MACKENZIE VALLEY ENVIRONMENTAL

IMPACT REVIEW BOARD

THOR LAKE RARE EARTH ELEMENT PROJECT -

AVALON RARE METALS INC.

EA1011-001

TECHNICAL SESSION

Facilitator Paul Mercredi

HELD AT:

Tree of Peace

Yellowknife, NWT

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Day 1 of 4

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TABLE OF CONTENTS

LIST OF COMMITMENTS

NO.	DESCRIPTION	PAGE NO.
1	Should the reagents change within the CA, Avalon notify the Board as soon as possible of that	173

--- Upon commencing

THE FACILITATOR MERCREDI: And good morning everyone. Welcome to the technical session for the Environmental Assessment of Avalon's Thor Lake Rare Earth Element Project. My name is Paul Mercredi. I'm an Environmental Assessment Officer with Mackenzie Valley Review Board. I'm the lead Environmental Assessment Officer on this file. To my left is the Senior Environmental Assessment Officer, Chuck Hubert. He is also on this file.

Thank you everyone for coming. The Board appreciates everyone's participation in this Environmental Assessment. And technical sessions are a very valuable part of the Environmental Assessment process that the Review Board undertakes. It is an opportunity for face-to-face resolution of any issues and to identify any -- any of those issues that are outstanding and -- and that the Board needs to bring its authority to bear.

So having said that, again, it is -- this is about resolution. Hopefully we can find that in the next few days. To -- just to make a couple notes, Chuck and myself, or anyone facilitating this -- these technical sessions, we're not decision-makers.

We -- we do work for the decision-makers. And essentially these sessions are to collect evidence for the Board to consider within the Environmental Assessment.

And so in -- in that light, there -- there might be disagreement on certain issues even within this -- this session. We ask, as facilitators, that those disagreements be kept respectful if they are there, again keeping foremost in mind that this entire process is about reso -- resolving some of those disagreements. But again, respect being the -- one (1) of the primary objectives here, should there be any disagreement.

This is not a hearing. There is -- a hearing is a little more formal. So there will be some order to this session, first and foremost being the agenda topics. Today Avalon will have the mic for most of the morning, and then we will move into water quality for both today and tomorrow.

There may be some time during breaks or even after tomorrow afternoon where there might be able to be some offline dialogue. Having said that, this is very much online. There will be transcripts. This -- this session is being recorded, and there will be transcripts. That is for the Board's consideration, to capture the context of the discussion appropriately and -- and so -- so that the Board can consider all of the evidence comprehensively at the end of the Environmental Assessment.

The Review Board is committed to efficient and effective Environment Assessment and again, appreciates everyone's participation. A couple of -- we have -- again, this is being recorded. So please speak into the mic clearly; don't shout. The sound tech will indicate whether or not you're speaking too quietly or if you're speaking too loudly. So basically don't eat the mic.

Please state your name and your affiliation, who you're working -- or, who you're speaking on behalf of clearly through the mic every time you do speak, because that is important. The transcripts do need to capture who is speaking and for who.

A couple of other housekeeping items; often during these technical sessions there -- there may not -- questions -- the developer may not be able to answer questions immediately. If -- and so there's -- we, as staff, try to capture those instances in three (3) ways.

One (1) is -- is -- we term as

"homework" and we will -- we will -- homework is something that the developer may respond -- they may not be able to respond today, but maybe tomorrow or it may be before the technical session is over. We will term that "homework". And again when the discussion comes to that, if -- if that's what we need to term it as we will call it "homework".

"Commitments" refer to changes from the development as it is -- as it has been presented by the developer up to this point. So if there is something that -- if there's a resolution at this point in the Environmental Assessment that basically the developer is comfortable with making commitment to change their development, if that's the conclusion that they've come to, we term that as "commitment" and it becomes part of the evidence that the Review Board considers comprehensibly in the Environmental Assessment.

Undertakings are essentially homework that may -- may take a week or so to respond, and basically it's if the developer needs more time than -- than this week to -- to be able to respond. The due date for the undertaking, having been -- needing more time, would be August 31st unless the developer requests a later -- an extension to that -- to that deadline.

One thing I will say about both under -- undertakings, homework, and commitments we will ca -- stop and capture the context of the discussion and get the wording, in fairness to the developer, while the discussion is happening and will not revisit it. So that is in fairness to the developer so that -- and -- and also to parties so that it is captured proper -- properly. And -- and so basically we will stop, capture the context, and move on.

With that, other housekeeping items, we will take some health breaks periodically throughout the week and today. We will take lunch breaks, roughly an hour, breaking hopefully before noon strikes and then getting underway right at 1:00. Washrooms are to my right, everyone else's left I guess, at the back there. We do have coffee, water, and snacks so just to -- to my right in case anybody is so inclined.

What we'll do is I'll turn the mic over to Chuck for any -- if he has any words. We will do a quick roundtable for -- for who is here, and then we will turn the mic over to Avalon. Without further ado, Senior Environmental Officer Chuck Hubert.

MR. CHUCK HUBERT: Thanks very much,

Paul. I'd just like to remind people as well that the -- there's a conference call attached to this meeting, so there may be some parties on the line. And we'll -- when we do the roundtable we'll ask them to identify themselves. And periodically throughout the day we'll also ask if anybody is online just so that we understand who's -- who is speaking that isn't necessarily in the room.

With that, I'll start the roundtable and I'll go to my left. My name again is Chuck Hubert, I'm with the McKenzie Valley Review Board.

MR. RALPH GRISMALA: My name is Ralph Grismala. I'm with ICF International. I'm a technical specialist supporting the Review Board in this analysis primarily on the water quality line of inquiry.

MR. SIMON TOOGOOD: Hi, I'm Simon Toogood. I'm an EAO with the Review Board.

MR. NATHAN RICHEA: Hi, it's Nathan Richea with the Water Resources Division of Aboriginal Affairs and Northern Development Canada.

MR. PAUL GREEN: It's Paul Green, also with the Water Resources Division of Aboriginal Affairs.

MS. ANNE WILSON: And Anne Wilson with

Environment Canada.

MS. SARAH-LACEY MCMILLAN: Sarah-Lacey McMillan with Environment Canada.

MR. JAMES HODSON: James Hodson with the Canadian Wildlife Service of Environment Canada.

MR. ALBERT BOURQUE: Albert Bourque, Regional Environmental Assessment Coordinator with the Government of North West Territories, Environment and Natural Resources.

MS. HENRIETTA NOTZL: Henri Notzl, Avalon representative, hydro metallurgy.

MR. JIM STRONACH: Jim Stronach, also working for Avalon on the water quality modelling.

MR. KEVIN HAWTON: Kevin Hawton, I'm with Knight Piesold, working for Avalon on tailings management.

MR. MARK WISEMAN: Mark Wiseman, Health, Safety Environment committee.

MR. DAVID SWISHER: David Swisher, VP of Operations for Avalon.

MR. RICHARD HOOS: Ri -- Rick Hoos, with EBA, head of the environmental consulting team for Avalon with EBA.

MR. MARC CASAS: Marc Casas, from the Mackenzie Valley Land and Water Board.

MR. LIONEL MARCINKOSKI: Lionel Marcinkoski with AANDC Environment Conservation.

MS. SARAH OLIVIER: Sarah Olivier, with Fisheries and Oceans.

MR. RICK WALBOURNE: Rick Walbourne, Fisheries and Oceans.

MR. TODD SLACK: Todd Slack, YKDFN.

MS. SHANNON GAULT: Shannon Gault, YKDFN, executive assistant for Chief Edward Sangris of Dettah.

MS. LAURA JONES: Laura Jones, and I'm with Transport Canada.

MS. CAREY SIBBAKEL: Carey Sibbakel. I'm with Stantec.

MR. JAKE HERON: Jake Heron, with the NWT Metis Nation.

MS. STEPHANIE POOLE: Stephanie Poole, NWT Treaty 8 Tribal Corporation, the Akaitcho IMA office.

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

MR. LON POTT: Lon Pott (phonetic), Pudo (phonetic) Statistics, GNWT.

MR. RUSSELL TEED: Russell Teed, GNWT

in minerals, oil, and gas.

MR. SHAFIC KHOURI: Good morning. Shafic Khouri, Environment National Resources, GNWT.

MS. KATE WITHERLY: Kate Witherly, Northern projects management office.

MR. GAVIN MORE: Gavin More, GNWT.

MS. KELLY CUMMING: Good morning. I'm Kelly, from Avalon.

MR. DONALD BUBAR: Don Bubar, President and CEO of Avalon.

THE FACILITATOR MERCREDI: Thank you. Welcome, everyone. And we will go to the teleconference line to -- anyone on the teleconference? Is anyone on the teleconference line listening that can introduce themselves? And once again, thank you everyone, for coming. And without further ado, David Swisher of Avalon.

PRESENTATION BY AVALON RARE METALS INC:

MR. DAVID SWISHER: Great. Thanks, Paul. So I appreciate the opportunity to be here. And since we've already done introductions, we'll get started here shortly with our presentation.

(BRIEF PAUSE)

MR. DAVID SWISHER: Just try not to make it squeal. Yeah. So just -- I just want to state that I see a lot of familiar faces in the room here, which is good. And I look forward to some productive discussions today.

So we have a presentation at the request of MVEIRB this morning, and the presentation's going to cover several components. But at the beginning, Don Bubar would like to provide a corporate overview, which I think would be very useful for people in the room or -- or those who maybe don't have as much of a background on the -- the project from a corporate standpoint.

So with that, we'll introduce Don Bubar to start the presentation.

MR. DONALD BUBAR: Thanks very much, David. Can everybody hear me? I thought it would be useful context for these technical sessions to share a little bit with you about who we are, what we do, why we're here today, a little bit about what these rare earth elements are, why they're important, and also talk a little bit about opportunities.

I realize technical sessions like this are to discuss some of the risks associated with natural resource development. With all these risks there are opportunities. And my intention here today is to describe some of the opportunities that this project presents for the Northwest Territories.

The rare earth elements are nontraditional commodities. They have never been produced before anywhere in -- in Canada, let alone the Northwest Territories. They are emerging commodities with a very bright future. So we think this project is a very attractive new development opportunity for the North. It would position the North as a leader in the production of these -- these new commodities that are now vital to new emerging clean technology and high technology.

I am not a technical expert, so I'll leave that our panel here to discuss some of the technical issues that are the focus of this presentation today. And I'd just like to provide you with a little bit of background on who we are and what we do. Next slide.

Just in case there are some investors in the audience, I'm obligated to remind you that you shouldn't rely on any of the forward-looking statements that I make in this presentation, should you be so motivated to be an investor.

So these are the various elements of

the presentation that we will try to cover today, or this morning, I guess. And I'll look at discussing the first three (3) in overview discussion of rare earth markets, what they are, what they're used for, and a little bit of an overview on where we're at on the project.

So we are a public company. Our shares are listed on the Toronto Stock Exchange. We are also listed on the MKT Exchange in New York. This provides some information on the capital structure of the company. Basically we're about 160 million US dollar market valuation right now at current -- at the current share price.

The key bit of information on this slide really, for investors, is how much money we have in the treasury. We're a public company that has no revenue at this point in time from operations. We're a development-stage company. We rely on the equity markets to raise capital to fund our operations.

And in that regard we're reasonably well funded. We have $38 million in our treasury right now, with no debt, which we consider sufficient funding to complete the next major milestones on the project which, of course, is a definitive feasibility study on the Nechalacho project.

We now have some thirty (30) employees in total in this company. Not that long ago it was one (1) employee, yours truly. So we've had quite a bit of growth over the last few years as -- as we've started to demonstrate what kind of a wonderful opportunity the Nechalacho deposit offers the world generally. And we've been steadily add -- added -- adding to our management team.

We have two (2) offices, one (1) in Toronto, one (1) in Vancouver, and an emerging office right here in -- in Yellowknife, staffed by Kelly Cumming. Go ahead.

This is our board of directors. We have eight (8) people on our board, representing kind of a cross-section of expertise. We have bankers, lawyers, accountants, a technical person in Richard Morland. Two (2) of our directors are actually resident here in Yellowknife. Richard Morland may be well known to many of you here. He has been the president of BHP Diamonds and still does consulting work for BHP. He's a mining engineer.

And David Connelly is well known in this community, too, for -- as a consultant to First Nations and government. And, of course, Phil Fontaine is a -- is a well-known name in the community across

Canada as a Aboriginal leader, former National Chief of the Assembly of First Nations.

So I've got a -- a good cross-section of people to cover most of the areas of expertise that we need at the board level.

Our management team has been steadily growing over the last few years. Two (2) of the senior officers of the company are here today in David Swisher and Mark Wiseman. I mentioned Kelly Cumming there earlier.

We've had one (1) new addition to the team just in the last few weeks. His name is David Marsh (phonetic). He's filled the position of Senior Vice President of Metallurgy. This was a really key position that we had had vacant for a while.

People with the kind of expertise in the extraction of the rare earth elements are very scarce. There are not very many people like him around looking for work. It took us quite a while to recruit him, and we're really pleased to have him on board now to lead us through the remaining development work on the extraction processes to recover the rare earths from the ore. Go ahead.

So as I said at the outset, rare earth elements and the rare metals generally are these niche market commodities that are now seeing growing demand from new technology. They have become vital enablers of many of the popular electronic products that we've all come to rely on. Hand-helds, your iPads, laptop computers all make use of rare metals generally and the rare earth elements.

As you saw in the first slide, the title slide, the wind vanes, clean technology, renewable energy are -- are the, sort of, big, looming, new demand on the horizon for the rare earth elements. Rare earth elements are used to make the high-strength permanent magnets that go into electric motors and generators that make them more efficient and allow miniaturization of all these electronic products into the forms that we need today.

So they have -- traditionally had very small markets, and those markets are starting to grow because of the new demand that we all know is -- is coming from these wonderful modern products. Go ahead.

Nechalacho is our flagship project; it accounts for about 98 percent of what we do right now. But we're not just about Nechalacho and the rare earth elements. We've been in this rare metals business for fifteen (15) years now and have a pipeline of other projects that offer opportunities for us to grow our business going forward by developing other compatible commodities elsewhere in North America to ultimately offer our customers a broader range of -- of similar products. Go ahead.

So a little bit about some science here. I know there's a lot of scientists in the room. So what are these rare earth elements and why should we be interested in them? And what are some of the characteristics of them that are relevant to these discussions here today?

So the -- the rare earths, we've shown rare metals and rare earths here. And it's a bit confusing for a lot of people in the general public because of the double usage of the word "rare".

Rare metals is kind of the umbrella term, so that encompasses these rare earth elements which are also known as lanthanides, these guys down at the bottom of the slide and listed on the right-hand side. And the rare metals includes other kind of critical metals, specialty metals such as lithium, rubidium, cesium, zirconium, niobium, tantalum, indium, gallium, germanium, and a -- and a few others.

The rare earth elements are -- are unusual though in -- in the periodic table. They are a group of fifteen (15) elements. They only ever occur all together. They're fairly widely dispersed in the earth's crust. They're actually not all that rare, in terms of crustal abundances, but they're not very often concentrated in one (1) spot to allow them to be economically recovered.

There's no known toxicity associated with the rare earth elements. They are metals, but they typically occur in an oxide form; hence the use of the term "earths" in how they're described.

A couple of important facts about them that are relat -- relevant to the economics of them is that these fifteen (15) elements, they all occur together and -- but where they do occur, they don't occur in equal abundances. And the abundance tends to decrease with increasing atomic number such that the first five (5), known as the "light rare earths", of lower atomic number are typically much more abundant in any one (1) resource than the rest of the series, known as the "heavy rare earths".

That didn't used to matter. Historically, most the uses of the rare earth elements were for these light rare earths. But what's happening now is material science innovation has started to find more and more creative ways to use the unique properties of these heavy rare earths, yet few of the known resources in the world have any real endowment in these heavy rare earths.

So what the world really needed to come along now was a rare earth deposit that had a higher proportion of these heavy rare earths to serve this growing need. Those deposits are extremely rare, and that's the attribute that Nechalacho has that makes it such an attractive development opportunity, is its unusual endowment in these much more scarce heavy rare earths. Go ahead.

So this slide shows graphically how the relative abundance of the heavy rare earths and light rare earths in our deposit at Nechalacho compares with some of the other better-known examples around the world. Mountain Pass is the historic producer in the United States, being developed by Molycorp. Bayan Obo is the big producer in Inner Mongolia and China. Mount Weld is a development-stage project in Australia, as is Nolans.

And what this shows is the bottom of the bars is the five (5) light rare earths, and the flesh colour at the top is the heavy rare earths. And you can see at a glance what a dramatic difference there is in abundance in the heavy rare earths in

Nechalacho compared to these other better-known deposits. So that's the -- that's the important attribute.

The other important factor to appreciate with the rare earth elements is that right now the supply side is totally dominated by China. Most people are aware of that now. That's been in the news quite a bit in the last few years, how China controls this market. And it is a reality. Right now there is no significant production of rare earths anywhere in the world outside of China.

And what's been happening is, is China has grown economically and in -- is industrializing -- and this is the case for other commodities too -- internal demand for rare earths is now growing at a very rapid rate. It used to be that China would produce many commodities greatly in excess of internal demand. But that's all changing now. As China continues to rapidly grow, their internal demand for all commodities is growing very quickly and outstripping their ability to supply their own needs.

And that's now happening with the rare earth elements as well. And as a result of that, they're starting to apply restrictions on the exports of rare earths to other consumers around the world to make sure that they look after domestic requirements first.

And, of course, this creates a really big problem for everyone around the world that was using rare earths and relying on China to supply them, because they don't have any other alternative place to go to get them if China decides they can't supply them any -- any further.

So that's the -- the opportunity that's presented itself to companies like us, is to become that new source of supply for rare earths for consumers around the world outside of China. Go ahead.

There's quite a bit happening in that -- that space these days. I'll show you a little bit about how the prices have evolved in the next slide, but China continues to take action to manage the indu -- industry more carefully there.

Historically it's been a very disorganized industry with lots and lots of very small, kind of cottage industry operations that were operated extremely inefficiency -- inefficiently with serious environmental consequences associated with that.

So they have been very diligent in

trying to consolidate the industry to get rid of all these inefficient operations that were creating the environmental issues and reorganize the industry to make it more efficient, from a production standpoint.

While they do that, that has reduced some of the production, creating an even greater issue on the supply side. And that has had a predictable effect on -- on prices, because demand is going up and supply is actually going down. So that pushed prices up quite significantly over the last few years, further highlighting the opportunity that's presented itself for new producers around the world.

There is some consolidation happening in the industry right now. Molycorp acquired a Canadian company called Neo Materials with -- that had most of its operations in -- in China, recently that allowed them to diversify downstream into some of the aspects of the business that involved manufacturing the secondary products. Go ahead.

So I was talking about prices. This is in chart form. And we have the light rare earths at the top, heavy rare earths at the bottom. These are current prices. I just updated this for -- from the website, Metal-Pages, that -- that tracks these prices, last week.

A couple of important things to understand about rare earth prices; rare earth elements are not a mainstream commodity. They are not exchange-traded. So these are indicative prices. The -- they are sold under contract between producers and consumers. So the prices are negotiated based on what people think the overall supply/demand situation in that marketplace is.

So these are prices that are not based on posted bid and ask in an auction market. They are prices that are -- are reported based on a survey of in -- of market participants, finding out what they have been doing recently. So it give you an idea where the prices are. But that's not -- they're not typical quoted prices as you're used to seeing for COMEX-traded commodities, like gold, for example.

All of this trade is in China. The prices that are quoted are on the basis of being exported from -- from China. And what you can see at a glance is that the heavy rare earths, because they're much less abundant in a typical deposit, attract much higher prices than -- than the light rare earths.

Over the last year, we saw tremendous price volatility because of the -- what was happening in China, in terms of restricting supply in the face of increasing demand. And then some of these prices went ballistic, actually.

Lanthanum and cerium, the two most abundant light rare earths, used to trade for sort of four (4) or five dollars ($5) a kilo in 2009 and went up to some hundred and forty (140), hundred and fifty dollars ($150) a kilo in -- last summer, a huge increase that obviously wasn't well received in the marketplace by the consumers that were used to paying four (4) or five dollars ($5) a kilo.

And that actually was not a healthy development for the long-term sustainability of the market, in that consumers that were forced to pay these higher prices were obviously motivated to look for substitutes. And in some of these applications, there are alternatives that they -- that they can go to.

But fortunately, the prices have started to come down to what we believe are more sustainable levels in the longer term. Lanthanum and cerium will never be in short supply. It's the -- really these heavy rare earths that are the key ones that continue to be in short supply, because most deposits do not have sufficient endowment to meet the current demand. Go ahead.

We talk about rare earths as a group, and this is -- but really they -- each rare earth is its own commodity with its own supply demand fundamentals. And because when you produce them you have to extract the whole group of rare earths as a group and then refine them later to isolate them into their individual forms, creates these imbalances in the supply.

And all deposits, as I showed you earlier, lanthanum and cerium are the most abundant. And so this chart shows how the -- the demand is expected to evolve over the next few years.

And with the new supply coming into the market from emerging new producers, such as Molycorp and Lynas, there will be new supply of the light rare earths into the market but not so much of the heavy rare earths, because those deposits do not have much in that mix.

So the forecast is, is that for the light rare earths there should be increased supply, perhaps in excess, in 2016, but the heavy rare earths will continue to be in short supply. So if you're going to enter that market, you really need to have the heavy rare earths to offer. And that's, again, the key attribute that we have at Thor Lake that makes is such an interesting development opportunity.

Briefly on the supply chain, one (1) of the main differences with rare earth elements compared to more familiar commodities is there's an extra step involved in the process in refining to produce a saleable, useable product.

In the mining industry, generally we're used to an underground mine or open pit mine, and then a mill that concentrates the mineral, and then a further process that gets the metal of interest out into a -- into a useable form.

In the rare earths business, because you've got these fifteen (15) separate elements that all come out together, there's a further step afterwards called separation refining required to isolate each one (1) of the individual rare earth elements. So that adds another layer of processing and cost to their extractions.

So there are four (4) steps involved to producing a product that we can sell. And then after that, there is further refining required to turn it into the forms that are used in some of the applications that -- that I showed you earlier.

So these steps are -- each require a

separate processing facility. And therefore, it's quite a bit more costly to extract and refine the rare earth elements than it is for other more familiar precious metals and base metals.

And that partly explains why there isn't any production of them outside of China right now, is because as long as China had an excess supply, nobody was particularly motivated to invest the billion dollars or so that's needed to build a rare earth production situation if there was a threat that China could bring vast new supply into the marketplace.

And so no one was willing to take that risk until recently, when it's become more clear that China no longer represents that -- that kind of threat because of the huge growth and internal demand for these products inside China.

So what we're seeking to do is these first four (4) steps, and these first three (3) would be done in the Northwest Territories, as David and others will be elaborating on later. Go ahead.

So this slide is -- talk about the opportunities a little bit more in terms of what it might mean to Canada Northwest Territories in particular once this operation gets going. This was based on a study that was done by a consultant using the data generated for our 2010 pre-feasability study, so already out of date to some extent, as the model for the definitive feasibility study will be different than this.

But you can see at a glance that this will generate enormous revenues for the -- for the Government of Canada, and at least half of that will flow directly to the Northwest Territories, and enormous new opportunities in terms of employment and spinoff benefits to providers of goods and services to -- to the industry.

And this is based on just that initial model for the pre-feasibility study. We've since expanded the resource, so we know we're not going to be limited to an eighteen (18) year mine life. This is a very, very large deposit that offers a multi-generational development opportunity to the Northwest Territories. This -- this operation, once it's off the ground, as long as there continues to be demand for the rare earth elements, could be in operation for many, many decades and be ultimately a pillar of the economy going forward for the North -- Northwest Territories.

And we think these numbers are actually

conservative. As the demand grows, the size of the operation could -- can grow. We're not limited by the size of the resource in terms of how much we could produce. And therefore, the operation could grow in size and also in terms of its wealth-creation opportunities for Northers -- Northerners and Canada generally. Go ahead.

It is a competitive marketplace though. Because these are not exchange-traded commodities and you have to negotiate contracts with consumers, it means you're in more of a -- a competitive business than what you're used to in the gold or the copper business. So you have to go out and find customers and get them to commit to buying your product in order to access the capital to actually build this operation -- an operation like this.

Because there's quite a bit of interest, we're not the only company trying to do this. And therefore we're in kind of a competitive situation, where there's an opportunity to capture that available market share outside of China, which is available basically on a first-come, first-serve basis to the first new producer that can emerge to supply that -- that need.

Because we started early, as I'll show

you in a minute, we're -- we consider ourselves one of the leaders in that race. But we have to be wary that we've got to keep things moving along here or otherwise we run the risk of others catching up and passing us and perhaps usurping that -- that opportunity.

But the fact that we've got such a good deposit puts -- with the high proportion of heavies gives us one (1) strong advantage. And the fact that we're -- we started early and we're already at that feasibility study stage is very important because it allows us to now enter into serious discussions with customers about committing to buy these -- these products, which is essential to being able to secure the financing to actually build this product at the end of the day.

And we've also done enough work on the -- on the metallurgy now that we think we've got a viable flow sheet for -- for recovering these that we're now taking through the pilot plan stage and into design for feasibility. That puts us well ahead of others as well. Go ahead.

So kind of where we're at and where we're going, very quickly; obviously, we'll get into this in more detail. We started our community engagement with First Nations and Aboriginal groups here in the North very early, right when we first started on the project in 2006. And we have one (1) comprehensive accommodation agreement that we've signed fairly recently with Deninu K'ue First Nation at Fort Resolution, and we're working on finalizing the remaining agreements that we've committed to doing in the next little while.

We -- we are working very hard on finding customers. As I said, finding those customers is key to being able to find the financing to build this. We're -- we're looking at capital expenditures in excess of a billion dollars to build all elements of this project. That's a lot of money for a company that has a market valuation of $160 billion.

So we're not going to be able to do that all on our own. We need partners, both at the community level and at the business level and, ideally, a strategic investor that's a consumer of these to partner with us on the project to show the banks and financial institutions around the world that we really do have committed customers willing to buy this material to allow us to secure that financing.

So having all the other elements of the project kind of fall in place within that timetable of working with con -- customers and -- who want to know when they're going to actually receive the material at the end of the day is critical to getting this project off the ground.

So we're working towards getting this process completed by the first quarter of next year, around the time that we'll be trying to finish off our definitive feasibility study. And hopefully the land-use permits will fall in behind that fairly quickly so that we can show the banks and the customers that the project's moving ahead on a predictable timetable that will allow everybody to forecast when they're likely to see that first -- first production come out of the ground.

And in order to be able to do that, we need to get started on construction work at the site by the middle of next year. So that's kind of the sort of important elements of the process that we're in right now, from a timing standpoint.

And lastly, this is kind of our overall project schedule. I think there's one (1) more slide there, David. There we go.

So this is -- goes back to 2005. I like to show this in this format. It's kind of a busy slide, I realize. But going back to 2005 shows you when we started and just how long of a process it is to get one (1) of these operations off the ground. We started in 2005. And in a best-case scenario right now we're looking at having initial sales to offer our customers in 2017. That's a twelve (12) year timeline in order to get one (1) of these operations off the ground.

And I would submit to you that's actually doing it fairly quickly, believe it or not. It sounds like a long time, but with all the exploration and development work, feasability work, and environmental assessment work that we're involved in now, and then the construction and commissioning process, it just takes quite a long time to get one (1) of these projects off the ground, which means you need committed investors early on that see the upside to stick with you to make sure that you can get to the finish line.

So we'll talk a bit more about some of the elements of the schedule as going forward, but I guess as I've elaborated already, in order to get that -- to meet that date, we've got to start this construction work and commissioning sort of in the latter part of this year, which means getting some of that project financing in place perhaps even before we've got all the 'I's dotted and 'T's crossed on our feasability study.

So that's a -- a considerable challenge, and it really revolves around this part of the work here, market development and securing that strategic partner that's willing to come in as an investor and -- and help back the project and use their strong balance sheet to convince the banks that this a -- a project worthy of -- of providing debt financing to.

So I think I can leave it there, and I'll be happy to answer any questions either now or as the day proceeds. Thank you for your attention.

THE FACILITATOR MERCREDI: Thank you, Mr. Bubour. If there are any questions -- if there are not any questions, we'll move directly to David Swisher and -- with his presentation.

And I'm not seeing anything, so I will hand the mic over to David. And we do request a copy of that presentation for the public registry.

MR. DAVID SWISHER: I'd expect nothing less. All right. So I'm just going to take you through a little bit of our current initiatives and we'll then get into the project and start talking a bit more on the specific technical items that I think everybody's waiting for here. So thanks to Don for a very informative corporate and high-level overview. Oh, my name is David Swisher with Avalon Rare Metals.

And so just for those of you who maybe aren't as familiar with the area, this just shows a -- a nice area of the -- the NWT surrounding Great Slave Lake. From Yellowknife we're 100 kilometres south and east of -- of Yellowknife. And from the Nechalacho project, it's composed of a couple components here in the NWT. We have the Nechalacho site, which will host a mine and a concentrator. And then on the south side of the lake at the old Pine Point site, we'll have our hydromet plant located between Fort Resolution and the Town of Hay River. And then the railhead for CN for railing items, both supplies to the north and products to the south, runs out of Hay River.

And -- so as I mentioned, our project is a bit unique than other projects in that we've got several components of our project. We have a -- a mine and a mill, which I think most everybody is -- is used to seeing. We also have some secondary processing in the hydrometallurgical plant, which is really a -- a first here in the Northwest Territories, which can open up a lot of opportunities. And then we have a separation plant.

And those components, as you can see by the data here, the intention is to mine underground at 2,000 tonnes per day. That's somewhat of a moderate production rate. We will crush that material underground. We'll convey it to the surface. In the surface it will go through a concentration flotation process. It will get upgraded at a five (5) to one (1) basis.

That material then, the waste material, will report to two (2) streams, report to a paste fill plant and report to the tailings management facility, while the concentrate gets loaded into intermodal containers and then shipped across the lake to the hydromet plant via barge during the summer season. Nechalacho mine and mill will employ about two hundred and twenty-five (225) employees.

At the hydrometallurgical plant in Pine Point, will receive the material in those containers. That material will go through a, basically what we call an acid-bake process. That process extracts a good portion of our light rare earths and half of our heavy rare earths. That will get dried and packaged, because we don't want to lose that valuable product. And that will get trucked to the Hay River railhead and then railed south to the separation plant.

The remaining product that comes out of the acid-bake process is a residue. That residue will also get trucked to the Hay River railhead, and it will get shipped south for further sales or refinement.

And at the hydromet plant, we'll employ about sixty-five (65) employees. And that number -- both of these numbers, obviously, are subject to some variance, but we certainly don't see those numbers decreasing.

And the separation plant, right now, in most of our -- our latest information disclosure, we've indicated a Southern US or the Gulf States region for the separation plant. And that's predominantly because of the close supply of the high quantities and high expensive reagents that are required for the separation plant.

So some of our development activities to date, as Don indicated, we've completed a -- a pre-feasibility back in 2010, which was the first pre-feasibility to a 43-101 standard that had ever been released to the public for a rare earth project. And then a year later, in 2011, we decided to do an updated pre-feasibility. And it wasn't until May -- I think May this year that another rare earth competitor finally came out with another pre-feasibility.

So, essentially, there was a two (2) year period where we were kind of the leaders in the industry. And we still look at ourselves as the leaders in the industry with regards to not only the technical aspects of the rare earth process, but also in terms of our advancement in -- in getting to the markets.

We are working on a definitive feasibility study, where we've engaged SNC-Lavalin to work on this feasibility study for us. SNC-Lavalin is a -- is a leader in EPCM, engineering, procurement, construction, and management. And so they were a very good fit to work on the feasibility study for us.

And that feasibility study is going to focus on the Nechalacho mine and flotation plant, the Pine Point hydrometallurgical plant, as well as the incorporation of the separation facility in the Southern US.

And as I mentioned, EPCM bids, that is usually the next stage after feasibility. And we anticipate once we complete the feasibility study, or we get close to completing the feasibility study, we actually have to start work on the EPCM stage very early next year.

And as Don indicated in his presentation, you know, we are -- we are hopeful that we'll be able to start some of the early works construction activities next summer. And that -- that is in order for us to meet the market requirements in that schedule that Don showed you, to get supply into the marketplace by the end of 2016, beginning of '17.

So it's a -- it's a bit of a race that a lot of the rare earth companies are in right now. And we feel we're in a -- a very good position to -- to get that share of the marketplace, but it's a very important component to the project.

And then, of course, this year -- towards the end of this year and into next year we'll be adding on more personnel. As Don mentioned, we have thirty (30) people already with Avalon. And we've -- we're going to have to increase that as we advance to the production stage and construction.

And then our community engagement and -- and product marketing, those are ver -- two (2) very important aspects to the -- the project advancement. And we're working with our Akaitcho First Nations each step of the way with this project as well and we're -- we're quite happy and pleased with that progress.

And I think everybody in this room

probably knows where we're at. We're in technical sessions. But it's certainly been a road starting with the Land and Water Board transitioning into the Environmental Impact Review Board. And, of course, now we're in the technical sessions. And, you know, we're hopeful that we'll be able to have positive discussions today to answer any and all questions that come up.

We feel we have a very good project and we're very fortunate in a lot of ways that I'll explain in -- in my project update here in just a few moments. We did get a new five (5) year permit for the drilling activities at site in July of -- of last year. And that continues to occur but on a limited basis right now, mainly for infill definition drilling of the deposit, not necessarily the nec -- any more exploration drilling. We -- we have a very sustainable deposit in what's there right now. The -- the goal now is just to get that deposit into an operating state.

We've completed -- through the help of Stantec/Det'on Cho, as well EBA, we've completed four (4) years of baseline work, and Etcholacho (phonetic), and so we -- we feel quite good that we have quite a lot of environmental baseline work, maybe a bit more than -- than what you would normally see, but we have a very good handle. And the experts that we have here today have a very good handle on that environment.

And, of course, we have a land use permit to extend our airstrip for the safe import of employees. And due to just some of the timing, we hope to start that construction next summer as well.

Our community engagement is very important. And, of course, with the project being located in Akaitcho territory we're -- we're very much engaged with our primary First Nation partners, being that of Deninu K'ue First Nation, the Yellownives Dene First Nation, and Lutsel K'e Dene First Nation, as well as our Metis partners through the Northwest Territory Metis Nation, North Slave Metis Alliance.

And so what's important is that we've -- we've first -- we've completed our -- our first accommodation agreement with the Deninu Kue First Nation, and we're -- we're very close with the other two (2) aboriginal partners. And we're very pleased to -- to have them become a part of our -- our project from a sustainability standpoint so that we can both benefit and we can both make sure that we're comfortable from an environmental aspect throughout the project life.

There have been a lot of training initiatives that have happened already through the existing exploration and drilling program through a lot of -- whether it's safety training, a lot of safety training through first aid, but also through fire safety, through camp safety. We've done driller -- supported driller training. So we've got a -- we've got a lot of successes in supporting the training initiatives which we're going to carry right into construction and operations.

Employment at the site has been very good from an aboriginal participation. In 2010 and 2011 we averaged about 50 percent at the exploration camp. Of course, that was in construction operations we'll be endeavouring to -- to maintain high numbers of employment from our aboriginal communities to help build sustainability within those communities as well.

And we have a lot of business contracts with our aboriginal partners, whether it's through Stantec, Stantec/Det'on Cho, Feraco (phonetic), whether it's through the Dene Suline Corporation in Lutsel K'e, and also the core box (phonetic) business that Deninu K'ue has developed and providing us through this project. So we're quite proud of -- of those items that help build that sustainability in the communities.

Our corporate social responsibility. I think this is very important context for the people in the room because we're not just another developer trying to ramrod this process to get a project running because we're more concerned about the bottom dollar.

Yes, we are concerned about the bottom dollar, I'm not saying we're not, but we are also very committed and very concerned with our cor -- corporate social responsibility. And I think we've shown that here by 1) with Don Bubar's participation and his actions in PDAC and, of course, receiving that award in 2010 for environmental and socially responsible sustain -- acti -- continued activities in PDAC, particularly on the aboriginal front, has been very important and -- and is a -- a key value driver for the company.

What's also very important is that even at an exploration stage this company was the first to invoke the E3 Plus Program that PDAC put out and that's a sustainable program for responsible exploration.

Well, we've continued that as we get closer to a construction phase into the Mining Association Can -- of Canada's towards sustainable mining initiatives. And there again, it's -- it's another commitment that the company has made in its CSR approach.

We did early on, which was unprecedent (sic) for a company of its size, two (2) years ago we did a -- we had Jantzi-Sustainalytics do a sustainability performance report on the company. And we did this so that we could understand where we could improve, what can we do, how can we set ourselves up for the construction and operations phase. So I think our actions can dictate that we are not just another fly-by-night company coming in to try to rape and pillage but we're a sustainable company that wants to build sustainability in the regions in which we work, whether that be in the NWT or whether that be elsewhere where we have other projects. Ideally, we would like to start in the NWT.

We've also completed a comprehensive sustainability report in 2012 and that is due in most part to Mark Wiseman, our VP of sustainability, and that was a huge commitment by the company as well during this stage of our development. Normally, you don't see that except in operating operations. And so Mark's been a wonderful addition to the team in helping keep things in front of us but also make sure that we are following the path of our commitments when it comes to corporate social responsibility.

And -- and I -- like I mentioned, this is the cover which is also on the public registry of our sustainability report. I would encourage everybody to read that. I think it gives a very good background of our commitments as a company and our commitments as being a responsible developer in the NWT.

And just as a -- you know, people ask what sustainability is, well, it's a development that meets the needs of the present without comprising the ability of future generations to meet their own needs. And I think that sums things up quite well for us in -- in our commitments we've made here in the NWT as well as the commitments we're making to our Aboriginal partners in their communities in helping them build sustainability in their communities and understanding the social issues in those communities and partnering with them.

And lastly, again, I think it's important, you know a lot of people can stand up here and talk about the good stuff and the nice stuff but I think I would just ask you to remember what, in the past, our actions have been. Through all the initiatives we've done in the social responsibility area but also in some of the construction activities that have already taken place at the Nechalacho site.

This airstrip was added in 2010 by our aboriginal partner company, Det'on Cho Logistics, and that airstrip -- basically what we had determined to do instead of developing a quarry and denuding another area we -- we isolated an opportunity from the old T-zone where they had a lot of waste piles over there that were just on the surface to do progressive reclamation. We weren't required to do that but we determined it was going to cost us just a little bit more but we could reclaim an area and utilize that material to build this airstrip, and it just made sense. And so we -- we did that.

We also hauled out at expense from the barging companies three (3) of these trailers that were left over from the -- the earlier years of exploration activities in this area, and we re-purposed and restored these three (3) trailers for potential campsites and visitors and that sort of thing.

So the area has been cleaned up extensively since Avalon took over, and that's predominantly led by the leadership in Avalon and its commitments to that sustainability that we're committed to.

And this just shows a -- just a diagrammatic, if you will, shot of the existing camp. Now, of course, this is not where the activities are. I'll show you where the -- the construction activities are, but that's the current drilling camp at the site.

So to go in a project overview I -- I didn't want to get into too much of the resource, but what I did want to state is that we did just release an updated resource, and that resource was done by an independent third-party, Roscoe Postle Associates out of Toronto. They basically updated our resource so that we have a total of 72 million tonnes of measured and indicated.

Measured is very important. It's the highest degree of confidence that you can achieve in a deposit, and that's important for our feasability study and it's also important for future financing efforts. So we're very happy to have a -- a high amount of -- of measured and to be able to add to that from the future drilling -- or the drilling that we're currently doing right now as well.

And just as a -- as a note, when Don said that there's sustainability in this deposit we no longer have to do any exploration drilling, he's absolutely correct. For a twenty (20) year mine life at our 2,000 tonnes per day we need approximately 14 1/2 million tonnes for twenty (20) years.

And we've defined 72 million tonnes that are qualifiable under 43101 to be upgraded into a reserve. And that 72 million tonnes is basically incorporated in these yellow highlighted areas, looking at this plan map.

So you have Thor Lake, the existing camp facilities, the existing airstrip, and then the deposit itself in this area. And of course, this red dot -- dashed line is the area in which we know that the basal zone, the ore body of interest, extends out to these areas.

So it's -- it's a very unique situation with this type of deposit, and it makes us the largest rare earth deposit outside of China. It makes us the third largest niobium deposit in the world and the second largest tantalum deposit in the world.

So there's a lot of positives that we have going for us for this deposit. The key for us is to getting it into a construction operation state and eliminating the risks when we go out for financing.

So from a project stand and an

overview, this is basically a -- a modelled look. The only existing items we have are the exploration camp and the existing airstrip. So what we've modelled in here -- oops, sorry, we've modelled in the flotation plant, what that might look like in the area in which it's planning to be constructed.

The underground decla -- decline, which is collared here and accesses the ore body, which is in this island between Thor Lake and Long Lake, the existing road from the barge facility that's out there that runs up to the plant site, and then the airstrip extension which it extends on out this way.

And the tailings facility, basically we have tailings pipeline that would run along the road system with minor upgrades, and I'll get to that in just a moment. The underground operation, just from a cross-sectional viewpoint for those of you who haven't been underground, it's always good to see, well, what does that mean. We basically drive a decline at 15 percent gradient to access the basal zone. The basal zone is the zone -- high-grade zone of interest that contains the majority of heavy rare earths.

That a very important aspect of this project. We will mine through conventional drilling and blasting, drift and fill, but also with a combination of long hole stopes.

And we can do that in this ground because the long hole stopes and the ground conditions itself are very solid ground. So through the extensive geomechanical work that we've had support through Knight Piesold doing for us, we can open up large areas which is conducive to meet the needs for the -- the productivity rates that we're suggesting.

We're also going to be crushing this material underground. Typically, what you would see is you would see crushers at any mine on the surface and handled on the surface.

In our situation we wanted to minimize the footprint given that we're in a -- in an area that's surrounded by a lot of ak -- lakes. So to minimize that footprint we looked at several factors and we decided to put this crushing station underground.

It's quite an extensive crushing station we're going to have underground, but what it does for us is it minimizes the -- the inclusion of dust in the air emissions on the surface, because we can easily control it underground. It allows us to minimize the amount of energy that we have to use on the surface by building additional buildings, outside covered storage for stockpiling, because we're have -- we'll have to heat -- and also all of our power will come from diesel generation on the surface.

So by having these -- this crusher underground, we basically don't have to heat it. It will generate its own heat through the working operations and the motors and things that are underground. The -- the other benefit is the sound. All the crushing activities being underground, you won't hear anything on the surface.

So it's a -- it's a good, a very good benefit. The other benefit to that is that hauling material to the surface requires stockpiling on the surface. And, as you know, in the climates during the winter months that material can become clumpy and lumpy and freeze together. And you end up oftentimes having to re-handle again and again, just to get it loosened up and broke up.

Then we will crush that material down to a minus 15 millimetre product and that will get conveyed to the surface to the flotation plant. From the flotation plant -- and this is Henrietta's expertise, the material goes through a typical rodmill/ballmill arrangement. From there it goes through the typical -- it's just like any other flotation plant you would see, except the difference being we're using slightly different reagents to extract and float the rare earths of interest, and also separate out the -- the waste products.

And the waste products then that get developed from the flotation plant, a portion of those waste products will get pumped out to the proposed tailings facility. Now, just to note, and I think we put this in our IRs, the tailings facility original design was this larger area that incorporated what we indicated was a polishing pond here. And we had indicated that if it was necessary we would also construct this polishing pond.

So I think that's an important point for my next slide here, because through continued optimization efforts throughout the two (2) plus years that we've been in the EA process, we've been able to actually reduce the amount of tailings that report to this area and put a -- a larger portion of those with the paste fill plant underground. And that's all been confirmed through the extensive studies that Golder did for us on our feasibility work for the paste fill plant.

So that is a positive for the project. And so what that allowed us to do is reduce the size of the tailings management facility here. It reduces the amount of berms that we have to build, or barriers if you will, from an elevation difference -- I think our highest elevation point -- and Kevin will correct me if I'm wrong, was about 8 metres, 8 to 10 metres at its highest dam height.

Well, now we're going to be -- I think the highest dam height is 4 metres below that. So we're not talking too much higher than -- than the room that we're standing in in terms of our bid -- our -- our dams.

And I think there's a perception out there -- and, of course, not a perception, but a reality, when you look at tailings management facilities all over the world, you see these large dikes and dams that are built. And that's where the concerns come as you -- you get years and years of operation and you fill up those dams, the concern is about dam failure.

Because our dams -- dams, if you will, are berms that will be constructed here on this side of the lake, because this is all a natural topography here, they are very shallow. And so the risk is, you know, extraordinarily low compared to tailings facilities that are out there today.

On top of that, we follow all the Canadian standards and the dam standards for the designs, which Kevin Hawton can expand on if -- if necessary later on in the discussions.

And so we also -- what that meant then, is it meant we reduced the amount of coring that we'd have to do to supply material for that dam. It almost becomes non-existent that we have to do that. We are going to quarry for the air strip expansion here this next summer. And that quarry actually -- instead of where we had originally proposed to have a quarry outside of the tailings facility. We actually can now do a lot of quarrying within the tailings facility.

So not only can we increase the size of the tailings facility, but the rock that we need for the construction activity, say the airstrip extension, is now contained within the tailings facility.

So it's just we continue to tweak things and optimize things as we go, as you would expect us, I'm sure, to do, you know, understanding that we're in a lengthy process. We're not just going to stop with what we presented in the DAR. We're going to continue optimizing, and that's what we've done. And I think we're -- we're very proud of this fact as well.

The -- the benefit too, and I think, Ralph, the benefit for you is that we chose this tailings facility. We did extensive research in this entire area. And we chose this facility because hands down it was the best area. It provided a natural topographic barrier here, so it mi -- minimized the amount of material that we needed for construction, and we'd have to denude other areas for, and it would last the entire twenty (20) year proposed mine life.

It's available for future expansion if we are to continue the operation. And the two (2) lakes that it encompasses, Ring Lake and Buck Lake, are non fish-bearing, and so it had the minimum effect -- minimum environmental effect of any other area that we looked at for a potential tailings facility.

And we couldn't have asked for a better area because from the -- the plant site here we pump our tailings to the tailings facility here. We now have incorporated a polishing pond within this facility. So not only did we reduce the size, but now we have incorporated a polishing pond. And then that polishing pond will discharge into Drizzle Lake, which is known to not support fish habitat.

That will naturally flow into Murky Lake and naturally flow back into Thor Lake. And we're picking up our freshwater down here in Thor Lake. So what we've created is this -- what we've called this closed loop system, if you will.

It -- it's an ideal situation for us that I -- I think we've very fortunate to have in this area because the Thor Lake watershed is also a massive watershed. So the precipitation levels that drain into the Thor Lake watershed are quite high. So there's a natural dilution that occurs every year in this area.

So we were very fortunate not only in the tailings location to optimize the tailings but also have the area in which we can create this type of -- of closed loop system which during operations makes it easier for us to monitor and control.

I think that's it. I think I've pounded that one long enough. So when we come back to the flotation plant, as I mentioned, we're mining. We did reorient the plant a bit, and it allowed us to minimize the footprint. So we -- we minimized the size of the footprint. So instead of coming out towards the lake more we were able to actually keep it more clo -- closer to the road and the infrastructure closer to the existing road area, so it minimized some of the -- the footprint for us, which was good. It also allowed us to put the accommodation facilities closer to the airstrip for ease of -- of employees walking back and forth to the -- to the plant.

Mining at 2,000 tonnes per day from the underground. As I mentioned before, we will generate about 1,600 tonnes per day of waste, and of that waste we have 600 tonnes per day of tailings that will report to the tailings facility and about a thousand tonnes per day that will report to the paste fill plant.

And this was an optimization effort that we were able to do with the test work that we did from the Golder study. And I think what's important is the items that we put in the DAR early on, knowing that we were going to continue to optimize, were -- were items that we felt were very conservative, okay, because we knew we were going to continue to do optimization efforts. And I think this is a good example of that optimization effort, because before, we had this at about a 50-50 split, 800 tonnes reporting to tailings, 800 to -- to the paste fill. And through the optimizations that we've done with Golder and the rheology testing, the cement testing, we now can -- can get a good portion, a much higher portion of that waste rock and ship it back underground as paste fill. That's a positive for us, a positive for the project as well.

The remaining 400 tonnes per day of concentrate, that will get loaded into these 35 to 40 tonne half-height intermodal containers. So these containers are no more than 1.3 metres high. I think we could -- well, I could maybe barely stand up in them. Kevin could probably stand up in them. And so these containers are -- are fairly easy to handle and they're stackable -- safely stackable, so that we can also try to minimize the footprint.

A lot of what we've done within the DAR in terms of the area for the footprint for stacking was based on a single stacking scenario. We're now planning to double-stack these to try to minimize the area as much as we can as well.

From the flotation plant then the 400 tonnes per day in those containers will be brought down the existing road. So this is the existing road system out here which will be upgraded during operations. And it will be stacked here in the area, pre-staged, prior to the barging area. We've stayed away from the shoreline here for the Great Slave Lake for good reason. We want to maintain this treed cover and we don't believe there's any reason to denude any more than what's already there and what's already being utilized for the barging facilities that we're bringing or utilizing currently for the drilling program.

So during operations the barging envisioned at this stage and working with some of the barge companies we've gone out to four (4) different barging companies for competitive pricing to -- to work out who's going to do the barging for us. And what we've come back with is the fact that we can actually reduce this footprint here even more.

Yet again another optimization effort on the barging side where we originally had shown a thousand series bar -- barge moored up against the -- the beach and then a 1500 series barge moored up against that loading barge. Now it appears that we can eliminate this loading barge, which is less infrastructure, and the barge -- the 1500 series barge of interest can come straight into the beach and we can load front end. And so it basically makes for less infrastructure if you will at the seasonal barge facility and it makes it -- from an operation standpoint it makes it a bit more logistically easier and safer to -- to manoeuvre and manage.

And then the barge trips we would do is

basically two (2) to three (3) barges per tug, two (2) tugs operating continuously, and it's about a two (2) day cycle time. So the number of containers we need at the -- the 400 tonnes per day is about thirty-two hundred (3200), thirty-five hundred (3500) containers. And those containers -- all those containers equate to a year's supply of -- of concentrate and that will get shipped across the lake within a period of sixty (60) days. And the barging season is a hundred and twenty (120) days. So we've allowed ourselves a contingency in there for weather concerns, also for any mechanical concerns with the tugs.

One (1) other point I'd like to note as well for clarification, and we'll talk about it in day 3, I believe, accidents and malfunctions with regards to the barging, is that each one (1) of these barges are going to be tied independently of each other. So when we're -- we're hauling barges across the lake, you know, the chances of -- of those barges becoming a problem are -- are less than the chances of it being a problem for the tugs are -- are much less. And the experts that we're talking to, obviously they have no concerns with -- with this scenario.

This just shows a nice little, if you will, an aerial picture of what it will look like if you're, say, up in a plane flying by at a thousand feet in terms of the -- the barging location, the -- the container storage area, the intermediate fuel storage area, and then the road. You can see the existing road going up to the flotation plant site.

And then as we ship the product then we barge that product across the lake. What's important to note is the barge companies have indicated there are two (2) potential routes, depending on weather, that they can take. There's a northern shore route that comes across the northern shore and then cuts straight to the -- down to Pine Point. Or they can hop through a little bit of the islands here and come across and down. At the end of the day that's the routes that the mariners have indicated are -- are the safest routes from the Nechalacho site to Pine Point. And then from Hay River when we have resupply in every year at the beginning of the season, that resupply will come from Hay River and will generally track on this trend for the barging routes.

So this map here was provided by the mariner experts in terms of what they recommend our -- our routes be. I know our -- our previous maps, you know, showed more of a direct line, which is not the case.

And then when we get to the Pine Point side of the lake then we basically have this setup where we have three (3) low-keel barges that will be moored to dolphins, and the barge will be offloaded and the containers will be staged here prior to being shipped 12 kilometres to the hydrometallurgical plant site.

Excuse me. This just shows the orthographic drawing from the proposed barge area. The fact that the infrastructure is already there, this road is already existing and you can -- at this time of year you can drive all the way out to the -- the point already.

We also, from a change, we originally had looked at putting the hydromat plant in this area, but we had recently, working in discussions with the GNWT, we moved the plant over here closer to the substation and in a much larger denuded area of the site.

And what this shows is it also -- and I've got another map that shows the proximity then to the L-37 proposed tailings facility. And this just shows a nice little modelled picture of the -- what we had envisioned the hydromat plant to look like, the existing substation, this is the old Cominco tailings, the roadway that runs out here and all the way down to the dock facility, and of course the Great Slave Lake.

So narrowing in, when we moved that plant facility we did it for a couple reasons. We -- we moved it within the GNWT MACA lands, as we continue working with the GNWT on -- on what that will equate to in terms of being on MACA lands and being more controllable.

We reduced the powerline infrastructure by about 3 1/2 kilometres by locating within about 500 metres of the existing substation that's there. We reduced the tailings piping that would be required from that prior location to this location by about 4 kilometres.

So now we're -- we're, I think, about less than a klick to the L-37 tailings facility. We're, again, in close proximity to L-37, and we're also in closer proximity and reduced the fresh water supply that we propose to pull out of J44 open pit.

And so that all of those areas just, in moving the plant into this area, made a lot more sense once we got clarification from MACA that they weren't going to charge us a lot more in -- in taxes. That's really what it boiled down to.

And then from the hydrometallurgical

plant I mentioned earlier we have two (2) products. We have what we call a light rare earth precipitant and we have the acid bake residue. And both will be -- the precipitant will be packaged up, will be placed into those intermodal containers, and will be hauled the 90 clicks to the Hay River railhead. The acid bake residue will be bulk loaded into trucks, the trucks will be tarped. That material will be moist and that material will be hauled to the CN transload facility outside of Hay River and then shipped. Both products will get railed south. And the product shipping equates to about 417 tonnes per day that we'll be shipping south.

So by doing that -- I think one (1) of the other things I wanted to -- to note, by doing that -- in the original DAR we basically had a good portion of that residue being discharged into the tailings facility, L-37.

And by doing that we're able to now reduce that amount. So the life of the L-37 tailings is not only for the full project life, but could go well beyond that. So the amount of waste discharge in -- in the L-37 at the tailings facility has been reduced quite a lot.

So, Paul, I'm not sure what time it is

if you want to take a break. We've got a few more slides maybe to go on this WQOs and water quality. Do you want to take a quick break on that?

THE FACILITATOR MERCREDI: Yeah, we'll take a quick break. I'm quite sure that will generate some questions. So we'll take a ten (10) minute health break and come back and have David continue the presentation. Okay.

--- Upon recessing

--- Upon resuming

THE FACILITATOR MERCREDI: Okay, so we'll get underway again. And we'll turn over the mic to -- before we turn over the mic to -- back to David, we'll field any questions for the Avalon team on what has been presented so far before we -- before David delves into the water quality topics.

So are there any questions from anybody in the room for David on what has been presented so far?

(BRIEF PAUSE)

QUESTION PERIOD

THE FACILITATOR MERCREDI: And not -- and let the record show nothing -- nothing yet. We'll go to the teleconference line and I -- and is there anybody on the line? I'll -- I'll ask anybody who might be on the line to -- to speak up. And the record -- let the record show no one yet. With that, we'll turn the mic over to -- sorry? Go ahead, Paul.

MR. PAUL GREEN: It's Paul Green with the Water Resources Division. Just a quick one (1). In your slides you suggested that the acid bake residue is going -- is all going to be shipped south, but there was a release -- just recently were you looking at a hydrochloric acid cracking of that residue?

I guess -- so, well I understand that, you know, that may come later as the project progresses, but I'm just wondering if you could comment on, I guess, the plan for that?

MR. DAVID SWISHER: Yeah, sure. The -- the original plan -- oh, David Swisher. The original plan, Paul, was to incorporate in the separation plant in the southern US, a cracking facility. And that requires the use of hydrochloric acid or -- or potentially use hydrochloric acid. And so we were looking at what's called a caustic cracking to do that.

We're -- we're still investigating those options, but that would be coupled with the separation plant and would not be in the NWT.

THE FACILITATOR MERCREDI: Thank you. And, just as a reminder, we will kind of -- just because the recording can't necessarily tell, or the transcripts, who -- who is talking, so we will be reminding everyone with the names. And, Nathan, you had a follow-up?

MR. NATHAN RICHEA: Hi, it's Nathan Richea with the Water Resources Division and Aboriginal Affairs. I just had a quick question. I was just looking at the mine life. Currently, you're looking at around eighteen (18) years and -- and that's still what the project is proposing, I guess at this point? Because I know there's reserves for beyond that.

But as part of this application and this assessment I just wanted to clarify that it's around eighteen (18) years, is the mine life?

MR. DAVID SWISHER: David Swisher, here. Yeah, eight (8) -- eighteen (18), twenty (20) years, basically. The cash flow models, the feasibility, is all being developed based on a twenty

(20) year.

THE FACILITATOR MERCREDI: Anne...?

MS. ANNE WILSON: It's Anne Wilson with Environment Canada. Just jumping around a bit in topics. Could you say a little bit about the residue that's going to be shipped out to the railhead and the -- the form that that takes? It sounds to me like it's going to be in open truck boxes that are tarped. Is there any risk of escape from that transport?

MR. DAVID SWISHER: It's very similar to what we've dealt with, I think, Anne, in -- in prior projects that we've been a part of, with regards -- David Swisher again -- with regards to the transport. And, of course, we've -- if you look into our commitments, we're committed to the same type of commitments we made with that prior project in terms of transporting with the tarp. The products will be moist, the acid bake residue will be moist.

But maybe to go into a little bit more detail on the product itself, I'll turn it over to Henrietta Notzl, and she can explain a bit more detail.

MS. HENRIETTA NOTZL: Henri Notzl, Avalon. Yeah, the product itself will be exactly the same material only with a sulphate in it. And therefore, it will be diluted down. So whatever came in from the flotation plant will then be processed using sulfuric acid, and that will create a sulphate, and that will increase the weight.

So there is no radioactivity or -- it's below the transport sur -- transportation limits for radioactivity for uranium and thorium.

UNIDENTIFIED SPEAKER: Yeah, I -- I think to add to that, it -- it's -- the material right now that we've identified, it's an inert product, Henri?

MS. HENRIETTA NOTZL: Henri Notzl. Yes, that's correct.

MS. ANNE WILSON: Anne Wilson. Just to -- my last question that -- what type of moisture content would you expect it to have?-

MS. HENRIETTA NOTZL: Henri Notzl. It will be about 15 to 25 percent.

THE FACILITATOR MERCREDI: Okay. If there are no further questions, we will move on to David, continuing his presentation.

NECHALACHO SITE WATER QUALITY OBJECTIVES, WATER MANAGEMENT AND TREATMENT

MR. DAVID SWISHER: Okay. Thank you.

I think we've just got a few slides now, going into the water -- David Swisher -- going into the water quality aspect of it. And so I'd like to hand the mic over to Rick Hoos, EBA Engineering

MR. RICHARD HOOS: Okay, good morning, everybody. It's Rick Hoos, with EBA, as Dave mentioned. I was king of hoping the lights might be on for a second because the -- the few slides that we're providing here are face on. There they are. And I wanted to give a little bit of a background to how we got to these site-specific water quality objectives before we got going.

And a lot of this impetus frankly came from you folks at the Board and -- and AANDC in particular, who were asking early on -- well, not early on. In about April of this year questions started to arise about site-specific water quality objectives. And initially we thought, Gee, it seems a bit premature to be talking about those. But we are obviously convinced that it was important that we do address this topic.

And so again, at the suggestion of the Board, we -- we initiated contact with both AANDC and Environment Canada sitting at the table here with us to see what kind of progress we could make in discussions related to site-specific water quality objectives.

We had a couple of telephone conference calls. We generated minutes from those meetings. They've all been provided to the Board. We also provided an initial set of site-specific water quality objectives for the Avalon project which was submitted to the Board on May 18th, 2012, in the form of a letter from Avalon to the Board.

And they had tabulated numbers for proposed site-specific water quality objectives that should be -- that could be considered for this project. We were also proposing in that letter that Drizzle Lake being the first downstream water body, which has been found to -- admittedly it's connected to the next lake below, which is Murky.

But in terms of fish populations, it really hasn't had any in the lake itself, although I believe in the last year of three (3) years of trying to find fish in the lake, I believe one (1) pike was found, one (1) juvenile fish was found in the stream leading from Murky to Drizzle. So it's possible that fish could inhabit the place -- the lake.

But we also know that it -- it goes anoxic in the winter period, so if a fish was unfortunate enough to be in that lake in the wintertime, it would probably perish from anoxia.

So anyway, the -- the downstream water body, Drizzle, we propose as perhaps a mixing zone leading to the definition of site-specific water quality objectives at the outlet of Drizzle as it moves beyond downstream into, eventually, Thor Lake.

Now, since that May 18th letter, we have continued to evaluate the results that we had provided. And in preparation for this technical session, Dr. Jim Stronach, who is with us today and led the modelling efforts for this work, he did an independent check on -- on the model parameters, the assumptions and so on.

And, surprisingly, we found one (1) other little glitch that we since rectified. And so the -- the material that we're going to be providing to you here today is the latest, greatest material. We are confident in these results, but they do differ a bit from the -- the numbers that were provided in the letter dated May 18th.

The one (1) thing I would like to stress though, and a message that we've been conveying all along, is that Avalon feels very confident with the quality of its effluent. Frankly, it's -- it's of exceptionally good quality, such that virtually all parameters are below existing CCME criteria for the protection of aquatic life in the downstream receiving environment. And it -- and the effluent itself, the anticipated effluent, for most parameters is al -- is already below the CCME criteria that we're going to be talking about here as site-specific water quality objectives.

And I'll show that to you as I get up now and discuss the -- the results. Initially I'll talk about the basic metals, the standard metals that are usually regulated or considered for regulation. That'll be the first set of tables, or the first table. The second table will address the various rare earth elements that are associated with the effluent. And the third table will talk about some of the nutrient parameters and a couple of other items that the Board specifically asked for further clarification on as well.

So without further ado, I think we'll -- we can now turn off the lights, and I'll stand up and we'll have a look at these tables.

It's a lot of information on the screen, so apologies for that. But what I would like to focus on initially is this is the same decanted --

five (5) day decant effluent that we've been working with throughout this test program and throughout the duration of the DAR. And these are the concentrations that were identified for these various parameters in the effluent and this is the information we provided to the Board before.

What has changed though is because the site-specific water quality objectives are based on micrograms per litre, rather than milligrams per litre, we've converted everything to micrograms per litre. So some of -- you know, like for instance, aluminum looks like a fairly big number. It's actually .6 milligrams per litre, but it converts to 620 micrograms when you see it in this manner.

But in comparing these numbers here for all these different effluent parameters with the CCME guideline values there, before it even leaves the tailings pond or the tailings management facility, with the exception of aluminum and iron, all these other parameters are already below the CCME guideline value identified on the right side of the screen before it even proceeds through dilutions downstream.

What we're all -- what -- and I'll get back to aluminum and -- and iron in -- in a moment. But I also want to point out that what we've done here is we've provided additional information on background values of these parameters in micrograms per litre in Drizzle Lake based on several years of sampling by our friends a Stantec.

And the modelling results, which is projected twenty (20) years into the future and considers the fact that water is being recycled and there's baseline values in the water and that -- that's being added to by what's coming out of the tailings management facility, has resulted in these kinds of model values over a twenty (20) year period of time based, again, on this initial set of information.

And I'm going to be discussing why we are confident that the two (2) numbers that seem a little bit high here can be, in fact, very simply reduced to further -- to much lower values than those at -- at the -- at the outset.

We also then introduced Thor Lake, because that's really the -- the first significant fish-bearing lake in the system. And again, we've identified the background values that are currently in the system over several years of analysis and the modelled twenty (20) year values.

And then we have this column here where

we propose -- Avalon proposes site-specific water quality objectives based on Drizzle Lake outlet of these numbers, which then corr -- compare. In many cases they are essentially the same as the CCME values.

But anyway, turning back to aluminum and iron, we all can't help but notice that the modelled twenty (20) year value in micrograms per litre coming out of -- potentially coming out of Drizzle Lake could, if nothing else happened to the effluent before it is finally released, end up with a number in the order of 148 micrograms per litre, which is a little bit over the CCME guideline value.

Iron is -- is further complicated by the fact that in Drizzle Lake in particular, it has a very variable concentration of iron throughout the year with very high values under the ice when it's anoxic in the winter, and reverting to numbers that are comparable to what's in Thor Lake in the spring and summer months once oxidation of the iron has taken place again. But the fact is, using the numbers we've -- we've considered which are averaged, you end up with a momentary value of nine seven two (972).

But what I want to stress here is that this is based on a five (5) day decants concentration.

The actual time that the effluent will be in the tailings pond will be longer than five (5) days. And we -- we have determined that it's very likely that the aluminum and iron that are showing up as elevated here are simply due to the fact that they are in the fine particulate form that re -- remains suspended in the water during a five (5) day decant test.

But in reality, and I know Henrietta can speak to this further, the company has been working at not only improving its treatment capabilities to -- to recover more of the REEs, as many of the REEs as they can, but at the same time they've also been looking at ways of cleaning up the water, both for plant use, and that has benefits in terms of the actual quality of the water coming out of the plant and going into the tailings pond thereafter. And we -- we are currently still doing a lot of work on that as a company and it's -- it is -- it's pretty obvious that it won't be difficult to knock the aluminum and iron down to lower levels by simply taking out more of the suspended particulates before it leaves the tailings pond.

The key message though is still the same. Virtually all of these parameters can achieve the CCME guideline values in the receiving environment. And that would include aluminum and iron. And that is the going imposition on that.

It -- it should also be noted that for one (1) particular parameter, vanadium, there is actually no CCME criterion, but we did use the Ontario water quality guideline value for -- for that particular element.

I may just ask the audience whether people want to ask questions at this point or whether we want to go through the three (3) or four (4) slides that are associated with this presentation and then ask questions. My preference is to go through all the slides, by the way...

THE FACILITATOR MERCREDI: It looks like you had a question?

MS. ANNE WILSON: Thanks, Paul. It's Anne Wilson with Environment Canada. I have two (2) questions. The first is: Has the update to the modelling taken into account the change in the project description that the water recycle system has been eliminated? Because you've mentioned about concentrating.

MR. RICHARD HOOS: Yes, that's a good question, Anne. Oh, sorry. Rick Hoos, sorry.

It's -- it's correct in saying they

will no longer -- there are no plan -- no longer planning to recycle water directly from the tailings management facility back into the process plant. But instead of that, what they're doing is they're doing a lot of internal recycling of the water before any of it actually goes to the tailings management facility. And not only are they internally recycling it, but they will be internally, within the plant, treating it to remove and recycle the reagents and things like that.

And that all has the -- the benefit, from the preliminary information that we've seen, of -- of producing even lower values in the outgoing effluent than the kind of numbers that we're seeing here. But unfortunately, we don't have that information yet. It's just what we understand is happening.

So there will still be a lot of recycling, but it's taking place inside the plant instead of ex-plant.

MS. ANNE WILSON: Okay. Thanks for that. My other question is to -- Anne Wilson, Environment Canada -- to do with the number proposed for chromium. Do you have information that it is in the hexavalent versus the -- the three (3) versus the six (6) form to use the higher CCME value?

MR. RICHARD HOOS: I can't answer that right now, but we can certainly check into that for you and get back to you on that.

THE FACILITATOR MERCREDI: And that was Rick Hoos.

MR. RICHARD HOOS: Okay, sorry.

THE FACILITATOR MERCREDI: Does Avalon have an idea of -- of timeline for when they could get back for that? This -- it could be homework or an undertaking --

MR. RICHARD HOOS: What do you mean? The -- the --

THE FACILITATOR MERCREDI: -- in that sense.

MR. RICHARD HOOS: The question on chromium? Rick Hoos here.

THE FACILITATOR MERCREDI: Yes.

MR. RICHARD HOOS: I'm -- I'm hoping by speaking with Henrietta and others we can bet back to you certainly by tomorrow maybe, and if not by tomorrow, we'll give you an update at that time, but...

THE FACILITATOR MERCREDI: Okay, we'll call that homework number 1 for our purposes. And we'll -- we'll stop for a second and -- and get some wording. Simon is our -- is -- is our scribe for -- for that purposes. So do you have wording for that?

Okay. And Simon will rea -- read the question to see if he's captured it.

MR. SIMON TOOGOOD: It's Simon Toogood, with the Review Board. From my understanding, it was just for Avalon to check whether chromium was hexavalent or trivalent for the purposes of the -- sorry, what are you calling this chart here? This is --

MR. RICHARD HOOS: Site specific water quality objectives.

MR. SIMON TOOGOOD: Okay.

MR. RICHARD HOOS: Proposed site specific --

MR. SIMON TOOGOOD: Proposed, okay.

MR. RICHARD HOOS: -- water quality objectives.

MR. SIMON TOOGOOD: So for proposed site specific water quality objectives.

Is that fair enough?

MS. ANNE WILSON: It's Anne Wilson. Just maybe to add: for the purposes of determining the appropriate CCME guideline to be used.

MR. RICHARD HOOS: Okay. Well, perhaps we -- we can move on. Rick Hoos again, with Avalon. We'll move on to the discussion related to rare earth elements. But before showing you the table, I just want to explain a little bit about some of the information that was used to derive the numbers in the table.

Just coincidentally, this is -- this seems to be a growing area of interest, because at the same time as we were being asked questions about REEs, new papers were coming out on REEs. And one (1) parti -- one (1) paper in particular was a paper put out by the Wilfrid Laurier University on the eco-toxicity of the fifteen (15) lanthanide rare earth elements.

And I might suggest, as -- or indicate, as Don Bubar has also indicated, the rare earth elements are -- are incredibly difficult to solubilize. And even in bio-acidity tests that have been done, they -- they weren't able to use, sort of, your basic REEs. They had to be in a form of a salt such that they could actually manage to get some of them into solution. But in general, they're highly insoluble, as this report indicates, and, therefore, are difficult to find in the free form in the -- in waters.

But anyway, this paper, amongst other things, appear -- looked at fifty-si -- five hundred and seventy-seven (577) reports and other articles. They tabulated the chronic and acute toxicities, both for fresh waters and marine waters, fresh waters being more of greater interest here. We were already -- we had already developed our proposed site specific water quality objectives for the REEs before we actually saw this paper. And we ended up using a lot of the same literature, of course, that they -- they reviewed as well. And in particular, we -- we used a lot of the information generated by the EPA in the United States for -- for looking at these kinds of elements.

So basically, with that information as the background that we worked with, it was also obvious that there were no actual CCME criteria for rare earth elements. However, we did use the CCME methodology for trying to come up with a number for site specific water quality objectives for this project. And that is des -- described in the CCME documentation by taking essentially the lowest effect level that has been identified in any kinds of tests that have been done and dividing that number as an LC-50, for instance, or -- the numbers that we ended up using were -- were largely derived from tests done by the EPA using a small amphipod called hyalella, amphipod being a fresh water shrimp.

And they expose them to seven (7) day chronic tests in -- in both soft water, which was about a hardness of eighteen (18), and hard water, a hardness of about a hundred and twenty-four (124). And they got dramatically different results, with the hard water resulting in much higher concentrations being required in order to -- to trigger any effect on the shrimp.

So -- so basically, to be highly precautionary and conservative, we opted to -- to choose -- to select the test results for the ext -- incredibly soft water that they tested at about eighteen (18).

And I might mention, the typical water hardness of Thor Lake is around 200 milligrams per litre of hardness, and Drizzle Lake is about two hundred and seventy-five (275) hardness. And that's even harder, of course, than the one twenty-four (124) that was also tested by them.

Anyway, we used these highly conservative numbers for soft water and a chronic test, and we took those numbers and -- and divided them by ten (10) to come up with the numbers that you're going to see in the table here.

But as the bottom line here indicates, even though we've selected those very protective numbers, it is also recognized that water hardness and alkalinity will have a significant effect on reducing any potential toxicity associated with an REE, and that should be factored in as we move forward to develop these site specific water quality objectives.

So then here's the updated table. And again, you -- you will see right at the top, it's amazing how alphabetically that one (1) of the trouble makers end up right at the top. It's kind of interesting that way. But nevertheless, cerium. It stands out as being a -- a concentration in micrograms per litre again, of about one thirty-nine (139) in that -- in that solution that we tested some time ago.

We are very confident that this number will come down in the final effluent that will be produced for this project. I don't have that information today to -- to support that statement.

Using these numbers here, in the case of cerium, we ended up with a modelled twenty (20) year value in micrograms per litre in Drizzle Lake of about thirty-one point eight (31.8). And that, of course, is higher than the proposed site specific water quality objective that we came up with, which was this highly, highly, conservative precautionary number based on tests done in EPA with very soft water, which is actually not representative of this condition here. Anyway, it is higher than that number.

For most of the rest of the parameters, you'll find that the modelled values are below the proposed SSWQs that we've identified here, and we're very comfortable and confident that the final effluent will be able to achieve the proposed numbers that we've come up with in this last column.

And as I mentioned, these are not CCME guideline values, because none exist, but these were based on -- the -- the calculation of these numbers was based on the approach taken to produce values for CCME guidelines.

So I don't know if there's any point in going through each of the individual numbers, but we can come back to these numbers at a -- at a -- as -- as we go through the next day and a half, I guess. I just wanted to show you a little bit about the effects of hardness. Sorry.

THE FACILITATOR MERCREDI: Anne, you had a question?

MS. ANNE WILSON: It's Anne Wilson. Would it be possible to get a copy of that table over lunch time to have a look at it a little more closely?

MR. RICHARD HOOS: Absolutely. That would be no problem at all. We just pulled out a couple of examples. We could have thrown lanthanum on there. We could have thrown all -- all fifteen (15) of the REEs on here.

And consistently what you'll see is that at the very soft waters that were tested and that we used for the development of these proposed site specific water quality criteria, you -- you end up with these kinds of numbers at the eighteen (18) for the -- at a hardness of eighteen (18), the LC-50 for cerium was 32 micrograms per litre. At a hardness of a hundred and twenty-four (124), it was six hundred and fifty-one (651).

Similarly for the other ones, one ninety-one (191) versus nine twenty-nine (929) depending on water hardness, one twelve (112) versus seven seventeen (717) depending on water hardness.

And the real point I want to make here is that this is actually softer water than exists at -- at Nechalacho which is closer to two hundred (200) to two fifty (250). So there is a big difference whether you're using the very softest re -- results from the softest water tests versus a -- a more reasonable number that -- that should perhaps be derived for the Nechalacho area given the significant hardness of the water at that location.

So now we're going to con -- turn just momentarily to nutrients and ions, and these are specifically the latest set of requests that came from the Board through other interested parties here at the table where we looked at ammonia, other nutrients, also threw in chloride and sulfate.

And here we have the backgrounds of these kinds of concentrations of these -- these parameters in the receiving environment, the model numbers for both Drizzle and Thor Lake, and the proposed SSWQs and how they might relate to a CCME guideline.

And for ammonia, what we found was -- well, first of all, we found, and I'll show this in the follow-up slide, is that the effect of ammonia on toxicity is very dependent on pH and temperature.

And those are both at play, of course, at Nechalacho. At the same time, ammonia and background values in Drizzle Lake, for instance, can be quite high -- is quite high in the winter period, particularly again because of the actions of anoxia under the ice and so on and so forth.

So we're basically saying, or suggesting, that if we're going to have an SSWQ for ammonia, it should be tied very much to whatever the background condition is, and that will vary from time to time throughout the year.

Chloride values, we don't see the chloride coming anywhere near the CCME guideline value. But for the moment, we're suggesting we stick with the CCME guideline value because that is a very precautionary number as well to protect aquatic life.

And given the hardness of this -- of -- of the water in this area, we don't ever see or anticipate chloride becoming a problem. Nitrates, both nitrate and nitrite, you'll notice there are a couple that we didn't actually have in our model.

They were modelled in a different way, which was presented in the DAR. They were modelled together essentially. But the ones that we did have a look at you can again see that we anticipate that any concentrations we might project in the water bodies downstream of the TMF will be well below existing CCME guideline values.

This one is very close to the line in

terms -- well, sorry, this is the background is very close to the CCME values, and we just anticipate that total phosphate can be targeted at the CCME value, which is essentially background.

Sulfate, again, is not really a significant issue in our view, certainly at Nechalacho, and we don't see any issue with achieving a CCME guideline value for sulfate, which is currently pegged at about a hundred (100).

Now there are some explanatory notes to some of this work that follows in the -- in the next and final slide, and I'd just like to go through some of that with you here.

First of all, I guess there's some broad statements again about Avalon is -- is firmly committed to meeting the CCME guideline values in the receiving environment at -- at the point of discharge of water from Drizzle Lake moving downstream beyond that.

It's also noted that there are some natural accedences of CCME that occur in the aquatic system below the -- the TMF, in particular in Drizzle and Murky Lakes leading to Thor, and they include naturally elevated TSS, ammonia, phosphorous, zinc, cadmium, fluorine, and -- and iron. And for these parameters, we think any site specific water quality objectives that may be developed should be tied very closely to and take into account of the background conditions.

Little blurb on some of these less than numbers. I'll just go through the more important ones, I guess. We already talked about this as well. Just pointing out again the -- the water hardness up there is -- is very high, and -- and some of these values are based on -- were selected for the high values in the CCME that are allowed for harder waters.

Finally, I just -- I want to just focus on the range for ammonia and how ammonia is affected by pH and temperature. You just see that the total ammonia levels can vary from 6 degree -- from -- from 6 milligrams per litre at 0 temperature, pH of 7, to 1.26 if the temperature is around 20 at the same pH. And similarly at other pHs, you see again cha -- significant changes in temp -- in relation to temperature and pH. And so if there are going to be site specific water quality objectives established for ammonia, they should take into account this kind of variability that is normal for this particular water system.

I believe that is the last slide, and I

know there'll be lots of discussion, and we hope we can answer the ques -- any questions you may have.

THE FACILITATOR MERCREDI: Thank you, Rick. And with that...

(BRIEF PAUSE)

MR. RICHARD HOOS: Well, I just --

THE FACILITATOR MERCREDI: I think, Rick, you have one (1) more slide.

MR. RICHARD HOOS: That's it. That is the next slide. Oh, you actually want me to talk about this as well? Okay. Sorry.

Okay, so I'll just back up and say in general, in terms of water quality, what we're doing to ensure that water quality is protected for this region and for the project area, these are the kinds of mitigation measures that we've identified before in the Developer's Assessment Report and, of course, Avalon continues to be very committed to employing these kinds of mitigation measures to ensure that all will be well in terms of downstream water quality. It's pretty straightforward.

I guess the most important one here probably is that we -- Avalon is committed to ensuring that the tailings effluent, which will be an exceptionally clean effluent, will comply with any criteria that might be put on it by the Mackenzie Valley Land and Water Board. As well, of course, as meeting the Metal Mining Effluent Regulations which are federal ones. That's the bottom line on -- on water that's going to go downstream into the system.

Beyond that, in terms of its domestic sewage, it'll be using state-of-the-art packaged treatment plants at both sites to ensure that the water that will then be subsequently discharged to the tailings facilities will be exceptionally clean.

Water consumption. Through the feasibility work that is currently going on, there have been continued efforts to reduce the amount of water that will be used by the project, and certainly in terms of withdrawing water from Thor Lake, as an example, that will certainly be done in compliance or in conformance with -- with DFO's guidelines for winter water withdrawal and -- and the like.

And in terms of any hazardous materials, Avalon, of course, has a waste management plan and a hazardous waste management plan covering the management of those materials, the storage of them, the transportation, and eventual disposal of them.

So basically those are the key parameters there. Do you want me to talk about fish and fish habitat too now? Okay, fine.

(BRIEF PAUSE)

MR. RICHARD HOOS: No. Okay. Thank you. Sorry.

THE FACILITATOR MERCREDI: Thank you, Rick.

MR. RICHARD HOOS: All right.

QUESTION PERIOD:

THE FACILITATOR MERCREDI: And --

MR. RICHARD HOOS: Sorry for the confusion.

THE FACILITATOR MERCREDI: -- with that, we will turn the mic over to the floor, open up the floor for questions

Anne...?

MS. ANNE WILSON: It's Anne Wilson with Environment Canada. I have a few questions, and they're a little bit on the level of detail. So I'll start -- could you put the slides back up with the table for the nutrients on it? Great, thanks.

The guideline that's put up there for nitrate as N shows twenty-nine (29). The CCME guideline is two point nine three (2.93). Was that just a transcription error -- transcription error, or is that the proposed guideline?

MR. RICHARD HOOS: That -- okay, so -- sorry, there's a whole bunch of things here. First of all, Rick Hoos, Avalon. You'll note that those are milligrams per litre values. Is that, maybe, the issue?

MS. ANNE WILSON: It's Anne Wilson. No, the CCME guideline would be 2.93 milligrams per litre if it's as nitrogen, as shown on the parameter chart there.

MR. RICHARD HOOS: Okay. Well, I haven't got -- got that information directly in front of me here, but we can check on that, and if it is as you say, then we'll certainly change that.

THE FACILITATOR MERCREDI: Could I clarif -- can we clarify exactly what it will be changed to?

MR. DAVID SWISHER: I think what we indicate is we'll -- we'll -- we'll do our homework tonight, and we'll get back to you first thing in the morning.

THE FACILITATOR MERCREDI: Okay, since it is homework, we will capture the wording. And -- and if you could please restate the question on that?

MS. ANNE WILSON: Thanks. It's Anne Wilson with Environment Canada. The question is will the proposed site specific water quality objective for nitrate as nitrogen be the actual CCME value of two point nine three (2.93) or the value of twenty-nine (29) shown on the chart?

THE FACILITATOR MERCREDI: And Avalon will clarify that, just for Simon's purposes so we have the -- the wording correct.

MR. DAVID SWISHER: David Swisher, here. Yes, we will clarify that for tomorrow morning.

THE FACILITATOR MERCREDI: Thank you. And just to -- before we move on, we'll just make sure Simon has that.

MR. SIMON TOOGOOD: Simon Toogood with the Review Board. The question I have are -- are the values in the site specific water quality objectives table for nitrate as nitrogen -- are they to be the CCME values of two point nine three (2.93) or the values provided in the proposed site specific water quality objectives chart. And I'll word that a bit better.

THE FACILITATOR MERCREDI: Okay, and I see Anne nodding that that captured it, and we will move on. David is also nodding. Any further questions?

MS. ANNE WILSON: It's Anne Wilson. With respect to those parameters that you propose to use background for the site specific water quality objective, how would you propose to work that? Use the -- the median of the range of natural variability that's been measured? Or would you propose to have it on a sliding scale throughout the seasons? What's your thoughts on that?

MR. RICHARD HOOS: Rick Hoos here. That's a good question. I -- from having looked at the iron values, which are very seasonally driven and very significantly seasonally driven, it wouldn't seem appropriate to try and average out these numbers because you'll end up with an artificially high background condition for most of the year. So I think it should be tied to the seasonal variability.

We did our own evaluation of some of these parameters, and we did note that in order to better define the seasonal variability, it would be helpful to collect additional data, water quality data, to help define those seasonal variations a bit more precisely. And, of course, we have this year to do that.

MS. ANNE WILSON: Thanks for that, Rick. It's Anne Wilson again with Environment Canada. My next question is a little bit of a nit-picky one, and it's to do with the total phosphate. Will you be measuring total phosphorous, which is a -- a broader parameter and will include some of the forms that may not be bio-available as total phosphate is, but will be potentially available to the cycle, especially during that winter anoxia that you had mentioned?

MR. RICHARD HOOS: I'm just -- I'm just reading some of the documentation that we've generated in house. And one (1) of the things that we said was at baseline measurements, phosphorous in the Thor Lake area to date have been reported for both orthophosphate and total phosphate, but not as total phosphorous.

I guess we might ask you what your preference is.

THE FACILITATOR MERCREDI: And that was Rick Hoos, for the record. Go ahead, Anne.

MS. ANNE WILSON: Thanks. Anne Wilson. If there is going to be further work done in the next year prior to development, it would be good to get the total phosphorous measurements. That is what is recommended in the CCME framework document because it is the worst case scenario of --

MR. RICHARD HOOS: Yeah.

MS. ANNE WILSON: -- available phosphorous.

MR. RICHARD HOOS: Yeah. Rick Hoos. Thank you.

THE FACILITATOR MERCREDI: And thank you.

MS. ANNE WILSON: Sorry, it's Anne Wilson. One (1) last question that does not relate to the values presented, but have you refined or updated predictions for total dissolved solids in Drizzle Lake?

MR. RICHARD HOOS: Rick Hoos. No, we haven't been focussing on TSS, I guess primarily because we felt the other parameters were of much greater interest to -- to all here. But we could certainly go back and -- and look at that more carefully as well, if you wish.

MS. ANNE WILSON: Anne Wilson. And just to clarify, that's total dissolved solids, not TSS, okay?

MR. RICHARD HOOS: Oh, total dissolved solids.

MS. ANNE WILSON: Yeah

MR. RICHARD HOOS: Yeah, TDS. Okay, sorry.

MS. ANNE WILSON: Sorry, it's Anne Wilson. I would be happy to have that as an undertaking. Thanks.

THE FACILITATOR MERCREDI: And on that, is this something that Avalon can produce within a week, or is this something that might take a couple weeks? Just if -- if this is to be, like, within earshot of the parties, then we would have to. If it's -- if it's --

MR. RICHARD HOOS: Yeah.

THE FACILITATOR MERCREDI: Definitely if it's internal, that's fine. But if -- if it is -- okay, for sure.

MR. DAVID SWISHER: Yeah, so we're going to commit to try to get answers before the hearing sessions close this week. And we'll have a response on if we need more time after that.

THE FACILITATOR MERCREDI: Very well. So we'll -- we'll take that as homework number 3. And again, if it is not -- if it is not answered within the technical session, then it will become an undertaking. So with that, we will capture the wording. And, Simon, if you could read out what you have, and we'll see if that capture -- yeah.

MR. SIMON TOOGOOD: It's Simon with the Review Board. I may have missed the first part, but from my understanding, it's Avalon to provide a total dissolved solid values for Drizzle Lake.

THE FACILITATOR MERCREDI: And for the record, I see Anne nodding. And again, that will be homework number 3. And again, if -- if any -- any of this might turn into undertakings, obviously that -- that will become evident.

With that, I'll turn the floor to Anne and Nathan.

MR. NATHAN RICHEA: Hi there. It's Nathan Richea with the Water Resources Division of Aboriginal Affairs. I guess I've just been doing some thinking over the last little bit here. I'm just trying to wrap my head around the tables.

I think Rick mentioned that they noted a bit of a glitch, I guess, in the modelling for downstream water quality. And I was just wondering if I could get maybe a homework item or an undertaking on what has changed in the modelling for some of those numbers to go up.

I was trying to do a quick comparison from the tables I had in front of me with what was up on the screen. And I noticed for some parameters it changed a bit more than other parameters. So I was just trying to understand when you model and try to do predictions for downstream water quality, you need to take into account a number of assumptions.

And if -- if there's been some changes to that, I'd like to sort of understand those a bit more because it helps frame the context of -- of where you might focus your review. So I see the new numbers, and that's great, but I kind of want some of the background as to what's changed and how those numbers -- what -- what's drived the change in those numbers as a context.

So I'm just thinking of maybe a homework type thing or an undertaking so I can get a bit of an understanding of that.

THE FACILITATOR MERCREDI: Okay, so Avalon will be providing the presentation that Mr. Bubar and that Rick and David gave that captures most of the numbers from this morning as well as the homework items.

And so are you asking for something

different than the -- the presentation? Because that is --

MR. NATHAN RICHEA: Yeah.

THE FACILITATOR MERCREDI: -- something we will capture for the public registry.

MR. DAVID SWISHER: Yes. And -- and I think maybe to -- to save homework and undertaking, we can answer that. David Swisher, Avalon. We can answer that right now for you, Nathan. That's why we have Jim with us who did the modelling. So he has more of the background and details for you.

So, Jim, would you mind answering Nathan?

MR. JIM STRONACH: Jim Stronach. The -- I think the fundamental change was we discovered we hadn't properly implemented the recycling. The way we handle the -- the modelling is that the tailings goes out of the plant into the tailings pond and then into Drizzle and Murky and on to Thor Lake, so Thor Lake receives diluted tailings.

And then the way we implemented the plant operations is we said that the plant would draw its make-up water from Drizzle Lake, and then the concentration coming out of the plant would be equal to the concentration in Thor Lake plus the five (5) day decant value. And I think that's probably the most conservative thing you could do is -- you know, there may be other chemistry acting that makes that, I'm not quite ha -- what happens.

So that was the intent, but it was implemented incorrectly in -- in the earlier calculations, which led to apparently higher dilutions than were correct. And now we did a independent calculation outside of our standard model; identified that there was a problem with the dilutions and looked at the Code and saw that we had this coding error for the recycling of water back into the plant. That's the fundamental reason.

The other reason you'll note differences in changes is because for some constituents, the background concentration is a major factor. The plant discharge is a lower concentration than the -- than the background in some cases. So in those cases, the sort of effect of dilution is masked or overwhelmed to some extent by the background, so you won't see the same level of change between the old numbers and the new numbers.

So I think those are the two (2) -- I think those answer your questions, I hope.

THE FACILITATOR MERCREDI: And Nath...

(BRIEF PAUSE)

THE FACILITATOR MERCREDI: Nathan...?

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. I think I'm confused on the very first part of the answer. I think you were mentioning something about Thor Lake versus Drizzle Lake, and I got confused on whether maybe the -- the lakes were supposed to be interchanged.

Thor Lake is the lake that's further along in the receiving environment. Drizzle Lake is the immediate discharge body from the tailings area. And I think at the start there maybe perhaps the -- the lakes got interchanged, so I got confused and -- can you clarify? Thanks.

MR. DAVID SWISHER: David Swisher here. Yeah, you -- you are correct. I -- I think -- yeah, you said Drizzle, and it should have been Thor.

MR. NATHAN RICHEA: Yeah, okay, thanks. It's -- it's Nathan. I -- I don't know why, I guess I just have -- it's Nathan Richea with the Water Resources Division. It's just one (1) of those things where I -- I'm not sure if I could follow the first answer again now because I kind of got thrown off by the names of the lakes. And I guess rather than going to the transcripts, it would be great if we could have this stuff kind of written down, like the tables that were provided today are -- is new information; we hadn't seen it previously. So I still think it might be a nice homework item to sort of lay out what has cha -- what has changed. Like, we can still talk about it today. That's -- that's great, but just so I can understand it. Sometimes it takes a while for me, maybe I'm slow processing, just to get it through my head.

THE FACILITATOR MERCREDI: That's reasonable. So, Simon, I'm going to turn to you for wording. Do you have that captured?

MR. SIMON TOOGOOD: It's Simon Toogood. Not particularly well, no. From what I gather, it's -- you're asking a question on what has changed in Avalon's modelling for certain parameters in downstream water modelling? And specifically, what parameters were you interested in?

MR. NATHAN RICHEA: Yeah, it's Nathan Richea with the Water Resources Division. Yeah, I guess the -- the crux of the question, I guess at the start, was just trying to understand what assumptions were put into the model or which changed. I think they mentioned there was a glitch in the model; they've rectified that. That's great. I just wanted to know a bit about what has changed, and we can talk about it again further today. But written down which change from the previous model, how that's changed certain parameters versus other parameters.

I don't have any specific parameters in mind just because I -- this is the first time I've seen the different numbers, so I don't know exactly which ones to focus in on. But yeah, generally the question is they've noticed a glitch in the model, they can identify what the glitch is, they can tell us what they've done to change that and how the new numbers have resulted. It might be a page, I don't know.

MR. DAVID SWISHER: David Swisher here with Avalon. Yeah, we'll do that homework, and we should be able to produce that for tomorrow.

THE FACILITATOR MERCREDI: Sounds good. Hopefully Simon has captured that before me move on.

(BRIEF PAUSE)

MR. SIMON TOOGOOD: It's pretty

similar to the first reading, but what assumptions were made and what has changed in Avalon's modelling for certain parameters in the -- just to clarify, I suppose that's for Thor Lake, downstream Thor Lake?

(BRIEF PAUSE)

MR. SIMON TOOGOOD: Drizzle and Thor. Downstream water modelling for Drizzle and Thor Lakes.

THE FACILITATOR MERCREDI: Okay. I see Nathan nodding. With that we'll move on, and Avalon -- Avalon has already commented on that, so with that we'll move on.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division Aboriginal Affairs. The five (5) day decant numbers that are presented are -- I think they've been the standard numbers throughout, and I just wanted to confirm that that's still the case.

Like, they are the same numbers that were presented probably in a DAR and in -- in Information Request responses that we've received over the course of the process?

MR. DAVID SWISHER: Yes, they were. And -- and -- David Swisher, Avalon. Yes, they were, Nathan, and -- and also just as Rick mentioned in his presentation, we chose that because they're very conservative.

We know, and of course I think in our commitments we've already said we're going to have a thirty (30) day decant period.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, that's a good answer because it leads me to the second question. So in the thirty (30) day retention time, it's still going to be in place even with the removal of the additional polishing pond under the new designs for the tailings containment area?

MR. DAVID SWISHER: David Swisher, Avalon. Yes. In fact, the polishing pond is incorporated into the new tailings facility. And one (1) other note, and hopefully Jim and -- and Rick don't strangle me here, but on the modelling, the modelling assumed a continuous flow, which was also very conservative because we know we're going to be doing the thirty (30) day decant at a minimum, and we're also going to be coinciding any of those discharged with -- as we've discussed with KP and others, with high flow seasonality changes.

MR. NATHAN RICHEA: Okay. Thank you.

It's Nathan Richea with the Water Resources Division. So if I understand correctly then, the discharge will be, like, a monthly type discharge, a decant every thirty (30) days?

Is that what -- instead of a continuous discharge, or will it still be continuous but you've assumed the thirty (30) day -- I'm just trying to get clarification.

MR. RICHARD HOOS: Rick Hoos here. Our understanding remains the same. The -- the effluent will stay within the tailings management facility for at least thirty (30) days, and -- and there will be discharges from the TMF downstream on a seasonal basis, somewhat tied -- well, tied to -- to the natural hydrological cycle that prevails in the area, and that's to protect fisheries values as well related to hydrology interests.

THE FACILITATOR MERCREDI: Okay. Before we get too far in, Ralph had a question on one (1) of the -- about two (2) topics ago, I think, so we'll have him weigh in.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. I have a question about the tracer concentration studies that were done. In the original DAR, there were certain concentrations reported, and it showed the plant discharge with a value of one point 0 (1.0), and I think after twenty (20) years, Thor Lake got down to about .0007 milligrams per litre.

In the response to one (1) of the Information Requests, I believe in December 2011, Avalon recognized that there was an error in the original tables in the DAR because they had used a value of one point 0 (1.0) in the tables instead of the zinc concentration of point zero zero seven (.007), which is what the model was actually based on.

The difference in those ratios between the one (1) and the point zero zero zero seven (.0007) and the point zero zero seven (.007) and the point zero zero zero seven (.0007) is the difference between the dilution ratio of about, I think it was, fourteen hundred (1,400) to one (1) versus ten (10) to one (1).

When Avalon responded to the clarification letter in May, they seemed not to recognize the correction they made in December, and they went back to the procedure that was in the original DAR. If I do a simple water balance of the water available in the tailings pond, you know, reasonable values for precipitation, the flow from the plant, I don't see how you possibly get the dilution ratios that the original DAR tables imply.

And I was wondering if I could get some clarification on that.

MR. JIM STRONACH: Jim Stronach here. You're absolutely correct. The -- the dilutions we had were -- were too high because of that glitch, having to do, as I said, with the recycling. And -- and we did our wa -- an independent little water balance a week or two (2) ago just in preparation for this meeting and said, Yeah, just looking at it in bulk terms, like inflow from overland flow and precipitation, you only get these considerably lower dilutions. So then we looked again at the code and said, Yeah, that glitch is still there. So then we redid everything so that we had for the -- the new values. So we -- we made a mistake in -- and got a little bit confused about when we'd made that mistake.

But the -- the numbers now match a very simple water balance. And we've checked it in the code that everything flows through properly, so. I -- I think there was an error, but the problem is solved or resolved.

MR. RALPH GRISMALA: Ralph Grismala.

THE FACILITATOR MERCREDI: Could you

just turn off your mic? Yeah, perfect.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. Comparing the numbers that were in the DAR to the table that was in, I think, the May 11th response to the clarification letter, is that the most recent calculation that includes the correction of the code, or is there a subsequent correction beyond that? I -- I'm sorry, the, I guess, May 12th response to the clarification letter.

Is that the latest?

MR. JIM STRONACH: No, I think the latest is the one that we see in the PowerPoint presentation today. That was Jim Stronach.

MR. RALPH GRISMALA: Ralph Grismala. Do those numbers differ dramatically from the ones that were in the May 12th response on the order of a factor of, you know, call it several orders of magnitude, or were they the minor errors having to do with the recycling of the -- of the values to the lakes be -- because that was a relatively small effect compared to the original error?

MR. JIM STRONACH: I -- Jim Stronach here. I don't have the May numbers in front of me. The -- the new numbers are very similar to what was -- after we made our first correction except that we've now added the -- the background concentrations in.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. Perhaps we should have a homework assignment that they could present the simple -- you said you do the hand calculation or something outside the model calculation, so we can see in -- in rough numbers the approximate values of those dilution ratios, so it would give us some higher degree of comfort that the computer runs are correct, or the spreadsheets runs, whatever they are.

MR. JIM STRONACH: Jim Stronach here. I'm not sure I can produce them in the homework time frame, because they're in -- in hard copy in my office. But I can do it. Homework is -- well, within a week I can do it.

THE FACILITATOR MERCREDI: And we can do that as an undertaking should Avalon -- so August 31st.

MR. DAVID SWISHER: Da -- David Swisher here. We'd rather have it be a homework for this week. And we will endeavour to have that to you this week. And if we can't, then we'll -- we'll move it as an undertaking.

THE FACILITATOR MERCREDI: Very well. And so before lunch we will capture that and turn to

Simon Toogood for wording. And then we will -- we'll break for lunch so we can beat the lunch crowd. Simon?

MR. SIMON TOOGOOD: I'll -- I'll take about an hour to do this then. So just to clarify, to present the simple calculation of the approximate values of dilution ratios for -- what was the topic of discussion here?

MR. RALPH GRISMALA: Ralph Grismala. It has to do with the dilution ratios that -- or, the outcome of the tracers modelling studies.

MR. SIMON TOOGOOD: So would it be fair to say: Present a simple calculation of the approximate values of dilution ratios for tracer modelling studies?

MR. RALPH GRISMALA: Ralph Grismala. I believe it would.

MR. SIMON TOOGOOD: Okay. Thank you very much.

THE FACILITATOR MERCREDI: Thank you, Simon. And so with that, before we break for lunch, with the tables that Avalon is producing if they could produce that for all parties. So I would venture to say twenty (20) -- sorry, thirty (30) copies, just for those present.

MR. DAVID SWISHER: David Swisher. You want hard copies or soft copies? Because --

THE FACILITATOR MERCREDI: From what I understand, for the tables from the discussion about twenty (20) minutes ago that Avalon was to produce over lunch, which I believe were just hard copies, of, I think, two (2) slides off of the -- off of the presentation. If -- if -- if that could be about thirty (30) copies, just so that those in the room have that. Just in fairness it is for everyone in the room.

MR. DAVID SWISHER: Okay.

THE FACILITATOR MERCREDI: And I see David nodding for that. With that, we'll break for lunch and I encourage everybody to meet the lunch crowd to the restaurants. So, with that, we'll reconvene at one o'clock.

--- Upon recessing
--- Upon resuming

THE FACILITATOR MERCREDI: Okay, so, we'll get underway here. Welcome back from lunch. Just a couple of reminders. There's a -- there are agenda at the front table and a sign-in sheet in case nobody is signed in. So signing in is an important part of -- of maintaining transcripts.

And if there -- just a reminder -- if there were offline discussions that might have resolved issues during lunch or any break, any parties please speak up on the record so that, you know, that's an issue that fell off the table, as it were, and the Review Board does not have to -- or just, well, could take note that it has been resolved and move on to larger issues.

So, thank you to Avalon for providing the tables for the parties and just in case anybody -- so the parties are aware, the tables that we mentioned before breaking for lunch are back in a pile, I believe, at the front table. And, again, thank you for -- thank you, Avalon, for presenting that.

With that -- and is there anybody on the teleconference, please speak up now. And let the record show no, so, with that, we will continue on with the water quality discussion.

Did -- over lunch, did Avalon have anything they wanted to bring up?

MR. DAVID SWISHER: David Swisher, Avalon. No, I think -- I -- I'm assuming at the end of the day then, we will review all the homework items.

THE FACILITATOR MERCREDI: Yes, we will. And among those we'll make it a quick homework number 4 because Avalon has already committed to doing it -- the presentation -- forwarding that to my email, if that's possible. And I will endeavour to post that immediately, which we will not make homework. Okay, so, homework number 4, the presentation forwarded to me.

And, with that, we'll turn the mic over. I believe we left with Ralph and his questions. We left off with the homework regarding the calculations.

Ralph, do you have any follow-up to that?

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. Just a -- a -- a quick question. I was looking at the table that was presented over lunch and I believe in the original DAR, because everything was modelled on the tracer concentrations, the ratio between the five (5) day decant and the concentrations in, you know, whatever water body downstream was the same ratio regardless of the element. These are slightly different depending on the elements and it appears that's because of the background concentrations.

My question is on, in particular, the rare earth elements where the backgrounds means are very low, did you include some non-zero value for those, because those ratios also seem to vary. So, would you please clarify?

MR. JIM STRONACH: I -- I'm quite certain that whenever the number was -- sorry, Jim Stronach speaking. When -- whenever the concentration was less than the detection limit, we use one half (1/2) of the detection limit for the calculations.

MR. RALPH GRISMALA: Ralph Grismala. Thank you.

THE FACILITATOR MERCREDI: Thank you. And thank you, Ralph. Nathan, I know we interjected there during -- somewhere during your line of questioning, so we'll go back to you.

MR. NATHAN RICHEA: Hi, it's Nathan Richea with Water Resources Division, Aboriginal Affairs. I think my question was regarding the polishing pond retention time, if I can remember correctly. And I think the answer back was that there will be thirty (30) days available storage within the pond. I guess the part where I was not quite clear was whether there would be continuous discharge. And

I think -- can I just get confirmation that there will be continuous discharge from...?

MR. RICHARD HOOS: It will be -- sorry, Rick Hoos. Our understanding is that Avalon doesn't need to discharge continuously, but Avalon has committed to discharge an appropriate amount of water to match the -- the natural hydrological cycle of the open water season. There will certainly not be any discharge in the winter months.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. So I can understand that -- are you proposing to do a staged discharge based on the hydrograph, the natural hydrograph, because overall there's a net reduction in, I guess, the amount of water that's moving through the system from Thor Lake, I guess, on?

MR. KEVIN HAWTON: Kevin Hawton with Knight Piesold. Just discussing the thirty (30) day retention time, we actually have more than that if we -- if we need it. And, you know, I'm not -- I don't really want to speak for Avalon, but we have the ability to -- I mean, we're not going to discharge water if the water quality isn't acceptable.

So we could, theoretically, hold water longer than thirty (30) days, but we're going to try and match the hydrologic cycle as much as possible. Does that answer your question?

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, I think the -- the answer is sufficient. I'm just trying to understand how the thirty (30) day retention may change with the difference in the polishing pond.

I know originally it was -- the tailings containment area had a polishing area within it. And then over time, as the tailings accrued within the containment area, an additional polishing pond would be proposed. But that has been removed and I think you have enough capacity to have the additional, or the original pond, with sufficient capacity to hold any sort of water that comes off the tailings for the twenty (20) year period of the operation. Is that correct?

MR. KEVIN HAWTON: Yeah, I mean -- Kevin Hawton here. Basically, as -- as the facility progresses through its life, during the initial years we've got capacity, obviously, to -- to hold water for as long as we want it.

And -- and really, we get limited to the thirty (30) days towards the -- about the twentieth year, right? That's what it's designed for, okay?

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. That thirty (30) days that we're talking about, is that below the 1 metre freeboard type safety?

MR. KEVIN HAWTON: Yeah, that's the difference between the normal operating level and the maximum operating level. And above the maximum operating level we have our environmental design storm and freeboard, et cetera, okay?

THE FACILITATOR MERCREDI: And that was Kevin Hawton, for the record.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. I think originally, too, that the proposal was to have water leave the facility through a -- a containment ditch. But I think now you'll be pumping it via a pipe? I just wanted to get confirmation if that's the process to remove the water from the tailings.

MR. KEVIN HAWTON: Kevin Hawton, here. Yeah, the -- the current thought is that it'll be a -- a barge and it'll pump through a pipe into a ditch, a line ditch. But there -- there's no discharge in the winter or anything like that, so. Okay?

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. So there'll be a barge floating within the tailings containment area, pumping water, and it will be discharged to a containment ditch that would release to the Drizzle Lake?

MR. KEVIN HAWTON: Kevin Hawton, here. Yeah, that's correct. It's within the polishing pond.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, Aboriginal Affairs, Water Resources. I think in response to one of our Information Requests you mentioned, I think, and you also mentioned today, during winter months, I think December through April, you will not be discharging from the tailings containment area. Can -- can you confirm that?

MR. KEVIN HAWTON: Yeah, I confirm that. Kevin Hawton here.

MR. NATHAN RICHEA: Thank you. I've got a couple of questions, I guess, now that I sort of understand what's happening for a discharge from the tailings containment area.

The mixing analysis that's being done for Drizzle Lake, Murky Lake, and then Thor Lake, we're talking whole lake averages, right. We're not talking about concentrations that will immediately report to those receiving bodies, is that correct? Like in the table that we just got today, those are whole lake average concentrations, not -- not concentrations that would come out from the ditch?

MR. JIM STRONACH: Jim Stro -- Jim Stronach here. They're actually concentrations selected from the approximate centre of the water body, and it's spatially resolved in horizontal and vertical. But there's so much wind mixing, I guess small amount of winds, that most of lakes were pretty well homogeneous in -- in plan view in terms of the concentration.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, with the Water Resources Division. So is it safe to assume that it's assumed that the entire lake is fully mixed in these concentrations that you've prepared?

MR. JIM STRONACH: Very close to that, yeah. I couldn't quote the exact structure and the vertical of the -- of the contaminants. They tended to be a little bit higher in the surface but not pro -- probably not more than 1 percent difference top to bottom.

THE FACILITATOR MERCREDI: And that was Jim Stronach.

MR. RICHARD HOOS: Na -- Nathan, if I may. Sorry, Rick Hoos here. I just also wanted to mention I think, as you know, the both Di -- Drizzle Lake and Murky are very shallow water lakes. We're talking max depth of about 2 metres. So they're very shallow water bodies.

And, in fact, we -- although we've never really mentioned it, they -- they are de facto biotreatment facilities because they happen to be very marshy lakes, and they themselves will help to, let's say, assimilate, in particular, nutrients, as an example, but perhaps some other parameters as well. They -- they will contribute to further reductions in -- in some of these parameters that have been modelled based strictly on dilu -- dilution at this point.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, with the Water Resources Divisions. So the mixing analysis, you haven't done a mixing analys -- analysis of how the effluent, once released to Drizzle Lake, will behave within the lake proper. You've just done sort of a mass balance mixing analysis for a total average concentration, assuming a full mixing of the tire -- the entire lake itself?

MR. JIM STRONACH: It's Jim Stronach here. No, as I said, we used a three-dimensional numerical model, which means we had a certain number of grid cells in the east, west, and north, south direction. So each lake was fairly well resolved spatially.

So if there were differences, and there are slight ones you can see when the flow enters from the preceding lake along a channel at the -- sort of the mouth of this creek, you'll see a slight concentration difference. But basically the lakes become quickly mixed in the horizontal just because of the -- the winds which are not strong, but they're pretty persistent there.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, with the Water Resources Division. Yeah, I guess I was just trying to understand. Because I'm looking at the table here and I'm -- I'm looking at the maximum model twenty (20) year value. And I see some of the -- the maximum numbers are less than the background condition for a few of the parameters.

I'm just trying to understand how, you know, basically that could happen. If -- if we're assuming entirely mixed receiving body, then the concentrations entering that receiving body must be a lot lower, substantially lower than the baseline condition in order to improve the quality in that receiving basin over time, say in twenty (20) years. So I just wanted to get confirmation for a few parameters. That seems to be the case. Is that -- is that true?

MR. JIM STRONACH: Yeah, Jim Stronach here. Yeah, that's true. The one (1) that comes to mind is iron, which in -- in one (1) of the lakes is five (5) or six (6) times higher than even the effluent leaving the -- the plant. So in those cases, the plant effluent dilutes the concentration in the -- in -- in the water body under discussion.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, with the Water Resources Division. I'm looking at the -- the table that was submitted previously. And -- and I guess I was thinking that potentially we've had some discussions about site-specific water quality objectives and I was looking at the table and -- and I was thinking that for a number of the parameters the potentials was for the whole lake average to be within the background concentration for the entire duration of the project.

I know that those predictions have been revised now, so maybe the comment is not quite as relevant but -- I'd have to do some further assessments -- but I'd -- be interesting to hear what your perspective would be on is it possible for the site-specific water quality objectives to be within the natural range, say a ninety (90) or ninety-fifth (95th) percentile of background at the outlet of Drizzle Lake. I'm just interested to hear what you might have for perspective on -- on that.

MR. RICHARD HOOS: Yes, Rick Hoos here. I know we had a little bit of discussion on this beforehand, but I -- I believe it's -- it's Avalon's going-in position at this time.

Certainly, our recommendation that conformance with the CCME guideline values offer, in themselves, a very significant degree of protection to the aquatic system, particularly since all of the CCM guideline values themselves are based on a very precautionary approach. And at no time have we actually factored in the -- the beneficial influences of harder water and higher pH water which are characteristic of this system.

So, at this point in time, it would -- it seems reasonable for Avalon and -- and ourselves as their consultants to advise them that con -- conformance with CCME guidelines is -- is very appropriate at this time. And we don't particularly want to commit to achieving levels that are well below CCME even though we do recognize that many of the effluent parameters are already below.

I think we should all be grateful that at the end of the day the effluent quality will be better for many parameters than background or CCME in particular and -- and let the monitoring -- the environmental monitoring -- which will be very comprehensive, as you know, both EM monitoring AMP monitoring perhaps will help to demonstrate whether there's any residual issue of any kind associated with this form of discharge and operation.

So, I guess we're reluctant to start committing to numbers that are well below CCME even though it is apparent to anyone looking at this table that the going-out effluent will, in fact, be below CCME for most of the parameters even before it leaves the tailings pond -- tailings management facility.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division of Aboriginal Affairs.

Recently, the Land and Water Board released water and effluent quality management policy. It talks about source control and best management practices for reducing contaminants from re -- getting released into the receiving environment.

So I guess sort of the premise for the question that I'm bringing up is if -- if we can meet a standard that's better than, you know, a national standard that, you know, may not be site-specific, and it's reasonably and practicably achievable, if we could actually set an objective that enhances the protection for the downstream receiving environment.

And I was just going to try to get an understanding of if we could meet a parameter at the end of initial receiving body, the first lake for example, and we can be within a natural background range, it would be, you know, best practice to sort of adopt that if it gives the company, sort of, the flexibility to still have some operational flexibility to a -- to achieve it.

But if -- if, upon those assessments, we could come to a reasonable conclusion that we are within the background range, would that not be an appropriate objective to set for the project?

So, obviously, we might have to have some further discussions on that, but I also wanted to draw some attention to the fact that the CCME water quality guidelines are basically driven by toxicity alone. To come up with the guidelines they've done some assessments of acute and chronic toxicity and then set a safety factor to set an appropriate limit that would hopefully be protective of all conditions.

However, for some of those parameters in -- in this case, some of them may be contaminants of potential concern. There's an opportunity for that parameter to biomagnify in the receiving environment. An example would be like mercury or cadmium, or selenium. So defaulting to a CCME water quality guideline alone takes into account the toxicity of that parameter on the receiving environment, but it doesn't atti -- account for the biomagnifica -- biomagnification potential of that parameter on the receiving environment.

So a good rule of thumb is to, you know, look at what CCME compares to your effluent, but it's not the only way to look at setting objectives for your receiving environment. And we need to understand how your effluent will behave in the receiving environment and to ensure that we're protecting downstream water and uses, whether it be fish -- fish or aquatic organisms.

So I think there's more discussion to be had on if -- if we could meet something. And we have the flexibility, you know, whether it's a whole lake average or whatever it happens to be, under a worst-case scenario, that the site-specific water quality objective be set at a -- a more protective standard.

I also noted, I guess I was looking through some of the ba -- the baseline or background condition, and, for mercury, it doesn't seem like we have a full handle on what the potential concentration is. It seems to be less than detection limit, but the detection limits are not, like, an ultra low detection.

And there is some concern about mercury concentrations in fish tissue currently in the region. And the slightest increase in mercury concentrations that could contribute to that biomagnification is a concern.

So I was wondering if it was possible during the summer season to have some samples be collected and sent for some ultra low detections to try to get a handle on what the actual natural background concentrations are, for example, for mercury. Because it is an area of concern for aquatic organisms and -- and fish in particular.

MR. DAVID SWISHER: Well, that was a mouthful, Nathan. I guess what I -- maybe a quick clarification. I -- I didn't quite understand what you were talking about with regards to CCME and more protective measures. Are you saying that CCME is not protective enough?

THE FACILITATOR MERCREDI: And that was David Swisher with Avalon.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, I guess to clarify, I was just kind of trying to identify that there are areas, or for certain parameters, where CCME water quality guidelines may not be protective of a site-specific water quality, or water body. An example would be mercury.

But for others, as a general rule of thumb or as a principle, in accordance with the Land and Water Board effluent policy, if -- if you can not have a -- have a -- a contaminant concentration released to the receiving environment, that would be the preferred approach.

But if you have an effluent and it has concentrations of potential concern in it, that if you could minimize that to the extent possible, which you've been achieving to do with your optimization studies, and it shows that you can meet a standard, which wh -- whether it would be a reference condition or a CCME water quality guideline. But if -- if it shows that you can meet that, then that might be the appropriate standard to set as an objective for the project. So I was just trying to highlight that aspect.

MR. DAVID SWISHER: I appreciate the clarification there. I -- I think from Avalon's standpoint, and as Rick pointed out, you know, we feel at this stage in the process, I think it was quite a commitment for Avalon to basically indicate that our proposed SSWQOs are going to meet the CCME guidelines, just because the CCME standards that are out there today are very well known in protecting aquatic life and the environment.

So from Avalon's standpoint, we feel very comfortable at this stage with what we've proposed on the SSWQOs. I'm -- I'm sure that if it were in other circumstances like I'm very familiar with with other operations where they can't meet the CCME, regulators would love nothing more than them to meet CCME.

So I think we've really -- we're being extraordinarily responsible in -- in proposing meeting the CCME. But it doesn't mean that when we get into the next stage of regulatory process with the Land and

Water Board that we can't sit down and -- and go through the numbers in a bit more detail at that stage. And of course Avalon is more than willing to do that.

MR. NATHAN RICHEA: Thank you for that answer. I appreciate the response. It's Nathan Richea with the Water Resources Division. Yeah, I just wanted to add that, you know, like I mentioned, the mercury number, the CCME number for mercury is based on toxicity assessments alone and it does not account for biomagnification in the receiving environment.

So that would be an example where CCME may -- is not likely protective of biomagnification potential and it -- and it gets exacerbated by the potential for eutrophication in the receiving environment by the release of nutrients such as nitrates and ammonia.

Enhanced production in your receiving environment will cause the speciation of mercury to change, the natural occurring mercury within the system. It methylates to a bio-available concentration of mercury that it -- can also accrue in organisms.

So not only is it the end of pipe

discharge that is a concern for mercury and the potential for it to biomagnify, but also the potential for eutrophication to cause enhanced methylation of mercury in the receiving environment, not directly related to the effluent discharge itself.

So that's why I'm trying to get a -- an -- my request was to sort of get a handle on what the natural background concentration for mercury would be under a -- you know, using an ultra low detection limit.

It would help us whether we use it in this phase of the project or in the next one. If we don't have that information we would just be using judgment and pre -- precautionary, setting it potentially to a lower level than we need to. But if we have a background concentration we can assess what the likelihood would that -- of that would be and what the meaning of that would be when we're setting an appropriate objective.

THE FACILITATOR MERCREDI: Just before Avalon, so -- and just to kind of bring us back to -- to how this relates to the Review Board just for -- for the developer's clarification. Is there -- is there -- relating to mercury and -- and the baseline that Avalon has done, is something missing that would kind of relate to a potential impact with respect to mercury and -- and this discussion that's going on here.

So -- because if there is then that is definitely within the Review Board's purview to look at. Could you describe relative to what is on the record thus far in the -- the baseline reports that they have and the developer assessment report, how that might have been lacking. And again, this is for the Review Board to hear and then -- and then Avalon will be able to -- to answer after that.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. I haven't completed an exhaustive review of the baseline data, so I haven't conducted a exhaustive review. But I have looked at the tables that have been provided through other -- in the deve -- in the developer's assessment report, the responses to our Information Requests, and the most recent table that we received today.

And looking at the concentrations that are presented here it seems to me like the concentrations are less than the detection limit, which is the normal detection limit that we -- you could use for a laboratory analysis, but it is not the ultra low detection limit. Mercury is a very low -- has a very low concentration in the receiving environment and you need to do an ultra low assessment to detect what the actual concentration is.

But because there's a potential for mercury to bio-accumulate and biomagnify in the receiving environment, you need to understand what the background concentration is of mercury and you need to have that low-level detection to assess what the impacts are from the project, whether it would be the slightest increase of mercury being released. It could cause an issue with biomagnification and -- and contamination of fish tissue in the downstream. So it's important from an impact assessment.

THE FACILITATOR MERCREDI: Okay. And that was Nathan Richea with AANDC. And so just so I understand, the -- so the less than detect showing up, it -- it -- that is not the concentration -- it doesn't give the actual concentration and -- and because of that -- that is hindering AANDC's understanding of the potential impacts from, for example, mercury in this partic -- in this instance.

Would that be correct?

MR. NATHAN RICHEA: That's correct. And the discussion about mercury gets very complex, like I tried to explain earlier today, but it -- there's a bunch of factors that factor into it. But, yes, generally that is the -- that is the understanding. Thank you.

THE FACILITATOR MERCREDI: Okay. And that was Nathan Richea, with AANDC. Okay, just it's -- it's -- as far as to be able to capture how this would fit within -- again, within the Review Board's sphere of influence, and that's just for -- that was for clarification for the Review Board, does Avalon have a comment on that? Thank you.

MR. RICHARD HOOS: Rick Hoos, with Avalon EBA. I'm just looking at the -- the latest set of -- of water quality data that were collected by our colleagues for the Nechalacho project area. They identified using a detection limit of 0.05 micrograms per litre as the detection limit for mercury. I also notice that the results that they reported were reported as less than 0.01 micrograms per litre in -- in all of the waters.

I -- I do not profess to be a water quality analyst. Could you tell me how much lower than less than 0.01 micrograms one can actually measure these days? And that's a serious question. I just don't know the answer to it, but I -- maybe I should. But I wondered if you knew the answer because, I mean, it's pretty low.

MR. NATHAN RICHEA: Hi. It's Nathan Richea, with the Water Resources Division. I -- I guess I was a little confused with your question. You mentioned that the detection limit was .05 micrograms.

MR. RICHARD HOOS: That's what it says in this table, yes.

MR. NATHAN RICHEA: But the report was less than 0.001 micrograms. And --

MR. RICHARD HOOS: Yeah.

MR. NATHAN RICHEA: -- that would be an impossible scenario --

MR. RICHARD HOOS: Well.

MR. NATHAN RICHEA: -- because it would be lower than the detection limit. So --

MR. RICHARD HOOS: Yeah. No, I understand.

MR. NATHAN RICHEA: -- that's where the confusion kind of lies. I don't really know --

MR. RICHARD HOOS: Yes.

MR. NATHAN RICHEA: -- what the background concentration is. If it was less than detection limit it would be less than point zero five (.05). But you actually have it reported as less than point zero zero one (.001).

MR. RICHARD HOOS: No, point zero one (.01).

THE FACILITATOR MERCREDI: Just -- just to interject here, just so that we can capture the discussion, who's saying what, just, yeah, one (1) at a time, please.

MR. RICHARD HOOS: Yes, sir.

MR. NATHAN RICHEA: Were you done?

MR. RICHARD HOOS: Well, yes, I think I was done. But I do -- certainly do agree with you, Nathan, that there is some -- a little bit of confusion in my own mind as to, you know, the table indicates the detection limit is zero point zero five (0.05). The numbers that they're reporting for mercury in all these waters is less than zero point zero one (0.01), which would suggest to me that maybe the detection limit is 0.01 micrograms per litre, which is a thousand times less than milligrams per litre.

And I'm just wondering if the -- if the technology exists to -- to measure mercury at concentrations in water at less than 0.01 micrograms per litre?

MR. NATHAN RICHEA: Thank you. It's

Nathan Richea, with the Water Resources division. I believe the ultra low trace mercury detection is zero point zero one (0.01). But then, yeah, my question would be could I get clarification that the ultra low was used for that sample because it would need to be reported as less than zero point five (0.5).

MR. RICHARD HOOS: We can confirm that with our colleagues at Stantec. But looking at this data, it -- I would suggest that they are doing -- they are measuring it in the ultra low mode as it is.

I might further add that in our assessment, in the DAR, I think we touched on mercury, and we identified that there didn't seem to be any significant potential for mercury accumulation or bioaccumulation to occur because there isn't much mercury coming out of the -- out of the system going into the -- into the downstream receiving environment.

And furthermore, as -- as we know, mercury in fish, as an example, is important if the fish are being consumed by people primarily. Thor Lake is not generally fished by anyone. Beyond that though, it's also important to note that there are no -- you know, the -- the key species that people normally fish for, like lake trout in particular, possibly grayling, they do not -- they do not occur in this lake. This lake is -- has some whitefish and pike and other coarse species in it.

The lake itself is also rather confined by -- by a natural waterfall that it has, so fish can leave the lake, but they can't come back into the lake once they leave. And so there's a whole lot of reasons why anything resembling significant potential biomagnification with mercury is -- is most unlikely to occur. But it certainly can still be -- if it is a concern, it can form part of an EEM or, more particularly, AMP program that will be prescribed for this project.

Thank you.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, I don't want to get people bogged down in the details here, but I guess I just have to explain my last -- my -- my point again.

Looking at the table that was provided today, if you have less than point zero one (.01) as a background concentration for mercury in the receiving environment --

THE FACILITATOR MERCREDI: If you could just -- we're going micrograms, milligrams -- could you just clarify where that is.

MR. NATHAN RICHEA: -- micrograms -- less than 0.01 micrograms in the receiving environment, and the CCME guideline is 0.026 micrograms per litre. The difference between that is unclear because you don't really know what the background concentration of mercury is because it's less than zero point zero one (0.01).

So it could be 1 percent less or could be a thousand times less. The issue is that mercury can bioaccumulate. I don't want to bellinger -- belinger -- linger the point, but there's two (2) ways that mercury can cause an issue for impact assessment.

One (1) would be a release of mercury higher than the background concentration into the immediate receiving environment that would cause a potential for biomagnification, but also the enhanced enrichment of the receiving environment.

So if you are discharging nutrients along with that mercury, you can cause eutrophication that will methylate mercury that's naturally occurring in that receiving environment, especially if it's a low -- if it's a shallow sort of wetland-type area that will cause methylation of mercury that can bioaccumulate as well.

So there is a real potential for an

issue with mercury in this receiving environment, so I just wanted to clarify that. And we can work with the proponent where -- you know, this isn't like we don't want to talk. Like, we -- we want to continue to talk with you and -- and set up an appropriate site-specific water quality objective. However, to do that we need to understand a little bit better what the background concentrations are and -- and have further discussions with the company.

Thanks.

MR. DAVID SWISHER: David Swisher with Avalon. Yeah, I -- I think, again, on the mercury, a -- a -- a couple of the key points here. We can talk about each one of these elements, you know, in -- in -- in detail, and I certainly hear you with regards to the mercury concerns.

The fact that it was detected down to zero point zero one (0.01) -- it's less than that from background -- I think is a very strong indicator that, you know, the proposed SSWQO that we've -- we've indicated at zero point zero two six (0.026) is -- is still a very conservative approach.

Having said that, you know, again, we know we're going to be discussing more of these things in -- in more detail at the next phase of regulatory process and Avalon has expressed it's -- it's very much interested in having further discussions when we get into the Land and Water -- Water Board process in developing that water licence criteria.

I would certainly appreciate -- you know, having said all of that, I would appreciate knowing from -- from AANDC what they're suggesting the detection limit be if it's -- if we're not -- if they believe that CCME guidelines are not good enough. It would be helpful to understand what AANDC is suggesting those detection limits be.

THE FACILITATOR MERCREDI: Before Nathan, I -- I will say that if the effluent has the potential to cause some impact, it -- it's the Review Board that makes the determination of the significance of that first.

And so, if -- if there is evidence that might point to that, it is important that the Review Board consider that. So if there is evidence to consider that suggests there's a potential and a likelihood of there being an impact from -- from this, either again through the effluent directly or through, as you said, the -- the -- sorry, the nitrification.

And so, again, these are important areas for the Review Board to look at. So it is still within the Review Board's purview to look at as much as it would be for the -- the Water Board to -- to look at that as well. But the -- the determination of the likelihood and significance of the impacts is very much within the Review Board -- so within their jurisdiction to look at.

So -- so just to kind of frame -- frame that discussion and -- and how relevant it is to the Review Board, I -- I would like to say that. So just to put that out there.

MR. DAVID SWISHER: Thank -- David Swisher, Avalon. Thanks, Paul. I -- I understand that. I appreciate the clarification. I would only just suggest that, again, the Proponent, Avalon, is proposing to meet the CCME guidelines for the mercury. And in the modelling that has been done, it's shown the background at less than zero point zero one (0.01).

So from our standpoint, we feel very comfortable and confident with the -- the information we provided. And, of course, with the homework that we're going to do as suggested earlier on by many of you, we'll have further clarifications, hopefully tomorrow.

MR. NATHAN RICHEA: Thank you. It's

Nathan Richea with the Water Resources Division. I just had one (1) thing -- I just wanted to -- I think we talked about it, and I think you agreed that you're going to confirm whether or not you used the ultra low.

I think my first question was about whether you did or not. It seems like you have, I just want confirmation. That would be a good starting point, so thanks.

MR. DAVID SWISHER: Yes, and if we can do that as a homework item, Paul, then we'll get back to you. David Swisher, again. We'll get back to you, Nathan, on -- on confirming of the ultra low there. Thank you.

THE FACILITATOR MERCREDI: And I -- out of the corner of my eye, I see Ralph just wanting -- we'll -- and we'll let Simon get the wording there. Ralph?

MR. RALPH GRISMALA: This relates to the mercury issue. Ralph Grismala, ICF Marbek. The -- you know, if you're looking at the ratios of the table between the five (5) day decants and the background concentrations and seeing what the outcomes are for the model maximum values, it looks as though for mercury that -- well, my -- my question is what value was used for the five (5) day decant? Because it's shown on the table as less than zero point one zero (0.10).

Was it half of that number, or was it that number? Because if it was half that number, then, you know, the result looks reasonable compared to the other numbers. But that result is very close to the CCME guideline.

So if the actual number is closer to point one (.1), rather than half that point one (.1), your model will probably show that you're over the CCME guidelines. So we would like clarification of what numbers went into the model. And that should apply to any of the parameters that have a less than in the five (5) day decant concentration.

MR. JIM STRONACH: Yeah, Jim Stronach here. Yeah, we would have always used half of the detection limit for these calculations, which has that potential error that you're -- not error, but underestimate that you indicated.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. The comment wasn't with regard to the detection limit. It was with regard to the reported decant concentration, unless that is also the detection limit. But it's -- well, it's a magnitude higher than the other number, so I'm guessing it's something else? Or was it a different test?

MR. JIM STRONACH: Well -- Jim Stronach here. I assume that was also a detection limit issue.

MR. RALPH GRISMALA: Ralph Grismala. Okay.

THE FACILITATOR MERCREDI: Thank you. And, Simon, home -- homework number 5, I have?

MR. SIMON TOOGOOD: Simon with the Review Board. This encapsulates it. Avalon will confirm the lowest detection limit used for calculating mercury for the site specific water quality objectives. And I'll add to that to confirm whether it was the ultra low detection limit.

THE FACILITATOR MERCREDI: Okay, and, Nathan, this was during your line of questioning. Does that capture your concern?

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, Water Resources. Yes.

THE FACILITATOR MERCREDI: Thank you. And, again, that's homework, so it -- within -- within the week. I would -- I would encourage those that are asking the question to come -- either to come back throughout the week, or else we'll have transcripts posted hopefully every night, if not, by early next week. And then that is something that -- that we can move forward with.

With that, I will turn it back over to Nathan. Any concerns on the homework there from Avalon? That's a negative from -- from David Swisher. With that, back to Nathan.

MR. NATHAN RICHEA: Thank you. I'm -- I'm going to move on a bit to the nutrient stuff. I was just looking at the -- in preparation for the technical session, I was looking at Table 4.7-6 from the Developer's Assessment Report, page 505.

It talks a bit about nitrate release to the environment. And it talks about potential concentrations of ammonia in the process water and concentrations of nitrates in the process water.

And I was just wondering if someone can explain how -- whether those numbers are still the numbers that are being used as part of the assessment of these background concentrations or these twenty (20) year model concentrations in the table that was presented today because there's quite a bit different -- difference in the numbers from the process water to the model maximums in the receiving environment and whether you're assuming some reduction naturally in the polishing pond prior to release.

So I was just hoping I can get a comment from the company on that.

THE FACILITATOR MERCREDI: And we'll have -- we'll just let Avalon caucus for a few minutes before they answer.

(BRIEF PAUSE)

MR. DAVID SWISHER: David -- David Swisher here. Thanks for the short caucus. Yes, those parameters haven't changed. Those are still -- still the same.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. So am I correct in assuming that the concentrations in the process water will be assumed to reduce to the five (5) day decant that you proposed, I guess, in -- in the table? Or I guess maybe they're not actually proposed in the table.

I'm just trying to understand how the modelled average for ammonia goes -- gets to zero point five (0.5) in the receiving environment when it's assumed that the ammonia concentration in the process water is about 3.47 milligrams per litre. And then for nitrate, we're looking at about 11.95 milligrams per litre in the process water, and in the receiving environment, it's modelled at less than 0.02 milligrams per litre.

THE FACILITATOR MERCREDI: And again, I'll just allow Avalon to caucus.

MR. DAVID SWISHER: So I think we're ready, Paul. Dave Swisher here.

THE FACILITATOR MERCREDI: Okay. And, David...?

MR. DAVID SWISHER: Yeah. So basically, to answer the question after -- David Swisher here with Avalon, in discussions with Jim Stronach, who did the modelling, he's of the belief that we actually used more conservative numbers, so we probably didn't use these numbers out of the DAR, so I was corrected, so I apologized.

The indication was that he utilized more conservative numbers for the modelling efforts.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. That helps a lot because I was trying to fill the gaps in there. So I'm assuming you were thinking some reduction naturally within the polishing pond prior to release to the receiving environment as the main reason for the difference, I guess.

Is that correct?

MR. DAVID SWISHER: Yes, that's correct. David Swisher.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. And I guess one (1) of the reasons why I was bringing it up was in other operations in the north, we've seen issues with nutrients, particularly nitrate, where it doesn't sequester as much naturally, and there may be a problem with -- with end of pipe type concentrations.

So I just wanted to flag that just in case, you know, there was an error or something, but if -- if you got it worked out where a thirty (30) day retention time within your polishing pond is going to reduce it to a concentration that will meet the objectives, then -- then yeah, I'm comfortable with it.

I was just trying to -- I was trying to make the connections, right, so. I think that's all I have for now. I might have some further questions, but I might give some other people some time.

THE FACILITATOR MERCREDI: David, go ahead.

MR. DAVID SWISHER: Okay. Yeah, thank you, Nathan, I was -- I was hoping that was it from you. I -- actually we did just get confirmation of -- of -- we've completed, I think, homework number 5, was it, regarding clarification on the -- and maybe Simon can repeat the -- the homework regarding the -- the mercury ultra low testing.

And I think that's homework number 5.

MR. SIMON TOOGOOD: I thought it was number 7, but...

MR. DAVID SWISHER: Okay. Number 7. So Rick Hoos would like to comment on that to complete that homework assignment.

MR. RICHARD HOOS: Sorry, yes, we did contact Stantec, and what they indicated was that up until about 2009, the detection level limit that they were using was point 0-five (.05), but from 2010 onward, they're now using a detection limit level of .01 micrograms per litre for mercury.

So I guess maybe in hindsight, that table should have been corrected to indicate a detection limit of 0.01 micrograms per litre for mercury which is what they've been using recently and will continue to use for the time being. Thank you.

THE FACILITATOR MERCREDI: And that

was Rick Hoos with EBA for Avalon.

Nathan, any follow-up?

Okay. And thank you. Moving on to Anne.

MS. ANNE WILSON: It's Anne Wilson with Environment Canada. How does he know I'm bur -- bursting with more questions here. I'm thinking about sediments, and as you noted, the report that Environment Canada had commissioned highlights the insolubility of the rare earth elements and the fact that they really liked the sediments.

The poor water concentrations were quite a bit higher than the water column concentrations. Do you have any measurements of the rare earth elements in sediments?

MR. RICHARD HOOS: Sorry. Rick Hoos here. I would like a minute to just check the DAR. I suspect that they may not have measured rare earth elements in the lake bottom sediments, but I'm hoping I'm wrong.

I say that because, of course, they hadn't really measured rare earth elements in water before recently as well, so allow me to just check that and confirm it one (1) way or the other.

(BRIEF PAUSE)

MR. RICHARD HOOS: Okay. Rick Hoos here. I'm just looking at page 82 of the DAR, and in the laboratory methods, they do indicate that the REE -- REEs were analyzed. They included the lanthanide series, lanthanum to lutetium. Hopefully I'm pronouncing it right, David.

MR. DAVID SWISHER: Lutetium.

MR. RICHARD HOOS: Lutetium. And I don't even want to say the other ones. Promethium, niobium, tantalum, ultrium, zirconium, and hafnium. So they did, in fact, analyse for those parameters, as well as radium 226, radium 228, lead 210, thorium 230, and thorium 232.

So therefore, I'm hoping that we presented those data at least in tabular form, or if not, we would have referred to the -- the baseline report of Stantec would have referred the reader to that.

Yes, the full sediment analysis data set for the work is available in Stantec 2010-C Appendix A. Allow me another minute to see if they came to any conclusions about the radionuclide values and the REEs, specifically focussing on the REEs.

A large range of values were reported for REEs across the study area in 2009. Tantalum and hafnium were always low being reported at less than detection at all twenty-four (24) -- twenty-four (24) and nineteen (19) sample stations respectively.

So that was just a general comment we did make. I guess we didn't see anything stand out. Radionuclide values, which I know you weren't asking about, but I can report on those as well here from the DAR.

Radionuclide values were generally low and ranged from less than point oh one (.01) to point oh seven (.07) becroles (phonetic) per gram for radium-226. And the rest are all -- they're all below the detection limits for the various parameters.

I -- I will add one (1) more. Sorry, David, but there is one (1) other statement here that says lead-210 was higher than other radionuclides and ranged from less than zero point oh four (0.04) to one point four (1.4) becroles per gram.

Those are the findings from the --

THE FACILITATOR MERCREDI: Rick, before you close that page, can you please just read off the table number just -- just for a quick reference for anybody following along in transcripts?

MR. RICHARD HOOS: It was a summary of the results, and it's found on page 84, 85 of the DAR. If you wanted to actually see the -- the values for REEs, you'd have to actually go to the -- the Stantec baseline report, which is an appendix to the overall volume.

THE FACILITATOR MERCREDI: Okay, thank you. Just, yeah, coordinates always help. So...

MR. RICHARD HOOS: Yeah. Rick Hoos. And come to think of it, I know that when we first submitted the DAR, we had submitted a sort of a next to final draft. And I know somebody said, Well, you said you sampled for REEs, but there's no results. And that was true. They weren't in that la -- next to final draft version of the -- the report.

So then at -- as per MVEIRB's request, we then subsequently tabled the final final version of the Stantec report, which did pre -- present all those data. So they are available. And we did summarize them in the DAR and found them to be low.

THE FACILITATOR MERCREDI: Thank you. Anne, follow up?

MS. ANNE WILSON: It's Anne Wilson. Thank you for that clarification. I will go and check. I'm just curious to see what the proportion in the water to the sediments looks like now we've got the water measurements. That was helpful.

I do have one (1) other question on the updated information. And now I'm switching to tailings, if that's all right. The -- and it says that the tailing solids, in the update to the project description that was recently submitted, the tailing solids will be allowed to overtop the initial separator dike and extend to the east into the Buck Lake -- Ball Lake basin area.

Are you anticipating having to control wind erosion of the tailings if they would then be subaerial? I was thinking because there may be contaminants associated with those as well as TSS.

(BRIEF PAUSE)

THE FACILITATOR MERCREDI: Maybe we'll just let Avalon to caucus? If you're -- if you're asking, Anne, please speak through the mic.

MR. DAVID SWISHER: David Swisher. Just for clarification, Anne, you're talking about the update that we submitted which would have been the July 3rd, 2012? Okay, thank you.

THE FACILITATOR MERCREDI: That was

affirmative, Anne? Sorry, I didn't catch that.

MS. ANNE WILSON: Anne Wilson. It was on page 3 of that document. Thanks.

MR. KEVIN HAWTON: Kevin Hawton here with Knight Piesold. Yeah, we've thought about dust generation, and the way that's going to be controlled is through strategic spigotting of the tailings to maintain a wet beach. We also have some other waters going out there, and if required, those will be discharged over the tailings beach as required to minimize dust generation.

MS. ANNE WILSON: It's Anne Wilson. Thank you.

THE FACILITATOR MERCREDI: Go ahead, Nathan.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Just to follow up on that last answer. What other waters may be re -- may be reporting to your tailings containment facility?

MR. DAVID SWISHER: David Swisher here. Thanks. We just were wondering who is going to answer that. So I guess I'll take that one (1) on. So part of the waters we're talking about reporting out there would be the waters that come from either the surface runoff at the flotation plant and/or some of the fresh water underground waters that we pump up from the surface.

MR. NATHAN RICHEA: Okay. Thank you. It's Nathan Richea with the Water Resources Division. That's a good preamble for my next question. My other question was about the surface runoff and -- and whether it would be reporting to your tailings containment area, but it sounds like yes, so we'll...

MR. DAVID SWISHER: David Swisher, Avalon. That's affirmative. Yes, it will.

MR. NATHAN RICHEA: Perfect. Thank you. It's Nathan Richea with the Water Resources Division. After I finished my questioning there, I realized that I don't have the -- the five (5) day decant nutrient information.

The five (5) day decant is provided for a bunch of other parameters in that most recent table that was provided today. But I noticed that the five (5) day decant for nutrients is not included in the table.

I thought it was actually, that's why I probably didn't ask for it. I was wondering if I could get that -- those numbers that you used to -- to model.

MR. DAVID SWISHER: Yes. David Swisher, Avalon. Rick Hoos has just informed me we have them right here, so we can provide those to you.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources.

THE FACILITATOR MERCREDI: Just -- there's some great exchange here. That's -- that's great. I just would like to remind all parties that if there is to be an exchange of documents, I ask that it come to the Review Board to be captured by the Public Registry.

So again, if -- if concerns are to be heard by the Review Board, that sort of thing. So again, in that -- in that light, can we have that in -- unless it was -- unless it was captured on the transcripts, can we make that homework?

Again, it -- it probably is just a fairly quick thing, but just so we capture it and then again for the Public Registry, for the Review Board's consideration. So with that, we'll go back to Simon Toogood.

MR. SIMON TOOGOOD: Thank you. Simon with the Review Board. I have this as Avalon to provide the five (5) day decant for nutrients and the -- I'm sorry, is there a title for this document?

Just the whole -- the document -- the tables you provided.

Is -- should I -- is there a good reference for this?

THE FACILITATOR MERCREDI: Paul Mercredi with the Review Board. That -- I believe that's in the -- the presentation that Avalon is submitting for the Registry. Is that correct, David?

MR. DAVID SWISHER: David Swisher, Avalon. Yes, that's correct.

THE FACILITATOR MERCREDI: Thank you. With that we'll go to Simon again for wording.

MR. SIMON TOOGOOD: Thanks. Yes, we'll just have that as Avalon to provide the five (5) day decant for nutrients, again, in the table as provided in the presentation.

THE FACILITATOR MERCREDI: And, Nathan?

MR. NATHAN RICHEA: Yes, that sounds right. Nathan Richea.

THE FACILITATOR MERCREDI: Thank you. And again, homework within -- within the window of the technical session, so I believe we've addressed that. Nathan, anything further?

MR. NATHAN RICHEA: Thank you. It's

Nathan Richea with the Water Resources Division. I'm going to change gears a little bit here. In the presentation earlier today, we talked a bit about optimization of the Nechalacho flotation plant and using potentially different resins or you've been trialing different resins.

Do you know what resins are currently on the table right now for the floatation plant up at the Thor Lake site?

MS. HENRIETTA NOTZL: Henri Notzl, Avalon. It's not a resin. We use a number of floatation chemicals that are reagents. There's about six (6) different types that we use, and they're standard in the floatation industry.

MR. DAVID SWISHER: David Swisher with Avalon. I -- I could just add to that the -- the table reagents should have been provided in the DAR as well. Thank you.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. So the -- the table in the DAR is the -- there's no new reagents that are being proposed to the optimization? That list is exhaustive, and there's no other ones?

MS. HENRIETTA NOTZL: Henri Notzl, Avalon. In our optimization, there could very well be a different type of chemical, but it has yet to be confirm -- confirmed; a different reagent we're using at the moment, unique to rare earths.

MR. DAVID SWISHER: David Swisher with Avalon. To that end as well, the reagent table that we provided for in the DAR is actually under consideration as well, and that reagent, or the suite of reagents that are used, could be significantly reduced in our optimization efforts.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, I guess just the premise for my question is what potentially could be -- could we see in the tailings water, right, if a different reagent is used. That's not on the list. So I was just curious. I know you're doing some optimization. And if there is a different one (1), can you let us know? Because we're trying to in -- we're interested in looking at what the potential change in the concentrations that will report to the tailings containment facility may be, so just to let us know if they have changed things.

MR. DAVIS SWISHER: Yes. And currently we haven't changed from the current reagents scheme. Obviously we're doing several different optimizations to see what we can do with the -- the key optimization, being the reduction of the amount or reagents that's in the DAR right now.

That, to us, is more important just because of the -- I think in the DAR, we had about 4,000 tonnes of reagents annually being shipped north. Obviously that's a cost, so we're trying to reduce those costs.

If it does look like we may be utilizing another reagent that's maybe specific to help in the extraction of the rare earths, then we certainly would make that present either during this period or at the next stage, regulatory process.

THE FACILITATOR MERCREDI: And just to capture that, as a commitment within this environmental assessment, should the reagents change within the CA, I'd like to capture that as a commitment that the Board be notified as soon as -- as possible of that just because obviously there are, no pun intended, some downstream considerations from that.

So can we take that as Commitment number 1 within the technical session?

MR. DAVID SWISHER: David Swisher, Avalon. Yes.

THE FACILITATOR MERCREDI: Thank you.

--- COMMITMENT NO. 1: Should the reagents change
within the CA, Avalon
notify the Board as soon
as possible of that

CONTINUED WITH QUESTION PERIOD:

THE FACILITATOR MERCREDI: And while we let Simon get the wording, Ralph had a question.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. Just a question on the -- I -- I believe you're referring to Table 4.7-1 in the DAR. And just as I -- I look at it now, there seems to be perhaps some ambiguity in the way the table's labelled.

The title is "Average reagent consumption," but one (1) of the columns says, "Life of mine," so it's not clear to me. And -- and when you phrased it, you said it was 4,000 -- 4,000 tonnes a year, which appears to be roughly the sum of the individual components.

So is that -- is this a table of annual values or life of mine values?

MR. DAVID SWISHER: David Swisher with Avalon. Ralph, could you clarify what page that's on?

MR. RALPH GRISMALA: Page 485. I'm sorry, Ralph Grismala. Page 485.

MR. DAVID SWISHER: David Swisher, Avalon. Yes, I can confirm that these are annual usages.

MR. RALPH GRISMALA: Ralph Grismala. Thank you.

THE FACILITATOR MERCREDI: And we'll have Simon to repeat the wording there before we break, have a quick health break.

MR. SIMON TOOGOOD: Just like bullet points of clari -- sorry, Simon Toogood, with the Review Board. I have the basic question being: Should the proposed types of reagents change, Avalon will notify the Review Board -- I would just ask the reagents to be specific, that's for the -- for which part of the process?

MR. DAVID SWISHER: David Swisher, Avalon. That would be Nechalacho flotation plant.

MR. SIMON TOOGOOD: Thank you very much. And just to get into the timing, when do you expect that you would have your final listed reagents with the future studies and such?

MR. DAVID SWISHER: I'm sure Henrietta could add to this, but my experience in working with Ms. Notzl is that we -- we are always in an optimizing state. And currently right now, you know, we're --

we're trying several different things to -- to minimize that re-usage. So what we've provided in the DAR, just like so many areas within the DAR that we provided, we took a conservative approach just to make sure that when people were looking at it or analysing it they were looking at it from a worst case scenario. Thank you.

MR. SIMON TOOGOOD: I just want to make sure I'm not making -- writing down a commitment that perhaps goes beyond the EA stage of this project. Will this be done presumably before the EAs?

MR. DAVID SWISHER: In terms of -- David Swisher, Avalon. In terms of definitively saying finalized schemes, unfortunately in the industry I don't think there's ever anything that's finalized. So Avalon would be hesitant to say finalized before the EA process, no. But with regards to having a confirmation of any adjustments to the reagent scheme that is proposed under the DAR, yes.

MR. SIMON TOOGOOD: Fair enough. So essentially, you have a question being should the -- should the proposed types of reagents change from the -- the list set out in the DAR for the Nechalacho flotation plant, Ava -- Avalon will notify the Review Board?

THE FACILITATOR MERCREDI: Yes. Okay, I'm thinking maybe a couple more just before the break, if there's any from...?

MR. NATHAN RICHEA: Hi there. It's Nathan Richea with the Water Resources Division. I want to talk a bit about the toxicity testing and a -- a couple of questions, I guess, for the company. I just need to find my papers.

The toxicity testing that was recently completed, I think it was in April or something -- April, May, something like that, showed some chronic toxicity for ceriodaphnia dubia, I think. And just wondering if we can get an explanation from the company on the potential reasons for the potential failures from some of the chronic toxi -- chronic toxicity testing?

THE FACILITATOR MERCREDI: A moment for Avalon to caucus.

MR. RICHARD HOOS: Okay, it's Rick Hoos here. I guess probably the simplest thing to do is to once again read from one of the responses I think that -- that Nathan must be referring to. It's on page 3 of -- or a response to April 16th clarification questions. The date of the submission was May 10th. And with respect to the sub-lethal chronic:

"Sub-lethal/chronic reproduction tests for the inverted -- for the invertebrate ceriodaphnia..."

Is that -- that's what you're talking about Nathan? What we indicated was:

"Some inhibition of reproduction rate was observed in the treated effluent, where we said an IC-25 of 63.5 percent. Less inhibition -- [that's in the effluent]. Less inhibition was noted for the effluent Drizzle Lake blend, IC-25, 75 percent. And about a 15 percent inhibition was reported for the Drizzle Lake water only."

So even Drizzle Lake water, without effluent at all, was causing some inhibition. It is noted that -- reading on:

"It is noted that there were no mortalities in the final effluent test [this is chronic] while there were some in the blended waters and Drizzle Lake water."

In other words, the Drizzle Lake water,

in some respects, was more deleterious than the effluent, but interestingly, only in diluted samples and not in the 100 percent concentration sample.

> "It is also noted that all three (3) waters behaved in a similar manner with the impairment only in the sample of undiluted solutions."

So basically, I guess what it is -- is really showing is that these re -- these -- these kinds of chronic tests are -- are sensitive and, in some respects, may not even allow you to explain some of the variations or variability that occurs between tests.

But here we have a situation where the Drizzle Lake water, in itself, in -- in some respects was of having comparable effects or maybe even worse effects than the effluent did in some cases.

There's another comment about an algae that was also tested for sub-lethal chronic growth tests. And that actually suggested that there was some stimulation of the algae:

> "All waters tested had IC-25 values greater than ninety point nine one (90.91)."

I think really what these results are

showing is that if there is a -- a measurable effect, it's very minimal and -- and applies -- can -- can conceivably apply, as it did in this case, to either the whole effluent, a mixture of effluent in Drizzle Lake, and even Drizzle Lake itself without any input of effluent.

So it's -- it's right on the verge of what does all this mean. It's -- it's very close to the edge, and I'm not sure one (1) would want to interpret too much more than that from this data.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, I was just trying to get an understanding of whether the proponent had a understanding of the cause of the potential chronic toxicity.

I guess one (1) of the questions I had was it sed -- it says here:

"Some inh -- inhibition of reproduction rate was observed in the treated effluent."

But later on in the section, it says there was no chronic toxicity in 100 percent water. So what do you mean by treated effluent? I was confused by that because I thought there wasn't toxicity in the effluent, but then it says that there was some toxicity in the effluent within the same paragraph.

So I was confused.

THE FACILITATOR MERCREDI: Rick, if you could please speak through the mic. Yeah, for sure.

MR. DAVID SWISHER: Nathan, could you -- David Swisher, Avalon. Could you clarify the information you're reading from, the source?

MR. NATHAN RICHEA: Thank you. It's --

THE FACILITATOR MERCREDI: And if you could just turn off the mic to your left there, David. Thank you.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yeah, it's the second sentence in the third paragraph with respect to sublethal chronic reproduction tests for invertebrates ceriodaphnia dubia.

Some inhibition of reproduction rate was observed in treated effluent. But then further down, it says there was no mortalities in the final effluent test. It seems to me the mortalities is referring to acute toxicity whereas the inhibition is chronic toxicity in the effluent.

So I can just preference sort of where

my question is coming from. When we look at setting site specific water quality objectives in a receiving environment, we try to minimize the zone of chronic toxicity.

To do that, you need to understand how your effluent will behave in the mixing zone or in the receiving body and if there is chronic toxicity. And the results are kind of confusing, and maybe -- it may just be the way that it's presented here, but it seems like there is chronic toxicity, the potential for chronic toxicity, and it's not clear what the cause of the chronic toxicity is.

And it's part of an assessment of what the impacts of the effluent will be on the receiving environment need to assess what may be causing the chronic toxicity in the receiving environment.

And it's of particular importance if we're going to treat the entire lake as a mixing zone if the end of the lake, or the outlet of the lake, is the potential mixing zone boundary or the place that we applied the site specific water quality objectives. So that's my premise for my concern.

THE FACILITATOR MERCREDI: And just before Avalon responds, can you give a -- a specific example? Or can -- or you can -- as far as it relates to -- to this?

MR. NATHAN RICHEA: I don't understand your question. It's Nathan Richea. I don't understand your question, but basically what I was trying to suggest is MMER regulations state that you need to have no acute toxicity at the end of pipe, and it allows for a zone of chronic toxicity in your receiving environment.

When we're looking at setting -- setting up site specific water quality objectives for the receiving environment, we need to consider what the zone of chronic toxicity may be.

And it seems as though the potential for the blended effluent to cause chronic toxicity in the receiving environment. It's not clear why that's happening, but it may mean that we need to do additional testing to understand the differences between how the effluent behaves in the receiving environment and how the effluent may influence through synergistic effects.

That synergistic effect is a number of parameters working together to cause chronic toxicity. It may not be the synergistic effects of the effluent itself. It may be synergistic effects between the effluent once it's mixed with Drizzle Lake water because there could be conditions or other parameters in Drizzle Lake that is causing the toxicity once it's blended.

And that's been demonstrated in the literature. Some -- sometimes you will have chronic toxicity once, and effluent is released to the receiving environment because you can't control for the parameters that are already there.

THE FACILITATOR MERCREDI: Okay. So I have a couple questions. First of all, the -- when you say "the literature," are you referring to the studies that are on the record?

MR. NATHAN RICHEA: No, I'm talking about scientific literature.

THE FACILITATOR MERCREDI: Okay, so. And so for -- are -- so are you speaking in general, the synergy in general, or are you referring specifically to the effluent that Avalon is proposing to discharge?

MR. NATHAN RICHEA: I'm speaking about the synergy in -- in general as a potential cause for the toxicity. But I was hoping to get an explanation from the company on what they feel is causing the toxicity in their effluent.

If you run toxicity tests and it shows

that you may have acute toxicity, well, then you got an issue and you got to figure out why. If you run toxicity tests and it shows that you may have poten -- chronic toxicity, we also need to understand why. And it's particularly relevant when we set site specific water quality objectives and assessment zones, like assessment boundaries, like the mixing zone boundary.

If the zone of mixing is going to be the entire lake, then the potential for chronic toxicity will -- will exist in the entire lake. That's important from an assessment standpoint. So that's the premise of the question.

THE FACILITATOR MERCREDI: For sure. I just wanted to clarify where we were at. I -- I think I'm comfortable with that. Avalon...?

MR. RICHARD HOOS: Okay, Rick Hoos. The -- the answer that we provided to you was as -- as was read out. The answer indicated that -- and we're now -- we are talking about sublethal chronic toxicity testing looking at reproduction rates.

And what this document indicates or what we reported was that there were, in fact -- there were some mortalities even. Even though this was a long-term test looking at reproduction, there was some mortalities in the test organisms, but none occurred in the actual 100 percent effluent. Some occurred with the mixture of Drizzle Lake and the effluent, and some occurred with just Drizzle Lake water.

We need to point out that that water from Drizzle Lake was actually collected when there was still an ice cover over the lake. In fact, we had a hard time finding any water at all. But we were, ourselves, concerned that by collecting water from Drizzle Lake in the wintertime, we might actually be introducing some potentially harmful parameters in the water because we have already learned from the year-round monitoring that the lake does go anoxic. And in the process of going anoxic, it results in the liberation of a number of other parameters, iron being one (1), ammonia being another.

So it's -- you know, those were the conditions under which this work was carried out. It should also be pointed out that the suite of testing that was done was consistent with the expectation and requirements of the Metal Mining Effluent Regulations, which require you to do acute toxicity testing and chronic testing, the results, all of which are used not on a one (1) time only basis but over -- over an extended period of time to determine whether you, in fact, have some kind of thing -- some kind of issue that you need to be concerned with.

We would not feel that it's appropriate to -- to assume that every chronic test that might be done with this effluent in the future will result in this -- will produce the same kind of results. This was the first time it's ever been done. These were the results that we obtained.

We were encouraged by the fact that the effluent itself did not seem to elicit the -- the minor effects on reproduction for this that the Drizzle Lake water itself did. And we just took these results at face value.

We did not assume, and it's not reasonable to assume, that this kind of chronic impact would necessarily occur all the time, nor would it be reasonable to assume that this kind of limited impact, mostly it seems due to the -- the receiving water of Drizzle Lake, would necessarily carry over to the downstream lakes.

We have lots of information which has been presented to the Board and even discussed here today which shows that the water quality of Thor Lake, as an example, where the fish do thrive, is considerably better than the water quality of both Drizzle Lake and Murky Lake. And certainly Avalon's objective is to ensure that all three (3) of the lakes don't change appreciably, or at all. And particularly Thor Lake, where the fish are -- are thriving.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Thank you for your response. Yeah, no, I was just trying to understand. I think maybe you alluded to it in your response that there was no inhibition of reproduction in treated effluent.

But I think the first sentence there sort of says that there was some inhibition or reproduction in the treated effluent. So I just wanted to clarify that for the record.

So the effluent did have some chronic toxicity, and we just want to make sure that when we assess site specific water quality objectives and we apply them to a zone in the receiving environment, we account for the potential for chronic toxicity.

I don't really have anything more specific on the issue of toxicity testing. It's -- I guess the only other comment I had, would -- would you consider running confirmation toxicity testing, at least for ceriodaphnia dubia, to see if this is a one (1) time event? And if that -- and, you know, maybe it was a one (1) off?

MR. MARK WISEMAN: Mark Wiseman, Avalon. Yeah, we're certainly going to be doing more of that kind of testing as we con -- continue to refine the -- the details of the process. When we've got our best guess of where we're going to go, we will definitely do another series of tests.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Do you have any idea of when you may be able to produce another simulated effluent and do the testing? Would that be in the next couple of months, or do you have any idea?

MR. DAVID SWISHER: David Swisher with Avalon. I think from our perspective, we're -- like I mentioned before, we're -- we're continually working on that optimization process. It really depends on -- on where the concerns are and -- and where they lie, and do we believe that we can have something prior to water licence.

I think prior to water licence initiation, yes, of course, we're going to have more time well after that to develop and, of course, as Rick has mentioned in our AEMP plan, we're going to be doing a lot more of these tests follow up to that.

So in terms of -- of when we're going

to have that, you know, we're -- we're committed to continuing -- to continue to optimize. But, you know, we're -- we're at a -- at a stage now where we're -- we're just making sure that we make sure we have what we need before distributing.

And I think the point being that these tests were, again, just as many things in the DAR are, done under conservative circumstances, if you will. In this case, if we wanted to try and show these tests as being positive, we certainly wouldn't have waited for the conditions where there was still some ice on the lake to take that test and -- and do those types of analysis.

I think if we were to do those tests again, say in the -- the spring or summer, spring freshette or summertime, you would see a much different story, you know, from that.

So I think the conservative nature itself, I think, lends comfort to the test work we have done. But I think as Mark just indicated, you know, we're committed to doing more of those tests. When, we couldn't tell you because we're still, and Henrietta is still, diligently working on that optimization process.

MR. NATHAN RICHEA: Thank you. It's

Nathan Richea with the Water Resources Division. Yeah, I can just add a little thing before coffee or something. Yeah, and thank you for your response.

And I know toxicity testing, you can run them over and over and over again, and thank you for committing to doing that as the process for optimization continues.

I guess just to get back to, I guess, why am I raising it. It's -- if -- if the effluent that you're testing right now is -- is under CCME, and we have the potential for chronic toxicity, and maybe confirm that we don't have chronic toxicity if we do additional testing.

But right now, as a reviewer tasked with providing advice to the Impact Review Board, if the effluent that is being tested is less than CCME and there's results to suggest that there is potential chronic toxicity, and then CCME is proposed as the site specific water quality objective.

You know, you put those lines together, and you think that there is potential for chronic toxicity in Drizzle Lake. And if the end of Drizzle Lake is the assessment boundary for the site specific water quality objectives, there is a potential for chronic toxicity in the entire lake over the twenty

(20) year period, which needs to be considered, and it affects the assessment, right?

And as a reviewer looking for -- to provide advice to the Board, I'm just trying to get that out and whether or not we can confirm through additional testing and if that -- if those come in prior to our technical submission, that would be really, really useful. Because it would hopefully head off this issue before writing in our submissions for a technical report. So thanks.

MR. DAVID SWISHER: David Swisher here again. Appreciate that, Nathan. I -- I certainly understand your -- your position there. And I would just like to remind the Board that, fortunately, Drizzle Lake, having been a sample for two (2) years in a row with no fish in it, and it wasn't until the latest sampling effort that they actually did catch a juvenile pike that -- in the -- the inlet portion of Drizzle, understanding that it doesn't support fish.

So from that standpoint, I just want the Board to understand that -- that, you know, we're fortunate from that regard with regards to that -- that discharge as well, which is another, I think, benefit for the project and how it's designed. Thanks.

THE FACILITATOR MERCREDI: Thank you. We'll take a ten (10) minute health break here, and then we'll launch back into questions for water quality topic of the day. And with that, ten (10) minutes.

--- Upon recessing
--- Upon resuming

THE FACILITATOR MERCREDI: Okay, this is Paul Mercredi, with the Review Board. Marc, do you have any questions here?

(BRIEF PAUSE)

THE FACILITATOR MERCREDI: Well, go ahead, and we'll get back to Nathan. I'm sure he's got some more.

MR. MARC CASAS: Okay, Marc Casas, with the Mackenzie Valley Land and Water Board. And I ha -- my questions are mostly, I think, just points of clarification.

And the first one (1) is a lot of important numbers are -- are based on the five (5) day decant numbers that -- that are -- that led to the water quality objectives, site-specific water quality objectives. And I'm just wondering if you could maybe walk me through the process of -- of where that five (5) day decant water came from.

Is that from a bulk -- like was it processed like in -- as a bulk sample, or -- or where do those -- where do those numbers come from?

MR. DAVID SWISHER: We've -- David Swisher, Avalon. We've conducted several tests throughout on the flotation plant regime, and so those are not a result of the bench scale, but a result of the pilot plant that we have ran in the past.

MR. MARC CASAS: Okay. Marc Casas, Mackenzie Valley Land and Water Board. So it's actually like effluent that came out of -- of an actual process that was actually processed. Is that correct?

MR. DAVID SWISHER: David Swisher, with Avalon. Yes, I can ask Henrietta Notzl to explain what a pilot plant -- how a pilot plant generally is -- is set up and the constituents that go into a pilot plant that represent the process. Henrietta?

MS. HENRIETTA NOTZL: Henri Notzl, Avalon. The way the pilot plant works is it's a flotation system. And the liquid that comes off, it goes into thickening, and the overflow from that cre -- is created, and it should be clear of all solids.

And we use flock in the thickening to be able to drop out the solids. And that clear solution then is analyzed through a series of tests. There's quite a number of tests for both the solids and for the solutions, including just shake tests for the solids to make sure everything's okay. So we can give you a list of all of that if you want.

MR. DAVID SWISHER: Yeah, David Swisher, with Avalon. I think at the end of the day -- sorry, I'm eating a carrot. At the end of the day, the pilot plant is representative of the actual flotation plant that'll be operating there on a smaller scale.

MS. HENRIETTA NOTZL: Henri Notzl, Avalon as well. I should mention that it's -- we only do the testing after stability has occurred within the pilot plant.

MR. MARC CASAS: Okay. Yeah, that's helpful information. I guess where I was sort of going to with -- with some of these numbers is I know in some other mines that a lot of times the underground water is used as water as part of -- in part of the process plant. And sometimes that underground water can have high, like, total dissolved solids, which the main constituent is stuff like chloride and stuff like that.

And so I guess I'm wondering if -- if this particular five (5) day decant would be representative of -- of the process say, you know, towards the end of mine life or throughout mine life of -- of some of the water that may be coming from the underground.

MR. DAVID SWISHER: The five (5) day decant is not representative of any underground water. The underground water in this case, in our situation, we're in a good situation where we don't have to use the underground water in the process plant, so we will not be doing that, no. David Swisher, Avalon.

MR. MARC CASAS: If I can clarify though, that will report to the tailings facility, correct?

MR. DAVID SWISHER: David Swisher. Yes, that'll report to the tailings facility.

MR. MARC CASAS: Marc Casas, from Land and Water Board. So, yeah, I guess ultimately sort of what I'm getting at is I -- I looked at some of the -- the numbers on this handout that you've provided earlier today, and -- and realize actually that the five (5) day decant numbers are not here for the nutrients and ions.

So I was wondering, particular attention on, say, chloride or -- or TDS, or chloride as a representative of -- of TDS numbers of -- of whether these -- these numbers would be expected to go up if you do start to -- as you go into the underground and -- and get into some of that underground water.

So that's -- that's one (1) question. Well, maybe I'll just let you answer that question first.

MR. DAVID SWISHER: David Swisher with Avalon. Yeah, one (1) of our homework items of tonight is to provide the -- the day five (5) decant for the nutrients, which we will be providing.

MR. MARC CASAS: Marc Casas. But a day five (5) decant won't include the potential underground water. Is that correct?

MR. DAVID SWISHER: That is correct, and we don't feel we need to because the -- the way that we've conducted the test now is more conservative. If anything, that will create more dilution for the process. Dave Swisher, Avalon.

THE FACILITATOR MERCREDI: And if I can just -- should this -- could you describe how the absence of that might affect the Review Board's consideration, and if it -- if it does, if there is a potential impact to be had from the underground water, can you describe what that would be for the Review Board if -- if that is the case?

MR. MARC CASAS: Okay. Marc Casas. I'll -- I'll just get to the point then. I guess potent -- I -- my question is: Is there the potential to go into say connate water, in which case you may be getting elevated numbers -- levels of chloride in TDS through -- like as you go through mine life.

And if that's the case, it has a potential to have like much higher numbers than -- than are provided in this table. Although, I guess we don't have the five (5) day decant numbers, but -- but I'd assume they're at least less than CCME, which is the -- the 120 milligrams per litre.

So I guess the appen -- potential impact would be if, through the mine life, you do run into connate water, that there is potential to have impacts to the downstream environment, and -- and therefore the numbers provided here might be a little low.

MR. DAVID SWISHER: David Swisher with Avalon. Just for clarification, they -- we -- we aren't going to be adding salt to any of our water for underground. There's no need to do that. We won't be adding any of the additives, if you will, into the water itself or underground. There simply won't be a need for that.

And I think the -- the -- at the end of the day, what we're committing to is -- is -- or, in the -- or what we're proposing to meet under our SSWQOs, we're proposing to meet those at a -- at a minimum right now.

And of course when we get into the next stage of the process, as we've discussed with AANDC and EC, we'll be discussing, you know, individual levels that may or may not need to be adjusted based on the CCME guidelines.

MR. MARC CASAS: Marc Casas. Okay. Maybe I could just get some clarification on -- on whether -- I know you're not going to be adding salts, but if you do, my question was: Do you expect to run into this connate water, which -- which has these elevated salts in them, not that you -- you have to add them, but if you do go deep enough for -- or -- or potentially hit connate water, the -- you will get high levels of TDS and -- and chloride as a main constituent of that.

So I guess that's -- that's what I'm concerned about. And if -- if you know that you're not going to hit the connate water, then -- then maybe you can clarify that. Thank you.

MR. DAVID SWISHER: David Swisher with Avalon. Thanks, Marc, for that clarification. I think I understand where you're coming from now. Yeah. No, so there is no case in which we're going to be adding salt into the waters. And with the test work that we've done through Knight Piesold, through others at the site, we know there is no connate water there that we would encounter.

MR. MARC CASAS: Thank you. Another one (1) of my questions was that a lot of -- a lot of the numbers provided are -- are concentrations, and -- and I haven't seen much discussion about volumes or flows. And I'm wondering sort of how much confidence you guys have with the volumes that you guys have -- have used to come up with some of these numbers and if you used, like, a range of numbers, or how did you come around getting those flows, or what conservative numbers did you use?

MR. DAVID SWISHER: David Swisher with

Avalon. Could you clarify for me, Marc, which numbers you're looking for flows? Are you referring to the underground flows?

MR. MARC CASAS: Yeah, I guess mainly underground flows, but I guess ultimately what it -- it's looking at is the potential capacity of the tailings containment area to -- to hold a certain amount of volume in tailings and -- and whether -- and ultimately to discharge would be depend on -- on the volumes that are coming.

So if, you know, if you feel that there isn't going to be a capacity issue, sort of, I guess I just was wondering if you used, like, a wide range of -- of volumes and flows and -- and if you guys are very confident in those numbers.

MR. DAVID SWISHER: David Swisher with Avalon. Yes, we're -- we're quite confident with the numbers. And we derive those numbers through statistical analysis and through actual fieldwork that's generated both through the underground works that are -- that have been done through Knight Piesold to come up with the groundwater flows and the ranges that we have from those flows to the detailed design work that's done in the flotation plant; understanding that typical flotation plant flows and the makeup waters that are used in a typical flotation plant, to the surface runoff flows and the precipitation.

We have the multiple years of data with regards to the precipitation and the ranges in there. So in terms of the confidence level, Avalon is very confident with the -- the amount of flows that we have included into -- into the DAR and into the -- the process.

MR. KEVIN HAWTON: And I'll just add something. The water balance modelling for the -- for the tailings facility has been extensive. We ran Monte Carlo simulations to do both the 5th and 95th percentile over the twenty (20) year period.

So I hope that answers your question. We've looked at a wide range of possibilities, and plus we have those contingencies for various design storms, et cetera.

THE FACILITATOR MERCREDI: And that was Kevin Hawton for the record.

MR. MARC CASAS: Yeah, thanks for those responses. It's Marc Casas from the Mackenzie Valley Land and Water Board. I don't think I had too many more, but I feel like -- oh, yeah, one (1) is: Now, I understand that you've used a lot of conservative numbers and that you -- that you guys, you know, are confident that you will not exceed the CCME guidelines that you guys are proposing.

But I was just wondering if you have -- what potential mitigation you guys have if that was to occur. And that could be in terms of just pumping back or not pumping out, those kinds of things.

Have you thought about potential mitigation measures in the unlikely event of not meeting the water quality objectives?

MR. DAVID SWISHER: David Swisher, Avalon. Yeah, I think, you know, a good mitigation plan is actually understanding the root causes of these situations that occur versus, say, the -- the typical monitoring stations that occur at, say, the outflow of Drizzle Lake. By that time it -- it tends to be too late.

From our standpoint in the design aspect of the plant and what we're doing, I know in some of the commitments we have we indicate, you know, we're going to train our -- our operators with regards to making sure the proper amounts of flotation reagents and that sort of thing are -- are added into the circuit.

But at the end of the day, in ta -- today's technology, we have a lot more confidence in meeting those -- those goals and making sure that we're not in exceedances, because everything is done electronically now.

Even in the pilot programs that Henrietta's been extensively involved in, everything is done electronically, and you don't have a -- a single person adding reagents in there like you used to in the flotation plant. Our flotation plant's going to be designed and set up very similarly.

So in terms of the confidence, I think technology is allowing us to become more and more confident as we improve our -- our design aspects of the -- of the plant.

MR. MARC CASAS: Okay, thanks for that. One (1) last question, and this is also just more of a clarification, in terms of when you're breaking down, sort of, the -- the way stream, you had a thousand tonnes per day of paste going in your underground.

Is there -- I'm guessing that won't happen starting day 1. Is there a -- I'm assuming that that means that for the first like maybe year or so, or -- or however long it will be going, all of it will go in -- in a for -- a slurry form to the TCA.

Is that correct?

MR. DAVID SWISHER: David Swisher, with Avalon. That's correct. The first year really is the -- the placeholder for all the tailings to report to the tailings management facility while we commission the paste plant. And, of course, we're -- operationally, we're looking at commissioning the paste plant as soon as we can so that it coincides with the completion of the first stope. And then we can start backfilling and paste filling that first stope that we mine out from underground.

So it will be within the first year that we'll actually be transitioning paste fill underground, which is a bit sooner than what we had indicated originally in the DAR.

MR. MARC CASAS: Okay. Thanks a lot for your questions. That's -- that's all I have.

MR. DAVID SWISHER: David Swisher here. If you want to stay and ask more questions, it'll maybe take away from Nathan getting up and asking a lot more.

THE FACILITATOR MERCREDI: Nice try. Okay. And, Nathan?

MR. NATHAN RICHEA: It's Nathan Richea, with the Water Resources Division of Aboriginal Affairs. I have only one (1) or two (2) more questions. The first question I have is: In our information request that we submitted, we asked about some clarification on the source or, I guess, the -- the path, the flow path for water that leaves Thor Lake, and there was a response.

I was just wondering if it's possible to walk through that again today and whether you've actually been able to be at the site and visually confirm that the water from Thor Lake proceeds to Great Slave and it doesn't go into the Long Lake and Elbow Lake and all that stuff.

Can you just walk through the flow path? And it'd be great if you have like a map. And then you can sort of explain the concern that we had in our information request.

MR. DAVID SWISHER: David Swisher, with Avalon. Yeah, so, first of all, Nathan, I can confirm that the outflow from Thor Lake runs initially into Fred Lake, a small, little lake next to it, and then through a series of marshes. It takes about 18 kilometres before it discharges into the Great Slave Lake.

We've done extensive work. And I know through the Stantec reports over the last three (3) years of baseline, three (3) to four (4) years of baseline, they've actually traced that out.

Knight Piesold, when they were doing their initial review of the Thor Lake watershed once Avalon, I think it was in 2010, did a very detailed 50 centimetre topographic survey of the area, that allowed us as well to confirm the outflow and the path.

Obviously the water's not going to flow uphill, so it was very easy for us at that point to be able to -- to confirm a lot of the areas. And, in fact, Knight Piesold also confirmed an addition to the Thor Lake watershed that we were not previously aware of -- I think it was in 2010, in -- that added to the Thor Lake watershed after we did that topographic detail.

So that really helped solidify and confirm. And so at this point, we can confirm that, yes, that is correct. And I know we've got a map of that somewhere. And, if necessary, we can pull it out and provide it, if you'd like.

MR. KEVIN HAWTON: Yeah, I was -- I remember when this request came in. And we -- we thoroughly reviewed -- I -- I didn't personally walk to this location, but we thoroughly reviewed that mapping. Oh, it's Kevin Hawton, by the way. And, you know, we're -- we're very confident that it's 5 metres higher than it is at the outlet of -- of Thor Lake.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, with the Water Resources Division. That you for that clarification. There was just some confusion, I think, in some of the earlier reports, so thank you for clarifying.

The only other question I have is: Do you know how many years -- I think there was some discussion of this earlier -- rare earth elements and how long they've been sampled I guess as background in your receiving environment?

I think there was some confusion, at least on my part. Has there been a year worth of rare earth elements or has it been longer? Has sampling occurred longer than the past year for background concentration of rare earth elements? Thanks.

MR. RICHARD HOOS: Rick Hoos here. I -- I will check the Stantec report; or, in fact, I can check in the DAR again. But I seem to recall, from what I read to you earlier, that that kind of sampling has been done since about 2009.

But there has been more comprehensive water quality, in particular, sampling done this -- this year in the last sampling effort. And that kind of more comprehensive REE sampling for water quality will continue as the water quality sampling program continues.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea, with the Water Resources Division. So, yeah, so I guess about three (3) -- three (3) years? And you're going to continue to do the monitoring this summer and in winter? Will that continue in the next year, 2013, as well, or -- just wondering. Thanks. Though more information is always great.

MR. DAVID SWISHER: David Swisher with Avalon. I just want to note for the record that's two (2) questions when he said it was only going to be one (1).

So, yes, we've committed to continuing the baseline work, you know, in terms of keeping up the hydrology work. Mark Wiseman is in charge of that. And -- and, you know, provided everything aligns with regards to the project and -- and making the progress in the project, we'd certainly continue keeping that and monitoring initiatives moving forward in the next year.

MR. NATHAN RICHEA: All right. Thank you. It's Nathan Richea. I have no further questions for today.

THE FACILITATOR MERCREDI: Thank you. I'm looking to Ralph here and/or Anne. Are there any further questions? We still -- we still have an hour and a half of the session to go. So if there are any questions, please speak now. Nathan Richea?

MR. NATHAN RICHEA: I have more questions, but it -- it's on other topics. Like, I don't know if we want to wait until tomorrow. Like closure, aquatic effects monitoring plan, that kind of stuff.

THE FACILITATOR MERCREDI: Just one (1) second.

MR. DAVID SWISHER: Paul? David Swisher here just to, if I may, we -- we have some presentations. So if there's more information that we'd want to pre -- present, maybe prime the pump if you will, we can do that tomorrow if -- if we want to move on to a different subject.

THE FACILITATOR MERCREDI: Yeah, if -- I -- I think just, based on scheduling, like, there may have been some who scheduled to be here or not be here. So we wouldn't want to -- however, having said that, I think if the Nechalacho water quality discussion has come to its -- its natural end, then we can maybe go to the hydrometall -- hydrometallurgical plant, just because I -- I think it's reasonable to assume that most of those -- most of those who would be present for that discussion as well are here today.

So as far as moving forward with the hydrometallurgical that's something that I would -- I would put forward and -- and also put forward not only to Avalon, but also to the parties that are here, if -- if that would conclude the water quality discussion.

And Stephanie Poole has some questions. Okay, and this is for just -- this is for water quality? Okay, thank you.

MS. STEPHANIE POOLE: Thank you. My name is Stephanie Poole, with the Akaitcho IMA office. It's been the first day and -- and we've seen quite a few presentations from the Proponent today. And -- and I've enjoyed listening to all of the -- the questions and -- and the responses. So far, I just -- I have a few questions to ask before we move on, and perhaps some comments.

Regarding the presentations in general and the discussion around rare earth elements and metals, what I noticed from your presentation is that the focus is wholly on the lanthanide series. And no mention is really made of the actinide series of elements, while they do -- it's my understanding they do come together, and that when you -- they're exploited from the land, they're together. And then they have to go through processing to sort of break them apart and extract the elements that you -- that you're looking after.

And I'm just wondering, for all of the experts in the room and for the Review Board, like, I'm hoping that -- that those other elements are not being ignored in this review, because they do occur, you know, in nature together and -- and that it is possible that the actinide series of elements will -- will be in the effluent or tailings and will be left on the land either at the Thor Lake site or Pine Point.

So I just wanted to -- to mention them since I hadn't really heard them been mentioned today. But I think they -- that that is an issue and -- and could be an impact and should be reviewed.

I have some questions regarding what you refer to as the "tailings containment facility" or the berm or the dam that goes around what is being proposed. And during some of the questioning I had thought that I had heard you say that the dam or the facility will not be completely closed off, that some water or effluent will be allowed to leak out from one side of that area. I could be confused, but that was just from the discussion earlier.

And then I'm wondering, in the DAR is there any information provided -- well, I'm sure there's information provided -- regarding rainfall, snowfall, you know, seasonal weather events? And I wonder for how long have you been collecting that data or, if not you, maybe some other government agency or former exploration group. You know, like how far back does that data go?

I have questions regarding seismic events, and -- and if you have any information on -- have you done any studies on seismic events for the site and the zone of influence and also for the region? My concern would be the possibility of earth -- earthquakes that could breach the dam of the tailings containment, and I wonder if you have considered that or done any studies in that regard.

I have a bunch of questions regarding the mine life, but I understand that, for this review, you only want to assess and review a twenty (20) year period. While the facts are stated that if this proposal does go ahead, it will probably be for a lot longer, and it seems like everybody's okay with just saying, Well, we'll just review the first twenty (20) years now and if it goes on longer, then we'll deal with that later on.

But to me, that's -- that's not right. That's not a good thing. You know, if this proposal has the potential to be there for a hundred (100) years, then it should be assessed as such. Yeah, so I have a lot of questions about what happens if there's a longer mine life.

For the paste fill plant and the proposal of reducing your tailings above ground by putting them underground, this is a proposal that we've heard before in Akaitcho Territory, most specifically with the De Beers Snap Lake Mine. And it is my understanding that what they have proposed didn't really work out that way and that they still have yet to begin producing paste and putting it underground. And so it makes me wonder how much testing or studying have you done in regards to your paste fill plant, about creating the paste and putting it underground. You know, you're saying you think that for a year you won't be able to do it, but what happens if it's longer than that? Because that's something that -- that is already happening in our Akaitcho territory.

I'm wondering about information and

data on underground water and aquifers. Earlier I heard Canada ask about how the water flows through the lakes and into Great Slave Lake. And I wonder, you know, like, when you're underground and -- do you have any idea of underground watersheds in the aquifers that may lead some of the contamination elsewhere.

You're basing a lot of your stuff on CCME guidelines in regards to water quality objectives. And for some of the things you're proposing, because this is new with rare earth elements, there -- there are no CCME guidelines for some -- some of those elements.

And then so you've taken water quality guidelines from Ontario. And I'm wondering why Ontario. Is there other provinces in Canada or other countries that have these guidelines? And I'm wondering why you just decided to go with Ontario in that regard.

Otherwise, I'll just -- those are all my questions. And then my -- just my general comment on -- on today is that it seems to me that a lot of the data provided in the DAR was incorrect. It sounds today like there was a lot of mistakes made and thing -- a lot of different things had to be corrected. And, in fact, there was even new information provided only today to us.

So that just leads me to believe that there may be serious problems with -- with your modelling and your methods. And at this time, I have no confidence in your methods in that regard.

So we'll just stop with that. And if you need me to repeat or clarify any of my questions, I'll be here to do that. Thank you.

MR. DAVID SWISHER: David Swisher, with Avalon.

THE FACILITATOR MERCREDI: Yeah, I'll just -- just one (1) second. Thank you, Stephanie. There's several in there, so I'll turn the mic over to David. And hopefully he's kept track of most of those. David...?

MR. DAVID SWISHER: I wasn't sure if you were ever going to end, Stephanie. So David Swisher with Avalon. Thanks for your questions. So I'll -- I'll go through them. And as I'm answering, if I don't answer your question, I'd ask you to just clarify with me, please.

With regards to the actinide series, that's not part of the -- the project. We're only interested in the lanthanide series, and the actinide series are not in any appreciable quantities to even be considered. So that -- that's why it was never discussed with regards to the actinide series.

To the tailings management facility, I think it was just with regards to the discussion on how the waters would transfer from the polishing pond and the TMF to the Drizzle Lake facility which may have been confusing. So to clarify, the -- the tailings management facility will be enclosed completely, and there won't be any open area on either side of the tailings management facility.

With regards to the weather data that was produ -- produced in the DAR, we've actually, since 2007, when the first drilling campaign started up, Nechalacho -- or Chalacho (phonetic), sorry, it was basically -- weather data was starting to be gathered and recorded by Avalon.

So we've been gathering weather data since 2007 internally. We've also utilized the extensive weather data that's been gathered throughout Yellowknife, Hay River, Lutsel K'e, Fort Resolution, I believe, and those communities to compare with the localized weather data as well. So that includes all the snowfall, the precipitation, the winds.

We've also had a wind test tower out at the site testing the winds for potential opportunities in the future for wind energy. And we've been doing that, I think, for the last three (3) years with the wind test tower. So there's a lot of initiatives there to gather as much information locally that went into the -- to the DAR.

The seismic information, there is extensive seismic information here in the Northwest Territories although it's not a -- a hotspot for seismicity, but it is -- it has to be incorporated into all the design work that we do.

So for -- I know Kevin can speak extensively about that in the design work that Knight Piesold does for us for the tailings management fac -- facility. All of that data has to be incorporated in there, and then factors of safety are added to that in the design, and so that is accounted for, seismicity.

With regards to the project review --

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA. I wonder if -- is the seismic data located in the DAR and -- and where?

MR. DAVID SWISHER: David Swisher, Avalon. Yes, it is located in the DAR, and I'll provide you the -- excuse me, the page or section here in just a moment.

David Swisher with Avalon. While

Rick's looking for the location of the seismicity data, are you okay with me moving alo -- answering your other question, Stephanie? Okay. So moving on then, and I'll come back to that, with regards to the twenty (20) year project review, basically from a project standpoint -- our project's a bit unique because most projects are -- very minimal projects extend beyond twenty (20) years.

For us the cutoff is twenty (20) years, predominately because it has to do with the financing efforts and the cashflow model. Nobody looks at cashflow models that extend beyond twenty (20) years.

So we cut it off at twenty (20) years. I think the important point with regards to this review is whether it's twenty (20) years or whether it goes beyond that. We don't know at this point.

We're looking at twenty (20) years, but the important point is that the review -- the -- the components of the project don't change, and it is subject to additional renewals within the land use permit and the water licence.

And those are the times that I believe every five (5) years we have to review, yeah, depending on what Mark sets us up for there. But it depends on any changes at that point come to light and a -- and a review is done to determine if there are any changes outside of the scope that was initially contemplated.

And so there -- there are processes here in the NWT to account for -- for that should it go beyond, say, the timeframe in which it originally had anticipated. For us, the twenty (20) year review is a -- is a number that's consistent with industry standard and as well as with the -- the financial institution.

So it's important for us to be consistent because at the end of the day, you know, this project has to be financed and -- and financable (sic). So that's why we took it out to twenty (20) years.

And -- and it's a positive. It should be noted as a positive because most deposits are not that long lasting. And so if we can build sustainability in the NWT, then that -- that should be viewed as a positive I would think, or hope anyway.

The seismicity data, just going back, is on page 463 of the DAR, section 4(4.4).

MR. RICHARD HOOS: Rick Hoos here. Just to elaborate, and I think Dave kind of alluded to it as well, the opening sentence kind of says a lot.

This particular region of the Northwest Territories where the Thor Lake property is located is considered a historically quiet earthquake zone.

It then goes on to talk about a seismic hazard assessment that was conducted using design tables from the National Building Code of Canada. It talks also about the fact that for the tailings management facility, a consequence classification following the Canadian Dam Associations 2007 Dam Safety Guidelines was employed in order to determine what level of -- what the level of design should be to protect against the -- the maximum possible ground motion event that could occur there in a thousand (1,000) year event.

And that was all described in work done by Knight Piesold and presented in the DAR as a -- as an appendix document. It's a lot of detail, sorry about that. But for sure seismicity was well considered in the design of the project, both at Nechalacho and at the hydro-metallurgical site -- plant site.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA. You mentioned an appendix with more detail. What appendix is that?

THE FACILITATOR MERCREDI: It's in the

appendices of the DAR. And it doesn't say which appendix. Rick will have to look at that while we're -- we're all moving forward.

MR. RICHARD HOOS: I believe it's in appendix -- I'm sorry. Rock Hoos here. I believe it's in Appendix C of the DAR, which is an appendix document that contains all of the Knight Piesold reports that are included in and considered in the DAR itself.

But we will check that for you and get you the specific reference. And if you like, we can get you a copy of that particular paper.

MR. KEVIN HAWTON: Kevin Hawton here. It's our memo NB09-00468. Kevin Hawton here. The -- the memo number located in the appendix of the DAR is NB09-00468. And that's the one (1) that addresses the Thor Lake site.

MR. DAVID SWISHER: Okay. David Swisher here with Avalon. Thanks, Kevin. Great, so hopefully that answers your question on the seismicity, Stephanie. I think you had a few more questions here. I'll -- I'll just run through them.

With regards to the paste plant test work, we've done extensive test work. We, in fact, conducted and completed a pre-feasibility through

Golder and Associates. That was over a year ago. And that went through extensive test work on utilizing actual tailings, mixing it with different binders and slags to determine what the -- the optimal paste fill would be, also accounting for all the pump capacities and parameters.

Once that pre-feasibility was done, we invoked a feasibility study with Golder, who is completing the -- the feasibility back work and basically confirming all of that test work that will be incorporated into our definitive feasibility study.

So we're -- we're very confident in that work that's been done, and the -- the ability to optimize the amount of tailings that reports underground as a paste fill.

Also with regards to the underground aquifers, I think you asked about that in terms of distribution. Oh, excuse me.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA. So just to clarify regarding the paste fill feasibility study that Golder and Associates is doing on your behalf, that's not completed?

MR. DAVID SWISHER: David Swisher with Avalon. The feasibility work is in draft form currently. It is completed, but it's in draft form, and it's not been finalized as of yet because I'm in technical sessions and I haven't had a chance to review it because we just got it last week.

THE FACILITATOR MERCREDI: Just to clarify, there -- Avalon has a pre-feasibility study. And this is the feasibility study that is in draft form, just for clarification?

MR. DAVID SWISHER: David Swisher with Avalon. The feasibility on the paste fill plant, yes.

THE FACILITATOR MERCREDI: Thank you.

MS. STEPHANIE POOLE: It's Stephanie Poole, Akaitcho IMA. I'm wondering if we can get a date on when that feasibility study will be released to the public registry?

THE FACILITATOR MERCREDI: And we'll just have -- let Avalon caucus here for a moment.

(BRIEF PAUSE)

MR. DAVID SWISHER: Sorry, Stephanie, could you repeat that for me, please? David Swisher, Avalon.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA office. It was just a followup question in regards to your feasibility study that's in draft form. When will it be ready to be released to the public registry, like a date?

MR. DAVID SWISHER: David Swisher with Avalon. It won't be released to the public registry, as this document is an internal document for use for our feasibility study and has confidential information regarding competitive information on pricing and that sort of thing.

With regards to some of the technical aspects, you know, if it's -- if it's relevant, we could provide that information. But at the end of the day, I think what we've committed to with regards to paste fill should stand for the review process.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA Office. The technical aspects of the feasability study are a concern to the Akaitcho Dene First Nations, and I would like to have them onto the Public Registry. Thank you.

THE FACILITATOR MERCREDI: If I might. For the Review Board to consider that information -- and every party has every right to ask evidence to be submitted to the Public Registry or considered by the Board; however, when it comes to confidential information, that is -- there are some difficulties there.

As -- as far as -- there's evidence, though, that the -- there -- that the Review Board can consider in confidence, but will -- would not be available for any viewing by any other parties.

So the -- the Review Board would have to consider that evidence in confidence. It would be on the public -- what's called the public record, but it would not be on the Public Registry.

So if that's what you're asking -- and again, that is subject to the company's willingness to do that because, again, this is getting into information that the company has -- has indicated is confidential.

So just -- just to kind of put that discussion in context, it would be the Review Board looking at that in confidence and not available to the -- to the public. So I -- I just wanted to put that in.

MR. DAVID SWISHER: David Swisher with Avalon. If I could just -- maybe I can help clarify some things. I -- it's probably not valid to compare directly with the diamond mines because when you're looking at a kimberlite pipe deposit and the -- the ground conditions there, it's -- it's vastly different than what Nechalacho is composed of.

And having just recently spoke with the president of that particular operation and about that paste fill project that Don just reminded me of just a couple weeks ago, in fact, yes, they are selling their paste fill plant.

It was very clear that they had issues based on the kimberlite deposit and the fact that the constitutes in the minerals of that were not conducive for a paste fill, whereas with our deposit, it's -- it's completely -- you -- you can't compare apples to apples, which is why when we went through the analysis, we -- we went through the analysis with Golder, who are very well known for their paste vant -- plant technology.

In fact, there's Golder, and there's also AMEC, AMEC out of Australia. And that's why we've worked with Golder on the paste fill plant technology for that. So I -- you know, hopefully -- I just wanted to -- to comment on -- on that comparison as well.

And as Paul said, if there's information that, you know, that is not -- maybe not on the public registry but will go on with the Review Board as a -- as a clarification point, then certainly Avalon would -- would be willing to -- to share that in that capacity.

MR. RALPH GRISMALA: Ralph -- Ralph -- Ralph Grismala, ICF Marbek. There was a request from the Review Board, number 37, that discussed the issue of the -- the long-term impacts of the paste backfill on the -- on the groundwater interactions.

And in Avalon's response, there are a number of assertions on the engineering properties of that backfill, but there's no backup for those assertions. Presumably in the Golder report, or some other source, you have that type of information, and I think that's what Stephanie's asking for. And I think I would also be interested in seeing that.

MR. DAVID SWISHER: Yeah, if you're referring to the rheology data and the test work that went into it, you know, we could certainly pull that data out specifically.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. Yes, I think I would be interested in the -- you know, the engineering properties, the water contents, leaching potential, you know, anything to do with the chemistry of the material, you know, that type of information.

THE FACILITATOR MERCREDI: And my question, Ralph, is with that information, would it speak to the feasability of producing a feasible paste backfill for -- for this project?

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. I think the interest is less in whether it's feasible for the product -- for the project in terms of, you know, filling up the underground space, but more so into being comfortable that the -- that there won't be for -- fluid from that paste backfill which is going to negatively impact the groundwater in the area.

THE FACILITATOR MERCREDI: Okay. And my next question is to Stephanie then. Does any of that exchange address any of your concerns in any way?

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA office. I'm not asking for any confidential information to be put onto the public registry. If the Review Board wanted that information, I'm sure they could request it themselves.

The proponent mentioned that from that confidential document that they would be able to pull some technical aspects to provide to the public registry that were not confidential. And -- and that is what I was asking for.

And regarding what Mr. Grismala had

said, I support that as well. Like, I would like -- the -- the more information that we can have to review, the better.

THE FACILITATOR MERCREDI: And just to capture that conversation, it sounded like that was not information that was in that report. It sounded like that was in response to a previous information request, just -- just to -- so we can keep track of -- of where that information is coming from because -- just so we -- we're all on the same page.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA office. I believe the -- one (1) is a new report with the technical aspects of the feasibility study that is still in draft, and the other is further information, outstanding information, from an information request made by the Review Board that should be delivered on, I believe. It's two (2) different things.

And before I let go of the microphone, I just wanted to say the proponent's comment about this project not being the same as a diamond mine, I understand that. But what also should be understood is that this project is -- is new. It's never been done before in the north, in Akaitcho territory in Canada.

And therefore, to me it makes common sense that, you know, the highest level of review and precaution should be applied because it's something totally new that we're dealing with, and there's a lot of unknowns.

And, you know, we've learned. We have experience from dealing with other explo -- exploitation projects in our territory. And -- and we have to bring that knowledge forward as well when we're reviewing new projects such as this.

MR. DAVID SWISHER: David Swisher with Avalon. Yeah, thank you for that, Stephanie. And I certainly understand the concerns there. With regards to the paste fill plant, I -- I guess I would need some -- some clarification with regard -- excuse me. In terms of what concern there would be.

Obviously, from a proponent's end and Avalon's end, and not to make light of what Ralph is asking for there, but it's our -- in our best interest to make sure that the paste fill is set up properly and competent. We certainly are not going to be taking shortcuts there because it would -- could potentially shut down the mine.

That's a critical component of our -- our process for underground. Not only that, it should be viewed positively because we're -- we're able to utilize the majority of that fill for underground versus -- and minimize the amount that's going to the surface tailings management facility.

So from Avalon's standpoint, we see it as a positive. From a design standpoint, it is only in our best interest to make sure we're managing to the safest standards possible when using the paste fill and making sure the designs -- and we go to the -- to the experts in that field, which we've done through Golder. Thanks.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. David, I -- I thank you for those comments, and I agree. And that's why when I spoke last time I prefaced it by saying I wasn't that interested with -- that interested with how the paste sets up because, frankly, if it doesn't, that's going to be your problem.

The issue that is of potential concern is that roughly 60 percent of the tailings material is going to be going back into the mines. We have a huge underground tailings impoundment there and we want to make sure that we understand how that behaves. And that tailings paste is a mixture of solids and liquid, and we just want to have more higher degree of confidence of where that liquid goes and what the characteristics of that liquid is.

MR. DAVID SWISHER: David Swisher with Avalon. Perhaps, since we have a final form in our pre-feasibility which also set the basis for the paste fill design criteria, I think that would probably -- there are components within the pre-feasibility that are in final form that -- that I would feel comfortable providing at this point considering we have not finalized our document for the feasibility portion.

Because everything that was done for pre-feas is the stage then taking it into feasibility. So with regards to providing information, perhaps we have some homework this week that I could provide this week; additional information that goes into the design criteria and some of the test work to -- that would, hopefully, answer Ralph's questions.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. I think that would definitely be a step forward with the caveat that if anything changes further down the line in the feasible study, that the Review Board would be notified of that also.

THE FACILITATOR MERCREDI: And while Simon is capturing the wording, did you have anything on that, Nathan?

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. I'm just listening to the conversation, and I guess, to me, it's not clear if there's an outstanding Information Request that went to the proponent from the Board regarding leaching from paste backfill.

I think I heard that, and I'm just wondering if that could be confirmed. Thanks.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. I will base this response on my best understanding of the process here.

There was an Information Request. Avalon did respond to the Request, and I think that the -- whatever residual questions remain, we thought it could be handled in this technical session and did not issue a subsequent Information Request. Is that accurate?

THE FACILITATOR MERCREDI: I would say that's accurate, and Nathan and then Marc, yeah.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea with the Water Resources Division. Yes, we would be interested as well in any information related to interactions with underground water and the paste backfill.

Our experience has shown there potentially could be an issue with leaching of metals and other contaminants of potential concern in the underground.

So, yeah, we'd be interested in that information as well, thanks.

THE FACILITATOR MERCREDI: Thank you. And Marc...?

MR. MARC CASAS: Marc Casas from the Mackenzie Valley Land and Water Board. While I can understand David's assertion that this project is -- is different than the diamond mines and I -- it obviously is.

There have definitely been issues with -- with paste production in the NWT, so I think that's where some of the concerns are raised, and I'm wondering if maybe there can be some reassurance or some type of mitigation that in the event that, say, you're planning to be able to have it ready in a year, and that wasn't -- you weren't able to reach that for whatever reason, what -- what are the potential mitigations?

Like, how much more -- like, is it -- you know, could you just continue to fill the containment area with more slurry or those types of things? What kind of mitigation measures do you have to reassure people that you can address that?

MR. DAVID SWISHER: David Swisher with Avalon. See, this is precisely why we don't like to talk about all these optimization efforts. It just adds more questions.

No, at the end of the day, the -- in the DAR originally, the tailings management facility was bigger, the -- the berms were higher to accommodate a much higher flow of tailings. And so by being able to optimize the paste fill plant or by -- not us, but Golder, optimizing the paste fill plant to where we can put more tailings underground because of the mixtures, it -- it only improves the footprint for the tailings management facility in which we described earlier and being able to tighten that up.

You know, from a mitigation standpoint, if we need more room as indicated during the presentation, there is always opportunity to -- to -- to raise up the -- the berms to expand that. However, Avalon doesn't believe or predict at all that we will -- we will need to do that because of the tests -- test work that Golder has done and their -- their backing that their professionals have provided with regards to the competency of this fill as fill for us in our process.

Keep in mind that the paste fill is an integral part of our mining process, which is also why it's -- it's probably more important for Avalon to make sure this paste fill plant works than it is for anybody else in this room. Thank you.

THE FACILITATOR MERCREDI: Nathan...?

MR. NATHAN RICHEA: Thank you. It's just Nathan Richea. I think something that might help the process, in the past, in other EAs we have sort of a commitments table. I'm not sure if there's one (1) for this one (1) yet.

But the issue may be headed off by a commitment from the company to use -- to put paste backfill underground, and therefore we won't have to have a contingency in the event that paste doesn't go underground or something like that.

And then pending the results of some testing on how the paste backfill may interact with the groundwater, we can make judgments and provide the Board with evidence in our technical report on whether it will change the quality of water or effluent as far as the impact protections. Thanks.

THE FACILITATOR MERCREDI: Okay, it sounded like there might have been a request for a commitments table and then another commitment. So before we explore that, I'd like to go back to if -- if it -- if we can still capture what Simon was trying to capture there. And so with that, Simon, go ahead.

MR. SIMON TOOGOOD: Thank you. It's Simon with the Review Board. I'm supposed to be looking at Avalon here for some clarification on what you will actually be able to provide with respect to the -- I believe you mentioned you'd provide additional information on design work and the criteria of the paste backfill. If somebody could clarify what information you would be able to provide.

UNIDENTIFIED SPEAKER: We'll -- we'll provide the design criteria and the results of the test work.

MR. SIMON TOOGOOD: Okay, thank you.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. I'm just going to read what we had in our notes here when we were discussing original Information Requests and things like that. And these may not be the -- and probably wasn't the wording that was final, but it'll give you a better idea of what we were looking for at the time, and:

"Please present the chemical characteristics of the paste backfill, and based on the results, present a discussion of the chemical interactions that are predicted to occur between the paste backfill and the existing groundwater. The analysis should present support for statements regarding the short term and long term interactions and the effects on water quality. Please provide complete information on the composition, chemistry, and engineering properties of the paste backfill."

Does that help?

MR. DAVID SWISHER: David Swisher with Avalon. It -- it does to a certain degree, but I would remind the Board, and I remind everybody in here, that at the end of the day, the paste fill and the water as a result of the paste fill that comes off of that, because again, mind you the paste fill is a cemented fill. It is a cemented paste fill that solidifies underground and acts as supporting agent underground.

And the water, as we've already stated in our discussions with regards to Nechalacho water, reports to the tailings management facility. And as a result, we've already said that we are proposing the SSWQOs from that.

So we are creating this system and the water balance including the underground. So I would please ask everybody to remember that when trying to now analyse the underground environment, when actually the underground environment is already included in the discussions that we've -- we've had previously.

THE FACILITATOR MERCREDI: Go ahead, Nathan.

MR. NATHAN RICHEA: Thank you. It's Nathan Richea. Thank you for the clarification, David. Yeah, and we're just trying to assure that we don't run into a problem where, for some reason, something is missed or overseen, the predictions are worst case scenarios and we end up not meeting our objectives in the receiving environment. That's what we're trying to avoid, right?

So that's probably why all of this concern, at least the concern that I think I'm bringing to the table, is trying to understand what the interactions will be and whether that will change potential water quality going into the receiving environment. We definitely don't want to set site specific water quality objectives that you can't achieve. There's no point in doing that.

But we also want to make sure that the objectives that we do set are also protecting the downstream environment, right? So we're just trying to balance and making sure that we're not going to get taken off guard by another source that we didn't account for, right? So thanks.

THE FACILITATOR MERCREDI: And just one (1) moment.

(BRIEF PAUSE)

THE FACILITATOR MERCREDI: So we will -- regarding the homework, actually what we'll do that for particular -- on that issue is we'll revisit that tomorrow morning. And there will be some further discussion, I would expect. So I'm just basically saying to Avalon expect there might be some further discussion on that.

Ralph does have a separate question, I believe.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. And this was triggered in part by -- by something you had said a few moments ago, that the --

the liquid from the paste backfill would be returning to the tailings maname -- management facility. And earlier, somebody had mentioned that water pumped out of the mine would be going to the TMF.

And my question was: Does the -- the analysis of the concentrations in the output from the TMF consider those inflows in the chemical composition in volumes of those inflows?

MR. DAVID SWISHER: The analysis considers a worst-case scenario because the -- the water that is underground in the underground sump that's collected, all that water sits underground, so it's not a continuous flow out. So any suspended solids settle out underground so that we can dispose of the sludge underground and mined out workings.

And there is a higher ratio of freshwater that's added to the underground workings from the function of underground mining through drilling fluids, through washing the muck piles after the shot. So there is an abundance of freshwater, more so that's added to the underground, than there is any drainage that would come off of the paste fill.

And so in terms of being included in the modelling, it was not because it was considered that it would dilute it even further. So we wanted to look at the modelling criteria as -- as more of a worst case scenario in terms of what we did model, so we did not include that as a diluted measure. We can go back and include it as a diluted measure, it'll just lower the figures.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. Thank you for your response.

THE FACILITATOR MERCREDI: Okay, and in all this discussion, David...

MR. DAVID SWISHER: Yeah, Dave Swisher with Avalon. I still have to answer the rest of Stephanie Poole's questions.

THE FACILITATOR MERCREDI: I was -- I was just trying to see if there's some -- some more that Stephanie -- so, yeah, there were some unanswered questions, I believe, so we'll continue along that line -- Stephanie's line of questioning.

MR. DAVID SWISHER: Okay, great. So moving on with Stephanie's questions. The had to go -- her -- I think where we left off was the underground aquifer in the area. It's not so much an aquifer. But maybe -- I know that Knight Piesold did some work for us there, and so maybe Kevin can clarify with regards to the test work we have done and in -- in the -- both the surficial and the -- and the groundwater regime.

Kevin...?

MR. KEVIN HAWTON: Kevin Hawton, with Knight Piesold. So I think your question was just related to the groundwater inflows. I -- I didn't get quite what the question was.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA office. I'm just wondering what is the proponent's understanding or what studies or information do they have to provide on any aquifers or underground water that is occurring onsite at Thor Lake or within the zone of influence. Thank you.

MR. KEVIN HAWTON: Okay, yeah. Kevin Hawton, Knight Piesold. Yeah, we've done extensive geotechnical and geomechanical drilling at the site. The geomechanical drilling included, I believe, seven (7) deep drill holes around the -- around the mine area. That included doing packer testing, which measures permeability.

We've also reviewed the majority of the Avalon core and logs to verify if there was any distinctive features that may be water bearing. And to date, we've -- we haven't encountered anything.

We've also done shallow geotechnical drilling into the bedrock and done packer testing, and the bedrock is generally tight.

MR. DAVID SWISHER: David Swisher with Avalon. Thanks, Kevin. So moving on, Stephanie, you asked about the CCME SSWQOs that we -- we had and why we're using Ontario as a basis for CCME or -- or for our SSWQOs. And it had to do with one (1) of the constituents in the table that we had, vanadium.

Vanadium is not a -- I don't believe it's governed under CCME, so we utilized the Ontario water quality guidelines because that's the guidelines we were able to find, I believe, at the -- at the time. So we used those standards just for that one (1) component, which was vanadium.

MS. STEPHANIE POOLE: Stephanie Poole, Akaitcho IMA Office. So are you saying that in regards to vanadium, that Ontario is the only jurisdiction on the planet that has water quality guidelines?

MR. RICHARD HOOS: Rick Hoos here. No, that's not to suggest that there aren't other authorities that also have, let's say, a guideline value for vanadium. But the Ontario numbers were used because they seemed to -- they were available, and they were particularly relevant since a lot of Ontario is Canadian shield country as well.

And so it was deemed to be appropriate for this situation. We have on -- on occasion also looked at water quality criteria in British Columbia, for instance, for other purposes, but for vanadium, this one (1) seemed to be the most useful one (1) to refer to.

MR. DAVID SWISHER: David Swisher with Avalon. I'll continue on with Stephanie's questions here, we're getting close. Stephanie, you mentioned your confidence level in the DAR, and certainly I can understand where you would get that -- or perceive that with the discussions that we've had with some of the information that's been presented.

I -- I would just like to point out that the DAR was developed back in March of 2010, so we're well over two (2) years, almost two and a half (2 1/2) years since the development of the DAR.

I'd say we've been pretty -- pretty good to get pretty close to where we're at today with regards to the DAR, but there's always optimization efforts. And so those optimization efforts that the company continues to work on in its processing facilities or even in -- in any of the other items that we identified in our -- in our, I guess, supplemental information requested by the Review

Board, identified those -- those optimizations and updates.

And so, you know, certainly the information in the DAR is still of very good quality, and the supplemental in -- response that we provided to the Review Board is -- is a -- is an additional add on to that in terms of just some of the optimization efforts that we've been undergoing.

I -- I think it's really important for developers in any situation where they're going through a longer process to be able to have the opportunity to optimize the processes, particularly in the way of where the environment and any water quality is concerned.

And -- and certainly Avalon with its commitments will continue doing that along the way. And I believe -- I believe that was the last one (1) you -- you had, so thank you.

THE FACILITATOR MERCREDI: And, Stephanie, do you have any further questions or followup comments?

MS. STEPHANIE POOLE: I have a followup question regarding the -- the use of the Ontario -- Ontario water quality objectives for vanadium. I'm wondering, are those the guidelines that the -- Canada and the Land and Water Board will be using as well, or will other jurisdictions be considered?

I'm wondering -- well, I'm assuming that every project is assessed independently, and the CCME guidelines are not always just the end all be all, right. It depends on -- on what it is that's being proposed. And I'm wondering how Canada and the Land and Water Board will be determining the water quality objective for vanadium.

THE FACILITATOR MERCREDI: The Review Board has req -- just to kind of -- what Avalon has proposed for site specific water quality objectives are that, a proposal. And the Board has asked -- the Board did request that -- that Avalon put -- put those forward in addition to rationale for why they are acceptable.

And so for -- for example, for vanadium, that is the developer's proposed water quality objective for vanadium, and they have chosen the rationale of -- correct me if I'm wrong, but according the same rationale that Ontario has had. So that's the one that they've adopted and proposed. I see them nodding in -- in agreement with that.

So, again, that's a proposal. If -- if

there is disagreement within this process -- within the environmental assessment process -- with the -- with the number that's been proposed or the rationale, this is the forum to -- to express that disagreement and also to inform the Review Board to -- to inform the Review Board why it might be -- not be protective or why it may lead to a significant adverse impact on the environment, should that be adopted.

So, again, that -- that is what we are here for today. The numbers that the Company has put forward is -- is a proposal. It is evidence that the Company has produced for the review Board to consider, and it is -- and as -- as I've mentioned, it is here for -- for public examination. So, I hope -- does that answer your question?

MS. STEPHANIE POOLE: It's Stephanie Poole, Akaitcho IMA Office. I believe my question was directed to Water Resources Canada and the Mackenzie Valley Land and Water Board. Thank you.

THE FACILITATOR MERCREDI: For sure. You guys can paper-rock-scissors for who answers first on that.

MR. NATHAN RICHEA: Thank you, Stephanie. It's Nathan Richea with the Water Resources Division, Aboriginal Affairs.

As you heard today, we're looking at a process for reviewing Avalon's proposed site-specific water quality objectives. We want to continue to work with them to help improve, I guess, some of the objectives.

Part of that will include looking at what the background concentration of parameters are in the receiving environment, which includes the -- I don't even know -- vanadium, in the -- in the receiving environment, particularly Drizzle Lake for -- for site-specific water quality objectives and beyond.

So that's one (1) important consideration when we look at any parameter of concern. What is the existing condition in the site-specific objec -- area that is being proposed to receive the effluent? And then we'll look at what the concentration of that parameter would be in the effluent itself.

And then from there, we'll make educated judgments on whether certain impacts may happen as a result of releasing concentration of that parameter in the receiving environment that may reach or -- or exceed that particular guideline. So there's a number of different steps, I guess, that are involved.

So first we'd have to look at what the -- the concentration of vanadium is in the receiving environment. And then, from that point, we'd be in a better position to understand how relevant the Ontario guideline would be for Drizzle Lake. So we will endeavour to do that as part of this review process for the site-specific water quality objectives.

THE FACILITATOR MERCREDI: And Marc?

MR. MARC CASAS: Marc Casas here with the Mackenzie Valley Land and Water Board. Well, that's a bit of a tricky one, I guess, without knowing any -- what measurements or commitments may come out of -- of this process with potentially the regulatory process to follow.

But what's happened in the past in terms of determining water quality -- or, site-specific water quality objectives is the Proponent proposes some, which -- which they have here, and -- and then all reviewers and commenters were -- are welcome to provide their own, and there would be a technical review of that. And then it would be considered, and that information would be presented to the Board -- the Mackenzie Valley Land and Water Board -- for a decision on the water quality objectives.

And -- and those would be -- once those come out there would be a -- a pretty -- the reasons for decision, in terms of outlining why particular ones were chosen. So we don't defact -- we won't defacto accept the -- the Proponent's necessarily. But that doesn't necessarily mean that they won't be the ones.

So I hope that helps. But, I mean, I'm -- I'm not the Board, so I can't actually speak to whether they will or will not accept those.

MS. STEPHANIE POOLE: Thank you. Stephanie Poole, Akaitcho IMA Office. Just one (1) more thing before I stop, is I had requested from the proponent that they provide a document outlining the tech -- technical aspects of their feasibility study regarding their paste fill plant. And it sounds like the Proponent does not want to provide that. And so I just needed, like, a clear direction.

I understand we're going to discuss it some more tomorrow, but I'm just wondering, am I going to be able to get that document from Avalon or not?

THE FACILITATOR MERCREDI: As I mentioned earlier, for now, we're going to park the issue, revisit it tomorrow, just to give Review Board staff time to -- to look at that, because that does --

the Board's technical consultant has indicated that he'd like to -- basically, the -- the wording is -- is important there. And so basically, we'll revisit that tomorrow.

And so if that question remains unanswered, that's because we are essentially saying that we'll re -- revisit that tomorrow. And then -- and from then we'll have the appropriate homework for -- for the developer. So does that answer your question? Okay, and for the record, that was a "yes".

For -- we have about ten (10) minutes left before we wrap up for the day. Do I -- is there any more within -- that we can fit within ten (10) minutes, Anne? Yeah.

MS. ANNE WILSON: It's Anne Wilson, Environment Canada. This will be quick. Following up on Stephanie's question about the aquifer, Kevin had outlined that there were seventy (70) drill holes done, the core reviewed, as well as the shallow geotech drilling. But you didn't say what they found.

So just wanted to confirm that that did indeed show little to no groundwater or whether it did.

MR. KEVIN HAWTON: Kevin Hawton,

Knight Piesold. What it showed was that the permeabilities within the rock were very, very low: 10 to the minus 9, 10 to the minus 8 metres per second.

MS. ANNE WILSON: It's Anne Wilson. Thanks for that. Were there any water samples collected from the deep, deep cores and tested for chemistry?

MR. RICHARD HOOS: Yeah. Rick Hoos here. We'll -- we'll complicate things just a little bit by saying that there were actually two (2) groundwater hydrogeological programs conducted at Nechalacho: ane (1) set by Knight Piesold, which Kevin has discussed, and another set by Stantec.

And Stantec did sample the groundwater from all the wells that they installed, and continue to do so. And those results, the initial results, or the results that were available during preparation of the DAR, were presented in the DAR, both in a -- in a section called "Groundwater Quality" and in -- in one (1) of the appendix documents, again, produced by Stantec, that discussed hydrogeological considerations of the work that they had done.

MS. ANNE WILSON: Thanks. It's Anne Wilson. My impression from reviewing those results was that those were the more shallow holes. And so I was interested if there was any deep groundwater samples that were available that would span the actual depth that the bottom of the underground mine would go to.

MR. DAVID SWISHER: David Swisher with Avalon. In terms of the depth that the mine would go to, that requires extensive -- extensive work. So the drilling that we had done through Knight Piesold was designed to see what kind of inflows there were, basically because the past experience from a gentleman who actually worked on the 'T' zone, which is next door to that deposit, was a good indicator of the ground conditions as well, because it's all very similar rock.

And they had driven a decline over, I think, 150 metres below the surface. And they never encountered any water whatsoever, which confirmed -- other than what they pumped into the mine for drilling activities and that sort of thing.

So our work program that we outlined for Knight Piesold wasn't necessarily focussed on -- on sampling at that depth, because we felt based, on the practical experience that Mr. David Truman (phonetic), Dr. David Truman, had worked at this site and his experience in the past, we wanted to confirm if that would be the same in our area, given the close proximity to -- to our project and where he had worked, actually worked underground. And I think we had confirmed that through the work that Knight Piesold had done and the fact that the -- the prauses (phonetic) and permeabilities were so low.

Plus, when you're logging the core, when you see the competency of the core itself, you know, you can hold core from end to end without any fractures or -- or breaks in it, you know, it's tight material.

So for us, it was more of a confirmation, I guess, in terms of what we were thinking of, the -- the fact that we're not going to or we most likely may not encounter any water in the mining regime other than what we introduce and/or what -- what filters down from precipitation.

THE FACILITATOR MERCREDI: Okay. And if no further questions, we are approaching our wrap-up time. So with that, we'll go to Simon for a review for the Company to -- to -- for -- for them to hear what their homework is.

So again, Simon had -- had a list. I believe he's at number 7. So just like when you're filling up with gas and the disagreement between the cashier and the re -- the -- the gauge, this gauge will be taken as correct. Simon, that was his job, so we'll take his -- what he has. And then while everybody's here, we can -- we can look at that.

So Simon will read out the -- I don't believe -- I believe we had one (1) commitment and, I think, seven (7) homework items. So with that, Simon Toogood.

MR. SIMON TOOGOOD: Thank you very much. I'll start off with some homework. I have number 1 from Anne Wilson being a question on chromium, whether hexavalent or trivalent. And the question is: With respect to Avalon's proposed site-specific water quality objectives as presented during the technical session presentation and with respect to the purpose of determining which CCME -- which CCME guideline value to use for chromium, is the form of chromium listed in the table hexavalent or trivalent? There's -- everyone's fine with that. I'm seeing nods around.

We have the next question, again from Anne Wilson, being nitrate as 'N'. Are the values of nitrate as 'N' in the proposed site-specific water quality objective table consistent with CCME values? Is that correct?

MS. ANNE WILSON: It's Anne Wilson. I was just plugging -- I think there's an error in the value that was proposed.

MR. SIMON TOOGOOD: That the error is with the CCME values, it's not the same?

MS. ANNE WILSON: It's Anne Wilson. Yes, the value noted was an order of magnitude higher than the CCME value of nitrate as 'N'.

MR. SIMON TOOGOOD: Okay, fair enough. Yeah, by consistent, I meant it's -- it's not the same. So I'll just clarify that -- that it appears an order of magnitude higher. So for Avalon, that would just be to clarify a number.

Number 3, in from Environment Canada, is TTS values for Drizzle Lake, and Avalon is to provide the TTS for Drizzle Lake. I'm seeing agreements.

Number 4, from Nathan Richea, was changes and updates to water modelling. Essentially the question was: What assumptions were made and what has changed in Avalon's downstream water modelling for Drizzle and Thor Lake? I'm seeing nods.

Number 5 is from Ralph Grismala, the question on tracer modelling study clarification. And the request from Avalon is to present a simple calculation of the approximate values of dilution ratios used for tracer modelling studies.

Okay, number 6, Avalon to provide a present -- Avalon to provide presentations that were provided today.

Number 7 was essentially being asked already -- answered, but that was: Mercury, the lowest detection limits, was it low or ultra low? I think we've agreed that that was answered.

THE FACILITATOR MERCREDI: Putting it out there that that has been answered and is no longer homework. I'm putting that out there to the floor just to -- so that there's -- if there's less to do for -- for Avalon tonight, then that's...

MR. NATHAN RICHEA: Thank you. It's Nathan Richea. I believe so. I think the answer was they used the ultra low detections.

THE FACILITATOR MERCREDI: In that case, go ahead, Ralph.

MR. RALPH GRISMALA: Ralph Grismala, ICF Marbek. There -- there was another part when this was being discussed, and it had to do with the use of half the detection limits in the calculations that -- that showed up in the table. And I just wanted to make sure that at some point they confirm that they are using half the detection limits and -- and which part of the table -- one (1) of the -- I think it's for the five (5) day decant concentrations.

MR. JIM STRONACH: Jim Stronach here. Yeah, that's true. All right.

THE FACILITATOR MERCREDI: Okay. So just to clarify, that is resolved, correct? Okay. So that is resolved. Moving on.

MR. SIMON TOOGOOD: Number 8 I have as a -- the -- Avalon to provide the five (5) day decant information in the site-specific water quality table as found in the technical session presentation of August 14th, 2012. That was from Nathan.

And then that was it, and number 9 potentially has to do with the paste fill, and we'll be touching on that tomorrow morning. And there's one (1) commitment, I believe. And this may be a bit long-winded. But essentially, should Avalon propose alternate reagent from those proposed in the DAR for the Nechalacho floatation plant, Avalon will notify the Review Board prior to the public registry for Avalon Thor Lake Rare Earth Element Project being closed. That's everything I have.

THE FACILITATOR MERCREDI: Thank you, Simon. And how does that read?

UNIDENTIFIED SPEAKER: It reads good. I'd just like to clarify that homework item number 6 is completed, as well. I forwarded the presentation to -- to the Review Board.

THE FACILITATOR MERCREDI: Very well. Thank you. Consider it resolved. With that, we'll close up for the day. I'll just say before everybody moves, so again, the homework if -- if it does come by tomorrow, that's be great. Homework -- if it's -- if it's within the week, it -- it is homework. Past Friday, it is an undertaking due August 31st.

So again we will revisit a couple of things tomorrow. I think today has been very productive. I -- I'd like to thank Avalon for their participation, as well as the parties. We will -- as far at the agenda, tomorrow we do some follow-up from today immediately. We will consider anymore -- we will discuss any further Nechalacho site water quality issues and move onto the hydrometallurgical plant and fish and fish habitats. So that's how the agenda is looking tomorrow.

So -- and before we -- before we break for the night, I would like also if -- if there are any sidebar meetings between now -- and this again goes for the week. If there are sidebar meeting after

-- after the -- the closure of today or during the week that resolve issues, please speak up for the -- the registry so it is captured, it is resolved and it does not have to be revisited. That's just a gentle reminder.

So with that, David, do -- do you have any closing comments for today from -- from the company?

MR. DAVID SWISHER: Yeah. David Swisher with Avalon. I appreciate everybody's comments. You know, hopefully, you know, we can continue on tomorrow with the same type of positive discussions and move the process along, so thank you very much.

THE FACILITATOR MERCREDI: Thank you, David. And with that, everybody is dismissed, and we'll see you tomorrow at 9:00. Thank you very much.

--- Upon adjourning

Certified correct,

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Wendy Warnock, Ms.

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