving body, especially if they are noted to be potential to increase in your containment facility. And it would be nice to see them as a regulated parameter rather than just something that would be monitored. As you know EQCs have more of a teeth behind them and management plans and such don't have the same level of power, for lack of a better term.

**ED:** Okay, I mean I don't have anything specific to say right here, or specifically more to add on that. Obviously we haven't brought nitrate forward with a proposed EQC value or anything like that.

**MARC CASAS (MC):** Thanks. Marc Casas, INAC. Do you maybe have some information as to why it might not be as much of an issue in Two Rock as it is in Long Lake. Is there any work like that being done?

**ED:** Thanks Marc. I guess I do have something more to say on nitrate after all. You're prompting me. Eric here. The sources of nitrate, we're continuing to study this and what's going on in the LLCF. The sources of nitrate going into the LLCF are the underground mine, process plant discharge water, and then the pit sump water also. A substantial, according to some of current understandings, nearly half of the nitrate going into the LLCF is actually coming-through the process plant. It's still originating as residual explosives, but on the kimberlite that goes into the plant and get very efficiently crushed and washed thoroughly and thoroughly and thoroughly through the plan, flushes residual nitrate off of the actual kimberlite going through the plant. So that's a substantial source of the nitrate going into the LLCF.

The underground mines and an underground mine is often a source of higher concentrations of ammonium, nitrogen compounds, I'm just going to assume nitrate is one of those as well because of the nature of the smaller work areas, and the concentrated areas for water and the smaller areas where you're working with the explosives in cells, so oftentimes underground mines produce higher concentrations of residual explosives. So at the Sable site, of course, all we have is one single pit sump, no process plant discharge, with the efficient washing of kimberlite, and no underground sumps of course. So there is some reasons to believe that nitrate, we wouldn't experience the same nitrate levels Two Rock Pond that we see in LLCF.

**MC:** Marc Casa, INAC. Ya, I think that's the kind of information that we're looking for to say, okay well that's why. I'm sure you guys are immersed in all this stuff all the time, we kind of look at, you know the adaptive management plans and stuff that say that these things are going up, and it's hard for us to say ' well that's because it's from the Misery Pit" and stuff. So if we can kind of see that information upfront then I guess we can look at it and take it at face value and sort of make a decision from there. So, and I think maybe I'm wrong, but I think it's selenium was another one that was noted in the adaptive management plan as something that was on the rise in the LLCF, and maybe if you have similar justification for that, if maybe you could include that.

[silence]

**ED:** Sorry it's Eric here. I thought I better speak into the microphone, because we were just starting to have a little conversation over here. But ya, there would be a story about selenium and we had I forget 1 or some number, 1 or 2 of the EMP samples that was just over the guideline. There would be a story about that and I think that, off the top of my head, it's probably related again to the process plant and as I say the very very efficient crushing and thorough washing of everything that goes into the plant. Anything that's on those particles of rocks comes out in the water. So we're kind of putting together a little list of parameters

are of interest but need a little bit, maybe a little bit more context in terms of potential parameters of concern for Sable. So, we could put a story together for selenium also.

**KR:** Kathy Racher, the Board. I mean I said earlier that the onus is on the reviewer to say, why they want something on a list. I think things that people have brought up are based-on experience at the rest of the site and the experience with effluent from the Long Lake. I mean they're not coming out of the blue, in other words. They're based on looking at real numbers. I'm actually just wondering if, and I understand that there's quite a bit of difference between the effluent that you would expect at Sable and the effluent you would expect from the LLCF. And so some of these things may be quite easily answered. I'm wondering, just because I wasn't there, and I haven't read all the transcripts. During the EA was there just like a discussion of what the contaminants of potential concern would be at the Sable Pit? Like was there just a list developed at that stage that aid 'these are the things we expect to be a problem and these are the things.. [laughter from the room] Uh-oh, I'm getting a lot of shrugging shoulders. Ya, just because if that had been done, that would sort of eliminate this conversation largely, but, any idea?

**LAURA TYLER (LT):** Laura Tyler, BHP Billiton. I don't think any of us were probably sitting at a relevant table at the point in time, maybe Anne. So we would all have to go back, I think and have look back through the records of the time. I couldn't answer. I don't think we could answer that. And I have gone back, I have read the paperwork that we put together for the environmental assessment and I can't recall all list parameters that we went through and highlighted as being of interest. The only thing I would say is that the EQCs that are in the existing Sable Pigeon Beartooth water license, I would assume that those are the ones that raised the most interest at that time. So, things such as molybdenum, selenium, are things that have cropped-up or have come-up later on, specific to particular kimberlite ores. The molybdenum has been traced-back to the Misery ore. And as we've gone in and out of processing it, we've seen that fluctuation. So, we've

actually got some backup to that but we don't have any evidence from at this point, from Sable that says we expect to see anything drastically different in Sable than we have seen in Koala or Panda or Beartooth.

**TIM BYERS (TB):** Tim Byers with the monitoring agency. Continuing on the line of the question as to whether certain water quality variables should be raised into EQCs. It seems to me they're, one could possibly say there are two purposes to a water license. We've just heard of the one purpose, regulators would like to have some kind of compliance assurances, I guess for some things that concern them. But I think another group of interested parties to all this, the Aboriginal folks, also like to see, and there are people from various Aboriginal communities here can speak better to that than I can, but certainly Aboriginal folks also like to see certain variables of concern to them be in a water license so it can assure them that there will be some regulatory watchdogs looking at certain things. And I point to an example of that, during the Diavik water licensing process, one of the metals that Diavik thought back then shouldn't be part of the EQCs was arsenic, cause they said well diamond mining we know, they say do not produce arsenic, and I think some of the stakeholders said 'ya, the regulators agreed, the regulator experts agreed, but they said for assurance to the Aboriginal communities who are very concerned, of course, about arsenic maybe we should have it in the water license to assure them the things that the experts are saying. "No there's no problem. " Well prove it. So they did, they put it in the water license. And that could give some assurance to the Aboriginal folks.

So, I guess what I'm hearing from some of the back-and-fourth-ing is questions concerning certain variables, like molybdenum. Do we want to provide a certain degree of certainty within a water license, or within the WAMP, watershed adaptive management plan. And I guess that's an open question I suppose. When it comes to molybdenum, I certainly have concerns about how the company drew-up the, I guess you can't call it an EQC, but in any rate, the 16mg/L some technical problems there. But I'm not sure if I can raise it during this process because the WAMP it seems to me is a different process. So that's

something that's befuddling me, and how to bring these type of things up. So it's just an open question I'm having as to what part of this process, if any, is the variables that the WAMP deals with and not the water license. How we can approach dealing with those technical matters.

**NH:** Neil here from the Board. Tim, my understanding is that there is a trigger for molybdenum in the watershed adaptive management plan that you disagree with. And you're wondering where the correct place is to bring this up. And if it was on the license, it would allow you to do that.

**KR:** Kathy Racher, Land and Water Board. I mean a trigger is different than an EQC, obviously. And the discussion on the trigger of molybdenum is part, because it's in the adaptive management plan, it's a management plan and we expect to be dealing with the appropriateness of that trigger within the adaptive management plan review, which will continue again shortly. If you feel the need to bring it up at the hearing and say that you have a problem with that level in the adaptive management plan, you just want to point that out for the record, I don't know that, I mean adaptive management plans are sort of a line in the license, so what's in that plan doesn't necessarily get discussed at the public hearing, but you can certainly bring it up and it would be on the record as this is a concern that you have, and that could be alleviated by an EQC, and if that's what you want to bring forward and recommend, you certainly can do that at any time. With a rationale of why it's more important to be an EQC point of compliance than a trigger-level with an explanation for the Board as to what would be most appropriate for you and why.

**NH:** Neil here from the Board. Eric, again, I don't want to put words in your mouth, I just want you to clarify if I heard you right. You said 5 minutes ago or so that there was some need for the context, for developing a context for what potential parameters of concern have been considered for Sable.

**ED:** No, I don't think that's what I was getting at. I think I kind of forget exactly what my quote was, but the idea would have been, that I think what we have

been talking about a few parameters here and what I could see that the sort of common commonality here, we talked about molybdenum and nitrate and selenium was that we needed to have some information just circulating out there that would provide perhaps, maybe I used the word context, some context as to how these do or do not fit in to the world of the Sable and Two Rock Pond system. A little context as to why they've come-up in regards to the LLCF and you know what their sources and origins are, and whether those are relevant or the same, or to be expected if you like over at the Sable Pit. I think that would have been the idea, I'm sorry I have forgotten the exact words I used. So a little discussion on those parameters if you like.

**NH:** Neil with the Board. Thanks Eric. I guess my question is, you said get 'some information circulating *out there*'. My question is bringing it closer than out there, are you willing to provide some kind of a rationale for this.

**ED:** Sorry, that's how we refer to something beyond the 11<sup>th</sup> floor of the Precambrian building. [laughter]

**NH:** Neil here. We'd like to bring it in here.

**ED:** Yes. But that's right, circulate it through to everybody, as part of this information we're putting together.

**NH:** Thank You.

**ED:** I did want to follow-up a little bit on Tim what you were saying on EQCs and things. Ya, I agree that there could be all kinds of reasons for why something becomes an EQC, and ultimately we know it goes through the Board. People make their representations to the Board and that can take whatever form a party wants and the Board will decide whether to put it on the list or not. But, to me, I do see that very much we have a package of plans and measures and programs that all work together to protect the environment. And the EQCs, something should be on these list of EQCs when it is really of a really elevated level of importance. It needs a hard legal number written down. The kind of number

where you will result in disruptions or shut-downs, it's that kind of thing. And so, if it's not a parameter that doesn't falls into that category, but is of interest to people to track, there are any other number of ways. The SNP program, which is a part of the license, it can and does routinely include other parameters, specify other parameters that need to be monitored and it can specify that they need to be reported-on even, notwithstanding they might not be on the list of EQCs proper. So, there are a number of things that work together to provide protection to the aquatic environment, to provide these kind of assurances that everybody, including from the company to the regulators, to the communities, need to see.

**NH:** Neil here. Thanks Eric. Those are all good points. I just want to confirm that we are going to document the rationale for at least nitrate, molybdenum, and selenium, and then we're going to take a break for 15 minutes until 3:15. Nathen –

**NR:** Nathen Richea, INAC water resources. I guess I'm a little confused, I've just been going through the presentation and I thought I saw it, but I guess maybe I didn't. I guess I'm confused on which EQCs are to be discussed and which ones aren't to be discussed right now. I guess, in the submission to the Board it was, let's use the EQCs from the main water license, but I'm not sure if that's the case no longer, or whether we're just going to talk about the ones that you're uncertain whether you can have compliance with or whether some of these ones are still off the table, or, I guess I'm kind of confused on which ones we're talking about. It just hit me now. So,

**KR:** Hi, Kathy Racher here. Well it's 3:00, it's good things are hitting you still that's excellent. I think what I said before that there has to be a rationale to change what exists, I mean if, I often like to put it that we're essentially re-visiting the decision of another Board and another process, that most of us weren't even at, and we have to take that seriously that we weren't there, we don't know what went into every decision, unfortunately not every bit of the decision has been documented clearly, so it's hard to tell at times why decisions were made. But



there was a process and we have to assume it was a fair process, so if there's something to change, then we need a rationale to do it. So I think from the Board staff perspective even at this stage, for every one of those EQCs, there has to be reason to change it or not, or take it off the table or not. There has to be a good reason. And so far what I've heard from BHP this morning is that you've identified six that you have, they have a reason why it needs to be re-examined, because it's going to affect whether they go ahead with that project or not and the Board takes that seriously and would want to enable BHP to make a case why those ones should be taken and re-looked at. If something's going to be taken off the table there needs to be a similar argument for each and every one of them. Now, BHP has offered in their presentation what they call the simple solution of just adopting the EQC of the main license, but I think in our opinion that those EQC, while they may be protecting the environment downstream of the LLCF, I don't think you can just take those EQCs and move them to a different watershed and say 'look they'll work exactly the same'. I mean because we've just dismissed the argument that what works at Diavik is going to work in a different watershed, why would we now accept it to say 'it works in this watershed, it's gonna work in another one.' So anyway, that's my take on it. So as far as I'm concerned their all, all the ones that are currently in the license are the ones on the table, what I've heard is BHP wants to specifically has a very good rationale for re-examining at least 6 of those, and if there's other ones they still want removed then we would still want to hear some rationale.

**LAURA TYLER (LT):** Laura Tyler, BHP. Just to answer, to go directly to your question on the process. When we put-in the initial application, yes we asked to basically let the EQCs be the same for the ones of the main license. This is the simplest way to go at it. When we actually, all the comments came-in from all of the everyone who all the interested parties, and we read through those, we kind of looked at it and basically it comes down to the point that that's not what people want to see. So, from that basis we've got a list of EQCs in the existing Sable Pigeon Beartooth, that's what people were saying, no those are the ones we want to stay with, so then we said well we need to make sure that

we look at the ones that or any of them we think should be changed. You know if we've got to live with the same list, what do we actually want to see in that list for the values. And so then we went back to, that's why you kind of see like one approach, and then we've come here with a slightly different approach because basically we listen to what everybody said. So, and modified our behaviour based on that listening.

**NR:** Nathen Richea, INAC water resources. Thank you. That clarifies a lot. I still thought that some of them were off the table and I was thinking 'wait a minute they're still identified as an issue' I got confused there for a second, so I think I'm clarified now. Thanks.

**NH:** Neil here. Good time for a break. 3:15? 3:20.

**BREAK**

***End of Tape 3***

**November 4 3:20 – End**

***Start of Tape 4***

**NEIL HUTCHINSON (NH):** Neil here with the Board, just a reminder to everybody that the reason all that food was brought-in was because we're going to go-through to 8 o'clock tonight, just to give everybody a bit of sustenance. Okay, just before we get started we have Angie here from Lutsel k'e, I'd like her to introduce herself to everyone and explain what you hope to get out of the discussion.

**ANGIE LANTZ (AL):** [microphone garbles] We just went through an AGM last week, I forgot about... I'm so tired of pressing this thing [the microphone button] [laughs]. My name is Angie Lantz, I'm the wildlife, land, and environment technician. I'm responsible for permitting, land-use applications, anything that has to do with land uses. I'm here, I was sent here to kind of get a grasp of what Ekati is proposing to do, and I know that there's a lot of scientific discussion, but

coming from First Nations we do have some serious concerns, and one of them that was raised is the arsenic, and the other one is, I was just talking to my friend Laura about going beyond the permafrost.... What about aquifers with the global warming, all those things. I'm just hoping, I'm here to find-out what is actually happening in Ekati, even though I'm not a scientific, a technical person, so bear with me. Glad to be here.

**NH:** Neil here with the Board, Thank you Angie. Some of those questions Angie on permafrost and aquifers and global warming I think are very good questions – are you going to be here tomorrow. [Angie replies yes] Okay, can you keep those up your sleeve for tomorrow? Because we're talking about EQCs today, and I think we're making good progress, so we have tomorrow open for lots of other topics.

It just occurred to me before break that one of the other benefits I think that we're going to see from today and tomorrow, is that five years from now people are going to be able to read this license and know why those EQCs are what they are, and we won't be hearing these uncertainties about "how'd they ever come-up with this?" So, I think we're on the right track for doing that.

Just one point of clarification, the word 'phosphorus' was said a couple times before break, and I'm not sure what we decided to do about it, somebody had raised phosphorus, and someone had raised loadings versus concentrations. Does anyone have concerns about phosphorus? Laura -

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. From our perspective we weren't asking for any changes to be made with it. And really, if somebody else had wanted to change it, from what Eric said, then we would be interested to see their rationale for why the measurement of phosphorus should be changed.

**KATHY RACHER (KR):** Kathy Racher, here from the Board. Just on the break Nathen came to me and told me why, that he wasn't the only one who was confused. I guess there's the original EQC that was in the license, there was the

proposals that BHP made as part of their renewal application, and then you kind of, as you said Laura, you listened to reviewer comments and you've kind of changed your approach to what you're recommending for EQCs at this stage. And so, I think people were looking at the application and it says on there to take phosphorus off, that was your original proposal, and I think Nathen brought it up and then wondered why I jumped down his throat for bringing-up something so... I think that's where the initial confusion was that, if anyone wants to make a comment on phosphorus, it would appear that what's on the table really is what was originally in the license unless they've said differently today, which they haven't said anything about phosphorus.

**NH:** Neil here back with the Board. Just to drive back to our first theme for more information was on the predictions for the Two Rock Pond water quality. Have we exhausted that topic? Have we got enough for BHP to do yet? I think we've had a very good discussion on it. Do you want to take just another 5 seconds and think if anybody else has any other questions that came out of that? [From floor, a request to go-over what information has been requested] Sure.

Neil here with the Board. So, what we've documented and Ryan has also been keeping notes and he'll let me know if I've forgotten anything. But the information requirements...

- We need to find the rationale for or against the under-ice discharge, especially for Sable. I'm not sure who's court that was in though, but we need further information on why that's occurring. I don't even know if it falls under this theme.

Kathy, you're looking puzzled.

**KR:** I think in the end we decided we'd probably talk a bit more about it tomorrow, but it's not necessarily an information request on the predictions for the Two Rock Pond EQC. So maybe take it off this list.

**NH:** Neil here.

- The next information request was information on how filter dykes work in removing particulate matter. A bit of better validation for aluminium on the basis of the filter dykes at the Long Lake Containment Facility. And then data from Beartooth Pit or other data demonstrating the dissolved and particulate forms in source-water to substantiate why at BHP don't think that this will work for copper, nickel, or zinc.
- The next was some information on the stability of nitrite in Two Rock Pond and its relationship to oxygen levels. Will it be as high as BHP predicted it will be? And some more substance around that.
- Some documentation, a report on the Two Rock Pond water quality model. Some of the assumptions that went into it, the input data, how it works, and some information on the variance of the estimates.
- Asked to include the effect of dewatering Sable Lake to start with on Two Rock Pond water quality, especially with concerns with phosphorus in there.
- There was some question on ammonia in the Beartooth Pit data, and BHP are going to look to see if there are any trends for declining ammonia levels as the pit proceeds. And if so, they're going to evaluate them for input into the ammonia model.
- BHP were going to provide a bit more elaboration of best management practices and standard operating procedures for ammonia, to provide a bit more certainty of their ammonia predictions, to substantiate their conclusion that they're doing a good job right now and they're confident in the predictions that they've made. And using some of the Diavik ammonia management review.
- There's a requested document, some kinetic test results from the different ore sources to support the rationale for no EQC for molybdenum, to demonstrate that it's not in the Sable pipe.

**LT:** I thought it was more, rather than a reason why we shouldn't have an EQC I didn't think that we were supposed to actually provide validation why we're

not having an EQC, but rather to define why molybdenum was seen in Long Lake, like the rationale for where we thought it came from in Long Lake.

**NH:** Neil here. I think the concern though was we're talking about Sable discharge here and we need to know why it's not included in the model here. And the explanation's the same either way.

**LT:** I'm just cautious about us having to provide support for no EQC, because at the moment there isn't an EQC for molybdenum so based on the conversation or the kind of position that Kathy had said before was that BHP shouldn't be in the position to explain why we don't want an EQC if there isn't one there already. That the people who are requiring it should be putting forward an argument to suggest why there is, why there should be an EQC. [Neil interrupts] I want to get the question, I want to get the piece of information, but the bottom part, I would say take that one out and just go for the next one down.

**NH:** I agree, Neil here. I think your concern is covered in there, but again I believe it was up to, we were asking to BHP to document the history in there because that would be the supporting information. It shortens the process. Instead of somebody saying 'here's why I think you should include it' and you come back and say 'here's why we didn't' you can cut right to the chase this way, and say 'here's the reason'

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. My intent in asking for that originally was a comparative or a comparison of the values for the different ores. Period. Not as a rationale for EQCs or not EQCs, but simply to know the relative amounts in the different ores to allow the agency to make their own decision on what that might mean. [silence]. Sorry, and others. [i.e. other stakeholders and agencies] to make their own, to draw their own conclusions about what that meant in terms of water quality.

**NH:** Good thank you Laura and Laura. That's why we're going through these things. That's good, so we've got that clarified. So that's where we're at. Did we miss any Ryan?

**RYAN FEQUET (RF):** No.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I was jotting down some notes earlier today and I was thinking more along the lines of I think I brought this up as one of my first comments. I think it would be interesting or would be really useful actually to know a bit more about the water balance of the Horseshoe watershed as a whole. Basically what the flushing rate would be for maybe Horseshoe at least. You know, what the inflows are, like if you can dedicate certain inflows or outflows with the baseline information would be, on hydrological conditions, that kind of stuff. It would basically give us a bit of a capacity or buffering ability of that watershed to receive EQCs. You know the parameters at a certain concentration and give us some confidence on whether an EQC would be appropriate or not.

**NH:** Nathen, Neil here. That's a perfect segue, having finished with the Two Rock Pond, the next thing we want to discuss today is the predicted effects on Horseshoe Lake. So I think you've just hit on one of the key things that's needed for that, right?

**NR:** Nathen Richea, INAC Water Resources. I keep bringing-up all these weird things that are flying around in my head. It's hard for me to kind of look at EQCs in general if there's a potential or there's a requirement I guess in the license right now for a chloride effluent quality criteria. Part of the submission for the chloride effluent quality criteria included the intent of having a mixing zone. It's hard to differentiate the establishment of EQCs or talking about appropriate EQCs that are protective of the environment without trying to determine whether there will or won't be a mixing zone, so I don't know how to address that kind of concern and I don't know if we do this now or how to do this.

**NH:** Neil here with the Board. I know that the mixing zones were raised in some of the responses or the questions out to BHP, we could discuss it tomorrow, but I agree that it's part of determining the impact to Horseshoe Lake. Right now BHP have proposed that the EQCs will apply and the end of pipe, what comes over so it seems to me that part of the impact assessment is what it's going to do to Horseshoe Lake, would have to include those areas of Horseshoe Lake which are above guidelines, which would be the mixing zone. Is that... so the analysis of Horseshoe Lake response would have to include the mixing zone and the ambient lake response. Is that... catch it? BHP, comments?

**ERIC DENHOLM (ED):** Well it's Eric here. We weren't sure if this would be a topic for today or what context it would come up either. But I think we agree this is what we've put forward with the chloride, if the following the model for developing an EQC on a site-specific basis from a water quality objective back to an EQC incorporates a mixing zone and that's the model we followed with the chloride proposal. So I think that through this workshop we're hoping to get some direction and some common themes on where we're going with EQCs here, but that's kind of the model that's out there, that's what's been used in the past and so a consideration of a mixing zone is certainly on our list. If we're going down a certain direction of developing EQCs.

**NH:** Neil here with the Board. So Eric said they will be considering a mixing zone, and that's acceptable. That's okay?

**NR:** Nathen Richea, INAC Water Resources. I guess at this time, because we haven't kind of had the decision on whether the Board's going to approve the chloride criteria with the mixing zone or not, I can't comment on whether it's acceptable or not.

**NH:** Neil here with the Board. I think that this is independent of whether there is a chloride criterion or not. I think the point was made that there is a mixing zone has been established as part of the chloride model and that model could be used to help predict impacts of other parameters on Horseshoe Lake. I believe that's



what you guys wanted to look at, BHP wanted to look at a mixing zone as part of their impact prediction. It's late, everybody looks puzzled.

**ED:** It's Eric here. I think we don't say it that way, but yes. I think we don't think of it in terms of doing an impact prediction of the parameter in Horseshoe Lake. I don't know if this will make any sense, we almost look at it from the other way back. We're starting Horseshoe Lake and working back to the end of the pipe, but it's the same information either way.

**KATHY RACHER (KR):** Kathy Racher, with the Board. I don't have an answer to the mixing zone question at all, but I guess the information I would like to see in the terms of understanding the impacts of some of the new EQCs that we are considering higher-level EQCs, you know, knowing what the impacts are going to be from the end of Two Rock right through Horseshoe Lake. And I know that in the chloride paper, you've done some modelling of the relative dilution factors at various points along the way and, considering a mixing zone, I'm not sure how that really works into the discussion, but I would still want to know what you would predict the concentration of the effluent for increased EQCs that you're kind of recommending would be as you go through Horseshoe Lake and possibly beyond. I just saw [Marc's/Mark's] eyes go up. I just, the argument has to be that the EQC are protective of the environment, so I personally need some information as to what does that mean to BHP, like and at what point, what kind of water quality objectives are you looking at for or would you think are protective for Horseshoe Lake and beyond, and how would you model the flow of effluent etc... and then other parties may have an idea of what their water quality objectives would be for points along Horseshoe Lake and Kevin you looked like you had a comment about mixing zones.

**KEVIN O'REILLY (KOR):** Well, I think I've heard Eric say very clearly that BHP would like to have the EQCs apply to the point of discharge from Two Rock Sedimentation Pond and I think that we could live with that too.

But the other point I guess I wanted to make is I don't really have a good understanding of what's in the streams that come-out of Two Rock Sedimentation Pond and what, you know how much goes down the one versus the other and what sort of habitat and what's in those streams whether you find fish in there or whether it's likely to be fish habitat in some way. I see Eric is sort of nodding or shaking his head no, or whatever but I think that having a better understanding of that might help us understand what the environmental effects downstream from the point of discharge are likely to be before you even get into Horseshoe Lake. So I think that we would like to know a little bit more about what's in those streams and what kind of effects may take place in the streams themselves. But, as for a point of compliance, discharge from Two Rock Lake or Two Rock Sedimentation Pond sounds fine to us, I think.

**KR:** Kathy Racher, with the Board. I think the point of compliance pretty much has to be the outlet of Two Rock since the last point of control for BHP, so there's no other point of control. So I think that would be the point of compliance and my understanding of how a mixing zone was used in the chloride example was just to say that even though right at the point of compliance the level of chloride would be pretty high, you know not acutely toxic, but pretty high, they were just modelling that a hundred metres out from the outlet it's, it doesn't look so bad I suppose. My understanding of mixing zones is that's how they're kind of used. You have a point where you're trying to meet a certain water quality objective. That's not the same as the point of compliance, that's just a way to back-calculate to an EQC that's going to be acceptable at a point of compliance.

Another point that I wanted to make was I also agree with Kevin that mixing zone or not, those two little streams, it appears that the stream between Two Rock and Horseshoe isn't very interesting, but I think you mentioned that there was some fish spawning habitat in the sort-of connector stream, that's what I'm sure that you heard. [ From the floor "rearing" ] Rearing, sorry. So I would want to know how the EQCs that you're looking at would affect the rearing of fish.

**ED:** It's Eric here. I just wanted to maybe repeat-back a little bit of what you guys have been saying, a few of you have been saying because I think we've got it, but so let me just throw this out there and see if it makes sense to you folks. We have through the chloride work that we've done and the proposal that's in the report that's put out there, we have a mixing model for Horseshoe Lake. It talks about the dilution factors, and the turnover times, and the circulation times in Horseshoe Lake in the various areas and down to the outflow from Horseshoe Lake. And so that's there and that [inaudible] goes to the outlet as far downstream as the outlet of Horseshoe Lake, and at that point for chloride or for, I would be pretty sure to day, any of the other parameters of concern we'll be talking about, you'll be back at your chronic protective water quality objective within Horseshoe Lake or at the outlet of Horseshoe Lake at the furthest downstream. So that's where the modelling works, and so we didn't see any need to go any further downstream than that with that exercise. So we have that kind of constructed for chloride and so, if I take your suggestion, for some of these other parameters that we're now sort of talking about, we can use that to demonstrate and look-at what, if we discharge, for another parameter besides chloride, if it was copper or whatever it is, if the EQC for copper at the point of compliance at Two Rock Pond was this, this is what it would look like going down into Horseshoe Lake. That's sort of what I've heard. Is that... that what I've heard and I think we can do that. That was a large "we" can do that, and so if that's what would be helpful and you've been asking for, ya we can do that.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I guess, no I agree with Eric that a model should be used to look at what the effects of a certain EQC limit would be based on the parameters that we're having troubles meeting in a downstream environment, but I wouldn't want BHP to use a model that would not be something that's recommended to be used. For example, maybe the model itself or the chloride criterion, this whole paper, and the synopsis of all the information is before the Board for review and approval and part of that would be critiquing the way that the dispersion model looks at the information, kind of like the modelling discussion we had earlier today, there's

always things, you know there's certain assumptions that are made and there's certain ways that data's interpreted and that kind of thing and I wouldn't want BHP to use a model that in the end, ends up changing and affecting EQCs at this stage. I agree that it needs to be done, but I'm not sure if the model that's being used right now is appropriate. Because it's still for review I don't want BHP to go through a whole big process and do this for a number of parameters and us come-back later and say well that's not good enough that's not what we wanted. So I guess that's where I'm kind of stuck, I don't know how to address that.

**KR:** Kathy Racher, from the Board. There, I mean there was a review process of that first proposed chloride criterion which contained all the discussion on the model used for, the dilution model that you came up with. And I know there's a lot of comments on the record about that and BHP responded to them, I can't remember exactly, if there's any outstanding thoughts about the model, I mean we had our own consultants including Neil comment on that as well. So I think we should probably look at those comments and see if there's specific comments on the model that were dastardly-enough to dash the whole thing, or whether there's something that you could address. Any comments Eric?

**ED:** Ya, I don't know if there was, I can't remember any dastardly comments, but maybe there might have been some, I don't know [laughs]. What I'd like to suggest, that a good point Nathen, and I'm glad you raised that. I think I'd like to just maybe talk about it among ourselves maybe this evening and see, about that very point, and maybe in the morning we might have some ideas as what we see we could or couldn't do or how something like that might work. Perhaps we'll pull-out those comments again Kathy, and remind ourselves of what they said. That's what I'd like to do and maybe in the morning we can just come-back and tell you what it is we think.

**KOR:** Kevin here. I'm just trying to understand, Eric sorry, is BHP talking about developing, or applying the sort of model or thinking that was used for the

proposed chloride discharge criterion for just the five things that you can't meet: ammonia, copper, nickel, nitrite, and zinc? Is that what you're talking about?

**ED:** It's Eric here. [Eric stumbles over words] Pardon me – nothing came-out there. [laughter] I started to say something and then nothing came out [more laughter], but I mean I think we came into the workshop today with a mind to just, as I was saying earlier, just to explain where we're coming from and to hear us and get some feedback and perhaps try to see if we can get some resolution and common thoughts on where should we go with the EQCs. What we've put out there, we've told you about is the though process that brought us to identifying those specific EQCs as ones where we specifically see some issues with achieving them and have some uncertainties about whether they're necessary and realistic and so-on. So, I don't think it was so much our plan to come in here and suggest you know those five or six parameters, ya we want to work on those, I think if we're just trying to be open to this as a workshop where we're getting some direction and some agreement, this is what everybody's comfortable with, and if that's the direction that we want to go and we know that, and that's going to be helpful then we'll set-up a work programme and do that. But I didn't want to give you just a simple yes, because it's not that we didn't come here for that purpose, to chase that, we came here for the purpose of just seeing what was going to work to move this issues, we see some issues, to get some resolution and to move this forward. So that's why I didn't just want to give you a yes on that, but I mean I think that I'm picking-up that that is in essence what the group is talking about.

**KOR:** Maybe I should just mention, I'm not sure that the agency's prepared to accept the concept of a mixing zone for these five or any other parameters at this point. I'll just put that out there. Thanks.

**ED:** Well and that's. It's Eric here. That's the kind of thing that we need to know because I don't think I want to do a whole pile of work and submit it to the Board and have 'no we're not even considering this concept' So that's exactly the

kind of thing we need to know and if we want to talk about that then I don't want to derail the topic, but the concept of a mixing zone to us is already inherent in the EQCs we've got. It's inherent in the EQCS we've got in the main license. It's explicitly a very specifically incorporated into what was done for the Diavik site. It is already there and through a new piece of work like the chloride, it's very explicitly documented and described and laid-out, but the concept whether there should or should not be a mixing zone to us, is the answer is yes there should be, there already in-effect is. The EQCs were derived on the basis of a mixing zone for the Diavik site. That's where they come from.

**NH:** Neil here with the Board. Maybe a hope to clarify this, I think a mixing zone is simply an area between the point of discharge and the point where the environment is again at ambient water quality conditions, or background or below CCME. So the very fact that you have a discharge that exceeds background or CCME, means that there will have to be a mixing zone, unless you're going to treat effluent to background water quality. It's inherent in any license, in any discharge, that there will be a certain volume of water that's going to be impaired above background. So the question is, that can't be a substitute for treatment, but it should be acknowledged that that is part of the process.

**ANNE WILSON (AW):** Anne Wilson. Neil basically said what I was thinking. Just the idea that I want to know how far down that alteration is seen, not necessarily relying on a mixing zone to set the numbers upstream.

**ED:** It's Eric here again. I agree with Neil and Anne, that's very much our thinking. Bruce Hannah, you had circulate a document just a few days ago, I think, one of which I didn't read it, but I scanned through it and saw what's in it and it looked like it had some helpful things in there including a variety of definitions of mixing zones from different jurisdictions across Canada. Which basically are saying these same things that we're saying here today, I think.

**KR:** I am going to let you ask a question, but I do actually have a question for you first, and it's not a defence of mixing zones or not. It's more a generic

question of how, if we want to ask BHP like ‘how do you know that the EQC that you are setting are protective of the environment, what pieces of information do you need to know to tell you whether the EQC is going to be protective or not? How are you going to define, how would IEMA define that?

**LAURA JOHNSTON (LJ):** We’re not sure. It may be tag-team here. Laura Johnston, IEMA. I think what it comes down to is an issue of what happens within that zone of getting from the discharge to where it’s back to the ambient. I’ll be interested in reading that report from DFO to see what the various definitions are because that may be part of what is at issue here, that it’s the use that that intermediate zone is put to, just to add a nice new confusing term. But if the purpose of the mixing zone is that that whole area is sacrificed, and then when you reach the line, you’re back to where you should be, or whether it means that somewhere between the discharge and the end of that zone you’re back to where you should be. I think that’s part of the discussion, and it may be a difference in terminology, or a difference in intent as to what exactly the purpose of that transition zone is. And maybe that’s something we need to give some thought to tonight unless Tim’s going to correct me.

**KATHY RACHER (KR):** Kathy Racher, from the Board. That’s a really helpful clarification and it’s true that we may all have different versions of what we mean by mixing zone. It will be important for BHP to define that if they’re going to sue the concept of a mixing zone or just to define what the various effects or water quality will be as you move through that zone, and at what point you end up at ambient water quality for example. Just to give us all an idea of the extent of this intermediary zone, and what the potential effects are in there. So that’s a very good clarification. And Tim you have a follow-up?

**TIM BYERS (TB):** Ya we’re tag-teaming here for the agency. The other aspect of this mixing zone is I guess thinking like a fish. And I’ve looked at three different, this is the fourth now, map provided in the various reports from BHP. When I basically trace a 100m zone from where the inlet is, on two of the maps

that 100m mixing zone extends to the opposite shore, and in the other two it's about half way. So there's a question of scale there, and why I bring that up is at least three of the western provinces at least, there regulatory compliance issues with mixing zones is they say, a mixing zone should not extended to the opposite shore of a river or a lake. So in other words if in fact this 100m mixing zone does extend to the opposite shore in Horseshoe, I'm concerned whether it may in fact bisect that southern basin into two. [Eric interrupts] If there is a fish passage, that is important.

**ED:** It's Eric here. I just need to interrupt you there because no that's not the case. I'm sorry we didn't speak to that when we had that map up. The coordinates were a little bit small. No, on the one map you're looking at the grid, well I'm not sure which one, there's a couple of them, but can we go back. Can we put the slide back-up?

[Silence]

**ED:** It's Eric here. So on this map, because we cropped it to put it on the slide. If you look at the scale bar here, 0-300m. [laughter] This is undoubtedly a 500m grid pattern on this map. So a hundred metres, this is the inflow from two rock stream here. If you look 100m is about from 0 to there, so it's about a circle of like that. So I'm sorry we didn't talk about this when we went through the presentation, I mean it wasn't really the topic at hand. But, I'm sorry in the handouts and things, of course you can't really read the scales properly, they're not, they're too small .It's just a handout of presentations. So the 100m is just a zone like that over here. Okay? So that's why I felt the need just to step-in because, and we have much better maps than that, of course. This is one that we cropped the sides off so it would fit nicely on a slide, cause it wasn't really for this purpose of demonstrating the 100m area. But that's the case. So it doesn't go to the far shore. 100m doesn't extend to the far shore of Horseshoe.

[Silence]



**BRUCE HANNAH (BH):** Bruce Hannah, DFO. Just a quick clarification for chloride, that 313mg/L. Would that be at the top of the arch you just drew on the hundred metre zone or is that the end of pipe in Two Rock?

**ED:** No in the case of chloride that would be the water quality objective at the edge of that mixing zone, the edge of that arch. That's for the chloride prediction proposal.

**BH:** Thanks for that. And just one other clarification. Just that narrow part where the two basins are connected. In the winter, would that freeze to the bottom and therefore you would have more of a concentration in the water there?

**ED:** Honestly, I don't think I know that off the top of our heads here. If you'd like to follow-up on that then we will bore into that a little bit more. But off the top of my head I don't know if that freezes to the bottom there.

**KEVIN O'REILLY (KOR):** I guess the... sorry Kevin O'Reilly... Kathy you were talking about mixing zones and I know that Neil gave a definition of it there. I think it is important for us to understand what is the significance of the resources found between the point of discharge and Horseshoe Lake. Is there anything of significance in the streams? In terms of their habitat potential, critters that are in there. I don't know any of this stuff, so that's why I'd asked earlier about what's in there, so that we have a better understanding of the significance of that because mixing zone is not just about, and I don't think anybody would expect BHP to discharge water from Two Rock Sedimentation Pond that same as baseline. But what is the significance of the effects downstream of that? Whether it's into Horseshoe Lake, but also in the streams themselves. So that's why I'd asked about characterizing what's in those streams better.

**NH:** Neil here with the Board. Just one point Kevin, this is up here, we do have an effects analysis to consider the outflow streams, the habitat and flow characteristics. Is there anything else we need to add to that before Eric responds?

**KOR:** Well, some understanding of the significance of what's ever found in those streams and how they might be affected by acute and chronic toxicity of the effluent, would be important to have some understanding of.

**ED:** Okay it's Eric here. What I was just going to point-out again or just revisit a little bit. I means we do have the habitat mapping of this area, so that we do, we did talk about that earlier that there's no, the creek from Two Rock down to Horseshoe Pond dries up in the summer. It's an ill-defined channel, no clear channel banks, it's got a barrier, including a little short waterfall in it, so we feel that's pretty clear that's not a fish habitat channel. It was this tributary from... that comes in here from Southwest Lake was the one that had been identified as having some rearing habitat in it. So the tributary that comes in here, we've done the work and we believe it's clear to us that's not a fisheries channel.

The other thing I wanted to, I'd like to throw-out there for discussion here. I mean this is a workshop, so it's good we're trading-around these ideas. I was listening to what you were saying Kevin, but certainly a couple of words about impact and significance, used together. I felt kind of compelled to ask about that, we're not in an impact assessment here. We're in a water license renewal. We're not assessing it... I just wanted to ask where you were going with that or what that means when you are saying that, because we're clearly not doing an assessment of this project. That happened in 2000. So, and I was just picking up on those words, I just want to make-sure I know what you're getting at there.

**KOR:** Thanks, Kevin here. If you want to have EQCs that are protective of the downstream environment, I think you need to understand the significance of the effect that they're going to have downstream on the streams themselves and the life that's found in the there. Simple as that.

**ED:** Okay and thanks. I don't really, I don't have an objection to that, I just want to remind everybody, we are talking about effluent quality criteria, and certainly what of course are going to be how they need to be protective of the environment, but if sort of that word about effects and significance sort of harks

back to a process that's already been completed. That was all. Just to double-check on that.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. Just had a question, because there's two streams between Two Rock and Horseshoe, well one stream that branches off into the Southeast Lake part that comes in. Will there be two mixing zones then? Like 100m into the Two Rock Lake and where the actual stream between Two Rock and Horseshoe and then another mixing zone where potentially water that's discharged from Two Rock could make it's way over to that other stream? Would there be another 100m mixing zone there? And was that factored-in to your chloride model?

**ED:** Okay it's Eric here. Ya, I mean this map is just designed to beg that question. So that's good. And it's the best we could do to, as accurately as we could represent what we see out there. SO, in the chloride proposal, just to give you one reference point, the chloride proposal assumes the 100m is actually over here, in this little area. So what I'd like to suggest is that through this list of information we're going to embark on developing some information to give-back to this group and we'll just clarify that, we'll clarify it there and make-sure it's very clear where we're proposing to talk about.

**JASON BRENNAN (JB):** Jason Brennan, INAC. I just want to get some clarification here in regards to chloride and you're referring to a mixing zone, but my questions will there in-fact be an end-of-pipe EQC guideline chloride developed? Because from an enforcement perspective, I'm concerned with the end of pipe obviously.

**ED:** So, understood and yes. In the chloride proposal the discussion around the mixing zone and water quality did include and come-up with a resulting EQC that would be applied at the end of the pipe and that would be the EQC in the license that would be enforced. So there was number for that in the chloride proposal, as there would be for whatever other parameters we might be talking about.

**KATHY RACHER (KR):** Kathy Racher, with the Board. I had one last question. So we've talked a lot about concentrations of contaminants in terms of EQCs it's always by concentration, which is good. I guess I just wondered basically wondered about the assimilative capacity of Horseshoe Lake in general and for information on the total outings based on your predicted, you know the dewatering. I don't know how good your predictions are for the water that you're likely going to be pumping out of the pit during mining. So multiplying those values of the amount of water by the EQC that you're talking about and getting an idea of the loadings to Horseshoe Lake and whether that's so... year 1 it's going to be fine but year 7, how's that going to be for Horseshoe Lake?

**ED:** So it's Eric here. I should let Mark [Wen] speak to this. The Horseshoe model speaks to that, it includes the turnover and the circulation of contaminants through the lake and talks to whether they might build-up or they're flushed-out . So the water model of Horseshoe lake does that.

**MARK WEN (MW):** Ya, the model for Horseshoe Lake, although what it really focused on is, we chose timescales representative, I think we chose 48hr timescale, and a 21 day time scale to be representative of acute and chronic sort of timescales for tests. And do, these simulations, we ran them sort of a multitude of times and we looked at a frequency distribution of 21 day high-concentrations, medium concentrations. So what do we expect to see in any 21-day period over the, I can't remember the full length of the model run . But any 21-day period, what do we expect to see, in any 48hr period what do we expect to see in the model for the results for Horseshoe? And so that was sort of the timeframe we picked-out for the predictions. So we ran it for a long time, but we only chose 21-day windows to look at, because that was relevant for acute and chronic toxicity.

**NATHEN RICHA (NR):** Nathen Richea, INAC Water Resources. Was that model, was that presented with the chloride review?

**MW:** Yes that's in the original, the first chloride report for the Horseshoe watershed.

**NH:** Neil here with the Board. Just a point of clarification. Were the 48hr and 21 day predictions, were the ones that were presented? Okay so you said you ran the model longer. I think, I know somebody said this earlier today, the real question is does the lake re-set itself to ambient water quality each year at the end of year, or is there going to be a build-up of chloride and other ions in the lake from one year to the next. Such as we see at Snap Lake, such is predicted for Lac de Gras at Diavik, that the total dissolved solids in the lake creep-up over time. Has that been modelled for Horseshoe Lake?

**MW:** Now I'm thinking back a little bit to see what we presented. A lot of these things can be presented, a lot of these things we can get to them with the work we've done with the long-term predictions. I'm not sure that what we presented was the long-term loadings to Horseshoe and, I know we didn't look beyond Horseshoe, but even within Horseshoe. So I'd have to go back to the actual report and see what we presented.

[silence]

**KR:** Kathy Racher, from the Board. One thing we mentioned about modelling the receiving environment and protection of the receiving environment. And you talked about how, I think Eric you mentioned at some point, like for chloride for example, you realize that 100m away from the discharge point into Horseshoe Lake, you're at a safe level, a protective level for the environment, so there's really no need to model that all the way down to Exeter Lake, and I think I would agree with you. I guess when you're presenting your information, it's important to be clear on what the water-quality objectives mean to you. Is it background, is it CCME, is it something in-between, and just put-in your assumptions about what a water-quality objective is. To explain why you didn't go to Exeter Lake, you just went to Horseshoe Lake because you feel you've met every single criteria that's possible in Horseshoe Lake, that would be a reasonable thing. Just to make that really clear.

**MW:** Mark from Rescan. We could make that clearer in some of the reports. I think it's kind of implicit that if you don't meet it at Horseshoe, you're not meeting it anywhere else. Well, that you don't need to look any further. And if you meet in Horseshoe, you know what you're trying to accomplish, then we're not looking downstream. That was the rationale for only looking at Horseshoe.

**NH:** Neil here with the Board. Does anybody else have anything else that they need to get information on, to answer their question of question of whether or not Horseshoe Lake will be protected by a certain EQC. Anne –

**ANNE WILSON (AW):** This is - Anne Wilson – sort of a collateral question. I had asked Mark earlier about getting the baseline data assembled into a single report that we can look at, and that hasn't actually been captured on our, right up there. And if I can go the next step here, it looks like we're going to get lots of good information that's going to be very helpful, and I'm concerned about timelines and having enough time to actually assimilate it once we get it. Is that something we can talk about the dates that we're looking at using all this by?

**Unidentified voice, KR?** Okay so there was two things in there. I don't know if you want to comment on the first, Anne talking about the baseline data. Did you need clarification on that?

**ED:** It's Eric here. I think, sorry we were just conversing a little bit on, that's usually a sign we should just take a few minutes just to speak about that. The baseline data is all available in various reports and things. I guess what we're talking about is to put it all together in a single report or whether it would serve the purpose and be a lot more expedient to put together a package of reports that we might already have completed or virtually completed. That might be what we need to think about, how much work's involved in various options to just provide the baseline data to everybody. Maybe you might help if when you're saying a "single report" what does that report look like to you? What are you thinking of?

**AW:** Anne Wilson. I'm fine with having just an assemblage of all the data, it doesn't have to be integrated into one document.

**ED:** Ya, sorry, maybe we were reacting to the word "report" then. [laughter] But just to put it all together, ya that's okay. That works.

**NH:** Neil here with the Board. My question is, no report, but even a statistical compilation or do you just want to see the numbers? Just the data is what Anne here is... anybody else?

**NR:** Nathen Richea, INAC Water Resources. It depends on what the assemblage is. If it's reference to different reports, then that may not be that helpful. But if it was a compilation of spreadsheets, that would be useful. Just so that we can look at the data itself and run our own statistical analysis on it instead of typing all the numbers-in.

**ED:** Ya, we're sort of continuing to have a little conversation on that. It's getting towards the end of the day. I don't think this is an issue. I think it's getting towards the end of the day so can we make sure what we understand what we have and what we can do and just tell you in the morning? I don't want to make a big, I don't think this is a big issue, but we want to make-sure that we don't create some expectations. So.

**KR:** Kathy Racher, with the Board. Well, five minutes from now would be the best [chuckle]. No, you may start to look at this list and you may find different ways to say, well this is just a reference we can give people. The answer to this question we may have to actually write something anew, something short or brief or whatever, like the answer to a question. And for something else you may decide that's something you've got ongoing, you're not going to know about that for a year. I don't know, you can categorize it as you will. If you can't get that done tonight, I don't think that's the end of the world. Just tell us when you can answer the question of when we can get this information. Cause that leads into the second part of Anne's comment, which was timing and I think what we're

hearing up here is that, I think we heard that everyone was open to re-examine the EQC and there was just a lot of information, pieces of information that were missing, that would help reviewers to really help reviewers to feel that any proposals from BHP were okay and were meeting the mandates of all the different organizations here. There's a question of, people need that information in order to make decisions, so if we can get some idea of how long that would take you guys to get that information together, and then we'll have to figure-out how long people need to review that to see where this process is heading. And if people want to think about that overnight, that's fine and we can have a little discussion on that tomorrow. If you don't have all the answers tomorrow, Eric, for timing, don't worry about it. Just tell us when you think you will. And if everyone else has an idea of timing for themselves in terms of getting the information and how long it will take them to review it and to start to think about that, because that may affect the timelines for the process going forward and when the hearing will be etc...

Our main concern at the Board is that at the public hearing, we have enough information, everyone has had enough information and can make their interventions and presentations that are pretty definitive so that the Board has enough information to set the EQC and the license or as many of those parameters as possible. There's no point in having a hearing where everybody shows up and says 'well gee I need more information, I can't say anything about this until I get more information' Cause you know it's a waste of everyone's time and effort. So I'd rather know that everyone's comfortable going ahead with the hearing on the scheduled dates, and if not, to hear what alternatives you might be thinking of.

With that, let's go have a beer and relax. If there's any last questions, anyone? Nobody has the energy. Tomorrow morning too, there's a chance for another roundtable, so if people want to stew on what happened today and come-back and talk for a few minutes each in the morning I think that would be really helpful



and then we'll get on to other issues. I think we had a really good discussion today and Neil do you have any final comments for us?

**NH:** Thank you. This is very civilized and useful and thoughtful. I think we've made some good progress. Thanks. Nathen -

**NR:** Nathen Richea, INAC Water Resources. I just wanted to thank BHP for you know for being so constructive today and taking some weird comments from me. [laughter] Thank You.

## **ADJOURNMENT**

***End of Tape 4***

## November 5 Start – 10:30

### *Start of Tape 5*

**NEIL HUTCHINSON (NH):** Good morning everyone. Want to get started?

Good Morning everyone. It's Neil Hutchinson from the Wek'èezhii Board. Welcome back. I heard this morning that this is a record snowfall for Yellowknife this early in the year. And I wasn't watching the news about the great election down south last night.

So, welcome back. I was thinking what we were going to do to get started was just recap what we did yesterday and ask for people's impressions of that. We're going to go over the recommendations that we wrote down again. And we're going to also add a couple that I went through my notes from yesterday morning before we started talking about EQCs. And people had some questions of clarification for BHP at that time. And we don't need to go over those, the people said that they were satisfied. But one or two of them lead to an information request, which we'll repeat and bring-up at that time.

So maybe again, we'll just start around the table with Environment Canada, if everybody could just introduce themselves and give us their impression about yesterday, anything that we missed that we might have to come back to today.

**ANNE WILSON (AW):** Anne Wilson, Environment Canada. I don't know of anything we missed, but I guess I'll hear that when you go through your list there.

**CLAUDIA HAAS (CH):** Claudia Haas, Environment and Natural Resources, GNWT. I don't know about anything we missed either.

**ERIKA NYSSONEN (EN):** Erika Nyssonen Environment and Natural Resources, GNWT. I unfortunately was not here for the discussions, but I'm sure there was progress made.

**ANGIE LANTZ (AL):** Good morning. Angie Lantz. I was late as you know, I might have missed some. But I'm sure during the review of the day, will offer some more information.

**EDDIE ERASMUS (EE):** Eddie Erasmus. I missed part of it yesterday afternoon, but I'm willing to listen-in today and to the recommendations and catch-up.

**MARK WEN (MW):** Mark Wen, Rescan Environmental Services, consultant to BHP. I thought great progress was made yesterday, looking forward to the day.

**ERIC DENHOLM (ED):** Eric Denholm, BHP. Ya, just echo that. Just to say I think it was a good day yesterday and just a thanks again for everybody for coming and sort of engaging in a conversation about the EQCs.

**CHARITY CLARKIN (CC):** Charity Clarkin, BHP Billiton. I agree yesterday went really well and I'm looking forward to making further progress today.

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. Ya it was a great day yesterday. I have to acknowledge everybody for bringing their points to the table in a clear and concise way most of the time. And it was really really good to see the information requests being put out there because that really helps to make our job easier. So, thank you very much, and I'm looking forward to today.

**MARC CASAS (MC):** Marc Casas, INAC Water Resources. Again, like everybody I think it went pretty well yesterday, and ya, I look forward to the same today.

**LIONEL MARCINKOSKI (LM):** Lionel Marcinkoski, INAC. Ya, that was a positive day, good progress.

**LAURA JOHNSTON (LJ):** Laura Johnston, Independent Environmental Monitoring Agency. I thought it was a really useful day. There was one question I had at the end of the day I'm not sure when the best time to raise it might be.

There was a lot of discussion about the EQCs and very useful. But at the end of the day I was left wondering if BHP could update their proposal, proposed EQCs, cause we have the table from the earlier application. We have all the information that was provided yesterday, and it's not entirely clear to me where we're at. And just talking with people there seems to be a lot of different opinions as to where we're at. So a consolidated list would be really helpful. Thank You.

**NH:** Neil Hutchinson, Wek'èezhii Board. Are you talking about consolidating the recommendations they've made prior to this meeting?

**LJ:** No, there's a table in the application that says 'here are the current levels and here are the ones we're proposing' and then we had a discussion and we had additional information provided, so I'm not sure what's become of that list.

**NH:** Okay, Neil, Wek'èezhii Board. Eric, BHP – is the intent that you're going to re-examine the EQCs you proposed, or provide information for the ones you've proposed? Or?

**ED:** It's Eric speaking. Yes, it's exactly what we would like to do. Working from the information list that we developed yesterday and perhaps it will be added to today with, I'm not sure, through the discussions today. What we'd like to do is then take a look at that information list and come-back with a proposal as to how we can get that information back to everybody in the group. So that would include information that's' on the list to support the numbers and arguments we had yesterday as well as any of the additional work that we're going to be taking on.

**NH:** Neil from the Board. So, the intent is that the EQCs that you've proposed, to answer Laura's question... you haven't changed those. You're just going to provide more information?

**ED:** No, what I think what we'd be doing is essentially, like Laura says, and updated proposal through this work.

That was Eric speaking.

**LJ:** [microphone off]...thirty of the original application with the table that says, change the two tables as shown? [Agreement from floor] and it would be an update of that. [Agreement from floor] Good. Thank You.

**KEVIN O'REILLY (KOR):** Kevin O'Reilly, Monitoring Agency. Ditto.

**TIM BYERS (TB):** Tim Byers, Independent Environmental Monitoring Agency. I look forward to another productive day of discussions.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I think yesterday was very helpful and fruitful discussions were had. I look forward to today being the same. That's all I have, thanks.

**BRUCE HANNAH (BH):** Bruce Hannah, DFO. I think it was very useful yesterday and I also look forward to continuing today.

**JASON BRENNAN (JB):** Jason Brennan, INAC Operations. I feel a lot of progress was made yesterday, and I learned quite a bit.

**JOHN DONIHEE (JD):** Neil tells me I should introduce myself. I'm John Donihee, I'm counsel to the Board. It's good to hear you all got along so well yesterday.

**RYAN FEQUET (RF):** Ryan Fequet with the Wek'èezhii Land and Water Board. I just wanted to let you guys know how helpful that discussion was yesterday to the Board staff, because that really helps us do our job a lot better, hearing you guys talk like that and coming to consensus on a lot of things.

**NH:** Neil with the Board. Any comments from this side of the room? From the back? Very well, what I'd like to do then is just review, go-over the recommendations from yesterday that we made again and perhaps at the end add a few more that we uncovered from our notes last night.

So, information requirements going through, and again I believe this one is as much for the room as it is for BHP. But we have to come to terms with this under-ice discharge, what was really meant in that license, and if it needs to be kept-in or resolved, and that's on the discussion for later today.

BHP was going was going to provide us some information on the filter dykes and how they remove particulate metals with some validated, some data and some data showing the predominance of dissolved and particulate forms of other metals besides aluminium in the water to help validate their predictions of metals in the effluent from Two Rock Pond.

BHP was going to provide a discussion of nitrite stability in Two Rock Pond and it's relationship to oxygen levels and confirm or test their predictions of how high nitrite is going to be in the discharge.

They were going to provide, BHP, documentation of the water quality model of Two Rock Pond, provide some information on the assumptions of the model, how it works, and some degree of certainty or variance in the estimates of what the effluent quality will look like coming out of there.

BHP were also going to look for, examine the Beartooth Pit ammonia data from the pit to see if there is a downward trend in ammonia concentrations over time. And if there was a trend, would evaluate the reasons why and what that might mean for their predictions of ammonia toxicity, or ammonia concentrations.

So again, referring to the Two Rock Pond model, they were going to provide, BHP, some elaboration of best management plans and standard operating practices to maintain low ammonia levels. We heard some discussion of that yesterday from BHP. They are going to document it.

BHP were going to provide some kinetic test results, comparison of the metal composition of the different ores that they've used from the different pits, to shed some light particularly on the molybdenum and what might be expected from molybdenum levels in the effluent from Sable Pit. They're also going to provide

some history of nitrate and selenium in the Long Lake Containment Facility. Again, to inform whether or not these should be included, EQCs should be developed for these at Sable Pit.

Finally, the effect on Horseshoe Lake, downstream, the first receiver.

We needed to compare the EQCs that are proposed to the baseline water quality in Horseshoe Lake. BHP were going to present a water budget for Horseshoe Lake to support their impact predictions, their predictions of impact, and develop some impact predictions for the lake.

They were going to provide an analysis of the size, the predicted water quality, and any impacts to aquatic life that would occur within a mixing zone within Horseshoe Lake. That is in that zone of water that is elevated beyond baseline, or beyond CCME guideline levels, by the effluent discharge. And they're also going to develop predictions of the whole lake response over time as part of an impact assessment for what is the discharge going to do for Horseshoe Lake. We understand that much of this has been done, or the framework is there for the chloride model they've developed for the lake.

BHP are going to provide an effects-analysis to consider the impact of the Two Rock Pond discharge on the outflow streams. They're going to comment, provide documentation of the fish habitat characteristics in both the Southwest tributary and the main outflow channel. Some documentation of which way the flow from the pond, from the discharge will go, and the significance of the aquatic resources, and what might be their response to the discharge period.

Finally, I think that's the same point. They're going to clarify where the effluent goes in the streams and where the mixing zone, whether it's off the main tributary or the Southwest tributary into Horseshoe Lake.

We just confirmed yesterday that there will be an EQC developed for chloride. That's part of an ongoing process which some recent documentation was just filed. They are going to provide, as part of the Horseshoe Lake impact, a model

of the long-term response to any of the ions or total dissolved solids, or any contaminants that increase year over year with continuous discharge.

Finally, they are going to provide a compilation of baseline water quality data for Horseshoe Lake and we're going to discuss the best format. But I believe that the people around the table didn't want to see a report, they just wanted access to the data. I believe that's what we decided there.

So have I misinterpreted any of those? We're still on track? Okay.

Now I went through the notes from yesterday morning, before we got talking about EQCs. BHP had described the project and what they're going to do going forward. And we had lots of points of clarification around the table, which people seem to agree the verbal confirmation was sufficient.

But one case we agreed that BHP should document the reserve capacity available in Two Rock Pond, in the event they could not discharge in a given year, because the pond exceeded EQC values. So BHP are going to provide some analysis of contingencies and the pond volumes available and the implications of discharge not happening in a given year.

And the only other thing that came out of the morning is that INAC had requested updated water quality results, and I believe we've captured it right there.

So if anybody else has looked at their notes and we've missed anything from yesterday morning, please speak up. I'm just going to write one down on the paper.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I don't think we missed anything from yesterday, but I did have one more item where I was looking for information, and it might be in their application, maybe if you can point me to it. I was just wondering what the expected discharge rates might be from Two Rock Lake? I think the periods are going to be during the summer when



you're going to be discharging, and I was just wondering if you have an idea of what the discharge rates would be.

**ED:** Hi it's Eric here. For some of these questions, we might just have to take a [second], I mean I would like to [answer], but it just might take us a second to find where it is and ... so bear with us, because it is in here, in the draft, marked-up water license, in the application. This is where we say, p.29, I forget what part it is, but it's 11-C of whatever part of the license that was. Item 11-C. So this is where we put-in the clause "water discharge from Two Rock Sedimentation Pond at rates not to exceed  $2.55\text{m}^3/\text{s}$  May-July inclusive and  $0.2\text{m}^3/\text{s}$  during the remaining months. That's where we put that ceiling on the flow discharge volumes.

**NH:** Neil here with the Board. And that is documented in the draft license. Right Eric?

**ED:** Yup, that's right.

**NH:** Is that satisfactory Nathen?

**NR:** Nathen Richea, INAC Water Resources. I was just curious as to how that number was derived. Is it part of your model for the Two Rock Lake or? Where was it..

**ED:** It's Eric here. It was taken from the main license to be complementary to the main license.

**KR:** Kathy Racher. Ya, I also wondered where those numbers came from. There in a couple places in this license, and I know they're in the main license. And I just wanted to ask in general where those numbers came from. They're so specific and it occurred to me that when you're discharging you'd kind of want it to be based on where you're discharging to and the conditions around that area. I note that in the license it calls for dewatering plans, etc that would specify, I would assume, discharge rates that are specific to the actual event that's going

on. So I just wondered why those rates were in there and if they were specific or where they're supposed to be also.

**ED:** No Eric speaking. Just to reiterate it was just one spot where we thought this was a specific item that making it complementary to the main license would just make, ease just managing the whole site just as one site, that that was the approach.

**NH:** Neil with the Board. So, that number was taken for the discharge volumes to the Long Lake Containment Facility, you said it's complementary. Is it the same number?

**ED:** It's the same number

**NH:** It's the same number. Neil here. They're not the same receivers. That might not be a good idea. So I want to come-back to Nathen's question, perhaps we need some rationale for that figure or some discussion of that.

**ANNE WILSON (AW):** It's Anne Wilson. I don't have a recollection of the exact details but these numbers were arrived-at in the course of the 1995 EIS, as a part of the impact assessment. And I believe it was for all water bodies, whether it was dewatering of lakes, anything that was going to be going into one of the small holder streams. But there's got to be further on that in the record from the EIS.

**NR:** Nathen Richea, INAC Water Resources. So Anne, that number was derived to be the same number for each receiving body, or was it derived specifically for the LLCF to the Leslie Lake drainage.

**AW:** It's Anne Wilson. It was for any de-watered body, whether it was a discharge at *that time* they were looking at having a spill way, that went into I think it was nema nero, because they were going to mine Leslie. So it was for all receiving waters and it was based on the combination of the hydrographs, the average hydrographs and prevention of erosion.

**NR:** Thank you. Nathen Richea, INAC Water Resources. Okay thanks. I guess we'll just have to dig-up that information and look at that. SO, thank you.

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. My recollection is the same as Anne's. There was considerable discussion at the time of the environmental assessment to arrive at those numbers. Whether they're appropriate 13 years later, I'm not sure. But hopefully there is information in the record on how those numbers were derived, because it was quite a contentious issue on the day.

And while I have floor, if I can ask, if I'm not interrupting Nathen's... I wasn't sure that you captured the question that I raised this morning for an update of the table on page 30.

**NH:** Neil here with the Board. Sorry Laurie, let's do that right now.

[silence]

**LJ:** Laura. Thank you. Yes

[silence, and discussions off the microphone]

**KATHY RACHER (KR):** It's Kathy Racher, from the Board. I just wanted to get back to the rates thing and I will look through the EIS to find where that information was. I actually did try to look through the transcripts of the previous Sable Pigeon Beartooth hearing and did searches and found nothing, no mention of these things. It helps to know where it actually came from.

I guess from Two Rock there's going to be dewatering that the one dewatering event and then I guess there will be draw downs of discharge basically during operation. And I note that in part E of the license, on page 17, part E, item 2, conditions applying to dewatering. It says "prior to the commencement of dewatering or draw down of any lakes" which I assume includes both the dewatering event of Sable Pit and the normal discharge from Two Rock, there has to be a "dewatering plan". I'm just wondering if that plan is sufficient to capture, you know it will say in there what rates you're planning using and the

rationale for that, and I'm just wondering if that's sufficient and do we need part 8 here that says that the dewatering rates should not exceed these values. For redundancy's sake I'm just wondering if you have to have a plan and the other part of the license tells you what you're supposed to do, why do you have plan, I guess.

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. I think that we were looking to get some consistency between the main license and the Sable Pigeon Beartooth license. And those numbers have been brought through and they cover all of the points where we discharge, and they are a maximum. It's not saying that that is what they are pumping out. They are just a maximum value that we cannot exceed, and it's around protection, and protecting and making sure that we're not having erosion. But if you actually read some of the other elements it actually says that we have to check for erosion and those kinds of things as well. It doesn't just say that you can pump at that and that's it, you have no other responsibility because that's in the license. There are other sort of catches within the license that says that you have to have a plan, and it's a plan that isn't just internal, it's something that because it's within the water license does get communicated and those figures we've brought them across to make sure that we actually had a consistency across the site as a maximum rate. It's not saying that we would be pumping at that rate, but that we cannot exceed that rate. But there's also things in there which speak to checking for erosion and making sure that what we're doing isn't having a downstream impact because of the rate that we're pumping from. And what may be a good rate for Long Lake may not be suitable from King Pond, may not be suitable from Two Rock and we have to take that into account, that this just is a maximum figure. If you want to put changes in there to that, then we'd be interested in hearing on what people think should be an alternative value.

**NH:** Neil here with the Board. So you don't see any reason with that clause 8 with the upper limit shouldn't be kept in the license.

**ED:** No it's Eric here. No, I think that we wouldn't object to that, removing clause 8.

**NH:** Neil here with the Board. And that would be because you could capture that upper limit in your specific dewatering draw down plans, for any event. You could still impose that limit in those documents. Could you not?

**ED:** It's Eric here again. Sorry, to be so concise, but ya that's the case, and in the rationale it essentially says that in the rationale statement, in the application. Although the rationale is directed just at the dewatering aspect, but it does refer to the plan that is required under point 2, just as you did Kathy. So that would be fine from our point of view.

**LJ:** Laura Johnston, IEMA. I guess from the agency's perspective we'd prefer to see it left-in as Laura Tyler said, it is a maximum and there certainly was a lot of concern in the early days, I think there is some merit in leaving that as a limit and then describing the actual process in the plans themselves. I shouldn't dig-up the dim dark past, but it certainly was a bone of contention at the time of original assessment and licensing. I guess I haven't heard any information in the interim that suggests that that isn't still a concern. So understanding that it's a maximum and the actual rates would be described in the plan, I think leaving it in there makes some sense.

**ED:** If I could Neil, just expand on that for a minute. What I wanted to clarify is just what Laura is saying, what we actually proposed in our draft license here, Just so we're clear because, what we actually proposed in our application here was to, was that this clause 8 would apply to draw down rather than to dewatering. And the distinction there is that, in agreement with what you were saying Kathy, is for dewatering activity which is a one-time pumping-out of Sable Lake, for instance, for that activity there certainly be a specific dewatering plan required under clause 2 that would have these rates specified in it, appropriate for that dewatering program. And there may be reasons, very valid and environmentally protective reasons why for any given specific dewatering activity,

one-time dewatering activity, the different rates, different maximum rates might apply for some reason.

So in our actual application what we've proposed is that clause 8 would simply refer to draw down activities, for instance to get-back to the idea of the annual release of water from Two Rock Pond and that that would mimic that natural hydrograph with a higher amount allowed in spring and lesser during the rest of the year. So, I think, as I say, I don't think we would have an objection to just removing clause 8, but that was just to clarify what it was we were getting at that's actually presented in our proposal.

**RYAN FEQUET (RF):** Ryan from the Board. Just a note, the reason, like was mentioning that it might be in there, is because it's actually if you put at least a maximum rate in the license it's something that's enforceable. And if you come up in your management plan, the dewatering management plan with a lower rate for that specific activity, then that's obviously your prerogative to do that, and people would probably appreciate that, but at least there's a maximum enforceable limit set in the license.

**ED:** It's Eric here again. So yes, in our application we've just agreed with that but that should be, in our view, that should be applied to draw down activities and dewatering activities should be left to a specific determination of flow-rates that would be in the dewatering plan.

**NH:** Neil here from the Board. But that would still be subject to the same maximum cap for dewatering. Is that what you're proposing?

**ED:** Eric here. No. For dewatering the maximum cap, the ceiling if you'd like would be specified in each specific dewatering plan. And in the rationale that's provided in the draft license in the application, the reason that we viewed it this way is that in the past BHP has found that a specific dewatering activity from a specific lake can be beneficial in the winter, and when I say beneficial I'm thinking of environmental reasons. To do that lake dewatering in the winter

season, so that there may be valid, environmentally-valid reasons why a cap of 0.52m<sup>3</sup>/s might be restrictive on any given dewatering programme, the one-time lake dewatering programme. So this is why, in our view, clause 8 would be better re-worded to refer to draw down. A one-time lake dewatering programme is just that, it's a one-time programme and the concept of having it mimic an annual hydrograph of freshet flows and other parts of the year flows, that concept doesn't really seem to lend itself to these one-time dewatering activities. So thanks for asking that Neil. That's what our point was.

**NH:** Neil here with the Board. Laura, did you want to comment on that? I'm just struck by your observations that this was contentious in times past.

**LJ:** Laura Johnston, IEMA. We did comment in our comments on the question of draw down and dewatering. I guess...and then Eric has added-in the under-ice which becomes yet another part of the discussion. I guess my sense would be that whether it's draw down or dewatering, the receiving water body, stream, whatever it may be is the same. So why one would be subject to a limit and the other wouldn't be subject to a limit, I'm not sure that I follow... well I followed the argument, but I'm not sure I agree with it. I think that probably needs some more thought because part of the submission to look at and distinguish between the one-time dewatering and the ongoing draw downs in the response from BHP B. to the agency's comments, that was certainly one that we're mulling over. So, on the face of it, I think the receiving body stays the same so why would you change the limit, no matter what you're doing to it. Those numbers were put-in to be protective of the receiving environment and I'm not sure that that's changed.

**KATHY RACHER (KR):** Can I break-in here for a sec? It's Kathy Racher. So I see the common goal, there are the numbers and I definitely want to look that up on the EIS and figure-out how those were derived and under what boundaries were placed around those numbers. I guess the main goal is whatever you do, that the receiving environment is not harmed. I mean that's the point. I guess when I was reading your comments on this particular item and the response, I

wondered to myself if there was a way just to make-sure that we have enough evidence for the specific event that the receiving environment is not harmed. If that or those numbers or if there are other numbers then, how do we ensure that the license is written so that make sure that that happens and I'm wondering if the actual numbers are important or if it can be done on a site-specific basis, always ensuring that the downstream environment is going to be protected.

**LJ:** Laura Johnston, IEMA. I guess at the risk of repeating myself, that was the best thinking of the day, if there's new information available that indicates that either of those numbers should be changed or our understanding of the hydrology has improved so that a different number could be instituted, that's one thing that I'm not aware that that information is available. So, if there's nothing to replace the best thinking of 1995, I'm not sure what number you pick.\

**ED:** Thanks it's Eric here. Thanks Mark. I guess you're right Kathy it's all about protecting that receiving environment .... It's just again to point to E2 where a dewatering plan has to be submitted for approval plan for each dewatering activity so that. Isn't that the way we can look at each dewatering event that's going to come along and where that water is going to be pumped too, and this is a means to look at that on that case-by-case basis, and say what works for this location. That's the idea, I guess.

**LJ:** Laura Johnston, IEMA. I think we're after the same thing, it's just how we get there. We're probably not at the same view of the best way of doing that. If there's additional information available all your numbers, let's have it and let's discuss it. If there isn't additional information then I'm not sure what the reason for change is.

**KR:** Kathy Racher. Do you have a comment on this specific thing?

**MARC CASAS (MC):** Marc Casas, Water Resources. It was more just to clarify for myself, I think, and hopefully others is that it's not entirely clear when, like with the dewatering the one-time dewatering of Sable Lake. Where is that



going to go directly... is it going to go into Two Rock and then be pumped from there into the lake? I just assumed that's what it was, and I'm getting nods telling me that that is the case. And now to go back to the main license, when they were dewatering those pits was it, was that water going into the LLCF? Does anybody remember or did that just go into Leslie, or what was the process there, just to clarify.

**LAURA TYLER (LT):** Generally, I think, and I would have to check that the clean water is okay to go to the receiving environment, but as soon as we get towards the bottom of a lake and we hit the silts and it becomes more turbid then we can't pump it straight through to the receiving environment cause then it has to go to somewhere like Long Lake or King Pond or Two Rock, which is why for Sable it would go through Two Rock so it would actually, the silts that kicked-up through the process actually get a chance to settle-out before that water can be released into the receiving environment.

**MC:** But the whole thing would go into Two Rock?

**LT:** Go through Two Rock, yeah. We'll just pump it, because it's an easy process to take it to the next stream down. Ya we're very cognizant that we can't just pump it straight to the receiving environment, plus all of the silts and everything downstream. But the clean water, for Fox and those I think that was pumped straight to the receiving environment, and then as soon as we got below a certain level where we started to see it becoming more silty than we treated, took it to Long Lake.

**KATHY RACHER (KR):** Kathy Racher, from the Board. I just wanted to point-out to BHP the change you requested on page 29, the one we were discussing for G item 11-C, to change "all discharge from Two Rock Sedimentation Pond shall be directed to Horseshoe Lake at rates not to exceed" blah blah blah at those rates. So that kind of contradicts what you had in your previous thing, because discharge is any water or effluent, so just to point-out, by including the rates here, you've actually hamstrung yourself, but you tried to take it out of

section 8 part E. We'll just have to sort that out and be cognisant because the way discharge is defined it says 'water or effluent'

The last point I have, still Kathy Racher here, is the under-ice discharges. You say in your rationale for removing that clause that, maybe it wasn't here or somewhere else, that you have a lot of experience now dewatering or discharging to the environment and that you have, in some cases discharged under-ice and that without harming the environment and I guess, from my perspective I just wanted to know what that evidence was that there was no harm, like just an elaboration of that before we take that out. We'll have to look back again to see why that clause is in there about the under-ice discharges. We heard some about it yesterday, and I'd like to hear more. But, from BHP I might ask for more information about how you know you didn't harm the environment when you did the under-ice discharges.

**ED:** Okay it's Eric here. I just wanted to go back to your first point because I was just looking that up and I think we'll talk about that again, but on the p.29 clause, 11 C. Ya it reads "all discharges from Two Rock Sedimentation Pond" so ya, 'discharge' is a defined word, 'direct or indirect release of any water waste to the receiving environment" but the clause 11 C on p.29, it is referring only to Two Rock Sedimentation Pond. Which would be a draw down location. Whereas the E8 is just in general. Any draw down for instance. So the difference being, the clause on p.29 is strictly speaking to Two Rock Pond and Two Rock Pond isn't going to be de-watered in the sense that Sable Lake is going to be, so that the clause E8 is generic to any dewatering or draw down anywhere, and the one of p.29 is specific to Two Rock Pond. I think that.... We'll talk about that more among ourselves later, but I think that that's what we had thought anyway.

**KR:** Kathy Racher. Well that might explain my confusion about the draw down and dewatering's confused me all-through this license. So when you say dewatering, and as Marc brought it up too, it goes from Sable Lake to Two Rock. So the pumping rate, the dewatering rate that we were just talking about, that you

want to be different than, potentially different, is just the rate of pumping from Sable to Two Rock? Not from Two Rock onto Horseshoe? So you're saying that draw down is only ... is only ever a draw down from Two Rock to Horseshoe?

**ED:** It's Eric here. So the basic distinction, let's back-up for a sec. The basic distinction between dewatering and draw down is what we've, I can't remember if we, I'm just going back to definitions. The dewatering is "removing water an existing water body" draw down is "partial-removal". So for instance in the case of the dewatering, in effect applies to that one-time initial dewatering of a lake, of Sable Lake, Beartooth Lake, that happens once and then draw down is just what it says, it's just partial removal, it's not the dewatering activity. So, for instance the draw down would be the annual event at Two Rock Pond or something like that. So in the case of the Sable site, Sable Lake will undergo a dewatering programme. Okay. Two Rock Pond isn't going to be de-watered.

**KR:** Kathy Racher. I understand that part, I guess I'm a little dense. I don't know anything about, I've never seen a lake de-watered, so I guess in my mind I was sort of picturing, water coming from Sable Lake into Two Rock and then being discharge right-away, just carrying-on and maybe that's my point of confusion. So the pumping rate, the maximum pumping rate that we've discussed and that Laura's discussed would only apply, would always apply from anything coming from Two Rock and, I got a thumb's up from Charity, and the other and you're saying you might a faster rate to go from Sable to Two Rock only.

**CHARITY CLARKIN (CC):** Or potentially from Two Rock directly to the receiving environment. Cause it is stated in the EIS as well as in our development description plan here in the application that clean water from Two Rock will go directly to the receiving environment... sorry, sorry Sable. Until the point that it's no longer acceptable. That meaning water quality, so high suspended solids.

**TIM BYERS (TB):** Tim Byers, Monitoring Agency. Just for clarity Charity, I've always wanted to say that [groans, cheers, and laughter around the table] But I'm

just wondering about the dewatering, which in my mind for, it makes it more clear in my mind when you guys are talking about dewatering I always think draining. Draining of a sink, so you've got a bowl. But, in any rate in your dewatering of Sable I am wondering if you will have the filter dyke in-place in Two Rock prior to, at least prior to the point where you're draining down to where it is no longer is going to be clear enough in suspended solids. So I'm wondering if you will have the filter dyke in place at that point where the suspended solid-laden water is going to be going to Two Rock.

**LAURA TYLER (LT):** Yes, because it doesn't act as a sedimentation pond until it has a filter dyke through it. And that was Laura Tyler from BHP.

**NH:** Neil here from the Board. I believe Nathen you'd started this discussion going. [laughter] Are you satisfied? And does anybody else have any other discussion points?

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I guess from a hydrological perspective, it may not be the water quality that's an issue in the downstream environment, it's the amount of water that's going through that environment that could cause significant adverse effects such as increased water levels, which causes erosion along the shores, or between the two joining streams between watersheds or water bodies. So I guess the concern for the maximal dewatering rate, when it's at the level that it's not going to Two Rock Lake, it's going directly to Horseshoe, would be the erosion and that kind of thing downstream, in the receiving environment downstream of that body. So that would be the limiting factor for the rate that you use. So I just wanted to clarify that and I understand that the water in Sable is quite good quality, so in terms of the water quality parameters, it's probably not that much of a concern, it's just the amount of water going through the watershed and that's the numbers that we need to kind of look at. So thank you.

**LAURA JOHNSTON (LJ):** On a slightly different tact, but since we're discussing dewatering and draw down and the definitions. Is one of the comments that we

had was a concern with this distinction, and looking at it and listening to the discussion this morning, I think the problem that we have is with the definition of draw down, that the suggestion is the means the partial removal of water from a natural water body and I'm not sure that all water bodies that are going to be drawn-down are natural. I don't think it's a problem so much with dewatering, because that's a one-time removal of water from usually a lake or a natural water-body, but I think that was the basis of part of the agency's concern about those two definitions, that draw down not be restricted to natural water bodies, because I would argue that many places that are being drawn-down, I'm not sure I would characterize them as natural.

**ED:** Okay, it's Eric here. If I just speak to Nathen's point just first for a second, and I just wanted to maybe elaborate a little bit that again, that yes I think we're all in agreement, the point of having some restriction on a maximum flow rate on a dewatering activity is to protect the receiving environment. I agree, probably primarily against erosion from increased flows. But, on the other one of the reason's why I think BHP Billiton feels that often these dewatering programmes work well in the winter, is because that reduces erosion and sedimentation into the water at the lake you're drawing down. If you're doing that in the open water season and you're drawing the water level down, I think what the experience in the past has been, you experience a lot of slumping of the soils from around the perimeter of the lake down into the water and it very quickly becomes very muddy, you're just transporting a lot of the sediment and that just complicates matters and sort of needlessly gets sediment going either into the sedimentation pond or further downstream. Whereas, if you're conducting that dewatering activity in the wintertime, there's an ice-cover over the water and you draw down the water level underneath the ice and you don't experience the same amount of soil slumping and sediment getting into the water you're trying to pump. So this is why, this is the experience that we're trying to relate as to why we feel that the lake dewatering programme is sometimes more beneficial to conduct during the winter months.

Now granted, yes agreed, you want to make sure that wherever you're pumping the water to, that channel, that lake, whatever it is, is protected against erosion, but it still brings me back to the point that regardless of having something like a clause E8, there's still a requirement for Board-approved dewatering plan for every dewatering programme, and then that's where on a case-by-case basis we can look at, well where is the water going to be pumped to and what makes sense for this creek and specifies some anticipated maximum average water flow rates that will work there. And there's also already clauses in the license, it would take me a minute to find some, there are clauses in the license that already speak to conducting inspections and preventing and mitigating erosion wherever, anywhere that may occur in relation to mine activities. So that was just a little bit more on that point.

**NR:** Nathen Richea, INAC Water Resources. Thanks Eric. I guess the other issue I would have, the information may be coming forward as part of the water balance, it's kind of one of the reasons why I was asking for a water balance for the watershed further down from Horseshoe, is because we'd have that information, what are the natural characteristics from a hydrological perspective of water moving through the system and that way you can get a better estimate of what you can actually put into that system and still not cause significant erosion or that kind of, provide that kind of information.

But I guess one of the cautions I would have for dewatering during the winter months is that it may be better for the water-body that you're dewatering from, because it stops the erosion from the sides and the TSS will stay down a little bit longer than it would normally. However, that water that you're discharging to the next receiving body may not move down the system, it may actually collect in that one water body and then the surge during freshet could be exaggerated because of that additional water that's frozen in that particular water body. So those are things that also need to be factored-into the decision to do during the winter. But I think we captured the water balance information as part of the information

requests, and that will go a long way in helping determine whether or not, what level of discharge would be appropriate. So, thanks.

**NH:** Neil here with the Board. I think we still have to come-back to Laura Johnston's definition question.

**ED:** Right, so it's Eric here. So and it's something that we looked at in those definitions also and the definition of draw down, our proposal changed to "draw down means partial removal of water from a natural water body" So what this is speaking to... is the idea of. ... let's just take for an, I'm just looking for an example, let's say in Bear Claw Lake we seasonally pump water around Bear Claw Lake into Upper Panda. That's an annual activity, follows the same procedures every year it happens, we have established upper and lower water level limits, it's just fine and it works on a routine every year. That, I guess that type of activity didn't strike us as something that would be captured by draw down and the requirement for a draw down plan, Board-approved draw down plan every year, every time we wanted to do that activity. It's the same every year, it's part of our normal operating practices and so I think that where our suggestion for reference to a natural water body came-in, so that the type of dewatering activity that would sort of be requiring a specific plan that went to the Board for review and approval would be something that's not just a part of the annual routine operating activities. Does that?

**KATHY RACHER (KR):** Kathy Racher, from the Board. I wanted to chime-in a little on this too because those definitions struck me as well and I was getting the impression overall from the changes that BHP requested in a number of spots to do with the dewatering and draw down that you wanted to make the distinction of moving water between internal structures, man-made structures to another internal structure, so water that's not being move into the receiving environment, basically. I got the feeling that you were trying to, not to have to have a plan basically to move water from a sump or some constructed structure to the LLCF

or some other internal structure that doesn't go immediately into the receiving environment. Is that correct?

**ED:** Eric here. Ya, that's part of it, and I think we're also thinking just about the bear Claw Lake example for instance as a way to manage a routine activity like that. That's water that's not really going from one man-made structure to another, but it's still simply a routine activity that's well-established with an operating procedure that the Board has seen and approved in the past. And I was just double-checking here also, so this definition of draw down, it didn't refer to this directly in the rationale, although I guess, now I'm reading it again, the wording we proposed is the same wording that's already in the main license "means a partial removal of water from a natural water body". So again, when we were drafting-up the draft license for application we did refer back and forth and selectively bring-forward definitions and wordings that we thought were appropriate to be similar between the two licenses. So I was just double-checking, so this is one of those cases, for instance where the proposed wording would be the same as the main license and since this is a, we thought this was important defined word to have the same definition because it does apply across the entire Ekati operation dewatering activities. It needs to be done consistently and everybody understands how we're going about it. So there's just another angle to bring forward. That this proposed wording would make the two licenses the same.

**NH:** Neil here with the Board. Eric, do you consider Two Rock Pond then to be a natural water body? Laura, having just said that it's a sedimentation pond.

**ED:** So it's Eric here. I think the way we view that is that once we would build a control structure at the outlet of Two Rock Pond, that is, it becomes a functioning sedimentation pond that it's not behaving and functioning as a lake at that point. We're actively managing it as a sedimentation pond, so that would be not a natural, in terms of this vocabulary that would be not a natural water body at that point.



**NH:** Neil here. So it would not be captured of a definition of a draw down, which is restricted to the natural water bodies, and yet my understanding is that you wouldn't want to file a specific plan to draw down Two Rock Pond every year, you'd want to just do that as a routine basis. So does the term draw down apply to Two Rock Pond?

**ED:** The management of Two Rock Pond and the sort of the routine water releases from Two Rock Pond, in my view would be described in the mine water management plan.... Wastewater processed kimberlite management plan. That's a mine water management activity and that where we see that that would be described in that management plan which goes to the Board for approval and that's where this is managing the mine water internally and that's where that would be described and reviewed by the Board and approved through that plan.

**KR:** Kathy Racher, from the Board. And that's why that relates to section G 11 C where, even though it's not, if you're not considering it a draw down anymore, if it's a kind of man-made structure, you've still requested a change that the rates of discharge wouldn't exceed those two values, the winter and summer values, for any discharge coming from Two Rock. So just to be clear, that even though that the term draw down doesn't apply in that case you've actually got a limit on the discharge coming from there.

**ED:** Eric. Ya.

**KR:** Kathy Racher. I actually have a question for IEMA because this definition, you did put in your comments you said that the change in definitions for dewatering and draw down to say 'natural water body' would exclude pits or pumping from other man-made features on-site and you said you would prefer to leave the definition as it is. I guess I was just looking for an example of where the change in definition would make a difference to you, or how you see it would make a difference.

**LJ:** Actually, what we were just discussing that if something like Two Rock Pond isn't natural, and you have a, you're looking at draw down then it would be excluded by that definition. There may well be a plan but it may well be a plan, but it would actually be excluded from a definition of draw down. Dewatering I see less of an issue with including 'natural' because that is a one-time, it is a natural lake, but by restricting the definition of draw down I think it creates more problems than it solves. I hadn't gone-back and checked with the main license, I guess we missed it in that one. But it's the restrictive nature of that word "natural" that I'm not sure I want to get into two definition of draw down, one for a natural water-body and one for a man-made structure. It doesn't... it seems to complicate rather than enlighten me.

**KR:** Kathy Racher, with the Board. Does that mean that you would want to see the Board approve a draw down plan for Two Rock every single year? For example.

**LJ:** Laura Johnston. No. No I don't think we would and maybe based on the discussion that we've had this morning we need to go away and look at the clauses where dewatering and draw down appear with the improved, hopefully, understanding of what those two words mean and see if it's still an issue. The discussion has been very helpful. I don't think dewatering is problematic, but certainly we need to re-visit the draw down part of it.

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. I just wanted to do a quick wrap-up on those three terms and what BHP sees them as referring to.

So, 'dewatering' is basically draining a lake, it's like taking all of the water out of a natural water body so that we can turn it into a pit. It's a one-time event and so that's... we produce a plan that goes to the Board and tells them how we are going to do it and has in it all of the erosion controls and checks and all those sort of things. So that's dewatering.

“Draw down” is when we actually remove water from a natural lake and that may be for road watering, or something like that and we actually submit a draw down plan and it says we’re going to be pulling-out so many litres out of the lake over this particular period, whatever it is. Whether it’s an annual thing, that we just resubmit for the Board to say ‘yep it’s the same as you did last year’ or whatever and

“Discharge” is when we release water from a man-made structure into the receiving environment and that is controlled by the wastewater and processed kimberlite management plan, which is updated on a regular basis and includes anticipated schedules of volumes to be discharged from whichever bodies they are, whether it be Long lake Containment Facility, King Pond, or Two Rock, once it’s been fully designed and is in ... obviously before we get to operation, but then it’s regularly updated while it’s in operation. It includes all of the series of contingencies like on what would happen if there was additional water flowing through, or that the volumes that were entering it were different, if we wanted to change our discharge, what would we do? And so that is where discharge from a man-made structure is dealt-with. It’s not a draw down, it’s a discharge, because we’re not drawing-down a natural water body.

So that’s where we see the three different kind of categories of dealing with water and how that is dealt-with with the Board.

**LJ:** Laura Johnston, IEMA. Thank you for that. That certainly helps the thought process.

**ED:** It’s Eric here. Not wanting particularly to belabour the issue but [laughter from floor] but nonetheless I feel compelled to just to point to you, to help people following up a little more if they want to. Part G, item 1, talks about the wastewater processed kimberlite management plan and so if, and I just bring your attention to part G, this is on page 24 of our draft license that was in our application. Part G, Item 1a, sub-item 4iv requires that the wastewater processed kimberlite management plan include an anticipated schedule of volumes of

discharge to and from the Two Rock Sedimentation Pond. So specifically talking about Two Rock Sedimentation Pond that seems to be very explicitly already a requirement of that management plan. So just if you're following-up on that you can just look to that clause.

[silence]

**KR:** Do you have a follow-up question?

**LJ:** No. Laura Johnston, IEMA.. More a follow-up comment. Since we're dealing with the three-legged stool instead of the two-legged stool, it makes much more sense thank you. And I think that's helped to resolve the matter.

**NH:** Neil here with the Board. I think this is one of the items we had for discussion later-on today that came-out of the comments and the responses of BHP, so we seem to have made some progress ahead of time. Anything else we need to follow-up? It's twenty after ten, we might take a quick break and then come-back and go-over specific comments that were submitted by parties. Kathy, is that an idea? I'm sorry, Angie had a comment.

**ANGIE LANTZ (AL):** I have a question for Eric. You had said that once a control structure is made at a pond that it's no longer a natural water body. Is there any natural water bodies at Ekati anymore?

**ED:** Yeah it's Eric here. I think, there's a couple of things that come to mind on that question. And one is, just to say when we're talking about definitions in the water license, so we're talking about sort of a definition in the water license so that people can understand how to apply it. I think that what I was getting at was, a natural water body for the period that we're operating the mine. If we have a dam on a little lake, then we are pumping water in and out of that water body for while we're operating the mine, and so it's not behaving like a natural lake with water coming in and water coming out at that point. Water comes in a little bit, we test it, to make sure it's clean for discharge and then we pump it out. So in that sense we do that because that's part of the means of protecting all this

environment and all the streams and lakes below that particular pond. So of course there's very few lake on Ekati where we have this type of control put on them. We have the Long Lake Containment Facility, where all the water from the process plant and from the main camp and everything goes and we need to collect that water behind a dam and sample it and make sure it meets the, it's clean-enough to release and we have King Pond at the Misery site where for the same reason it collects some of the pit water and other water around that site in one place so that we can sample that and make sure it's suitable to go down into the lower lakes before we pump it out. And in the future when we get to the Sable site we would have Two Rock Pond that would just operate in that simple, in that same manner. So, those would be the only ones that would fall into this category. And the reason that we're putting control structure on those lake is that so we can do our sampling and use that as a means of protecting all the other lake s and the environment below there while we're operating the mine. So I'm not sure if that, I hope that answers your question a little bit. There's lots, so on the Ekati claim block there's all of the other numerous other lakes on the Ekati claim block are still all natural lakes. It's only these few that we need to have control structures on, so that we can keep track of our water and make sure it's fit for discharge.

**AL:** Angie from Lutsel k'e. Maybe within your claim block I would like to have a list of all those natural water bodies.

**ED:** Ya so that would be a big task and it might be, and I say that in all sincerity because the claim block is large and all the lakes on there, some of them don't have names or anything so, it's actually a fair bit easier to understand by pointing out the few lakes that would fall into this category of being controlled. Because if we look at the map on the wall there behind Tim, that doesn't show, well it does very faintly, we'd have to go over there to look at it closely, but it does faintly show the outline of the claim block. And there's a huge number of lakes in the claim bloc. There, Laura's pointing to it, and all of those lakes within that claim block are all behaving as natural lakes, it's only these very few that we

have structures on that are not, that fall into this category for the purposes for the words and the definitions in the water license that fall into this category of not behaving as a natural lake for the duration of while we are running the mine there.

**AL:** Angie from Lutsel k'e. I also hear about two watersheds. That's the reason for my request.

**ED:** Okay, so this is Eric again. Probably the reference, I'll start by just assuming the reference to two watersheds you might have heard was to do with the Sable site, and again, over on the map on the wall there we can see in brown, marked on brown on the map. ... oh I do have a laser pointer... Laura's better than a laser pointer any day. [laughter] So, the first way I'd suggest looking at that is on the map there coloured in brown are the existing sort of mining areas and with the exception of the Misery site, the existing mining areas around Ekati and the Long Lake Containment Facility and Fox, they are all within Leslie Lake, Slipper Lake watershed, that flows to the south down into Lac de Gras. The Misery site is actually in a little bit different areas. It flows into Lac du Sauvage and then Lac de Gras in a roundabout way. And then in this sense, the Pigeon site, when we get to developing the Pigeon site, it was also be, that mine water will also all come-back towards the south down through Leslie Lake, Slipper Lake watershed. The exception here is the Sable site, which is about 26km further north from the main Ekati area. That is located in what we call among ourselves, this Horseshoe Lake watershed. And so that water follows a different path, it finds it's way through down into Exeter Lake and then further down into Yamba Lake and carries on out that direction. So that's, so in terms of the Sable Pigeon Beartooth project, it's the Sable site, is the one that goes a different direction, and this is where Two Rock Pond is and this is where the whole discussion about the EQCs is focused-on.

Now just to take that one other aspect of looking at that, within the details of the Sable site itself, in our application referred to we sort of that being the one

Horseshoe Lake watershed that goes from Sable Lake all down into Exeter. Within that, there are smaller areas that go to each lake within that. So you have the one overall Horseshoe watershed, but within that, there's a little drainage area for Ulu Lake, there's a little drainage area for Two Rock Pond, there's a little drainage area for Logan Lake. So we're saying one watershed in a sense that it's all the Horseshoe Lake watershed that all goes from Sable Lake down to Exeter Lake, knowing within there there are smaller areas within there and that was also the source of one of the questions that had come up during our, on our application. So when we're saying one watershed for Sable, we're just including those sub-drainage site if you like.

[Laura Tyler speaking off-microphone]

That's right. And the reason that this is an important point to make sure everybody's clear on. Because the area of the Sable Pit is right near the headwaters of this Horseshoe Lake system. So we're keeping all of our pit activities, mining activities, all the waste rock pile is all on that Horseshoe side of the drainage divides. So all the runoff goes that way. Just a little bit to the south of where the Sable Pit is, that water runs back down to the south into Ursula Lake. So we don't want that. We want to keep our runoff... so we keep all our waste rock piles and the pit on the north side of the drainage boundary so it all goes the one direction.

**NH:** Neil here from the Board. Thanks Eric. You're fine Angie? Good. Just before we take a break, I did write-down one more information request, this time for the Board to address, and that's I believe Kathy volunteered, she's going to look-up the derivation of the peak dewatering and draw down figure from the original EIS and circulate that for everybody, because people were concerned about where those figures came from. So it's 10:30, we'll convene again at quarter-to eleven.

**BREAK**

***End of Tape 5***

**November 5 10:45 – Lunch**

***Start of Tape 6***

**NEIL HUTCHINSON (NH):** Neil here from the Board. What we'd like to do next, is earlier this year, everyone had sent some comments in to BHP on their draft license, and on August 29<sup>th</sup> BHP submitted responses to that, and that's all been circulated by the Board. Kathy assures me that she asked everyone to bring those documents with them, cause that's on the agenda. What we'd like to do is go through these comments and the responses right now. I don't think there's a need for excessive detail. If your questions were answered already in the conversations yesterday, or if they have been addressed through one of the information requests that we documented, just acknowledge that and move-on to some of the outstanding questions.

So what we're going to do is just work through the order, in which the different groups appear in the document. So DFO is going to start, then Environment Canada, then ENR, INAC, IEMA, and Lutsel k'e. In each case Kathy may have questions or clarifications just to make sure that she's documented the responses and the understanding clearly. So Bruce, we'll start with you.

**BRUCE HANNAH (BH):** For number one I think it might just be a matter of semantics as far as "less stringent". Basically what I was thinking there was if you're allowed to discharge 100mg/L of a parameter and you're now wanting to switch to 200mg/L, you're allowed to discharge more, so that's why I was thinking "less stringent" I don't know if that requires a comment or not.

And when I'm talking about Sable Pigeon Beartooth based on more current information, what I was thinking there was Ekati was the first mine to be licensed. Diavik was after that, and then Diavik went through a rigorous review with the information current to that day, EQCs were set under their water license and



then Sable Pigeon Beartooth came-up, that same information was available plus whatever else had come-up. Another rigorous review, and those same EQCs were used for Diavik, that's what I was thinking about for that.

**NH:** Neil here from the Board. So Bruce, you received responses from BHP about that. When you put those in the context of the last day and a half of discussion can we move forward?

**BH:** Ya, I think we can move forward. I mean the one was basically for us to clarify what the more current information was. And I just tried to do that.

**ERIC DENHOLM (ED):** It's Eric here. Thanks Bruce. I agree we had a good discussion yesterday. I think we've beyond those comments. So no problems there from our, my, point of view.

**BH:** Bruce Hannah. Thanks Eric. The second one, as far as then again we talked about moly and nitrate yesterday. I know that BHP feels that moly won't be an issue at Sable. If they're very confident of that, maybe we could put a condition in the water license stating that if it's seen in the watershed adaptive management plan that there is an increase in moly, that [inaudible] could actually be added as an EQC. But you can put that forward to BHP.

**ED:** Eric here. I'm sorry I think I was reading your comment at the same time Bruce. Was there something else there? We have moly on our sort of a list of information that we'll put kind of a discussion of moly together. Sorry, was there something else?

**BH:** Bruce again. Just looking at, and like you say there's information coming-in on moly. One option might be if it's captured in another monitoring programme outside of the water licence's EQCs and there is an upwards trend that we could add it as an EQC later, for the adaptive management plan.

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. I think based-on what Kathy had said the other day that if DFO felt that EQCs should be added, then it would

be up to them to bring forward the argument to add those EQCs. I believe what was said yesterday. As opposed to us having to provide information on why it shouldn't be included. So, I think, I guess later-on down the path if you wanted to have it included as an EQC, then it would be up to you to approach the Board to request that with your background information.

**NH:** Neil here from the Board. Also remember that we have information requests from yesterday that BHP will be bringing the information forward on nitrate and molybdenum that might help you make a decision if that's, if you want to pursue that or not.

**BH:** Ya no, thanks very much. I was just thinking down the road, if it is seen as a trend I think a lot of groups around the table would want to see it if it's picked-up in the adaptive management plan or the SNP, and then I'm just saying that maybe it's an option that maybe it could be added as an EQC later on down the road. But no that's fine.

For the ammonia one, basically what was getting at there for Diavik, with the expert panel, all the different site-specific studies that were done what the best achievable ammonia rates on-site were for Diavik. I was thinking that BHP could do the same, or just looking at what is the best achievable rate there that's protective of the aquatic environment. What's the best we can do? The one question I had on ammonia was if it's pH-dependent, like on Peter Chapman's table, and there's no pH treatment available, how would you actually control that?

**ED:** It's Eric here. Quite correct. The plan for Two Rock Pond doesn't have any pH modifiers, modifying system built-in. But it may vary a little bit naturally, just due to natural conditions. That might be, that would be on the list of contingency measures for ammonia, along with various other physical measures for oxidizing or aerating or things like that, pH modification might be one of those contingency measures that's in the tool box for possible responses. So, the proposal isn't, just to be clear, the proposal isn't that we will be modifying the pH according to that table. It's just that that table would allow us to take whatever pH happens to be in

Two Rock Pond from the natural mixing and natural conditions and use that table to see what the appropriate ammonia level is.

**BH:** Okay, I'm not sure if anybody else wants to comment on that. If not, I can just go to the next one.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. It's unfortunate, we were trying to have Barry Zajdlik here today, and I kind of brought this up during the break and I think you're aware of it too now Eric but, basically the Ministry of the Environment for Ontario has done a toxicity experiment for ammonia using chladisera at low temperatures and low pH and they found some interesting results for total ammonia concentrations. And they found that, the results show that the ammonia concentrations can be quite toxic at very low concentrations, particularly for pHs that are kind of expected at the BHP site. Unfortunately, they're preparing a paper that demonstrates the analysis that was done, how many samples they have done, and that kind of information. However, it is not available yet. But I will provide it to the group and to the Board for further consideration on the ammonia toxicity issue. Thanks.

**ED:** Eric here. So on that note, that's great when we'll look forward to seeing that, seeing what it says.

**BH:** Bruce Hannah, DFO. I think number 4 with the mixing zone, I think we've gone into quite a good discussion with that yesterday and that's one of the information requirements, so I think that's already covered.

**NH:** Neil here from the Board. Sorry Bruce, you had some concerns about using 5% vs. 20% as a toxicity threshold in your comment. Were you happy with BHP's response on that?

**BH:** Basically, just looking at the different criteria that were out there and all that and it was basically getting back to the, 'what's the best achievable on-site'. As far as the CCME, might try to get Anne to help me out there as far as the 5% criteria and see what Environment Canada's position is on that.

**ANNE WILSON (AW):** Thanks, Anne Wilson here. Bruce and I were having some e-mail back and forth on the use of an EC20, which is the end-point for chronic toxicity with any given organism, and then the use of what has often been called an HC5 or the threshold that is protecting all but 5% of the most sensitive species. And the idea being if we brought the EC down, then it would be more protective. BHP has correctly stated that more often the EC20 is used, I have seen EC10 used before, but not the EC5. So I misled Bruce somewhat on that in our earlier discussions.

**Male:** Oh I think it was definitely help.

**BH:** Bruce Hannah, DFO again. Number 5. I know this has been brought-up quite a bit with Diavik as well, with the use of a northern fish species for toxicity testing. I noticed the same sort of response where it should be researched, it's government-lead. What I will do is bring that back to DFO science and see if there's any way we can sort of work together with perhaps BHP and Diavik to get some resolution to that issue or gather the data in some way. When I get feedback back on that, if DFO can get involved then I will let the group know.

No comments on that... number 6. Bruce Hannah, DFO again. Just as far as the planning review periods and the reduction. I think it's been brought-up by a number of groups. Some groups, depending on what the size of the document is to be reviewed, might not have the capacity to do it in a quick turnaround and that was our department's problem for a while, we're starting to staff up now, but just looking at, for everyone to have adequate time to look and provide their comments for the Board.

**NH:** Neil here from the Board. Thanks Bruce. Did anybody have any comments arising from these DFO discussions? Great. Environment Canada, Anne –

**ANNE WILSON (AW):** Thanks, Anne Wilson here, Environment Canada. So item 1, we have covered a lot of this, this has to do with the effluent quality criteria. Our recommendation to include molybdenum will be reconsidered upon

seeing what the geochemistry and the various kimberlites comparatively; to see if that is expected to be of concern. I still do feel that nitrate should be on the list of regulated parameters, and would like to comment that in other licences, we have looked at what the most sensitive species is in the receiving environment, what anticipated concentrations are, and then walked the reasonable path that is protective without putting some jeopardy of being out of compliance, if good source control and proper management is practiced. I'll just stop there if Ekati BHP wants to comment on that.

**ED:** It's Eric here. No I don't know if I have a specific comment on that. I think what you're saying sounds generally like the direction we're going. And I think what I'd... we're going to put some information together here, coming out of this workshop and that will be, that's the kind of thing we will be thinking about.

**AW:** Anne Wilson, carrying on here. Under the response column for item 2, which was to do with the ammonia. I want to look a little further at ammonia, but the numbers that are proposed are more or less within the CCME numbers, which I feel are valid and defensible guidelines, and that I think we're not too far off on that aspect.

Then the next one was the inclusion of phosphorus. As I mentioned earlier, there were high phosphorus levels in the Sable water. Whether that was a sediment source or a kimberlite source, that would be further information. But they maybe warranted, and I don't think there's any further argument on keeping phosphorus in at the current levels. That's seems to be not one of the ones that was being called-on yesterday. Okay, so we'll leave that.

Then, moving on to tracking item 8, the use of an initial dilution zone. I think we've talked about that sufficiently.

And item 9, if I can just go to the draft license. This is on the submission of timelines. In the draft licence there are a couple of items that BHP has asked to have shorter timelines on that are just for the Board. Those I have no problem

with, that's the Board problem. There are a couple that are for approval, which means they are things that we do want to see. One example would be the item under part F-2. That is a construction plan, and the parts of that, like we have no engineers on staff, but we do like to see the QAQC and some of the operational plans, and it will affect things like spill contingency planning and things that might fall under our mandate and responsibilities. The next one was the waste rock and ore storage management plan. I don't think we could do a review in 30 days. And by the time we got it to the right people and got our comments together, that would be too short. That's item 3, part G-3. So there's a couple of examples of that. So I think we need to think about the timelines and trying to find something that's workable for the mine, but still practical for reviewers to function. I'll just open that for any comments.

**ED:** Okay, it's Eric here. I'll add a comment. I guess we could, in terms of the time periods and review plans and things, it's not organized this way in the application, but some of the documents being referred to fall into a couple of different categories. For instance, in part 5, where it's a construction plan. That, for an example has some concerns on our sides related to the fact that it is a construction plan asking for final engineering designs and things like that. It's kind of the last stage of drawings and final engineering for a facility or a structure, if you like. That will have already been part of previous mine applications, assessments, management plans, that the Board has seen, or this is our take on this. So that what's being asked for in Section F-2 is really just the final drawings detailing the engineering specifications of a structure that's already been, the structure and the generalities have already been approved by the Board, and these are things from the professional engineers just to nail-down the construction specifications. So we see some issues specific for instance to that. The management plans would lend themselves a little bit to a different category that would have some other sort of concerns on our side regarding the review timelines and things, so that's one comment I can offer in response to you Anne.

**AW:** It's Anne Wilson. That's a good point, because we certainly don't have any capacity to look at design drawings, but the trick is that it says that drawing are to be accompanied by a design report, construction plan, QEQC plan, etc.. and maybe those need to be de-coupled.

**ED:** It's Eric here. Ya, there may be other ways to, I agree, there may be other ways to get the information that people in this group need to see and review and comment on apart from some of the final engineering specifications which really do come along on a pretty tight timeline related to construction activities and equipment and manpower and seasonality and things like that. So that's, I don't know in my mind what that might look like, but I could see that there might be other approaches.

**AW:** It's Anne Wilson. Just thinking of the Diavik experience with some of their dyke construction which was a massive undertaking, ahead of the construction they had circulated the standard operating procedures, which included how they were going to monitor the water quality that was going to be affected and various response capabilities for spills and measurements that they need to do. And that was helpful we were able to review that and provide our comments ahead of the construction. And that's what I had in mind this aspect.

**ED:** It's Eric here. Yes, as an approach, something along those lines which I think could work for us, yeah.

**AW:** Anne Wilson again. I'll just carrying-on then with tracking item 10. This is a surveillance network programme. I'm going to date myself again, having been at the table for the original licence, and when we were doing the environmental assessment, when we were talking about how the pits were going to be closed, being turned back into lakes at the end, our hydrologist said we really need to have a good period of record for the source lakes, which were Ursula and Exeter. And so that's why the stations that are designated -100 were put in the SNP. And I don't actually know if there have been measurements of the water levels on that, and the response from the company is that that data is going to be collected

in another planning, under the closing and reclamation plan. And I don't know if that has already started. Our hydrologist was quite clear that he wanted a good period of record to assess what the draw down would mean to those lakes.

**ED:** It's Eric here. I don't have that data here to show you. But I still think, it occurs to me that the purpose of collecting that data is for reclamation planning, so I guess my question would be that if there's an explicit spot that that's written into the ICRP, the reclamation research plan or somewhere through the ICRP reclamation planning process that that data will continue to be collected. Would that satisfy the question and be okay for you, Anne to go forwards?

**AW:** It's Anne Wilson. Absolutely. Can I put an information request in to get BHP to check what data have been collected so far on the water levels, just to see what our period of record is and then to say where it's going to be in the plan?

**ED:** Eric here. Yes, we can certainly agree to that.

**AW:** It's Anne [Neil interrupts]

**NH:** Neil here from the Board. Sorry Anne, I'll write that down. What water body are you referring to, that you want these for? For Sable Lake?

**AW:** It's Anne Wilson. It's for Exeter and Ursula, the two that are in the SNP right now. Just to see what has been collected already.

Anne Wilson again. I had also included under the SNP that we would like to see part D 6 Air quality monitoring kept-in. However, I do acknowledge that that is captured under the environmental agreement and that dust sampling is still included in this license. So I'm okay with that one coming out as proposed.

There's nothing to comment on tracking item 11, but if I could just take my draft copy of the license, I did have on other concern that I wanted to flag for that and this seems to be a good time. It's to do with the proposed toxicity testing. It's mentioned in the draft license in two place, on page 31 and on page 28. Page 28



first, Item 10, [pages flipping] I keep losing which section I'm in. That's Part G 10, page 28 says "the licensee shall complete annual chronic toxicity tests for all effluent treated with settling agents." I would like to see the term "treated with settling agents" deleted and just have that done annually on all effluent whether or not it's treated with settling agents. That would be consistent with requirements under most licenses, and certainly with any proposed diamond mining effluent regulations that just might be coming.

**ED:** It's Eric here. Just a question Anne, if you can help me, do you remember off-hand if there is a requirement in the SNP paralleling that annual chronic toxicity testing?

[silence]

**ED:** It's Eric here again. I'm sorry I was just flipping through the SNP to see that I thought maybe there was but, that's something we can follow-up on afterwards. I think that we don't object to what you are suggesting in that clause 10 on page 28, regardless.

**AW:** Anne Wilson. Thanks Eric. I just flipped through the SNP. It looks like the only thing in there is the acute testing, item 7. I don't believe there's anything on chronic included in the SNP currently. And that would probably be a really good home for it instead of being in the body of the license.

Then the other reference to toxicity testing, just a very simple clarification for item, still part G, item 11c. Sorry it's hard to follow-on with all the great edits in here. Just to clarify where that sample will be collected, which was are we doing the acute toxicity for and if this is duplicative with the SNP, should we maybe just have it in the SNP?

**ED:** Okay it's Eric here. So just to be clear, you're looking at the clause on page 31, for acute toxicity of the effluent. Okay. Which is the same as clause B7 in the SNP essentially?

**AW:** It's Anne Wilson. I think the difference is, does INAC want to enforce the toxicity provisions that are under the Fisheries Act? So if it's under the SNP and we're provided the data, it might be simpler for INAC. Do you want to comment on that Jason.

**JASON BRENNAN (JB):** Jason Brennan, INAC. Anne, you said the Fisheries Act? No, obviously INAC wouldn't be responsible for enforcing the Fisheries Act, that would be DFO or Environment Canada.

**AW:** Anne Wilson. Just to clarify my thinking here. If it's a compliance term of the licence that the effluent be non-acutely toxic that would be in the body of the license, right? If it's in the SNP, then the toxicity aspect would be under the section 36.3 of the Fisheries Act. So, it's a cross-over. I'm trying to think of the clearest way to place this is.

**JASON BRENNAN (JB):** Jason Brennan, INAC. I'm really unsure of how that would play out. But INAC is responsible primarily for enforcement of conditions clearly listed in the water license. I'd really have to get back to you on that one.

**KATHY RACHER (KR):** Kathy Racher, from the Board. My understanding is that the SNP just says that the test shall be done. The license says it shall not be toxic. And I think that if it's in the license, it's enforceable by INAC and someone can nail me if I'm wrong, that was my understanding. So, that's why this part is in the license as well as in the SNP.

Kathy Racher here again. I just had one follow-up question for you Anne. In the rationale for some of the wording changes to that clause, it says that "this change is recommended by Environment Canada to update and clarify the correct test wording and references" and I just wanted to make sure that the wording that they provided did meet your requirements as well.

**AW:** It's Anne Wilson. I was gonna actually leave a little note to myself. There's one update in one of the titles, I think. I just have to check that, but I think that they have got all the amendments listed properly.

**ED:** I'll wait.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I just wanted to touch a bit on the acute toxicity testing. I guess if it typically licenses will have a clause in there where it says the effluent should not be acutely toxic. From what I understand, definitely get clarification on this from our legal counsel, is that is it deems that the... if it is toxic to the environment the inspector would be responsible to inform the company to stop discharging. Now if Environment Canada wanted to follow-up on whether the failure caused effects downstream such as a deleterious substance then they would follow-up on that course of action. I would assume the only course of action INAC would have would be to inform the proponent that they should stop discharging.

**AW:** It's Anne Wilson. I can't comment on INAC's options, just for us we wouldn't actually have to prove any deleteriousness downstream, it's just at end of pipe so that the [inaudible] of effluent collected at the end of pipe would be sufficient to establish a violation of the Fisheries Act.

**NR:** Nathen Richea, INAC Water Resources. I agree. I just had one point of clarification for the clause number 10 or item 10 ,I think it's the same section, whatever it is, G or something. "The licensee shall complete annual chronic toxicity tests" we were talking about that earlier. It doesn't specify when that would occur, and it's not included in the SNP, so I think that's a point that's open right now, and we need to solidify that. Thanks

**AW:** It's Anne Wilson. There's a couple of schools of thought, do you collect it before you start to release your effluent so you know what is going out, but you've also got lots of good dilution at that point from the spring freshet, which makes it a good time to release? Or do wait until your later in August and have less dilution? I think there could be more discussion on that, but that's probably why the MMER's have it done on a much more frequent basis.

**NR:** Nathen Richea, INAC Water Resources. Ya and I agree with you, I just wanted to flag it because the way it is right now I think we all agree to take-out the treatment part, but then it's kind of open as to when this is collected. And currently it's not part of the SNP, so it's kind of a closet sitting there in the licence.

**AW:** It's Anne Wilson. We'll talk to our MMER folks and give this a little more thought and then put a recommendation-in with our submission on the timing. Good point Nathen.

**ED:** Eric here. I just wanted to clarify two things. The clause 10 we were just talking about, about the chronic toxicity tests, were we agreed, we're just thinking that clause could just go into the SNP? Just want to make sure so that we have the right understanding of that.

**AW:** Anne Wilson. Ya, that would be more appropriate I think.

**ED:** Okay and just a thought on the timing of the sampling, this is just a thought to throw-into the conversation. You know the samples, you know we're not always discharge effluent, so it strikes me that it would be preferable to collect the sample at a tie when effluent is being released rather than just from the pond water. So, just keep that in mind thinking about the best timing to get the sample. If it gets too restrictive it could be at a time when we're not really discharging, and then we would probably just then at that point collect a sample from the pond, but that's just to throw it out to the conversation.

The other thing I wanted to clarify was. In the SNP, under D6. You're acceptant of removing the clause, is that right ?

Ya the SNP D6 which is page 54 of the draft license that we provided.

**AW:** It's Anne Wilson. Dave Fox forgive me, yes.

**ED:** Okay thanks, just double-checking. That's it thanks.

**NH:** It's Neil from the Board. Is that it for your comments Anne?

**AW:** It's Anne Wilson. Ya, that's it thanks.

**NH:** Alright. Who's next. Alright GNWT is next. Their comments. [Female speaker informs Neil GNWT representative just went to the washroom.]

Would it be okay, Neil here from the Board, if we went on to somebody else and then came-back to you? [GNWT rep enters room apologizing]

**ERIKA NYSSONEN (EN):** Erika with ENR. So tracking number 12. It's my understanding that the license term will just fall under the term of the main licence which is 2013, so that's fine. Basically our stand behind shorter-term licences is the fact that it guarantees public input to the licence. And again, the reasons which I noted: incorporation of new information, technologies, valuable lessons, and it's just easier to provide input during a renewal rather than trying to open up a license.

Tracking number 13, no comments. 14...

**KR:** I just want to make a quick comment Erika just for everyone's knowledge. Everyone brought up the term of the license in their initial comments. And since then the Board has decided to try to put the two licenses together by amending the main licence to include terms and conditions for the Sable Pigeon Beartooth projects. That would mean that if we amend the main license, we won't amend the term of the main licence, but we will just be adding things to the main license which means that the renewal date will be 2013 for the whole shoot and match, so for all the terms and conditions. The term of the license for this particular renewal is no longer really an issue, I don't believe.

**EN:** Erika ENR. Tracking number 13, no comments. 14 no comments. 15 no comments. 16 no comments.

17 is what Anne touched-upon, the thirty days for a review and approval of the waste rock and ore storage management plan, again we just wanted to note concern that perhaps that might not be an adequate amount of time.

Tracking number 18, this was a bit of an oversight on my part. Part F, item 5, the company has requested that construction records be removed from item 5 and I had intended that it be included in the sense that they are, that construction records are indeed maintained and made available at the request of the Board or inspector. And I just wanted to ensure that there was some sort of clause that these records be maintained, not necessarily submitted as part of the engineering report.

Tracking number 19.

**KR:** Sorry just a sec. It's Kathy Racher from the Board. I just wondered, that was one of my questions, well initially my question was, construction records should be included with the submission of the as-built drawings and I just wondered what ENR what the rationale was for that and now I guess I'm wondering what the rationale, just in your mind, is for having the construction records available.

**EN:** Basically the construction records maintain a weekly or daily log of construction activities. With the design report, the as-built might differ from that, and so the construction records, if there's differences or a failure of some sort, you can refer to the construction records. But the fact that item 6 does include that documentation of field decisions that deviate from original plans and any data used to support these decisions instils confidence that yes, if there is a change it is actually documents. I guess the construction records just provide more detail.

**ED:** Hi it's Eric here. If I could just sort of add a comment to that point. I think, ya, I think our point is clearly that item 6 is what defines the as-built report, and good engineering practice requires that any changes, any field decisions made,

any changes are completely documented in that report. So, I mean our view of the term “construction records” is kind of what you’ve said Erika. It’s kind of the day-to-day logs and meetings, you know the foreman came-in to the BHP manager’s office and they had a coffee and talked about this for a couple of minutes, and this was on the list. That level of detailed record-keeping doesn’t disappear at the end of a project. But that level of detail sort of notes and record-keeping it something that the people on the site doing the construction activities use to manage their project. And so the idea that that would be helpful or useful to the Board for instance, we quite frankly didn’t see that link of having to take that information an extra step and so our point is that the as-built report in section 6 is providing the required report both under the terms of this licence and under good engineering practice for construction of an engineered structure, and that’s what the record and the information is going forwards.

**EN:** That’s fine. I just, I guess my wording was wrong. And basically I just wanted to ensure that they are maintained and available on-request.

So, moving on, tracking number 19, no comments. And 20 no comments.

We’ll just jump to 23. And this was a similar comment that Environment Canada had with regards to the air quality monitoring plan, noted in the SNP programmed. And I’m just kind of curious as to the reasoning why it was included. It seems kind of like an orphan clause, since nowhere else in the license is there any kind of details on what a monitoring plan or program should have and perhaps maybe it was in the main license and during updates it’s been removed, ENR would just like to pug again that we would like to see air quality be held under a regulatory instrument so it can be enforced and would like to see it kept in there, however it’s kind of just hanging in the air without any kind of substance. If it can developed-on even more. I just wanted to note that to the company’s credit, ENR, Environment Canada, and BHP have been working on improvements to the Air Quality Monitoring Programme under the environmental

agreement. However, again we would just like to see it held within a regulatory instrument.

And I think that was... that's it for my comments.

**ED:** Sorry Neil, it's Eric here. Just, thanks for that Erika, we have been working with Environment Canada and GNWT and IEMA on Air Quality Monitoring Programme and I won't restate what it already says in the discussion, we think that air quality needs to be, it's just the water license is not the place to regulate that. But what I really wanted to point out was also it's referred-to in the environmental agreement. So at this point in time, addition of that or consideration of that for the water licence should remain, you know should recognize that it's already written-in to another regulatory instrument for Ekati site. [murmurs] Okay scratch the reference to environmental agreement as a regulatory instrument, but my point remains the same, that it's... we would want to be cognisant of not having any duplication and redundancies in that respect.

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. We would be, if anyone can find somewhere where it should be under a regulatory, then BHP would support it actually moving into a regulatory instrument, because the environmental agreement was actually put in place to fill gaps in regulatory agreements. And the more we can move towards having all of those gaps filled through official regulatory processes, then the more we can move away from having to depend upon on individual environmental agreements for every project that comes through, which would be a positive I think, for NWT sort of environmental regulations.

**ANNE WILSON (AW):** it's Anne Wilson, Environment Canada. I just wanted to add that in a lot of the licenses that are currently being drafted Environment Canada is asking for, and often successfully, incineration management plans, so we're looking at regulating the air quality on the front-end, and having stack-testing done and commitments that the proponents will meet the Canada-wide standards and that is one way we can approach this absent regulatory role by us



or the GNWT in these cases. And that is something we'll bring up in 2013, or sooner. But I know we can't with this one. Right?

**TIM BYERS (TB):** Tim Byers, Monitoring Agency. I guess one of the concerns I have with air quality issues vis-à-vis water is, in this case the integrity of your monitoring of lakes downwind of the waste rock piles, for example so that if there was any cases of severe wind erosion of any fine particle materials in that waste-rock pile, dumping that say onto Horseshoe or Ulu, then when you're doing, maybe this is more of a concern for AEMP, but would this somehow disrupt the integrity of a BACI analysis, for example. So your before, after monitoring of those water bodies, if you now have a dumping of, extreme loading of wind-blown TSS you might say into those water bodies how does that impact your monitoring of those water bodies. So I guess that's one of my concerns of air quality when we're thinking of air quality when we're thinking of water issues and licensing. I don't know quite where to putting it into legislative instruments, but that's one of the things I feel concerned with,

**?Mark Wen or Marc Casas:** Tim, I can Speak just a little about the technical aspects of the monitoring for the AEMP and it's a point well-made and the AEMP is designed to have reference sites, multiple reference sites at varying distances and directions from Ekati, some very close by and some very far away. So, that's one way to look at what the background it and any potential affects and changes that we see in the reference lakes. So they're wouldn't be related to water and so they, if there were changes we can look at whether or not, you know measurable changes, if we can measure changes over time at the reference sites. And what are those changes related to? And at the reference sites, we haven't seen those changes to date.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. INAC Water Resources is currently working on Aquatic Effects Monitoring Programme guideline which will include aspects of dust, wind-blown dust, dust-monitoring programmes, that kind of thing. And then we'll' also be something that would feed

into the Aquatic Effects Monitoring Programme, for example, right now Diavik does have a dust-monitoring programme and they do winter collection of dust and summer collection of dust at different sites throughout the island and inputs from the dust into the Lac de Gras receiving environment have been quantified. Through the guidelines that will be one of the component of the Aquatic Effects Monitoring Programme, the influence of wind-blown dust or dust monitoring. So that kind of addresses some of your concerns. Thanks

**NH:** Neil here with the Board. Mark I wasn't sure if when you were talking about the reference lakes are you talking about, you're monitoring the water quality in the reference lakes or are you actually doing dust-collection in reference areas?

**Mark Wen:** It's water-quality in reference lakes. Ya, as far as air quality goes there's, it doesn't necessarily match-up exactly with reference lakes, but it goes in all directions from Ekati, upwind, downwind and very far away from the site. But as far as water quality we do, obviously at the reference sites measure that and any impacts that are not related to water could be measured there.

**ANNE WILSON (AW):** It's Anne Wilson. The section of the [inaudible] AEMP, it's part K, item 4, sub-h, sub-i has an evaluation of the contaminant loads associated with dusty position and the effects that the dust has on the aquatic environment. So that gives an overview of, that's more under the cumulative effects section of it though.

**AW:** Anne Wilson. It's section K, or part k rather, section 4.h.i. Page 40 in the water license draft.

**AW:** Anne Wilson. Just to clarify, let's take-out the 'h' here... it's part K, item 4.i. I looked at that as being a sub "1"... so I'm easily confused, it must be lunch time.

**KATHY RACHER (KR):** Kathy Racher, from the Board. I just, just for my general knowledge, the air quality monitoring, that section in the SNP that says, the air quality monitoring blah blah blah programmes are to be updated to include

Sable Pigeon Beartooth areas, and as Erika was saying it's sort of an orphan clause because, within the license there's no air quality monitoring plan called for and I was looking at that wondering what was to be updated. And I'm assuming that it's the plan that was under the environmental agreement, so my question is just that, is the air quality monitoring plan that's part of the environmental agreement, does it include the Sable Pigeon Beartooth areas? That's my only question. I'm getting nods. Could you just state that?

**LAURA TYLER (LT):** Laura Tyler BHP Billiton. Yes it's the entire claim block ... so we have to consider the whole area.

[silence]

**LAURA JOHNSTON:** Laura Johnston, IEMA. Do you want us to catch that one now or when gets to be our number. [receives answer] When it gets to be our number, thank you.

**NH:** Are we finished on that round? ENR? Okay, Tim I think you initiated this last discussion are you satisfied with what went around the table here? Clarified? Satisfied?

**TB:** I think I'm fine at this point, but I'll have to go back and look at things and look at that clause and look at various aspects of this.

**NH:** And then Kathy keeps reminding us that you've also raised air quality and dust under your own submission, so we have another chance to talk about that later. Okay, Eric, yep? Okay, Neil here it's now ten to twelve. INAC is up next, they seem to have quite some substantial comments, so I was going to suggest that we address them first-thing after lunch? Unless you want to do it in 10 minutes Nathen.

**NATHEN RICHEA (NR):** I didn't think they were that substantial, but I think that 10 minutes is probably not enough time, so I don't know if we want to get

together afterwards and continue from there, or I can start for ten minutes and see where we get.

**NH:** Let's take a break. We're back at 1:30. Everybody? [Kathy suggests 1:15]  
Okay 1:15 Kathy says. 1:15

## **LUNCH**

### ***End of Tape 6***

## **November 5 1:15 – 2:45**

### ***Start of Tape 7***

**NEIL HUTCHINSON (NH):**Just while we're waiting for Kathy and Ryan and John to return, we'll just go over the plans for this afternoon. We're going to finish going through the comment table. At some point everybody's obviously wondering about the process forward from here, so John Donihee towards, later in the afternoon, is going to speak to that. And with process goes timing and Kathy is going to talk about the timing for the process going forward, before we leave today. And before we do that at the end of the day we'll give everybody another chance to just go around the table one more time, with any other comments that seem to be, that have to be brought up.

INAC, you're up.

**MARC CASAS (MC):** Marc Casas, INAC Water Resources. This is going to be a real team effort I think on these ones. So, at some point, I'm sure Nathen is more than welcome to interrupt me. Especially if I'm about to say something totally wrong. [laughter] Yeah, he can sense it, like, oh, there goes Marc again.

So, INAC comment one, the definitions. That's fine, we don't have any comments on that.

INAC number two, is part of the securities issue that was brought up. And that refers to Part C, Conditions which I think is page 14. In reading BHP's response it looked, like maybe they misinterpreted what we had said, but I guess to maybe just to summarize, we didn't disagree that things could be changed and potentially tiered. I think we agreed on that. However we don't think that this is something we can do in this particular point in time. Like that's something that I think it's probably a larger process that we'd have to address in the future. But we are open to the possibility of doing that. So, I think that was all we had discussed about that. Was there anything else you wanted to add, Nathen?

**ERIC DENHOLM (ED):** Yeah, so Eric speaking. So, just, yeah, so on the security question, then that's great. So, the idea of, the idea that its split in three represent you know, approximating the three areas, okay, that's great. What are, do you see as, not in detail, but the future, sort of the future process you look at? I mean this is renewal also. We see that we've got, we see that we're asking the Board to rewrite this clause of the licence. And when you say future process, you mean like sort of, if the Board agrees to that and writes the licence that way, then there would be something that we'd carry on with INAC after that to make it work, to get into the details, is that what you're getting at?

**MC:** Yeah, actually I think I forgot to mention that the, I guess we don't see it as being quite as simple as just sort of dividing by three. We think that there are some other things that we have to take into account. And I guess, because it is a lot more complicated than just dividing it like that, because there are a whole bunch of other things that come together, as part of the whole securities thing and so, I guess what we're saying is that we're opening, we're open to the possibility of doing that. But that we can't really address it right now. And if we can get a little more clarity if you want, but right now we can't really address it.

**ED:** Okay, Eric speaking. Yeah, I know, I think we, I think that we would like to have something more on that because, I think you, I think, I'm just going to want to repeat one thing here. Not because I think you didn't get it, because it is kind

of related and that's just to make sure, maybe just to say it again, so we're sure. When we say dividing by three, okay, what that is, is its assuming that, it's incorrectly assuming that Beartooth Pigeon and Sable are all, represent equal reclamation liabilities which is really not ...inaudible... the case. If you did break it down, reclamation activity by reclamation activity, Sable would probably represent the greatest reclamation liability. Pigeon next and Beartooth would be far less than one third of the reclamation liability, for those three sites combined. Okay. So, when we suggested to, just simply dividing by three, the end result of that is over securing the Beartooth site in the immediate term, okay. And the reason we did that is because it's a lot, it's just a lot simpler than trying to take this, what is it, 14 point, you know, \$14million dollars and tearing it apart actually according to the three sites and the reclamation activities. And going there would be a long process. And so the dividing by three, we thought was just, it provides us with something that we were looking for. In terms of splitting the security and tagging the security to the development schedule and, but in the short term it over, actually over secures what would actually be the Beartooth portion of that 14, 40million dollars, so it's, and we're willing to do that just because it's a simple way to go about it and still gives us the recognition that we were looking for that the security can be provided in three stages.

**LAURA TYLER (LT):** Laura Tyler, BHP Billiton. I think the biggest problem that I see with this clause is that it includes a figure, like an actual number in there. And I think that we all know that at the moment we're going through a review of the ICRP. We're about to go through, following on from that a renewal, a review of the actual cost for that closure plan and that then this figure would basically be out of date in any case. And one suggestion that I would make is that, is that maybe the wording within this clause, should not carry a direct number but should actually reference the agreed security between ourselves and INAC, or that INAC agree, and that that proportion should be for those individual pits should be assigned within however many days it is, 30 days of, you know, or 60 days prior to commencement of construction or commencement of production, or however we wanted to phrase it and then this is just like listening to this

discussion, is this the right way of tying in securities within this licence, is what I'm really questioning. And would there be a better way of going about it that doesn't reference \$14.5million dollars, which is a figure which will be blatantly out of date fairly shortly after the renewal of the licence, just based on the fact that we're going to be recalculating it, on a new closure plan in any case?

**KATHLEEN RACHER (KR):** Kathy Racher with the Board. I, and these are all good arguments and I'm hoping that INAC in your intervention eventually can elaborate on, on like if you don't agree and take into consideration what Laura has just suggested. As well, if you could provide a detailed idea of what you think would be a good idea for security, in terms of, if it, tiering it's okay, and what your other considerations are. Because, what I'm getting is you don't really, you haven't figured that out yet, but you do have some concerns with the way it is right now, and the recommendations. Just to ask for a great deal more clarification and intervention would be good.

**ED:** It's Eric here. And I think that's great because we would like to understand what INAC I saying here because I don't quite get it. Because we do see that the Board writes-in a security amount for the water provisions in the licence. We're asking the Board to adopt the principal that security be provided as a liability is incurred or in this case, shortly before construction would start, rather than years before. So, that's the principle, that's the basic principle we're looking for here. So I don't quite see what the objection to that would be.

**JOHN DONIHEE (JD):** It's John Donihee for the Board. I think if you want, what you're suggesting appears to make some common sense but it's not been done to date in any water licence in either NWT or Nunavut. And if you're wanting to change the way that, and also the legislative framework is that the Board sets security and usually the way the licences work is, as you know, progressive reclamation or some reduction in security is required then that's provided for to change the number in the licence, some kind of proof being provided to INAC that in fact that work has been done. I don't have an objection

to the, at least in principle, to the way that you're proposing that this be approached, but it, I'd be interested to talk about it,, or to hear more about it from you because, in a sense the Board sort of gets one kick at this, it writes a licence and then after that, you know, the problem with the 'A' licence is that if we want to start amending or changing things, formal processes kick-in so we need to find a way to achieve your goal that's consistent with the framework, legislative framework, and then if it's a little bit different approach, that's fine. Doesn't have to necessarily be done the way it's always been done before, I suppose. My only other comment is, you should be aware that the Board ruled in January of this year that it can retain security for both land and water-related securities so there is a bunch of security held under the leases for clean-up, you know if Mr. Brody calculates a total number, we need to know what's held under other instruments, I suppose in order for the Board to subtract-down. They need to actually have that evidence in front of them.

**ED:** Okay so it's Eric here. So that's all good information. I guess, so maybe we just leave this to pursue in the future at some point, but if we need to talk about this further and have a further discussion on this topic, I wonder if, I just suggest that there's a way we can do that before we get to the interventions even, to sort that out. I'm not sure what that would like. At this point in time maybe we could just meet at INAC, we can just ask INAC for a meeting probably at any time and if you guys are willing we can sit-down and talk about it. Maybe it can just remain at that level.

**JD:** It's John Donihee. I've just come from a water licensing hearing last week where I asked every intervener whether they did any analysis of what Mr. Brody submitted and nobody except INAC said 'yes'. So I suspect probably the company and INAC, unless anybody else really feels that they've just got to be there, I would think that it's something that BHP B. and INAC ought to talk about, and then if you need to talk to Board staff further then let us know, but do all the heavy lifting before you come back.



**ED:** It's Eric here. So that's alright, that sounds alright to me and maybe at sometime before too long we'll get in-touch with INAC and try to set up something up.

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. Yes we're definitely open to meeting with BHP to talk about securities. Thanks.

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. We did have a comment number 40 that dealt with security as well. Do you want to address that now? Or when we get to 40?

[silence]

**MC:** This goes back against the shorter time period that was brought-up by several different groups. So I think that one's covered-off. Although I think, was it exactly where it was left, I was a little unclear. Is that for some of the detailed like design drawings? Was the shorter time period, and then for other report stuff that needs to be reviewed will have a longer time-frame. Is that sort of where it was left?

**KR:** Kathy Racher, with the Board. I guess from our perspective we would like to see what parts you really have a problem with the timing, like Environment Canada was very specific as to which plans they wanted time to review and then in the one case what parts of the plan they wanted to review and I found that very helpful so if we can hear from parties with the same kind of thing in mind. So, cause most people made a general comment and it's an initial comment, and I didn't expect anything really different. But I think each plan has a different intent and a different meaning and a different, you know, to everybody. So I would like to know which plans are really important to have a longer timeframe, so don't just say "don't reduce any of them". If some of them can be reduced and it's of no issue to you, then the Board staff will decide for our, the Board will decide for itself what's of issue to us, but we'd like to hear from you, individually if that's

possible. And you don't have to say that today, that's another thing that it's not a huge-ticket item that can be part of your interventions later.

**MC:** Okay we'll make a note of that and maybe sort of explain in a little more detail. We can do that.

So that would mean we're moving on to 4, I believe which is the EQCs, and I think they've been covered-off at length, so, Nate you don't have anything to add to the EQCs eh? [something spilled] oh that's a good thing it was empty.

So now we go to INAC 5. This one deals with the particular term "discharge" which has been discussed, I think in a slightly different way. Now the way we had it here referred to, let me just get the page here. Ya, I think it's page 29 and 30 with the effluent discharge, And then changing, one of them was on page 30 where it says "all discharges by the licensee and/or seepage from the waste rock storage area, Two Rock Sedimentation Pond shall meet the following quality requirements" and so they basically just removed sort of the Two Rock Sediment Pond and sort of a lot of the detail there and just inserted 'discharge' because discharge is just defined as the receiving environment. And then, in reading over it again I think it goes back to 11a where it defines that little bit more. So I guess my question is, our the concern about reading that was that if there is a discharge, not a discharge, but a seepage of some sort coming form the waste rock that wouldn't directly report to Two Rock Pond, what method is there to get that water into Two Rock Pond or how will that be dealt with?

**KR:** Kathy Racher with the Board. Can I just clarify. So is your issue, your issue is really with the receiving environment definition, the change that's requested in the definition to 'receiving environment'? Cause discharge, there's been no changes to it, but discharge refers to the receiving environment. So by changing the definition of 'receiving environment', we are changing, essentially, the definition of 'discharge'. Is that what you mean? I'm confused,

**MC:** Sorry, I seem to be confused too by your question. [pause] I guess it was the fact that a lot of these were taken-out and I wanted to make sure that the Two Rock Sedimentation Pond and the ore storage and stuff like that were still covered and still had to, that there was a way to capture that. And whether, like does that count as discharge if it 's coming from the waste rock pile?

**LAURA TYLER (LT):** Laura Tyler, BHP Billiton. If you look at the definition for discharge which wasn't actually changed from the previous license, it means the direct or indirect release of any water or waste to the receiving environment. So I think the change to "all discharges by the licensee shall meet the following effluent quality requirements" was really around making the licence closer to the main licence, by taking-out the actual specifics and saying "any discharge". It doesn't really matter where it comes from, but any discharge that goes to enter the receiving environment should meet the criteria, the EQCs. That is can't, you know a seepage is no different to anything else under the definition of a discharge, cause it's any direct or indirect release of water or waste to the receiving environment. So I think it does encompass that because it's saying like anywhere, so it's not just limiting it to out of Two Rock. It's saying any discharge from any point.

**MC:** I guess, but how do you, but how would you know that, you know what I mean, like if there is a seep and it is being discharged or being released into the environment, how would you stop that from, I know there was a talk earlier about the toe berms and stuff like that, but is there a way to send it back to the ponds or to deal with it that way?

**ED:** It's Eric here. I mean I guess, so the clause 11d is just about specifying that the water needs to meet the effluent quality criteria, and I guess that we just thought that that change there a) just simplified the clause and almost made it even more expansive, more inclusive, because the word 'all discharges' would be inclusive of all the things that are listed in the old clause d, plus anything else

that would even constitute a discharge entering the receiving environment, so I think that was our line of thought.

Now, if any water, regardless of the wording in that clause d, if any water going to the environment receiving environment didn't meet these EQCs well then that would prompt us to have to do something and then what that would be would depend on, as always, on the situation at-hand and so-on and so, in an assessment of what the situation was and what was feasible and best approach to mitigate that. That's just so, so we saw that change suggested to clause d as kind of just simplifying the language and making-it maybe even a little more expansive but... and also just, you know consistent use of a defined term I suppose, so they're all thoughts that occurred to us in that clause. It was certainly wasn't to exclude any of those specific things that were previously listed in clause d, I think they're, in our view they're included under the term "all discharges".

**MC:** Marc Casa, Water Resources, I think I forgot to mention that earlier. That's fine.

**NR:** Nathen Richea, INAC Water Resources. I guess our concern was kind of raised about, at what point would a seep be classified a discharge. At what point would you be classifying water that moves from your waste rock pile to outside the toe berm, would it be classified as a seep, or would it be classified as a discharge? That's what we're getting at. What's the differentiation between seepage and discharge?

**NH:** Neil here with the Board. Maybe another way to put it, would you intend to apply EQCs to a seep that was later captured in Two Rock Pond. There's a seep from a waste rock pile, but is later captured as part of your water management system. Is that what you're trying to get-at Nathen?

**NR:** Ya

**NH:** Is it the difference between what is captured and what escapes to the receiving environment.

**NR:** Nathen Richea, INAC Water Resources. So, basically if you can kind of visualize a waste rock pile with a toe berm. There is a potential that water will move from the waste rock pile to outside of the toe berm. Sometimes that's referred-to as a seepage. It will be collected, sometimes along the toe berm in a pond or a catchment of some type. Now, is that, like Neil said. Does that require it to meet EQCs or is it when it moves from that catchments or water body to the receiving environment. Is that the discharge? Or that's where we're having confusion over what is actually a seepage and what is actually a discharge. When we were reading the licence we were confused over substituting the word 'discharge' in that different spots throughout, a number of different clauses.

**ED:** It's Eric here. So I think, the easier starting point is what you said Neil. If it's a seep from a rock pile that reports to Two Rock Pond then that seep, in our view doesn't, is not captured by the EQCs, it's going to Two Rock Pond, the outflow from Two Rock Pond is what's captured under the EQCs. But I think that by the definition of the word "discharge" I think that's speaking to your question Nathen. I think by the definition of the word "discharge" it specifically includes entering the, to the receiving environment. So that seep I mean, I think this conversation has been held in the past as well that that little seep that makes a small puddle and sits there and evaporates away and doesn't go anywhere, that's not a discharge to the receiving environment, as we interpret that.

**NR:** Nathen Richea, INAC Water Resources. But when you read the term, the definition for discharge it means the direct or indirect releases, so if indirectly that catchment released to the receiving environment, would that be classified as a discharge.

**ED:** It's Eric here. Ya I mean, I'm not sure, I know it says indirectly, I'm not, I don't really have a picture in my mind as to what that would be, but I think the key thing is "to the receiving environment" If it doesn't make it to the receiving environment then that's where the EQCs applies, is when that water or waste enters the receiving environment. To me that's the key. So I'm not sure indirectly

I don't, I've never had a clear picture of what that would be, what would be an indirect release, but. As I said, to me, the key would be the point of entry into the receiving environment.

**NR:** Nathen Richea, INAC Water Resources. We're seeing that direct discharge would be pump that water to Two Rock and then purposely discharge out of Two Rock, that's what you're licensed to do. Indirect would be an accidental release, or unknowingly a release of a seepage water to the receiving environment. Now the reason why we're bringing-up this concern is because we've been looking at the waste rock pile for the main water license, the main camp waste rock pile, and there have been seepages that follow a natural watercourse that eventually get into other areas of the receiving environment. Sometimes those parameters are quite high and may reach or exceed the EQCs. So we were curious when we started seeing changes suggested to the wording whether or not, what intent you meant on the discharge and how the differentiation was between the seepages and discharge. So that's the premise of our concern.

**ED:** Okay so it's Eric again. Okay, indirect discharges in that sense, fair enough. But I guess it comes back again to the wording in clause d. No it wasn't our intent to actually change the application of where the EQCs were applied or remove those words. In all honesty, it we just thought we were kind of simplifying that clause and using the defined word 'discharge; in a consistent way throughout the licence. Certainly hasn't changed our interpretation of how the EQCs would be applied, or where or anything like that.

**NR:** Nathen Richea, INAC Water Resources. Okay, thank you.

**KR:** Kathy Racher, with the Board. Just while on this topic I think it's maybe clarifying me, for me, maybe that the changes that you've recommended for the definition to the receiving environment, which would bring the definition closer to the , well exactly the same as the main license... where you put... so that... it used to... it says right now, excuse me, means that the environment that is

immediately impacted by discharges that this includes both aquatic and terrestrial environments. And you've requested a change so it says "receiving environment means, for the purpose of this license, the natural aquatic environment that receives any deposit or discharge of waste seepage or mine water from the project." And I assume then that the natural is you're putting-in so that it differentiates exactly seepage that goes into a collection sump or some sort of pond that you've designed to collect stuff. That's what your intention was, yes? Okay, that's very helpful, thank you.

**NH:** Neil here with the Board. The other concern that Ryan that Ryan is raising here, is in the past it included both the aquatic and the terrestrial environment, and the new definition would exclude a terrestrial seep from that definition. So your example Eric, where something went out into a puddle and evaporated. Okay it's terrestrial now, but the next time it rains if there's any residual metals left in that pocket, they would enter the aquatic environment. So I think we have to be careful that we don't exclude those kind of possibilities from the receiving environment.

**ED:** It's Eric here. I think, I don't know I have to think about that image there for a bit. But I mean it is, realistically I think a couple things come to mind here. I mean realistically I mean this is flat-lying Tundra and little trickle of water goes somewhere, stops, and evaporates and that's that. We know that happens and it doesn't go anywhere into aquatic receiving environment. But I think the main point is, or one of the main points too that I want to remind everybody of, this definition of receiving environment, this is another one where we, as I say, when we approach, particularly the definition section of the licence, but the licence in general. We were looking to the main license where in instances where we thought it was really important that we had the same wording, not just everywhere, but this was certainly one where we see a real benefit all-around having the same wording. This is a critical thing we've been talking around this in terms of the discharge and the conversation we just had about clause 11-something. We can't... we need to have consistent definition and understanding

of “receiving environment’ across the Ekati site. I think that’s really important, and so this was one of those specific definitions for instance where we thought that was important to bring that wording from the main license forward. So, just to remind everybody of that.

**NR:** Nathen Richea, INAC Water Resources. And I agree with you Eric, it’s always, you know I intend to try and bring clarity and consistency between the definitions of the water licences, I guess from a practical standpoint, sometimes it’s confusing in the field, when maybe one of our inspectors are is out there trying to determine whether a seepage is a discharge and a discharge is going into the receiving environment, it it’s direct or indirect and that kind of thing. And I guess one of the things that kind of popped into my mind when we were going through the slides the first day, yesterday; we were looking at Big Reynolds pong and Little Reynolds Pond. And there’s a natural catchment there, you’ll be placing your waste rock on Big Reynold Pond, and naturally there seems to be a river or a stream that flows out of that area down towards cell-B. I was wondering there could be some confusion on what would be the receiving environment there and whether Little Reynold Pond would be considered a receiving environment, and whether the seepage that went through a natural water body would be a discharge and whether EQCs needed to be met there. And it’s kind of the premise of why I was asking whether if a seepage was noted at that area, would it be pumped from there to the Long Lake Containment Facility, cell-B? Or whether it would follow the natural channel down to cell-B. It was slide number 4, 6, or I don’t remember what slide it was yesterday.

**JASON BRENNAN (JB):** Jason Brennan, INAC Operations. After hearing the discussion I have to jump-in and I actually have to agree with BHP on this one. That their definition as proposed, it appears to me that it’s more comprehensive and you know, also considering that the definition of seepage covers seepages, you know how they need to be returned to the containment facility. I just feel that the proposed change by BHP is more comprehensive and would actually



improve the water license, at least from an enforcement perspective I feel that it's much more comprehensive the way that BHP is proposing the definition be used.

**ED:** Okay ,it's Eric here. Thanks Jason, that's terrific to hear that confirmation. But the example of Little Reynolds Pond may be specifically that you were saying Nathen. I think I could see in our interpretation and how we designed the project and planned it and though this through, no that's not the receiving environment, that's the little catchment area, little drainage area that flows down into cell B and that's where the rock pile is. And so in our interpretation, the way we've viewed the entire project here to date, is that that's not the receiving environment per the water licence definition, and the EQCs would then apply, you know that water goes into LLCF as do a lot of other water, water from other areas from around the site and the EQCs apply as-always at the outlet of the LLCF at 161630. So, that's how we certainly have viewed it so far.

**KR:** Kathy Racher, with the Board. Just following-up on Nathen's questions. So, ya, of course if goes into LLCF that's not the receiving environment, but what I think I'm hearing him say is that the receiving environment, the pond and the stream on the way, is that the receiving environment? Cause that's... is that... if... but it's a natural aquatic environment, so I'm just, according to your own definition for receiving environment, we have to be able to find a way that differentiates between natural aquatic and not natural, when something's going to apply or not. I don't have an answer, I'm just pointing that out.

**ED:** It's Eric here. Ya, sorry I hadn't thought of that, so at this point I think, that's been our view is that, ya that would not be captured by the receiving environment in the EQCs, that small pond there in-between. But I could see what you're saying Kathy about the wording, and I just hadn't thought of it from that side point-of-view, so I don't have a proposal for that. So as long as you see where we're coming from, what our understanding is, then that's the starting point.

[silence]

**ED:** It's Eric here again. I just thought, we've just been chatting among ourselves and I guess I could just add, just as a bit of a reminder to everybody, just again on this Little Reynolds Pond example, is a reminder to everybody, you know that little section of creek has been, just a picture of it, you can just picture it in your mind, that little section of creek has been isolated from anywhere else for 10 years because of the LLCF, and doesn't go anywhere upstream of Big Reynolds Pond, so that's the situation there, that may pay into consideration of whether it would be natural aquatic environment and things like that. It's not functioning that way, hasn't functioned in that manner for 10 years or so.

**NR:** Nathen Richea, INAC Water Resources. Ya, I don't mean to have an answer for today, I'm just flagging it as an issue that potentially could cause confusion down the road, and when we change definitions we need to consider all aspects of the project, where confusion may come-in. So Thanks.

**JOHN DONIHEE (JD):** Thanks, it's John Donihee. Eric, I guess it really comes down to the question of whether, you know you have certain discharge points under the license and really nothing, I think what you're saying is nothing upstream of that, in your view is the natural aquatic environment.

**ED:** It's Eric. I don't know if I would say 'yes' to that explicitly, but any of the mine water, sort of mine water management systems, you know that are required for moving the mine water around from one facility to another and so-on, certainly don't see those as being part of 'natural aquatic environment' So by and large I think, ya, I guess if we really thought about it maybe we might find an exception somewhere within the Ekati site or something, but yeah. So that this little stream section, just to continue with this just an illustrative example, this little stream section from Little Reynolds Pond down to cell B of the LLCF, that's essentially part of the mine site, the mine water system at this point, is the way I would essentially would see that.

**NH:** Neil with the Board. My own clarity to this comes if you define the natural environment as that part of the environment which you're not able to manage.

That is, if you're able to capture seepage from somewhere or flow from somewhere it's not the natural environment because you have the ability to manage-it and move it about. And by my viewpoint, this drainage would not be natural drainage because you've been capturing it in cell B. So I would, my own personal definition would say, do you have an ability to capture this and manage it if that seepage goes wrong. Once you've pumped it over a dam and it goes down into Horseshoe Lake, you've lost that ability, so that becomes the natural environment. That's just my view of it. It doesn't change the fact that we have a nice little piece of unaltered landscape in the middle of a mine that seems to be ticking along quite nicely. But as you say, it's been fragmented for 10 years.

**ED:** It's Eric here. I think that's a good comment too. That's valid and I was just to keep all of our thoughts just going out there so you can see where we're going. I think we also just like to remind everybody too, I mean this is the way the project was designed from day 1 for the initial licensing, assessment and things, that with the waste rock pile where it is and the seepage running-down this little area to LLCF, so we should also maybe be cognisant that this was part of the initial project design and assessment as well.

**NR:** Nathen Richea, INAC Water Resources. No, I just saw some changes to the definitions, I saw this thing flag in my mind, and I was confused whether this would be termed discharge or receiving environment and I just wanted to flag it so people are aware.

**NH:** Neil with the Board. Is this something that has to be addressed in the license then, or is it just an item for discussion?

**NR:** Nathen Richea, INAC Water Resources. Well, if it causes confusion it maybe needs to be addressed in the licence, but if there's a reason, if it's part of the project description, this is something that was already agreed to as part of the original licensing then maybe it's fine as-is, as long as everyone is aware that if seepage occurs at this location and follows the natural channel that was there

before the waste rock pile then that would be okay as long as it collects in cell B of the Long Lake Containment Facility.

**JD:** It's John Donihee again. At the risk of underlining the obvious, changes in definitions are fundamental changes, they affect the way you affect every clause in the whole license where that word turns up. So, it's not a minor change, I don't know, I'm not speaking to whether the changes proposed by the licensee are consistent with the previous EIS or not, that's something people would have to check. But I do also want to point-out that, as Jason said a few moments ago, the original definition made reference to the terrestrial environment and the proposed change doesn't. I recognize what is proposed is what is in the main license, but you know section 9 of the Act talks about the licences being a means through which discharges [inaudible] of water are managed. But it also talks about discharges of waste in any other place where it can get into water, and so I think that by taking the terrestrial out of that definition of receiving environment we may be losing the opportunity to control that other waste. Now if it's all going to end up in the Long Lake Containment Facility anyway, it probably doesn't matter. But, I just want to point-out that some of these changes are fairly fundamental and urge the parties to think about it before they express their final views to the Board.

**NH:** Okay, I think we have, do we have one more comment from INAC? No that's it, okay. IEMA -

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. Let's see, which numbers do you want me to use? The 29 or the 1s.

**NH:** 29s

**LJ:** 29, we're fine with the summary in that annual report. We still would like to see a date for access to the full AEMP. We do appreciate that it has to be done before you can write the summary, but it is also very useful in assessing the summary to have a bit of the underpinnings. It makes it much easier, so we have

no objection to changing that summary in the annual report, but we'd still be keen on timely access to the full AEMP. However, that's best worked-out.

Number 30, the explanation provided by BHP B makes sense. I think that one's largely resolved. And I think it does make sense to have the security tied to the plans. We withdraw that, or resolve that comment.

The EQCs, I think we've beaten that one to death and we'll wait until we see the extra, additional information that's coming before we make any further comment on that.

Number 32, we didn't aim to be obtuse, and as BHP B pointed-out, these reports have largely been completed. We simply wanted *that* section re-written to include future projects, not past projects. So, all of the projects that have been taken care-of, that section on studies, part I should include any studies that may come-up during the writing of the license. Those future-looking studies should be included in section I. And the ones that are done or ongoing or whatever, don't have a place there. That was simply the point we were trying to make. And without trying to predetermine what those studies might be, all we could say is it needs to be re-written to reflect whatever new studies may be imposed by the re-writing of the license. We weren't trying to be tricky. [laughter]

**ED:** It's Eric here. Not to interrupt, but just to say, ya that sounds, that's fine with what you said is fine with us.

**LJ:** Laura again. The response from BHP B to have an SNP station in the mine water for Sable Pit and then to look at the Two Rock Pond as AEMP makes sense to us.

Number.... I'm getting frowns. [inaudible comment from female] You said, "BHP B suggests that station 2a be defined as mine water for Sable Pit and sampling frequency described in the SNP. In that case, BHP B would accept IEMA's suggestion that additional sampling in Two Rock Pond be discussed for inclusion

in the AEMP” and we think that’s a dandy plan. [inaudible comment from male voice] Hey we listen too sometimes.

With regard to ... [several voices] sorry

**ANNE WILSON (AW):** It’s Anne Wilson. To get my understanding of this, the proposal from BHP is that the downstream cell or the upstream cell would be part of the AEMP, and I’m not sure why it would fit-in a receiving environment programme. Help.

**ED:** It’s Eric here. Sorry, I just had to, I just re-read our response there to re-familiarize myself with what it was, says. So I think in our initial application, if I recall, what we had proposed was that it might be more useful to have the SNP sampling station in the upper cell of Two Rock Pond, as you say Anne, rather than in the pit sump itself. [inaudible] That’s right the SNP currently has an SNP station for the Sable Pit sump, and as I say, we proposed, we thought it would be more useful to have that in Two Rock Pond. And I think that’s still our kind of our primary thought, but we do respect that information from the pit sump is of interest. And so in our response when I re-read this response I think what we were saying was simply that we’re willing to, we’re certainly willing to, can see the benefit and to go with an SNP station in the pit sump if that’s what ultimately the Board maintains in the license. So, and in which case, sampling in that upper cell of Two Rock Pond could become part of the AEMP programme to collect... information is collected there. So I think that’s what in our response we were simply saying we can see their logic, we can see some good rationale for that and we’re willing to go that way if that’s better for other folks.

**AW:** It’s Anne Wilson again. You made half my argument there Eric, but didn’t quite complete it, so I will. I think that you need the sump information to figure-out what the quality is going into your, basically, your mine-water treatment, cause that’s what it is. You’re settling is being relied-upon to treat it. Ammonia is going to be experiencing natural degradation, wind, wave, sun, all that good stuff. And so, I think it’s important to have a handle on what you’ve got coming out of the

sump, what is happening in the upstream cell, and then what is happening in the downstream cell prior to release. I would plum for all three in the SNP, because that's the appropriate management place. The frequency can be dictated by your results, you know if you're seeing fairly consistent results over time, then back-off the frequency. It doesn't have to be an onerous requirement.

**ED:** Okay, Eric here. So, I think if we, seeing as we're talking about this with, it's good. I'd also like to then to just talk about what it talks about in B4, Section B4 of the SNP, because this is where the frequency is defined for these, well at the moment for the single SNP station, SA2. And just get your thought, just clarify what we can do with that clause. Because at the moment that clause says, water station number, and it lists basically the three pit sumps, Pigeon 2, Sable 2, Beartooth 2 and requires sampling daily during discharge. Now we've proposed that that daily be changed to monthly, because we don't see that daily is really required or really providing useful information for the SNP. So when you say Anne, maybe there would be two SNP stations, one in the pit, one in the upper cell of Two Rock Pond, and then, of course, the discharge location at the outlet of Two Rock Pond. Are you, what's your thought on this clause B4? The frequency that you would suggest those be sampled-at. Would you be alright with our proposal that that frequency be monthly?

**AW:** It's Anne Wilson. There's a lot of unknowns here. Like I don't know what factors would cause changes in the quality of the sump contents and in the upstream cell. So, just to be protective, I would probably start with every second week to start with and see if it was fairly predictable. That would be consistent with some of the licenses that have been written in Nunavut, which don't really apply here, but I'm just thinking about the experience in other places where that's seemed to be a reasonable approach.

**ED:** It's Eric here. Okay, I think that that ties-in I think with our thoughts then, in general. Because it was a daily sampling that we thought was a bit, just collecting information that probably wasn't really being very helpful or useful. So, the idea

that there would be two SNP sites, one in the pit, one in the upper cell of Two Rock Pond that would be captured under the sump length frequency in part B4. [silence]

Anyways, it's Eric here still .Anyways I was just on the verge of saying that that's, we're fine with that and I think we probably would be. But I might just reserve, just say that reserving after this workshop we put our heads together again and but, I think that in general we would be fine with that.

**AW:** It's Anne Wilson. Can I just ask what others think of that?

**NATHEN RICHEA (NR):** Nathen Richea, INAC Water Resources. I support the inclusion of a sampling station in the pit, in the upper cell of Two Rock and the lower cell.

**KATHY RACHER (KR):** Kathy Racher for the Board. So you're talking about B4 including SA2 and SA1. Is that what INAC and Environment Canada have just said?

**NR:** Nathen Richea, INAC Water Resources. If it's B4 great. [laughter] Wherever it works, I don't know. Maybe B4 is appropriate, I don't know. I haven't really looked much at it. But I support the notion of having the three, especially in the two cells of the lake, and you need to know what's going on in the pit, so. Thanks.

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. Since we started this snowball rolling. Having samples in the pit and the two cells of Two Rock lake would make sense to us. Our comment 34 we'd already said that we thought that weekly, or that daily was perhaps excessive for the sampling frequency, we had suggested weekly and based-on the discussion that we've just had, the addition of stations, and the decreasing of frequency would probably be a reasonable trade-off and as Anne mentioned, perhaps a tiered approach to it that more frequent sampling at the beginning and then, based-on that if it looks like things are being pretty constant, spreading-out the timing. There's an awful jump



between weekly and monthly that I think I would like to see more baseline data that indicates that monthly is a realistic sampling timeframe. I agree that daily is excessive, but going from daily to monthly also causes a bit of indigestion. So perhaps there's a way of balancing that out so that we get the additional information from the sites without making it unduly onerous in terms of the number of samples that are collected. So I think we'd like to take that back and maybe think about it based on this discussion. But certainly, the benefit of having additional sites at a lower frequency, I would say is **there**.

**NH:** Neil here with the Board. I think I hear general agreement on locations and some need to discuss frequency more. So I'd just advise all parties to address this in their intervention. Would that? I don't think we're going to learn much by discussing it more today.

**ED:** No it's Eric here. But I think if... no I was just continuing to think that and listening to the comments. So sure, if we're adding site Sable 2A a new SNP 2A in clause B4 and the frequency is every two weeks. That's fine, I think we'd do that. We can live with that.

**LJ:** Okay. I think that dealt with 34 as well. 35... I think we've, what did I say, could probably let this one go, but we'll check just to make sure.

36, this has been an ongoing discussion for years and ultimately it really is up to the Board whether they think they have the jurisdiction or not. I take BHP's point earlier that it would be much more comfortable to have it dealt-with in a regulatory instrument, but unfortunately that doesn't seem to be an option at the moment. So really, we have to, we're still of the view that, all deference to DOE that air quality should still be included, but really it is the Board's decision and I'm not sure that discussing it here is going to get us any further.

39, the receiving environment, I think we've had a thorough discussion of that. [Kevin O'Reilly suggesting she missed some items] Oh did I miss a couple? Sorry. I forgot to turn the page. I can count. So we did 36 we looked at 37, we're fine. 38 I think we've had enough discussion around that one to allow us to move forward. 42, oh I still can't count. 39, the receiving environment, I think I addressed that one where we've beaten that one to death sufficiently for the moment.

Number 40, the wording at that section in the where the security deposit is posted. It's on page 14, wherever it is. When re-reading it for I'm not sure, the n<sup>th</sup> time. Perhaps it's an amalgamation of the wording that BHP B recommended and the wording that's already there, which acknowledges that Beartooth is already in production and that the security is due on the license, and that their be a phased approach to the Sable and Pigeon security. We think that's a reasonable way to go. But the re-wording, in fact, doesn't acknowledge that Beartooth is already in production. It talks about construction, commencing at each of the sites, and that really isn't applicable to Beartooth. So maybe it needs to be a two-part clause that says that Beartooth is due on the license, and is already probably there and the other two would be 30 days prior to commencement of construction. So it's just the two separate cases are clearly covered, because neither one of those is really reflective of the actual situation.

**ED:** Okay if I could just on that. It's Eric here. Just on that, I mean I just wanted to point-out so, I think we thought that the wording we wrote in there did capture that aspect in that Beartooth would sort of immediately be captured because construction had already started. So, we're open to wording that expresses that a different way that's more clear to everybody that's fine. But our thought was to do that, provide the bear Tooth security more or less immediately, in fact it's already provided, so we don't even really have to provide it. But, we did think that wording allowed for that, so if there's other wording that works better, then fine.

**LJ:** Laura. IEMA will be happy to do our best at word-smithing. So at least we understand it, and then other people can tell us why they don't understand it.

Number 41, [sigh] the discussion this morning on dewatering, draw down, and discharge was really helpful, and I think that one's been resolved.

Number 42, the agency needs to revisit, this is the reporting times. And as other groups have been requested to do, we'll revisit these and look at what parts and which ones we really, really want a longer time to review and which ones we could live with a shorter review time. So I think that's best left for the submission. But we take the point that perhaps not all things need 90 days and perhaps they don't all need 30 either. So we'll work on that.

43, I'm not sure that there's anything to add to that discussion at the moment either.

44, again we feel that that's ultimately at the Board's call whether they wish to venture into that sort of thing or not. I mean the real solution is to change the regulatory regime so that there isn't overlap, but in the end each regulatory agency has to decide how much is their job they wish to defer to somebody else, and that really is each agency's call. So we can have a view, but

Number 45, we're fine with the exclusion of "in the event of an emergency" having re-read it numerous times I think, I think the intent is clear. And there was another occasion, I forget which number it is that we made the same suggestion and we give the same, 48, would say that we're fine with it as written.

Number 46. I think there is additional discussion to come on the under-ice discharge, when we have more information then it's probably reasonable to revisit that comment. It says, the agency would like additional information to support the deletion of the under-ice and I think that there is more discussion on that to come. So we'll eagerly await that.

Number 47, I think that's an ongoing discussion and there's more information coming on that. Number 48, that was the other one that's fine. Number 49, we're fine with the explanation that's provided by BHP B.

Number 50, the... I guess we'd like to see it reported, those values reported, but not necessarily regulated. So I think we're of a similar opinion to that expressed in BHP B's response that it's perhaps not necessary to have those discharges regulated, but we certainly would want to know in terms of the water balance and how things are working within the system to have that reported somewhere [Kevin O'Reilly whispers "AEMP"], such as the AEMP or individual reports, whatever that may be. But we agree that regulation of that is probably not required. So we take that distinction.

**KATHY RACHER (KR):** Can I just break-in here for a minute? It's Kathy Racher. On that point, in terms of measuring and reporting of the volumes of discharge. Is that in the... what plan does that show-up in? Or does that just show-up in the annual report? Ya? Okay, in the annual report, okay that's what I was wondering. Thank You

**LJ:** Laura Johnston. IEMA. Number 51...

**LAURA TYLER (LT):** On number, on 50, just reading-through the comment which notes that there will be increased mine water discharges from Beartooth and Pigeon, we have to bear in mind that within the scope of the life of mine plan, there's actually discharges that have reduced from Fox and Panda and those sorts of things, so you're not actually getting an increase in water going to Long Lake, because it's balanced by a reduction in mine water from other areas. So it's not that we're continually adding more and more to Long Lake, it's that we're substituting material as you look at the life of mine plan it's not a continual addition.

**LJ:** Laura Johnston. IEMA. Certainly point taken, and that's part of our sort of switch to saying we'd like to see the reporting of it, but not the regulation of it. We

do appreciate it's not the cup getting fuller and fuller, it's just different liquids going in, and we'd like to have an understanding of what that change is.

Number 51, this will more than likely continue to be an effort in re-writing and re-wording. We did try one change that may or may not make it acceptable, but it's probably easier to include it in our submission and it would be to an evaluation mines contribution to the cumulative effects. But we do take the point of the response and we'd like to take that away and try again with the wording that the agency is more comfortable with.

The... number 52, the, we're happy to see the Ursula and Exeter Lake, that information provided, we're not concerned where it is, so long as it exists. I'll note that we did ask the same question last year, because it said it was in a report, and we could never find it, so we're being a little bit insistent on having this be the second time that we're saying "sorry it isn't where you said it was", at least we couldn't find it.

Number 53, making sure I'm actually turning the pages. That was fine, we had nothing to add to that. And number 54 we had nothing to add to. And unless there are questions or additions from my cohorts here, I think I'd summarize it by saying that this discussion's been very helpful in resolving a lot of these issues. The outstanding ones we'll provide written comment before whatever due-date is established, provided that the information that we need is there.

**NH:** Neil with the Board. And I want to thank you Laura and IEMA for going through such a large number of recommendations so concisely and getting to the point. Very helpful, thank you.

Neil here. Lutsel k'e did you have general comments? You've certainly got a lot of material in this table in front of us. I don't know are you prepared to talk about all those points today?

**ANGIE LANTZ (AL):** Angie from Lutsel k'e. No I'm not prepared to speak to the subject. But there has been a few that have been discussed and I'm satisfied

with that, but I do have to bring the information back and it's up to the committee to decide how they want to proceed with it. Mahsi.

[silence]

**NH:** Neil here with the Board. So, as I understand it Angie you've heard the discussion for the last days and you're going to take the results of that back to your council for review and consideration in your intervention. That's fine. Great.

**TIM BYERS (TB):** Tim Byers here with IEMA. I just have a questions regarding BHP's response to one of Lutsel k'e's concerns, if I may. Just a point of clarification. And I'm sorry I don't remember what number this is, sorry page 42 of the comment table, and I just want to clarify something, and this was from yesterday. When you discussed the waste rock piles, and the idea that there's two different versions of this mapping, however, does your response still stand, that is, and I quote "while the design of the Sable waste rock storage area extends slightly beyond the boundaries of the Horseshoe watershed" Is that still the case?

**ED:** It's Eric here. No the written response here is superseded by what Charity said yesterday. The correct response and the way we should have expressed it in the response this year to say just that is was a, it was just a draft, I don't know what you'd call it, a drafting typo on the map, and that's great, it was pointed-out so the rock pile stays within the Horseshoe watershed.

**CHARITY CLARKIN (CC):** Charity Clarkin here BHP. I just wanted to add that we can provide an update to that figure, a corrected figure to the Board if that would help.

**NH:** Neil here with the Board. We've gone through all the comments in the table now. [discussion off-microphone of letting NSMA comment] Ryan has just reminded me at the end of the table there are a series of comments from the North Slave Métis Alliance, and if anybody wants to speak to any of those

responses, this would be a good opportunity to do so, even if NSMA are not here.

[silence]

**NH:** Neil here with the Board. No comments on the North Slave Métis replies to their comments. Okay, this is the point where we can take a deep breath and say, speak-now or forever hold your peace. We've gone through the comments, I think we've covered all the issues that we came here to cover. Is there anything pressing on anybody's mind that we've missed? That we need to go back and clarify? You certainly have the opportunity, of course, in your interventions to keep doing that. But just a chance while we're all here together, is there anything that anybody needs to question?

**TIM BYERS (TB):** Tim Byers IEMA. At the risk of flogging a dead horse, I just wanted to clarify some of our concerns regarding flow rates from Two Rock lake. Now if the flow rates are generated from what's already the case for the main license, from LLCF, I guess I would like to remind us all that the LLCF situation might be very different from the Two Rock lake in that the discharge from LLCF is being received by a *lake*, whereas the discharge from Two Rock is being received by a very very small ephemeral channel. So that I'm thinking that a water body is absorbing the energy from that pumping, from that pumped water, and so the scouring effect should be, I would think, less than the same pumping rate into an ephemeral stream. And I just want to make-sure we understand what the ramifications are of that pumping rate to the stream flow downstream of the Two Rock lake.

**LAURA TYLER (LT):** Laura Tyler, BHP Billiton. Yeah, I think we got it from the initial discussions, but while we brought figures over from the main license, we have to bear in mind that those figures have been used not just for Long Lake but also for King Pond discharges' maximum rate, and that does discharge into a stream, so we kind of show by, if you look back at history, that we take into account where we're actually discharging too and make sure that our rates don't

result in significant scour to stream beds, regardless of whether they are a full-flowing stream, a lake, or an ephemeral stream. So we take your point and that is something that would be included in our designs and when we carry-out detailed engineering designs and we risk-assess them as I said before, it does include environmental components because obviously a major risk for us by ignoring that would be that the DFO would be fining essentially by the day, so [laugh] So we do take all that stuff into account beyond the fact that we really try to stick to zero harm to the environment as much as we possibly can, so we'll take that point and make sure that it's communicated to the engineers who are doing all the design work.

**NH:** Anyone else? I'm going to propose just a short break before we finish up. But there's just one concern that's occurred to me and I see a potential problem and I haven't seen that anybody's addressed this yet. And this is the discharge from Two Rock Pond and the implications to fish habitat. And we have one stream that appears to have been modeled for the chloride dispersion, which is said to contain fish-rearing habitat, and any effluent that goes into that stream at the EQC limits could cause concerns for fish habitat. And this is the tributary stream from southwest lake. We have another channel which we've heard does not constitute fish habitat that goes directly from Two Rock Pond down into Horseshoe Lake. I'd like to ask BHP to consider, is there any way they can avoid the fish habitat in the discharge? You've said you're not sure which way the water's going to go, and you have no plans to control it, and yet if it was to get into the fish habitat I think we're going to have some problems here at the hearing. So I'd just like to encourage you to think of other ways to get that water into Horseshoe Lake and avoid the fish habitat entirely.

**ED:** Eric here. I think that's an excellent comment Neil, so when we're going away to put our information package together here, to do with EQCs and general, we will absolutely think about that and perhaps come-back with our ideas on how we can do that or not and but we'll speak to that in our information package that we're putting together here.



**NH:** Neil here. Thanks Eric. And I think it's actually covered under that information request to look at the implications of the discharge to fish habitat, but that would be a good point to consider as mitigation.

**BRUCE HANNAH (BH):** Yeah, Bruce Hannah, DFO. Just wondering if you guys would consider running a pipe to Horseshoe rather than putting it into the creek and avoiding the issue, something like that?

**ED:** Eric here. Again Bruce, thanks. I think that's an excellent idea, and it could be something that helps the situation, that we can work with. So we will definitely speak to that, again we'll think about that and when we put this information package together we'll definitely speak specifically to that, as to how we've considered that and incorporated that into our plan or not, either way. But it's an excellent suggestion, so thanks.

**NH:** Neil here. It's a quarter-to-three, reconvene at three o'clock. Thank you.

**BREAK**

*End of Tape 7*

**November 5 3:00 – End**

*Start of Tape 6*

**NEIL HUTCHINSON (NH):** From the Board, welcome back. I think we're all converging on the same time lines, I just found out that BHP's legal team are on the same flight as I am, at 5:15. So, I think we're all, not going to have too much trouble with meeting that. Bruce Hannah had asked if he could bring up one more question before we went into the final rounds here.

**BRUCE HANNAH (BH):** Yeah, Bruce Hannah, DFO. It's just about chloride. It seems on the discussion the last few days that chloride isn't expected to be an

issue for Sable test and just wondering if, maybe what we need to do is just rationalize why it's not included in Sable Pigeon Beartooth and then that would get rid of a major problem right now.

**Unknown Male Voice:** I'm sorry I missed the last part.

**BH:** I was just wondering, since chloride doesn't seem like it's expected to be a large issue from Sable, because it's staying within the permafrost and everything else, do we really need an EQC for chloride into Horseshoe Lake?

**ERIC DENHOLM (ED):** Okay, Eric here. Yeah, thanks for mentioning that Bruce, I think you're absolutely correct. We don't anticipate chloride to be a water quality concern at Sable for that reason. And I think looking at it from that point of view I don't think that there would be a lot of technical rationale for chloride, needing a chloride as an EQC for the Sable site, agreed. So, I'm not quite sure where to go with that. I mean we have the Clause in the Licence that requires a development of an EQC and we're well underway with, certainly with the derivation of a Water Quality Objective for chloride and I think that will be useful you know across the Ekati site, other spots, like LLCF. You know to work with that Water Quality Objective when we get that resolved, but the idea of following through and developing a specific EQC for the Sable site, no I don't think there's a technical need for that. I agree.

**NATHEN RICHEA (NR):** Nathen Richea, at INAC Water Resources. I think I remember yesterday was it Beartooth Pit that currently in the permafrost zone as well. I was just wondering if you could provide, maybe what the mine water, whether it's precipitation or inflow out of that pit, is? Thanks.

**ED:** Yeah, so, it's Eric speaking. So, so would it, why don't we do this? If it would, if it's agreeable to everybody, we've got our list of information we're putting together including discussion of some various parameters for this, for this follow up information, so in there we could include a little discussion of chloride that would summarize for instance chloride that we've seen from Beartooth Pit

being similar and staying within the permafrost zone and in support of this idea that there's not really a clear need to have an EQC for chloride in that licence.

**NH:** Okay. Thanks Nathen. Laura?

**LAURA JOHNSTON (LJ):** Laura Johnston, IEMA. Would it be possible in that material that you're putting together to give us some idea of then how it's going to be addressed at the wider slate? Because the, it is a requirement under Part I that seems that, the report on chloride, was a requirement and I think there'd been some expectation that that information could then be used on a wider basis, so if it's no longer required for the SPB site, how does, how will that be addressed in the bigger context of Ekati?

**ED:** Okay, well, at one level that's already written, this is already written in to our, our Watershed Adaptive Management Plan. Chloride is one of the water quality parameters and the threshold that was put out there for chloride was at the moment, in the version of the Watershed Adaptive Management Plan, it was based on the work that had been developed to date for the chloride water quality objective which was a 1,313. Three hundred and thirteen milligrams per litre at the hardness of 8,200, I think. So, as I say, just last Friday we completed and delivered into the Board the next step of the testing report on chloride which describes the testing that was done on the hardness toxicity relationship. So, that's the kind of thing, the next step for everybody to read and get a handle on. And what we said in the, in the Adaptive Management Plan is that we put the number that had been developed so far, 313 milligrams per litre at that hardness range with a footnote if I remember correctly just saying when, you know when this water quality objective value is resolved with the Board and approved with the Board, then it will be updated basically into the considered, the Adaptive Management Plan. It would just be automatically be updated with that final number.

So, chloride is written into the Adaptive Management Plan which applies specifically, you know to, to the Lesley Slipper Lake system below the LLCF as

well as that the Sable site and so on. So in terms of a mechanism to make sure that that work might continue, we, I honestly think there's a lot of ways to do that. It could be done, without needing it written in the water licence. We could be requested by the Board to just continue that work, we could write a letter saying we're committed to continuing to work on that, I'm sure there's something that would work, just to make sure that process continues.

**LJ:** Laura Johnston, IEMA. Thanks, that really was what I was looking for, some comfort whether it's in the licence or some other way of ensuring that it continues. And I look forward to that report, that came out on Friday, that I haven't seen yet.

**NR:** Nathen Richea, INAC Water Resources. I'm just curious, do you know off the top of your head what the corrected hardness value for chloride was?

**KATHLEEN RACHER (KR):** Kathy Racher, from the Board. The report that they are referring to we actually have just put it on our website, we just haven't sent it out for review, because we wanted to see how the technical sessions went first, but it is on the website, so you can go straight home and look it up.

**NR:** I heard the web site was down. [laughter] Nathen Richea, INAC Water Resources.

**NH:** Okay, Neil here. Any other technical questions here? Okay, if not I'm going to turn it over to John Donihee and he's going to talk about the process from this point forward.

**John Donihee (JD):** Thanks, Neil. I'm John Donihee for the Board. There's not a lot to say but I will repeat some of the things that the Board has already provided to you by way of direction. You know the scope of the process for the renewal of, Sable Pigeon Beartooth and the amalgamation, its amalgamation with the main Ekati Water Licence. There was a Board directive that was sent to, addressed to Laura Tyler on September 24<sup>th</sup>, so you know that describes generally what the Board wants to do. The rationale for deciding to

proceed in that fashion as set out and reasons for decision, that were issued subsequently on October 3<sup>rd</sup>. So, you know effectively those documents, not what I'm going to say, but those documents just in case I misspeak, they set the boundaries for the work ahead of us in this proceeding.

But just to repeat some of that very briefly, the Board has decided to amend the Ekati Water Licence to include in it the provisions of the Sable Pigeon Beartooth Licence. In completing this amalgamation the Board won't alter the current scope of either licence, so we're going to accommodate them both as they are. And it will consider any evidence submitted about the Sable Pigeon Beartooth Licence Terms and Conditions. So that's more or less what you've been talking about for the last two days and all of that is relevant and will be considered by the Board in Hearing when it's eventually held. It will also consider any changes that are necessary to the Ekati Licence to effect the amalgamation. So that's not throwing the Ekati Licence wide open it's just those things that are necessary to integrate these two instruments into a single one in the end. And I think that's an important thing for you to keep in mind.

You know obviously the technical sessions allowed you to explore the issues which are, were raised by all of the reviewers and responded to by BHP. But I do want to remind you that going forward, you know the next steps of course will involve some kind of response from BHP and then an opportunity for you to absorb that before you prepare interventions. But for both, for any party, including BHP that wants to effect a change to these licences. You know the burden of proof is on you to convince the Board that that change should happen. So, you know in the normal course of events, in a Hearing, you know the licence, or the applicant, or in this case the licensee, that's coming back for a renewal may want to make some changes to the terms and conditions of the licence that is about to expire. You know BHP will have to convince the Board that any of the changes that it wants make sense in the context of this new amalgamated Ekati licence. And if you disagree with what BHP is saying, you know you have the opportunity to convince, or attempt to convince the Board, that maybe that's not a

good idea. Or if you want to change something yourselves because of your agency's experience with the Sable Pigeon Beartooth Licence, you know I just want to remind you that there is a burden of proof. It's not, you know it's not a matter of just saying, you know that's not a good idea and therefore you should change it this way. You're going to have to convince the Board that those changes should happen. This is simply the situation that applies in every Hearing, or every proceeding that the Board undertakes.

The Board's work plan is in your hands, or should be in your hands. It's obvious that the work that you've done in the last two days will have some impacts on that. And it certainly seems to me, just on the basis of some conversations held today and sitting here and listening for the last few hours that there's a fair bit of new information to come forward. And I think it, rather than have it kind of jammed at you and try to proceed with the work plan as it currently exists, staff have, and I won't say too much more about this, but I think staff want to give some thought to where we've gotten to over the last two days.

I think our preference would be to see a Hearing that goes forward after everybody's fully informed and has the opportunity to absorb everything, rather than have the Hearing earlier and end up, or potentially end up with a hairball. So, you know that's the thinking that we have at the moment not to express it too finely. And I know Kathy may want to say some things about the process, but you know I think really we're, we intend to proceed in a general sense, all the steps that are laid out in the work plan so far are still all in the work plan. The only thing that may be in flux at the moment are the dates that are attached to them. So, those are my comments, other than what Zabey or Kathy may want to say.

**KR:** Okay, Kathy Racher here, from the Board. Yeah and I thought we would just give you an indication of the times that we're thinking about right now but noting that we haven't set firm dates and we'll have to get back to you with a firmed up work plan. BHP has indicated that the information that they've been

requested, that's been requested of them, is going to take probably two months to bring together and to do it justice. They want to do a good job and they want to make sure that everybody is fully informed and able to make good interventions at a Public Hearing when we have it. So that would bring a submission by them up to, you know, mid-January, early to mid-January and then we give everyone time to digest it and then form interventions, etc. We're looking at a Hearing date in late February, at this stage. So, and it can't go much later than that though because we have to get on with this and make sure it's in the Minister's office, mid-June, so that's our plan right now.

And in terms of the process I guess our idea is that we'll have, BHP will submit this information and we'll distribute it to everyone and BHP said they'd be willing to have a workshop or something to discuss it. And we're not, we're still thinking about that, we're not sure that that will be necessary. Perhaps once people have the information in front of them they can just use that to write their intervention. They'll either support BHP's proposals or come up with your own for EQC's based on the information that you've now got and bring those forward in your interventions, so, that's so far that's our thinking, is that, that's probably what would happen. Then we'll have a Hearing and discuss all the, all of this stuff. And after the Hearing we would, Board staff will put together a draft licence which would be an amendment of the main licence, so, the main licence with all the new SPB terms and conditions attached to it. And send that out for review by everybody and comment. And then draft the final licence and go from there.

So, does anyone have any questions at this time?

**NR:** Nathen Richea, INAC Water Resources. I guess it would, I think you mentioned that BHP thought there may be another technical session may be useful after the submission of the additional information. And I kind of lean towards maybe that being appropriate too. But I guess it depends on the submissions as well right? So I understand there are time constraints that are also forcing us, however I do think the merit of having a sit down discussion

similar to the last couple of days really help get your minds wrapped around certain aspects and could help focus the interventions on, maybe even some of the terms in the licence to help get the amended licence together. Rather than focusing specifically on the technical aspects again. But that's just my comment. I just wanted to put it out there.

The other thing that I was thinking about, because we will be seeing an amended Type A licence, it may be necessary to have a review time that's, you have enough, the reviewers have enough time to go through that amended licence because there's a lot of factors that need to be considered, such as flow and a consistency in making sure that certain things are enforceable and that kind of stuff. So I was just wondering if you had any idea of how long you may allow for review of the draft amended licence? Thanks.

**KR:** I was just looking over at Ryan who's the organizational guru. He just roughed out a plan that had four weeks to do that and but I would say that we wouldn't commit to anything right at this moment. We still have to figure out all the dates but that's kind of what we're looking at. We're not looking at a one week turn around. That was Kathy Racher.

**NR:** Nathen Richea, INAC Water Resources. Okay, thanks.

**ED:** It's Eric here, so just one, one comment, just so you know, I think, I think yeah, we have all the documents that you referred to John. And so the phrase, you know change is necessary to the Ekati licence to effect the amalgamation. I just, I think it's probably everybody's, it won't come as a surprise to anybody, but our view on that is that those are very, very minimal, okay and so flow and consistency I understand what you're saying but I think that we would be looking at that clause, you know and using that very literally as our guidance, so.

**KR:** Thanks Eric, and yeah I think that's pretty clear and you know if we're having a problem with flow, there's always ways to deal with that within the language, certain terms and conditions could just apply to Sable Pigeon



Beartooth if they have to. So, anyway, there's lots of ways to deal with that to make sure that the intent of the Board and their reasons for decision is followed through upon. Any other, did you have a comment, John?

**JD:** I was just going to observe that the use of the word flow there is talking about the document right?

**KR:** Is there any other questions or comments from anyone before we break up?

Nathen. He can't be quiet, alright, go.

**NR:** Nathen Richea, INAC Water Resources. I just wanted to thank the Board and for BHP for holding the workshop over the last couple of days and for helping clarify some of the concerns that were brought forward. Thanks.

**BH:** Yeah, Bruce Hannah, DFO. I'd just like to reiterate what Nathen said. I think this has been a really useful exercise.

**KR:** Compliments we always have time to wait for. This is Kathy Racher. Just as long as it takes, you know.

**LJ:** Well in that case we'll add the agency's compliments to the Board and BHP and for all the participants for the discussion. Laura Johnson IEMA.

**ANNE WILSON (AW):** Anne Wilson. I would like to say I found this very helpful. I could almost write my intervention, subject to the new information, right now. It's really cleared up a lot and it's, I found it very collaborative and co-operative. Thank you.

**LAURA TYLER (LT):** Well, BHP doesn't want to be left out, so, yeah, Laura Tyler, from BHP Billiton. I would like to offer my congratulations really and acknowledgement to everybody that's in the room. While I acknowledge the Board for doing this and I really want to acknowledge you for some excellent facilitation because I think it's ranked among some of the best facilitation that

we've had, because I've been to a few of these with the closure plan process. And I want to acknowledge everybody else for coming prepared and for having actually taken the time to go through our submission. As anyone who works for me knows, I'm obsessive about people actually completing their pre-reading and doing the work, so I really appreciate the fact that everyone came really well prepared to have, and had an open mind, and was able to bring to the table their opinions and in a respectful manner. And I really do appreciate that because it will make for a better licence than it is and a much better process. And it should hopefully get us to a Public Hearing that hits on the things that are really important to people. And not all of the noise that can go on around minor things which could actually be sorted out with just a conversation. So, I appreciate that. I want to thank everybody. And BHP's really appreciative of the input that everyone has provided over the last two days and going forwards if there are any questions on the information that we send out then please feel free to give us a shout so that we can actually provide any clarification that you need. If we do that, then we will commit to providing that clarification to everybody else, so that one person isn't finding something out that everyone else doesn't get to hear about. I just want to add that in, so that as we get, if we don't end up with a workshop, that we do actually, people feel that they can approach us for clarification on issues. And again, thanks a lot.

**ERIKA NYSSONEN (EN):** Erika, ENR. I'd just like to say thanks too. I don't want to be left out. And I look forward to a smooth renewal and a smooth Public Hearing. Thanks.

**KR:** Okay, Kathy Racher here, so thanks a lot for all that input into the process. And I think Laura's absolutely right it's because everyone was very well prepared and willing to listen and to discuss and talk and recognize common goals here. So, we really appreciate that too, because it makes our jobs infinitely easier, if we don't have to mediate if we're all on the same page. So, thanks very much for that.

The, we will with Neil here, draft the final list of information requirements. We've gone over them a few times but we'll write them down and give them to BHP and make sure when we do that, that you know that was your recollection as well. And we'll, at that time we'll circulate that list to everyone so if someone, if there's something that we forgot or misinterpreted, you'd have one last chance.

And finally, to thank our sound engineer, from Pido, yeah, you can wake up there. [laughter]. I'm sure this has been an exciting two days for him, that I really appreciate everything's worked fine. So, thank you very much. Okay. So, thanks and good bye.

## **ADJOURNMENT**

***End of tape 8***