



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

August 15, 2012

Day 2 of 4

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1 --- Upon commencing

2

3 THE FACILITATOR MERCREDI: Session for
4 the Thor Lake rare earth element project. My name is
5 Paul Mercredi for anybody that is new here today. I'm
6 the Environmental Assessment Officer for the file.

7 Once again, I think we had a productive
8 day yesterday and looking forward to another one
9 today. Just a couple of housekeeping items. Again,
10 main exit is the one you came in. There's another one
11 to the door to my right, where I'm pointing. That's
12 where the washrooms are, just past the door there.
13 Coffee, water, and some snacks, and tea all on -- to
14 my right.

15 Please, when you're speaking, name and
16 organization every time you speak into the mic.
17 Again, the transcripts won't be able to -- this -- we
18 are recording this and there will be transcripts of --
19 of the sessions this week. So it is -- and the
20 transcripts cannot tell who is speaking, so it's
21 important every time you do speak to state your name
22 and organization you represent. And also to -- it's
23 important not to eat the mic; just not speak too
24 clearly or too loudly but just right.

25 So the agenda today is -- we are on day

1 2. We will go through a brief follow-up from
2 yesterday, just some of the homework items, continue
3 any discussion on the Nechalacho site water quality,
4 and then we'll move on into the hydrometallurgical
5 plant, water quality, and fish and fish habitat,
6 should there be any questions on that.

7 We will do a brief roundtable before we
8 get started just to make sure we have -- we have
9 everyone -- just so that everyone gets an introduction
10 in. There is a sign-in sheet at the back if you
11 haven't signed in already; that is important for
12 transcript reasons. And a just brief reminder if
13 there are any sidebar discussions that happen either
14 during breaks or if there's a resolution of issues,
15 please bring that on record on the mic so that the
16 Review Board is aware that that is no longer an
17 outstanding issue.

18 With that, a note on yesterday's
19 transcripts they will be posted at the end of the day
20 today. I'll have the website for that. And they will
21 -- they're posted on a -- they are posted immediately
22 on a -- I believe it's T-script -- T-script.com at the
23 end of the day today. It won't be until next week
24 that we'll have that on the registry. So if somebody
25 wanted to look through the transcripts at the end of

1 day today, then it will be available. Again, that'll
2 be on the registry at the -- by next week.

3 So at this point we'll do a roundtable.
4 I'm Paul Mercredi, Environmental Assessment Officer.

5 MR. RALPH GRISMALA: Ralph Grismala,
6 ICF Marbek, technical assistance to the Review Board.

7 MR. SIMON TOOGOOD: Simon Toogood,
8 Environmental Assessment Off -- Environmental
9 Assessment Officer, Review Board.

10 MR. NATHAN RICHEA: Nathan Richea,
11 with the Water Resources Division of Aboriginal
12 Affairs and Northern Development Canada.

13 MR. PAUL GREEN: Paul Green, also with
14 Aboriginal Affairs, Water Resources Division.

15 MS. ANNE WILSON: Anne Wilson, with
16 Environment Canada.

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

19 MR. ALBERT BOURQUE: Albert Bourque,
20 Regional Environment.

21 MS. HENRIETTA NOTZL: Henri Notzl,
22 Avalon metallurgist.

23 MR. JIM STRONACH: Jim Stronach, with
24 EBA, working for Avalon.

25 MR. KEVIN HAWTON: Kevin Hawton, with

1 Knight Piesold, working with Avalon on tailings and
2 water management.

3 MR. MARK WISEMAN: Mark Wiseman, VP
4 Sustainability, Avalon.

5 MR. DAVID SWISHER: David Swisher, VP
6 Operations, Avalon.

7 MR. RICHARD HOOS: Rick Hoos, EBA,
8 working for Avalon.

9 MS. SHANNON HAYDEN: Hello. Okay.
10 Shannon Hayden, with the Review Board.

11 MS. CAILIN MAKI: Cailin Maki, with
12 the Review Board.

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

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

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

19 MR. MICHAEL TOLLIS: Mike Tollis,
20 Lutsel K'e Dene First Nation.

21 MS. KELLY CUMMING: Kelly Cumming,
22 Avalon.

23 MR. LIONEL MARCINKOSKI: Lionel
24 Marcinkoski, Aboriginal Northern Affairs, AANDC.

25 MS. SHANNON GAULT: Shannon Gault,

1 YKDFN.

2 MS. FADEKE ADEGBUYI: Fadeke,
3 Environment Canada.

4 MR. JAKE HERON: Jake Heron, NWTMN,
5 Metis Nation.

6 MS. STEPHANIE POOLE: Stephanie Poole,
7 NWT Treaty 8 Tribal Corporation, Akaitcho IMA Office.

8 MS. RUSSELL TEED: Russell Teed, GNWT
9 Minerals, Oil, and Gas.

10 MS. KATE WITHERLY: Kate Witherly,
11 Northern Projects Management Office.

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

14 MS. STACEY MENZIES: And I'm Stacey
15 Menzies, the Community Liaison Office for the Review
16 Board.

17

18 HOMEWORK ITEMS:

19 THE FACILITATOR MERCREDI: Thank you,
20 Stacey. Record time this morning. Awesome.

21 So we'll get right into some of the
22 Developer's homework. I understand that Avalon worked
23 hard to produce homework results for today. With
24 that, I will turn the mic over to David Swisher with
25 Avalon and to -- or, to address those homework items.

1 MR. DAVID SWISHER: David Swisher,
2 Avalon. Thank you. Good morning. And please forgive
3 my profuse bleeding, because I forgot how to shave
4 this morning.

5 I just wanted to go through the
6 homework items that we had from yesterday, items 1
7 through 8. This will also be emailed to Paul after we
8 run through these.

9 The first homework item was the -- with
10 respect to chromium and is the form of chromium listed
11 in the table hexavalent or trivalent with regards to
12 our SSWQOs. And after some research, we determined
13 that until we have a chance to determine what the
14 breakdown is between chromium 6 and 3, that we would
15 agree, as a precaution, to confirm with the CCME
16 guidelines of 1 microgram per litre chrome-6.
17 Otherwise, Avalon agrees to conform with the 8.9
18 microgram per litre chrome-3 guideline and the one (1)
19 for the 1 microgram per litre chrome-3 guideline.

20 Is that -- I'll just pause there for
21 any question, if that answers the question.

22 MS. ANNE WILSON: It's Anne Wilson.
23 Thank you for that. It answers my question.

24 THE FACILITATOR MERCREDI: Thank you.
25 And so with that we will consider homework number 1

1 completed for -- for the pur -- purposes of the
2 session and move on to homework number 2.

3 MR. DAVID SWISHER: David Swisher,
4 Avalon. Thanks, Paul.

5 Homework 2, re -- regarding the nitrate
6 as nitrogen in our SSWQOs. After some research last
7 night, determined that they are -- they have a long
8 term and short term.

9 The long term, Avalon commits to
10 conform with the nitrate standard of 13 milligrams per
11 litre, or 2.9 milligrams per litre as nitrogen. And
12 on a short-term basis, we'll commit to conform to the
13 short-term guideline of 550 milligrams per litre
14 nitrate, or 124 milligrams per litre nitrate as
15 nitrogen. Nitrite, I don't believe we changed
16 anything -- anything there.

17 David Swisher with Avalon. I
18 apologize. Marc just reminded me that actually we did
19 find an error in the nitrite when we were going
20 through it and adjusted that to conform with the
21 actual CCME standard. As you'll see, we had .06
22 milligrams per litre, which is .018 milligrams per --

23 THE FACILITATOR MERCREDI: And with
24 that, does that address the concerns within --
25 captured within that item?

1 MS. ANNE WILSON: It's Anne Wilson,
2 Envi -- Environment Canada. I agree with the long-
3 term number from CCME, the current guidelines. I am
4 not familiar with the short-term value, so I'm just
5 going to look up a bit on that and see where that came
6 from. I suspect it was the draft nitrite work that
7 hasn't been finalized yet. So we can just leave that
8 one on the table as almost finalized, that would be
9 great. Thanks.

10 MR. MARK WISEMAN: Yeah, Mark Wiseman,
11 Avalon. Yeah, I -- I just pulled that off of the
12 website last night. I've got a copy of it here if
13 you're interested the short-term and long-term
14 information.

15 THE FACILITATOR MERCREDI: And we can
16 definitely revisit that. Nathan, did you have
17 something?

18 MR. NATHAN RICHEA: Thank you. It's
19 Nathan Richea, with the Water Resources Division. I'm
20 just trying to remember exactly if this is being
21 proposed as a site-specific water quality objective or
22 whether this will be the five (5) day decant
23 concentrations. I can't remember what these numbers
24 are proposed to be applying to. I'm just trying to
25 get clarification. Thanks.

1 MR. DAVID SWISHER: David Swisher,
2 with Avalon. These are the updates to the SSWQOs that
3 Avalon has proposed.

4 THE FACILITATOR MERCREDI: Nathan, did
5 you have a followup comment from that?

6 MR. NATHAN RICHEA: It's Nathan
7 Richea, with the Water Resources Division, Aboriginal
8 Affairs. When we set site-specific water quality
9 objectives, we look for long-term exposures because
10 we're looking at downstream receiving environment over
11 the long term, over the course of the entire project.
12 So the short-term number would be something that would
13 be considered during establishment of effluent quality
14 criteria during the regulatory phase.

15 However, for a site- specific water
16 quality objective we're looking for chronic toxicity
17 over the long term, which would include the twenty
18 (20) year project life. So the longer-term number is
19 the one we're more interested in, so -- at this stage.
20 Thanks.

21 MR. DAVID SWISHER: David Swisher.
22 We agree with that.

23 THE FACILITATOR MERCREDI: Anne?

24 MS. ANNE WILSON: Anne Wilson,
25 Environment Canada. Okay, just to close the loop, I

1 did find the 2012 released nitrate CCME fact sheet,
2 and I concur those are the correct numbers. But, as
3 Nathan points out, the one we are interested is the
4 long term. Thanks.

5 THE FACILITATOR MERCREDI: Thank you,
6 Anne. Very well. So at this point we'll consider
7 homework number -- item number 2 addressed and move
8 on. I'm seeing nods. Yeah. So with that we'll
9 consider it -- number 2 addressed and move on to
10 number 3.

11 MR. DAVID SWISHER: David Swisher,
12 Avalon. Item number 3 was to provide the TDS values
13 for Drizzle Lake. We had those values from the
14 baseline water quality results through the periods of
15 2009 and 2010, provided by Stantec. It is within the
16 DAR in appendix A-1.

17 And the -- based on the five (5) sets
18 of samples collected during the time period for
19 Drizzle Lake, those are the values that were provided.

20 THE FACILITATOR MERCREDI: Okay. And
21 were there any comments on that? If not, then we'll
22 consider that addressed and completed. Okay, so that
23 was homework number 3. Consider that addressed, and
24 we'll move on to homework number 4.

25 MR. DAVID SWISHER: David Swisher,

1 Avalon. Homework number 4 I'm not even going to
2 attempt to qualify, but I will let Dr. Jim Stronach,
3 hopefully, provide just a short summary. I believe
4 Nathan requested this in writing, so it's -- it's
5 about a -- a full page of explanation that goes into
6 the modelling detail. So I'll -- I'll let Jim just
7 summarize briefly, and -- and then of course this will
8 be on the record for you available in writing to
9 review.

10 MR. JIM STRONACH: Jim Stronach here.
11 The -- I guess the difference or the modelling was
12 always done assuming we were working with zinc,
13 because then we could scale other metals from that
14 value. So the zinc value coming in from the TM --
15 from the plant is point zero-zero-seven (.007). And
16 when you run that through the model, then you get that
17 point zero-zero-seven (.007) is diluted as you go from
18 one (1) lake to the next and on to Thor Lake.

19 But the mistake we made in the -- in
20 the May calculations is that we generally use a
21 concentration of one (1) for this representative
22 contaminant cycling through one (1) of these systems
23 and, I'll say, forgot that we were working with the
24 point zero-zero-seven (.007). So when we went to
25 calculate dilutions, we had these low concentrations,

1 we'll say, that were derived by diluting the point
2 zero-zero-seven (.007) value through the lakes. And
3 we calculated the dilution as the value of one (1)
4 divided by these lower concentrations. So that gave
5 us the very high dilutions which were out by the ratio
6 of one (1) over point zero-zero-seven (.007), or about
7 a hundred and forty (140) times.

8 And as I said, the end of this homework
9 item, we then did an independent check, just using a
10 spreadsheet of -- of what goes on between the plant
11 and the tailings facility. And that's -- homework
12 item 5 was to provide that. And we thought, yeah, the
13 dilution was more like -- well, the concentrations,
14 say, in the tailings pond should have been about point
15 one-four (.14) or point one-three (.13) rather than
16 the point zero-zero-nine-one (.0091). And that said,
17 oh, there's some -- something wrong. We looked
18 through the code and found that we had inadvertently
19 hard-coded the point zero-zero-seven (.007) as the
20 starting concentration coming from the plant.

21 So I think that's the -- in a nutshell.
22 The calculations done were done using this
23 concentration of point zero-zero-seven (.007). And
24 then we -- when we were done and went to compute
25 dilutions for the report, we used the value of one (1)

1 as a starting point rather than point zero-zero-seven
2 (.007).

3 MR. DAVID SWISHER: David Swisher,
4 with Avalon. So Jim just explained a little bit on
5 item 4 which does provide from a modeller's
6 standpoint, hopefully, the explanation there. And
7 then homework item 5 that I believe Ralph had
8 requested with regards to the approximate values of
9 dilution ratios used for the tracer model studling --
10 study -- studies are also provided in this response
11 number 5 in these -- the tables.

12 THE FACILITATOR MERCREDI: Okay.
13 Nathan?

14 MR. NATHAN RICHEA: Thank you. It's
15 Nathan Richea, with the Water Resources Division.
16 Thank you for the explanation. And it's much more
17 clearer now how the numbers have changed between the
18 tables.

19 I guess my question now is: What sort
20 of evaluation sort of internally happens after you run
21 the models? Like if -- if you get like a fourteen
22 hundred and eighty (1,480) times dilution but then you
23 look at your receiving environment and, you know, you
24 have two (2) small water bodies less than, you know, 2
25 metres deep and then a third water body that's, you

1 know, quite a bit bigger but doesn't a whole lot of
2 capacity over the longer term -- like twenty (20),
3 forty (40), hundred (100) years -- what sort of
4 assessment gets done on those dilutions and -- and --
5 and sort of ground truthing the numbers after?

6 Like that's one (1) thing that needs to
7 be done during a modelling exercise, is you put a
8 bunch of numbers into a -- a model and you make some
9 assumptions, and then you get a result. But you sort
10 of have to verify or check those numbers, right. And
11 I think when we were looking at it, it was quite
12 strange to see such a high dilution rate. So I was
13 just kind of wondering how, before putting the numbers
14 or running through the complete cycling of the
15 modelling, what sort of checks are in place.

16 We're obviously very -- very interested
17 in the predictions in -- in how the effluent will
18 behave in the receiving environment, and that forms
19 part of the assessment of the potential adverse
20 effects, right. So it's -- we look at that very
21 closely, so I guess that's why I'm raising it.

22 So, yeah, there's a couple of different
23 components or steps in a modelling exercise. One is
24 to, you know, put the model together and then to run
25 it, but then you have to sort of verify that. So

1 thank you for correcting it, like you did catch it,
2 but it just gives us some uncertainty, I guess, in
3 maybe what the potential effects of the predictions
4 may be or how -- how much scrutiny the predictions
5 have actually had. Maybe that's better now, and thank
6 you for doing that; but it's kind of a flag for us
7 when we're trying to understand.

8 Now that you've found the error have
9 you looked at your data over again and -- and adjusted
10 your impact predictions at all, based on the
11 differences in the dilution rates and the numbers?

12 MR. RICHARD HOOS: Rick Hoos here.
13 We, ourselves, when we were doing the -- the fisheries
14 assessment and effects on aquatic life assessment, had
15 questioned at the time the dilutions. They did seem
16 rather generous. But what is most important at this
17 point in time is that the -- the latest revised
18 numbers, which we are very confident in, are still
19 exceptionally good.

20 As we said yesterday on a number of
21 occasions, the overall water quality in the tailings
22 management facility before it even gets discharged to
23 the downstream receiving environment is generally --
24 in generally -- in general, entirely consistent with
25 CCME, with the possible exception of aluminum and

1 iron, which we still attribute to suspended
2 particulates. And they can be reduced to the point
3 where they are also in conformance with CCME
4 guidelines downstream.

5 So we do not have any concerns about
6 the predictions we made about the fact that we do not
7 anticipate any negative impacts on the downstream
8 aquatic environment as a result of discharge of this
9 water from the tailings management facility to the
10 downstream system.

11 MR. DAVID SWISHER: David Swisher,
12 with Avalon. Just also to -- to follow up and answer
13 your question there, Nathan. After reviewing all this
14 last night as well in detail with Dr. Stronach there,
15 we -- we feel very comfortable with the assumptions
16 made and the latest corrections and the information
17 that was provided.

18 MR. NATHAN RICHEA: Thank you. It's
19 Nathan Richea with the Water Resources Division.
20 Thank you for your response.

21 MR. RALPH GRISMALA: Just a few
22 follow-ups on this topic. I see this table only goes
23 to year 1. Is there additional data that brings us
24 out to year 20? Because just looking at the rate of
25 increase from six (6) months to a year, it's still

1 building up pretty quickly in the TMF.

2 MR. JIM STRONACH: Jim Stronach here.

3 We only did year 1 because, you know, going on to the
4 other years you have the whole circulation through the
5 alls -- all the other sequence of -- of the other
6 lakes and this recycling process. So if we just do
7 the first year, just look at that, we get a
8 concentration of point one-four-six-eight (.1468),
9 when previously we had been looking at that very low
10 number of point zero-zero-zero-nine-one (.00091) in
11 the first year.

12 So this was done just to see, you know,
13 what was the approximate size of dilution in -- in the
14 first leg of this process, the dilution within the
15 tailings pond. Once we saw that, we said, okay, we
16 have to now look in our code of what -- in our
17 numerical model code of what's giving us this anom --
18 anomalously high dilutions.

19 MR. RALPH GRISMALA: Ralph Grismala,
20 ICF Marbek. My point is, just looking at the two (2)
21 steps you have calculated there, you're showing, you
22 know, a steady increase. You know, in the first six
23 (6) months, you're at point zero-seven (.07); twelve
24 (12) months, you're at point one-four (.14).

25 Is -- is it your understanding that

1 it's continue -- it's going to continue to concentrate
2 at that rate? Because if it does, in seven (7) years
3 you're going to be at one (1).

4 MR. JIM STRONACH: Jim Stronach here.
5 Now we did this calculation for this -- sort of
6 spreadsheet one for the full twenty (20) years, but I
7 didn't present it because all we actually used was the
8 first year to confirm that there was something wrong
9 with the more complete numerical model. And the --
10 the buildup over the twenty (20) years is in -- I
11 believe that's in the presentation we gave yesterday.
12 Did we? If not it's -- yeah.

13 So that -- those numbers that were
14 presented yesterday for the buildup in each of the --
15 probably just in Thor and Drizzle maybe, those --
16 those are -- those are -- are our best estimate based
17 on the full modelling effort.

18 MR. DAVID SWISHER: David Swisher,
19 Avalon. I think the question also was to look at the
20 basic assumptions, which we've provided here in these
21 tables, that went into that modelling effort. So the
22 -- as Jim said, the presentation shows those end
23 results. These were the ba -- basic assumptions from
24 our homework assignment.

25 THE FACILITATOR MERCREDI: And -- and

1 yes, so as -- as far -- I mean if there's -- if there
2 are further questions from that, that's -- that's
3 legitimate and we can definitely address that. But as
4 far as addressing the homework item, if -- I mean, if
5 there's further discussion to be had on it, for sure.
6 But if there -- if there's follow-up items to address,
7 then we can definitely capture those, so.

8 But as far as if Avalon has addressed
9 the homework that was as it was worded yesterday, fair
10 to say, to put out there that it -- it has been
11 completed? I'm not seeing any objection.

12 So as far as homework number 4 is -- is
13 concerned, we'll consider that -- and -- and again if
14 there are further questions, we can do that here today
15 after we complete this followup. So for the purposes
16 of discussion, homework number 4 is considered
17 complete, and let the record show no objections.

18 So homework number 5. Moving on to
19 homework number 5, for the Developer.

20 MR. DAVID SWISHER: Yeah, I -- I --
21 David Swisher, Avalon. They -- they kind of melded
22 into each other there with -- into Ralph's question as
23 well. Again, homework 5, just as a recap, was to
24 present the simple calculation on the dilution ratios
25 for the tracer modelling. And so the basic

1 assumptions that went into that for the tracer
2 modelling were provided in these tables that Ralph was
3 just referring to.

4 THE FACILITATOR MERCREDI: Thank you.
5 And so was there any discussion on homework number 5?
6 If not, then we can consider that complete and then
7 again capture it with another item. Nathan?

8 MR. NATHAN RICHEA: There's more
9 discussion, but I wonder if we should just continue
10 with the homework and then maybe come back to it
11 after. Like I think it might go on for some time.

12 THE FACILITATOR MERCREDI: Just to
13 close the loop, I mean, if -- if there -- like if
14 there was a certain question that was answered, that's
15 the loop that we hope to close here. And then -- but
16 if there -- I mean, if there are more questions off
17 that piece of information -- I mean it -- what I'm
18 trying to establish here is did An -- did Avalon
19 answer that question in the work that they provided
20 here today?

21 So -- and -- and certainly there can be
22 more homework items or undertakings. Just as far as
23 closing the loop, I'm putting that out there for
24 homework number 5. Not seeing any objections, so
25 we'll consider that homework number 5 complete.

1 With that, home -- homework number 6?

2 MR. DAVID SWISHER: Homework number 6
3 was to present the Review Board with the presentation
4 -- Avalon's presentation yesterday; that's been
5 completed. And I see the Review Board has already
6 posted that to the public registry.

7 THE FACILITATOR MERCREDI: Okay,
8 homework number 6 complete. Moving to homework number
9 7.

10 MR. DAVID SWISHER: David Swisher,
11 Avalon. Homework 7 was to confirm the lowest
12 detection limited used for calculating mercury for the
13 SSWQOs, whether this was low or ultra low. Yesterday,
14 we completed that by confirming that it was ultra low
15 detection limit.

16 THE FACILITATOR MERCREDI: Okay. And
17 -- Thank you. And are there any comments on that?
18 Any discussion? Okay, same, let the record show
19 nothing.

20 So at this point, I -- I believe that's
21 all the homework items that -- I see Simon nodding.
22 So with that -- yeah, for sure.

23 MR. DAVID SWISHER: David Swisher,
24 with Avalon. Homework item number 8:

25 "Avalon to provide the five (5) day

1 decant information to the SSWQO
2 table as found in the technical
3 session presentation on August 14."

4 We've -- as you can see in the
5 presentation slide, that has been provided with
6 regards to the five (5) day decant concentration.

7 THE FACILITATOR MERCREDI: Thank you.
8 And, Mark, I believe that was your question. Did you
9 have -- and -- and Nathan's as well. Nathan, go
10 ahead.

11 MR. NATHAN RICHEA: It's Nathan
12 Richea, with the Water Resources Division. Yeah, so
13 that's the five (5) day decant information for
14 nutrients that left the tailings facility?

15 MR. MARC CASAS: Marc Casas, from the
16 Mackenzie Valley Land and Water Board. I'm wondering
17 -- I guess there was -- they did say nutrients, but I
18 guess I was also hoping to get the chloride numbers as
19 well. And I see that those are the nutrients, but I'm
20 wondering if -- if maybe we could just get the
21 chloride numbers for that as well.

22 MR. RICHARD HOOS: Thank you. Sorry.
23 It's early. When I prepared this response, I was
24 wondering whether you might also want the chloride and
25 -- and 'S' -- su -- sulphate because they were also in

1 that -- in that slide. So the answers are: 44
2 milligrams per litre for chloride and 100 milligrams
3 per litre for sulphate.

4 THE FACILITATOR MERCREDI: Anne, go
5 ahead.

6 MS. ANNE WILSON: Anne Wilson,
7 Environment Canada. A point of clarification for
8 Rick. The table says, "Total phosphate." Your five
9 (5) day numbers are total reactive 'P'.

10 Can you just tell me which one we're
11 thinking about? Are we compares -- comparing apples
12 and oranges?

13 MR. RICHARD HOOS: Rick Hoos. What --
14 what I provided to you was the five (5) day decant
15 values that are in the SGS report, which are the ones
16 we -- we use for all our modelling. And in that
17 report, phosphate was identified as being totally
18 reactive, so I just reported it strictly as it was in
19 this -- in this form.

20 THE FACILITATOR MERCREDI: Anne, did
21 you have a follow-up?

22 MS. ANNE WILSON: It -- it's Anne
23 Wilson. So you're saying that the -- we're talking
24 about total reactive phosphate in the table that was
25 provided in the presentation?

1 THE FACILITATOR MERCREDI: Please --

2 MR. RICHARD HOOS: Yeah, sorry.

3 THE FACILITATOR MERCREDI: Please
4 speak into the mic.

5 MR. RICHARD HOOS: Yeah, Rick Hoos. I
6 think it would be reasonable to assume that that would
7 have to be treated as the total reactive phosphate as
8 well.

9 THE FACILITATOR MERCREDI: Were there
10 any followup comments to that? Or for any -- for
11 homework number 8, any followup comments? At this
12 point, is it fair to say that Avalon has completed
13 that homework item as it was worded? Not seeing any
14 objection. So with that, I believe that's all the
15 homework items. I'm just looking to Simon for that.

16 MR. SIMON TOOGOOD: Just to note we've
17 got the followup for the paste fill to continue on
18 with.

19 THE FACILITATOR MERCREDI: For sure.
20 So at this point, I believe that's every -- that
21 wasn't a homework item. So at this point, I'd like to
22 thank Avalon for -- for their work in producing that
23 overnight. And -- and at this point we can continue
24 the discussion according to the agenda. Was there any
25 other items that Avalon wished to address before we

1 continue the discussion?

2 MR. DAVID SWISHER: David Swisher,
3 with Avalon. No.

4

5 DISCUSSION & FOLLOWUP ON PREVIOUS DAY:

6 THE FACILITATOR MERCREDI: Very well.

7 So with that, we'll move into any further items that -
8 - based on the information that was just provided,
9 I'll turn the floor out for any discussion.

10 MS. ANNE WILSON: There -- it's Anne
11 Wilson with Environment Canada. I was just looking
12 back at the DAR, and while we were thinking about the
13 paste backfill, it says that this will not be needed
14 until year 5. In our discussions yesterday it sounded
15 like it was going to happen a little sooner than that.

16 Can you just clarify the timing for the
17 paste backfill and how you will store and then
18 retrieve the tailings that are going to be...

19 MR. DAVID SWISHER: David Swisher,
20 with Avalon. Yeah, the paste fill plant will be
21 commissioned in the first year of operations. And
22 that is predominantly moved up in the schedule to take
23 advantage of minimizing the amount of tailings that is
24 reporting to the tailings management facility, as well
25 as maximize the strength potential in the stopes that

1 we mine out as fill.

2 In terms of the paste fill plant
3 itself, it's -- I can explain briefly on that, but I
4 can also provide for the public registry the draft
5 feasibility design criteria, excluding some of the
6 more confidential items, to the public registry for
7 everybody to review. So as a commitment I can do
8 that, which you can take a look at the design criteria
9 for yourself and understanding that.

10 But in summary, the paste fill plant is
11 designed to take in the tailings which are
12 extraordinarily fine. It is on a batch-style basis.
13 Cement, Portland style cement is added to the
14 tailings. Then that is pumped to the stopes that are
15 opened up, to fill those up completely. Once those
16 are filled up, it requires about a thirty (30) day
17 setting time, only thirty (30) days.

18 And then it becomes more or less a
19 concrete block underground that adds stability to the
20 underground and then allows us to mine next to it. It
21 is not leachable, just like, you know, any other
22 paste-type material. If you're looking at a sandfill
23 paste in the early years, then that would be
24 leachable. But this is a cemented paste fill, which
25 is not leachable and used for strength

1 characteristics, which is outlined in the -- the
2 report that I will provide to the Review Board.

3 MS. ANNE WILSON: It's Anne Wilson.

4 Thank you for that explanation. The DAR had mentioned
5 that the paste backfill would include installation of
6 3 or 3 1/2 inch pipes to collect any water expressed
7 from the cement paste backfill process. Is that still
8 -- I imagine the report you're going to provide us
9 will explain all this.

10 But is it still anticipated there will
11 be enough water to collect, and is that going to
12 report to the tailings?

13 MR. DAVID SWISHER: David Swisher,
14 with Avalon. The -- the water -- any water that runs
15 off there will first go through a decantation process
16 underground, in the underground sumping system, and
17 then the clean water will be transferred to the
18 surface.

19 MS. ANNE WILSON: It's Anne Wilson.
20 I'm sorry, I'm just confused when you say "clean
21 water," as opposed to the water that comes off the
22 paste backfill. And what -- what are you meaning by
23 that?

24 MR. DAVID SWISHER: I'm meaning any of
25 the suspended solids will be allowed time to settle

1 out so that we can dispose of those underground,
2 versus pumping those out to the tailings facility.

3 MS. ANNE WILSON: Thanks. Anne
4 Wilson, Environment Canada. And just so I can clarify
5 in my mind how it will work, will the -- the tailings
6 paste backfill be done on a year-round basis, or will
7 you be retrieving tailings from the tailings
8 management facility over the winter season?

9 MR. DAVID SWISHER: David Swisher,
10 Avalon. We will not be retrieving any tailings from
11 the tailings management facility. That will be mixed
12 prior to leaving the flotation plant. And it wi -- it
13 is on a year-round basis and, I think, explained in a
14 bit more detail in the report that I'll provide to the
15 Review Board.

16 MS. ANNE WILSON: Anne Wilson, with
17 Environment Canada. Okay. Thanks for that. I'll
18 move on to my next question then, which is to do with
19 the water balance.

20 There have been a few changes in the
21 project, as far as how the water management is going
22 to happen, with the polishing pond being a contingency
23 now and being built in to the footprint and with the
24 paste backfill happening earlier.

25 So I'm just wondering if it would be

1 worthwhile updating Figure 4.7-10, which has the water
2 balance, to reflect these changes, or will there be
3 any material changes in the flows and the volumes
4 anticipated?

5 MR. DAVID SWISHER: David Swisher,
6 with Avalon. We don't expect material flows that will
7 basically put us in -- into any type of exceedances
8 situation from what was presented in the DAR.
9 Obviously, there's -- as we optimize the process we
10 have -- and we do more of the detailed design work,
11 some of the internal recycling work minimi -- or,
12 maximizing that internal recycle at the flotation
13 plant, working on minimizing the freshwater intake,
14 those sort of optimization efforts are continuing for
15 the company.

16 But with regards to the ultimate goal,
17 with regards to water releases from the TMF, with
18 regards to meeting our -- our, I guess, extraction
19 rates from Thor Lake, we are still committed to be in
20 compliance with those criteria.

21 MS. ANNE WILSON: Anne Wilson,
22 Environment Canada. So the water balance is still
23 substantially accurate?

24 MR. DAVID SWISHER: Yeah, David
25 Swisher, Avalon. I -- I -- at the end of the day I

1 think the numbers that are still presented in the DAR
2 are still very accurate; but we should qualify that by
3 saying that we're always optimizing, and so the
4 numbers may change slightly here or there. When we're
5 talking magnitudes of, you know, 50 cubic metres an
6 hour over a period of a year, then you might have some
7 small fluctuations based on the design work that we're
8 doing as we gather more information for feasibility
9 work.

10 MS. ANNE WILSON: Anne Wilson,
11 Environment Canada. I'll just move on to my next
12 question, which has to do with reagents. And in our --

13 THE FACILITATOR MERCREDI: Actually, I
14 believe Ralph -- before we move on that --

15 MS. ANNE WILSON: Sure.

16 THE FACILITATOR MERCREDI: -- on that
17 water balance question.

18 MR. RALPH GRISMALA: Yeah, I -- I also
19 was going to request an update of the water balance
20 diagram. It seems that there's been some substantial
21 changes in the process, both with the additional
22 internal recycling in the plant and the reduction of
23 the -- the amount of tailings going to the tailings
24 facility dropping by -- well, about 25 percent
25 (MISSING AUDIO).

1 THE FACILITATOR MERCREDI: Is there a
2 time line that -- does Avalon have any comment on that
3 further comment on that before we, kind of, explore
4 whether or not that's homework or an undertaking?

5 MR. DAVID SWISHER: No comment.

6 THE FACILITATOR MERCREDI: Okay. It -
7 - it sounds like that is information that is required
8 at this point, so -- or information that -- that could
9 be addressed -- could address this issue. Is there a
10 wording here that would capture that, Anne or Ralph?
11 Anne...?

12 MS. ANNE WILSON: Anne Wilson,
13 Environment Canada. We could just say that En --
14 Environment Canada requests an updated water balance
15 showing flows and reflecting the changes in the
16 project.

17 MR. RALPH GRISMALA: Ralph Grismala,
18 ICF Marbek. In fact, you had mentioned a specific
19 figure number and I think if that figure was updated
20 it would provide all the information, or at least see
21 all the numbers in that figure. Did you say 4.7-10?

22 THE FACILITATOR MERCREDI: Okay. And,
23 Simon, can you read out what you have?

24 MR. SIMON TOOGOOD: Sure, it's a work
25 in progress. Anne's wording was:

1 "Request -- EC requests updated
2 water balance showing flows and
3 reflecting changes in the project
4 and as expressed in Table 4-7.10 of
5 the DAR."

6 So I'll just reread that:

7 "Request updated water balance
8 showing flows and reflecting changes
9 in the project as shown in Figure
10 4.7-10 of the DAR."

11 THE FACILITATOR MERCREDI: Anne, does
12 that address? And -- and just to clarify, this is
13 additional information? It is not what has been
14 presented so far. This is to reflect a change that --
15 that you've seen?

16 MS. ANNE WILSON: Anne Wilson,
17 Environment Canada. It's to update the information
18 further to the recent project chain -- got this
19 information in any one (1) place at this point.

20 THE FACILITATOR MERCREDI: Thank you.
21 And as far as what Simon -- the wording that Simon has
22 read out, does that capture -- address your concern?

23 MS. ANNE WILSON: Anne Wilson. Yes,
24 it does.

25 THE FACILITATOR MERCREDI: Thank you.

1 And as far as timing?

2 MR. DAVID SWISHER: David Swisher,
3 Avalon. As far as timing, we're going to have to take
4 that as a undertaking, just because it's a -- it's a
5 dynamic process. I'd like to remind the Review Board
6 that at the end of the day we're still committed to
7 meeting all the criteria that is affected as a result
8 of the water balance, so that does not change from the
9 DAR. So we will work on trying to provide updates
10 based on the -- the recent work that we've been doing.

11 THE FACILITATOR MERCREDI: Thank you.
12 So that, I believe is Undertaking number 1, Simon, the
13 official recorder? Okay, Undertaking number 1, due
14 August 31st. And -- and we'll move on from there.

15
16 --- UNDERTAKING NO. 1: Avalon to provide updated
17 water balance showing
18 flows and reflecting
19 changes in the project as
20 shown in Figure 4.7-10 of
21 the DAR

22
23 THE FACILITATOR MERCREDI: Nathan...?

24 MR. NATHAN RICHA: Thank you. It's
25 Nathan Richea with the Water Resources Division.

1 Thank you for the commitment. It's really helpful to
2 frame the context, I guess, of some of the
3 discussions.

4 But I do want to explain, I guess, why
5 we're interested in that information, particularly for
6 anyone in the crowd, who's like, What are we talking
7 about. But, generally, all aspects of the project are
8 interrelated, so if less -- if less tailings, or less
9 tailings water, reports to the tailings containment
10 facility there are pros and cons to that.

11 There will be less tailings there to
12 leach or potentially cause increasing parameters in
13 that water, but there's also less water there for
14 assimilation and retention within the tailings
15 facility before it's released to the receiving
16 environment. So it has the potential to directly
17 impact what the predictions are for meeting water
18 quality in the receiving environment.

19 We don't know, until we know what the
20 final water balance would be and how it might change
21 the capacity within the tailings facility. That's why
22 we're asking the question. So, yeah, I hope that
23 helps.

24 THE FACILITATOR MERCREDI: That is
25 definitely helpful. And, David, was there any -- any

1 other comment that you had for that?

2 MR. DAVID SWISHER: David Swisher,
3 Avalon. You know, no -- no, I think at the end of the
4 day, though, our -- our commitments should stand and
5 our proposed SSWQO should stand.

6 So I think at the end of the day if --
7 if it's a 1 or 2 cubic metre water change here or
8 there, that that should not be viewed as a major
9 concern. Rather, what we're committed to,
10 understanding that the designs that we're currently
11 wor -- working on and the optimat -- optimizations
12 that we're working on will ultimately change some of
13 those values. But at the end of the day we're
14 committed to meeting what we've committed to in this
15 process and the proposed SSWQOs.

16 THE FACILITATOR MERCREDI: And -- and
17 again -- thank you. With -- that context is important
18 because it does help the Review Board understand how -
19 - how that might not be the case if -- if that is the
20 case.

21 So I -- if there are -- if there is
22 information that would indicate otherwise, other --
23 indicate that there's a situation other than -- than
24 what the company's proposing, it's important that the
25 Review Board hear why that is. So if there is

1 evidence pointing to that, it is important that the
2 Board hear that.

3 So again, we'll take that as
4 undertaking. Do you have a follow-up comment, Nathan?

5 MR. NATHAN RICHEA: Thank you. It's
6 Nathan Richea with the Water Resources Division. I
7 just wanted to follow-up and -- and thank David for
8 the -- for the response, because I think the -- they
9 key message here is that you're committing to meet,
10 you know, an acceptable water quality in the receiving
11 environment.

12 And I did bring it up yesterday, there
13 may be a potential need for a commitments table from,
14 you know, the report, because it may help make it
15 easier for everyone to -- to sort of say, Okay, well,
16 there are some slight changes, there's some
17 optimization, there's some things happening from
18 flexibility, you know, optimization, feasibility study
19 for the proponent.

20 But in the end they're still committing
21 to -- to meet these things, and I think it would be
22 important to -- to help and -- and provide some
23 context, I guess, when we're looking at these things
24 overall. So I think that would be a useful tool.
25 Thanks.

1 THE FACILITATOR MERCREDI: And
2 actually, a commitments table is something that has --
3 has been a part of some of our past sessions and
4 processes. If -- so if -- if the developer is so
5 inclined to produce a -- it's a fairly straightforward
6 exercise, I believe.

7 So if -- if we can take that as
8 Undertaking number 2, a commitments table, in addition
9 to any other changes that has been made since the
10 submission of the DAR, David?

11 MR. DAVID SWISHER: Yeah, so we can
12 provide that as well as an under -- Undertaking number
13 2, an updated commitments table.

14 THE FACILITATOR MERCREDI: Thank you.
15 And with that wording, updated -- basically, updated
16 commitments table, would that capture it, Nathan?

17 MR. NATHAN RICHEA: Yeah, that
18 captures the request. It's Nathan Richea with the
19 Water Resources Division. And I had a couple of items
20 that I've been making notes over the last couple of
21 days and I don't know if I should save them or just
22 talk to them about that, maybe in a -- coffee time or
23 something to avoid, you know, a long-term -- long
24 discussions today.

25 THE FACILITATOR MERCREDI: We'll just

1 go to Simon just to -- to make sure we've got that
2 wording down for everyone.

3 MR. SIMON TOOGOOD: Simon, from the
4 Review Board:

5 "Avalon to provide an updated
6 commitment table."

7 MR. DAVID SWISHER: David Swisher,
8 yes.

9
10 --- UNDERTAKING NO. 2: Avalon to provide an
11 updated commitment table
12

13 THE FACILITATOR MERCREDI: And just to
14 -- to do some also house -- some cleaning up from
15 yesterday, I -- and to -- to capture exactly what will
16 be put on the registry for -- regarding the paste
17 backfill concerns that have been brought up. Ralph, I
18 believe, had a couple of words on that.

19 MR. RALPH GRISMALA: Ralph Grismala,
20 ICF Marbek. I -- I had written out some information
21 to clarify the request and the information on the
22 paste backfill and some of the previous discussion
23 today has answered some -- actually altered what I
24 need to ask.

25 So this -- this may not be the final

1 wording and it -- and it may be adjusted somewhat, but
2 the -- the general input was to please provide -- or
3 confirm the constituents of the paste backfill --
4 actually, let me back up.

5 There are -- there are a number of --
6 of categories here, there are four (4) categories. So
7 please provide or confirm a) the constituents of the
8 paste backfill, including the water and solids content
9 and any additives; b) the physical characteristics of
10 the paste as placed, for example, density, slump, or
11 angle of -- or some indication of, you know, how
12 flowable it is, I guess; c) the chemical
13 characteristics of the paste backfill, for example, pH
14 and analysis of -- of the pour water; and d) the long-
15 term behaviour of the paste backfill, for example, the
16 percent of bleed water. I was going to ask about
17 leachability, but you've stated it's not leachable.

18 Although we would request, I -- I
19 guess, back up of that, which I presume is in the
20 Golder report. The in-place density, final water
21 content, if there's any free water, and
22 characteristics such as the hydraulic conductivity
23 and the void ratio of the backfill, so it could be
24 compared to the host rock. That's it.

25 MR. DAVID SWISHER: That information

1 has already been sent to the Review Board. David
2 Swisher, Avalon.

3 THE FACILITATOR MERCREDI: Thank you.

4 So with that, now that it's in my inbox, we'll move on
5 to any further discussion and -- and that information
6 will be posted before the end of the week.

7 With that, I believe, most of what has
8 -- was talked about yesterday and then we moved on to
9 most of where we are today.

10 Nathan...? Anne...?

11 MS. ANNE WILSON: Thanks. It's Anne
12 Wilson, Environment Canada. I just had a question on
13 reagents. And it's further to our IR number 24 from
14 January. I had asked if we could be provided with the
15 MSDS sheets for all the reagents to be used at the
16 processing plant and the hydro-met plant.

17 Now here I am so busted, because I
18 didn't look at it until this -- these meetings. I
19 went through there to see what the reagents were and
20 just tried to get a sense of what we can expect for
21 contributions of sulfate and other things that are
22 going to be elevated, and potential contaminants
23 coming out. There were some very interesting MSDS
24 sheets. Did you know that Off, the mosquito
25 repellent, has an MSDS sheet? Who knew? Now I know.

1 And WD-40. But I did not find any sheets on the
2 reagents.

3 So that is my request, if we can have
4 an undertaking to be provided with the process
5 chemical MSDS that we know are going to be used, and
6 the ones that are -- are probably going to be used?

7 THE FACILITATOR MERCREDI: David, do
8 you have any follow-up to that?

9 MR. DAVID SWISHER: David Swisher,
10 Avalon. I thought they were provided in the
11 appendices of the DAR. If not, we can provide the --
12 the MSDS sheets.

13 MS. ANNE WILSON: Anne Wilson. Thank
14 you for that. The response to the IR said to check
15 the contingency plan, that they were all appended to
16 that. So that was where I went, and it was really
17 just the hydrocarbon products that were listed there
18 predominantly, and the settling agents.

19 MR. DAVID SWISHER: David Swisher,
20 with Avalon. We can provide the MSDS sheets.

21 THE FACILITATOR MERCREDI: Very well.
22 And so we will take as -- just as far as timeline
23 goes, homework or undertaking. Undertaking? So that
24 will be Undertaking number 3, I believe. Simon?

25 MR. SIMON TOOGOOD: So I have that as:

1 "Avalon to provide MSD -- MSDS
2 sheets for reagents."

3 And just to clarify, those would be for
4 which facilities?

5 MS. ANNE WILSON: Anne Wilson,
6 Environment Canada. What I would be looking for is an
7 update to the Table 4.7.2.4 compounds. Those are the
8 ones that were listed. And any other ones that are
9 expected to be used in the processing, whether it be
10 at Thor Lake or Pine Point.

11 MR. SIMON TOOGOOD: Let's see if I
12 captured this:

13 "Avalon to provide MSDS sheets for
14 reagents as listed in Table 4.7.2.4
15 or any other reagents that may be
16 proposed for the Thor Lake or Pine
17 Point sites."

18 MS. ANNE WILSON: Anne Wilson. That
19 should cover it.

20 MR. CHUCK HUBERT: Thank you.

21

22 --- UNDERTAKING NO. 3: Avalon to provide MSDS
23 sheets for reagents as
24 listed in Table 4.7.2.4 or
25 any other reagents that

1 may be proposed for the
2 Thor Lake or Pine Point
3 sites

5 MR. RALPH GRISMALA: Ralph Grismala,
6 ICF Marbek. This is a follow-up issue on the process
7 changes that have been -- that have occurred as a part
8 of your optimization process. A lot of the results
9 from the tracer analysis were based on the five (5)
10 day decant concentrations, which I believe came from
11 an early effluent sample, you know, early on in your,
12 you know, your -- your production process
13 determination.

14 And I -- I would like to ask that, I
15 guess, you know, a) are there changes in the -- in the
16 -- presumably there are changes in the effluent stream
17 and I think we -- it's time for an updated, you know,
18 five (5) day decant concentration, so that we can
19 reconfirm the, you know, the downstream constituents.

20 MR. DAVID SWISHER: David Swisher,
21 Avalon. That was already completed and provided in
22 the IR responses. Thank you.

23 THE FACILITATOR MERCREDI: Okay.

24 Nathan?

25 MR. NATHAN RICHEA: It's Nathan Richea

1 with the Water Resources Division. I wasn't quite
2 following, but I think the request was about an
3 updated five (5) day decant numbers. And I think
4 yesterday I asked if they've changed since the DAR and
5 the answer was no. So I don't think there has been an
6 update to the five (5) day decant numbers, at least
7 that's the answer I got yesterday.

8 MR. DAVID SWISHER: David Swisher with
9 Avalon. That's correct.

10 THE FACILITATOR MERCREDI: Thank you.
11 Moving on to -- Nathan...?

12 MR. NATHAN RICHEA: It's Nathan Richea
13 with the Water Resources Division. So I think there
14 was a request to have updated five (5) day decant
15 numbers, so I was wondering if that's something that
16 can be done?

17 MR. DAVID SWISHER: David Swisher with
18 Avalon. What we've provided in the IRs and what went
19 into the modelling is the updates. Thank you.

20 THE FACILITATOR MERCREDI: Yeah, I --
21 as I understand it, the -- there are no -- is there
22 information that there is new numbers?

23 MR. RALPH GRISMALA: Ralph Grismala,
24 ICF Marbek. I -- I haven't compared the -- the most
25 recent numbers in the IR request to the ones that were

1 in the DAR. I hadn't heard anything to indicate that
2 they had done a new analysis.

3 So, just for clarification, are you
4 saying -- is Avalon saying that the current numbers
5 are the same as the numbers in the DAR and there have
6 been no changes? Or are you saying that there are new
7 numbers and they have been provided in more recent
8 analyses?

9 MR. DAVID SWISHER: David Swisher with
10 Avalon. We've provided the more recent analysis in
11 the IR request, which went into the model, which was
12 the source of our extensive discussions yesterday.
13 That is the latest information. Thank you.

14 THE FACILITATOR MERCREDI: Thank you.
15 Nathan...?

16 MR. NATHAN RICHEA: Hi, it's Nathan
17 Richea with the Water Resources Division Aboriginal
18 Affairs. I was just looking at the homework item. I
19 think it was number 5 or 6, I can't remember which
20 one. It was the tracer item where we talked about
21 zinc and the difference between 1.0 milligrams per
22 litre and then running assessment at .007 milligrams
23 per litre.

24 I'm just trying to do some crunching of
25 numbers over the last little bit here. And I'm

1 looking at the tables and I don't know if we can pull
2 that table back up from the homework, but it looked
3 like the potential for zinc to accrue in the tailings
4 containment facility from zero milligrams per litre
5 over the course of one (1) year was -- it would reach
6 a concentration of 0.147 milligrams per litre.

7 But then when I look at the five (5)
8 day decant that's presented in the -- in the table,
9 which was in the presentation yesterday, the five (5)
10 day decant concentration is proposed at 0.007
11 milligrams per litre.

12 So there's quite a bit difference
13 between what has been assumed to accrue in the
14 tailings facility for zinc, and what the proposed five
15 (5) day decant number is, which may be used to create
16 this table. So I'm just trying to understand.

17 Obviously, there's other inputs that'll
18 go into the tailings facility underground water site
19 runoff, which will have the potential to dilute the
20 concentrations of zinc in the tailings containment
21 facility. But a dilution over a hundred (100) times,
22 I'm not sure they'll receive that in the tailings
23 containment.

24 And that's why the water balance -- the
25 new water balance is kind of important, and whether

1 their new water balance will change what the
2 concentrations in the five (5) day decant that's being
3 proposed is -- is important. So that's why I think
4 this is all important and the requests are important
5 for predictions.

6 MR. DAVID SWISHER: This is David
7 Swisher with Avalon. As we already indicated in
8 Undertaking number 1, that we'll provide a updated
9 water balance. Thank you.

10 MR. NATHAN RICHEA: Thank you. It's
11 Nathan Richea with the Water Resources Division. The
12 water balance is one (1) part of the puzzle. The
13 other part of the puzzle is how metals may accrue in
14 the tailings containment facility and what updates to
15 the tailings five (5) day tailing decant water may be.

16 MR. DAVID SWISHER: David Swisher with
17 Avalon. As indicated, we provided the -- the most
18 recent updated five (5) day decant information. And I
19 would just like the -- the Board to understand, as
20 well as Nathan, that we are still committed to the
21 SSWQOs that we've indicated.

22 MR. NATHAN RICHEA: Thank you. It's
23 Nathan Richea with the Water Resources Division.
24 Yeah, thank you for the commitment and I think that's
25 important to context -- put it into context.

1 I'm concerned about the potential for
2 that -- us not meeting our site-specific water quality
3 objectives downstream, which will be something that we
4 won't be able to confirm until operations. But if we
5 set site-specific water quality objectives now that
6 are non-achievable, we're in a situation where we need
7 to look at adaptive management strategies before we
8 even licence the facility.

9 So I think it's important that we kind
10 of understand this stuff now. I don't want to
11 speculate what will happen in the future. I know that
12 in general the context is that we'll meet CCME as
13 proposed by the company, and that's good.

14 But I'm -- I'm kind of concerned with
15 the numbers that I'm seeing in the tables and -- and
16 the changes to the project, whether or not we'll be
17 able to achieve that in the receiving environment and
18 what situation we may find ourselves in.

19 So I think to -- to help that we would
20 like more information, but also the potential for
21 contingencies. In the DAR there was some discussion
22 that if treatment is needed then they would implement
23 treatment. So that -- that's a good -- that may be
24 something that can be included in a -- in the
25 commitment table. But I just -- we just need some

1 more information before, you know, we get into a
2 technical report stage, because there's a lot of
3 uncertainty at this point.

4 THE FACILITATOR MERCREDI: Okay. Just
5 for the sake of -- of moving the discussion forward, I
6 -- like could you take the Board through what would be
7 wrong with the information as it is right now.

8 So, I mean, there's -- there's been
9 undertakings, there's been a couple of undertakings
10 here for updates for water balance and just -- just to
11 kind of frame exactly what is mi -- what is missing
12 and how that might affect the Board's determination of
13 significance and likelihood.

14 That -- that would help I think to kind
15 of frame any other deliverable that -- that Avalon
16 might provide to -- to assist in -- in -- in your
17 understanding and also the Board's. So is there -- is
18 there something that -- could you further define some
19 -- what is missing in that and how it could relate to
20 the Board's determination?

21 MR. NATHAN RICHEA: Thank you. It's
22 Nathan Richea with the Water Resources Division. I
23 guess the simplest way to explain, I guess, my
24 uncertainty, or the unknown, is in the table that we
25 saw from the homework today, I think the number was

1 0.147 milligrams per litre that -- of tailings for
2 zinc in the tailings facility, but I see a five (5)
3 day decant number in the table that was in the
4 presentation of 0.007 milligrams per litre. That's
5 quite a substantial difference and I don't know how
6 the company might explain the reduction.

7 THE FACILITATOR MERCREDI: It -- just
8 from what I followed earlier, it -- it appeared that -
9 - like Avalon did produce a tab -- table according to
10 the homework. There were some items that needed to --
11 some further along questions.

12 For example, I think it was just the
13 one (1) day and then the -- or sorry, a one (1) year
14 and then there were multiple years after that. So am
15 I -- is this sort of the -- the deliverable that
16 Avalon could provide that would address that -- that
17 issue? For sure, yeah, absolutely. Yeah, you bet.

18 MR. JIM STRONACH: Jim Stronach here.
19 I think the -- the problem is that in the homework we
20 used the example of a scaler, a contaminant, coming in
21 from the end of the pipe, from the plant with a
22 concentration of one (1), and after one (1) year the
23 concentration in the tailings facility built up to
24 point one four (.14) something.

25 Now, if we want to talk about zinc,

1 then it would come in at .007 milligrams per litre and
2 after one (1) year it would build up to point zero
3 zero seven (.007) multiplied by point one four (.14).
4 So we would -- whatever that number is, I think that's
5 point zero zero zero one (.0001) or something like
6 that. So that -- that's what the story would be for
7 zinc.

8 Point zero zero seven (.007) comes in,
9 after a year, because the tailings facility has a
10 fairly large volume and would start out with zero we'd
11 say, the concentration built up to essentially one
12 seventh (1/7), so .001 milligrams per litre.

13 In subsequent years it continues to
14 build up, but not at the initial rate. So if you
15 plotted versus time the rate goes up -- or the
16 concentration goes up initially with a fairly steep
17 slope but then flattens out, because as the
18 concentration builds up every -- all the water leaving
19 takes zinc out of the system as well.

20 So the confusion is again this one (1)
21 versus point zero zero seven (.007). So in the -- in
22 the homework we did for something coming out of the
23 concentration of one (1) we would say on that simple
24 model for the zinc the concentration would be point
25 zero one (.01).

1 Now, that's the tailings pond. Drizzle
2 isn't too far off. And after -- after twenty (20)
3 years, in terms of micrograms, so we have seven (7),
4 it builds up to two point three (2.3).

5 So there's -- once we get able to think
6 along two (2) pathways, things that start at one (1)
7 and things that start at point zero zero seven (.007),
8 then it all makes sense, I think.

9 MR. NATHAN RICHEA: Thank you. It's
10 Nathan Richea, with the Water Resources Division.
11 Yeah, I'll have to think about it a little bit more.
12 And like the table was just presented today. And I'm
13 assuming, you know, trying to make the conversions
14 between milligrams and micrograms and trying to
15 understand. So, yeah, I think that's fine for now.
16 And I'll think about it some more. If I have more
17 questions I'll let you know. Yeah.

18 THE FACILITATOR MERCREDI: Very well.
19 And, yeah, sidebar meetings always -- always help.
20 I'll endeavour to post what -- what David has sent me
21 this morning. I'll -- I'll get that posted by 1:00,
22 hope -- as -- as soon as we can. And then, hopefully
23 within the week that -- that might be able to answer
24 some of the questions, so.

25 But it sounds like there's an issue

1 there that might take -- need some time to -- to gi --
2 digest just -- and for numbers to be crunched and all
3 that. So for now, is it safe to say we'll -- we can
4 move on from that and just allow that to digest and
5 then move on with the discussion? I'm not seeing --
6 Ralph, yeah.

7 MR. RALPH GRISMALA: Ralph Grismala,
8 ICF Marbek. And at the danger of beating a dead
9 horse, I just want to revisit the five (5) day decant
10 concentration issue because I -- I compared the
11 numbers that were presented in the DAR to the numbers
12 that were presented in the table yesterday.

13 And except for the conversion from, you
14 know, milligrams per litre to micrograms per litre,
15 all the numbers are identical, implying that there's
16 been no change in the effluent, and, therefore, no
17 change in the five (5) day decant concentrations,
18 which makes me suspect that all of these come from the
19 same original test that was reported in the DAR.

20 It seems to me that with the changes in
21 the process, the additional recycling, the change in
22 the water flows, that the effluent stream coming out
23 of the flotation plant has most likely changed in some
24 way. I don't know the magnitude of that. And since
25 there seems to be no new data, I don't know that

1 anybody does either.

2 And so I just want to again clarify
3 whether the -- the -- you know, the effluent is the
4 same as reported in the DAR, the five (5) day decants
5 are the same. And, if so, how can that be? And, if
6 not, can we get new numbers?

7 THE FACILITATOR MERCREDI: And we'll
8 give Avalon a moment to caucus.

9

10 (BRIEF PAUSE)

11

12 MR. DAVID SWISHER: David Swisher,
13 with Avalon. Yeah, I'm glad we caucused because it
14 helped clarify for me as well. So basically, the
15 numbers in the DAR that we used for the modelling that
16 you saw in the DAR, and now -- of course now you see
17 numbers that are next to that, those are and still
18 remain to be the worst-case scenarios.

19 What we provided in the May 10th IR
20 were substantially better based on the optimizations
21 that we were doing. So we chose to stay with the
22 numbers in the DAR as the worst-case scenario.

23 MR. RALPH GRISMALA: Ralph Grismala,
24 ICF Marbek. Okay, so are you saying that there are
25 different five (5) decant numbers in the May 10th IR

1 that are not has -- that are, you know, not as bad,
2 you know, mo -- less -- as the numbers that are
3 presented here in this updated table, but there are
4 new numbers in the -- in the May 10th deliverable?

5 MR. DAVID SWISHER: Yeah. What I'm
6 saying is that what we had provided in the May 10th IR
7 was substantially better. And so we determined to
8 stay with the numbers that we had presented prior,
9 which represented a worst-case scenario, so that when
10 it came to the discussions around the SSWQOs then we
11 had -- we had kind of that -- still had that worst-
12 case scenario, understanding we're still optimizing to
13 improve upon that.

14 Similarly to what I mentioned yesterday
15 in our discussions, that we're looking at optimizing
16 and reducing the amount of reagents substantially as
17 well, but those are all optimizing processes. So
18 we're sticking with what we know and we know is the
19 worst case and we know is a -- a good case for
20 conservatism in the process.

21 MR. RALPH GRISMALA: Ralph Grismala,
22 ICF Marbek. So, if I understand you, you know that
23 the current optimized decant concentrations will be
24 better than what has been presented. But my
25 understanding is you have not presented any other

1 numbers.

2 Is that accurate?

3 MR. DAVID SWISHER: That's correct.

4 The test work -- the optimization test work we've done
5 to -- to date indicates they're going to be
6 substantially better. But we're hesitant to submit
7 that information as we would -- we feel -- we feel
8 more comfortable with sticking with the worst-case
9 scenario and continuing our design efforts based on
10 that.

11 MR. RALPH GRISMALA: Ralph Grismala,
12 ICF Marbek. Thank you.

13 THE FACILITATOR MERCREDI: Any follow-
14 up to that discussion?

15 MR. NATHAN RICHEA: It's Nathan Richea
16 with the Water Resources Division. I'm going to
17 switch gears a little bit and talk about site-specific
18 water quality objectives, and I have a couple of quick
19 questions that will be easy to answer.

20 The first one is, when you have
21 background in the table there, I think the first one
22 (1) that comes up is cadmium. What do you mean when
23 you -- when you say "background"? Are you talking
24 mean plus two (2) standard deviations? Or are you
25 going to use, like, a ninety-fifth percentile or

1 ninetieth percentile when you propose an objective of
2 background? Can you just explain what you're feeling?

3 MR. RICHARD HOOS: Since -- Rick Hoos
4 here, Avalon. Since we're still at really early days,
5 the ERB process to be followed by Mackenzie Valley
6 Land and Water Board process, the numbers we're
7 talking about are not qualified to standards of
8 deviation of accuracy.

9 What we're simply pointing out is that
10 natural background variability in the water of, let's
11 say, Drizzle Lake is such that at certain times of the
12 year the natural background water quality for a
13 particular parameter may be higher than the current
14 CCME guideline values. And we just pointed out that
15 background conditions should be taken into account in
16 establishing a site-specific water quality objective
17 for a particular parameter.

18 It would not be appropriate for us to -
19 - to suggest a number that is different from CCME, and
20 yet we wouldn't want to be in a situation where
21 somebody thought we weren't conforming, and not
22 because of the effluent, but because of natural
23 background conditions.

24 MR. NATHAN RICHEA: Thank you. It's
25 Nathan Richea with the Water Resources Division. No,

1 I understand that and I was just wondering if you had
2 a methodology for doing the background, whether it
3 would be a mean plus two (2) standard deviation, or
4 whether you prefer to do a ninetieth percentile?
5 There's two (2), sort of, methods of doing background,
6 so I was just curious to see if you had a preference
7 for one (1) or the other.

8 MR. DAVID SWISHER: David Swisher,
9 Avalon. We -- we have no preference at this time, and
10 I think that was something that, you know, we
11 certainly would want to discuss when we go to the next
12 stage of the -- the process.

13 MR. NATHAN RICHEA: Thank you. It's
14 Nathan Richea with the Water Resources Division.
15 Yeah, and we'd like to continue discussions with you
16 as well. The next question I had was regards to the
17 modelled maximum twenty (20) year value in the table.

18 Is that a maximum number or is that an
19 average number in the Drizzle Lake? Can you just let
20 me know if it's a maximum or average?

21 MR. DAVID SWISHER: You would have to
22 answer that question -- or ask that question right
23 now. I -- I believe it's a maximum, but we'll -- can
24 you confirm that?

25 MR. RICHARD HOOS: Rick Hoos, Avalon.

1 I think it is just a maximum. We weren't working with
2 averages.

3 MR. NATHAN RICHEA: All right. Thank
4 you. It's Nathan Richea with the Water Resources
5 Division. Now I want to get back into a bit of some
6 of the discussion we've had so far today.

7 And I just had a question about -- can
8 you explain why, for site-specific water quality
9 objectives that have a proposed range of CCME values -
10 - I think the first one (1) on the table is lead --
11 why the minimum value is not being proposed as your
12 objective to clearly -- in the case of a worst case
13 effluent that is being proposed, and the chances are
14 of the effluent being in a better quality than is
15 being presented as a five (5) day decant.

16 MR. RICHARD HOOS: Yeah, Rick Hoos,
17 Avalon. I don't have the -- all the information here
18 on why, for instance, for lead we selected four (4),
19 but I'm pretty sure it was based on the considerations
20 for lead, taking into account water hardness and other
21 factors that influence the toxicity of lead, which can
22 range from one (1) to seven (7) at -- in -- under the
23 CCME guideline, based on the condition of the -- other
24 conditions in the -- in the water. And I think the
25 four (4) represents the -- the appropriate number for

1 the water condition that is represented in Drizzle
2 Lake.

3

4 (BRIEF PAUSE)

5

6 THE FACILITATOR MERCREDI: Nathan, do
7 you have any follow-up to that?

8

MR. NATHAN RICHEA: Oh, sorry, I
9 thought -- I thought they might have got back to me on
10 that prev -- previous question, but I think it -- the
11 answer that was previously provided was correct.

12 UNIDENTIFIED SPEAKER: Yes, that's
13 correct. It's the maximum in the twentieth year.

14 MR. NATHAN RICHEA: All right. Thank
15 you. It's Nathan Richea with the Water Resources
16 Division. I'm just looking at the five (5) day decant
17 for lead and what's presented is 0.6 micrograms per
18 litre. And we had some discussions today this is the
19 worst-case scenario. Chances are the effluent is
20 going to be better than that.

21 And then when I look at the CCME
22 guideline I see a range of one (1) to seven (7), a
23 precautionary principle approach, if you use that,
24 would mean that you could actually meet the CCME
25 guideline of 1 microgram per litre and it would still

1 provide the company with some flexibility.

2 However, if over the course of
3 operations you started to approach 1 microgram per
4 litre in the receiving environment then we could look
5 at the toxicity modification factors such as hardness,
6 ph temperature, and determine whether an increase to
7 the site-specific water quality objective would be
8 warranted at that time as part of the adaptive
9 management approach, and we could adjust it at that
10 time.

11 But the idea of having -- minimizing
12 the amount of effluent that could be used -- or could
13 be discharged, or minimizing the amount of change in
14 the receiving environment that could be -- could
15 happen in the project is a concept of, you know,
16 similar to the Land and Water Board's water and
17 effluent policy.

18 So if it can be reasonably and
19 practically achieved then I don't understand why a
20 lower number isn't proposed as the objective.

21 MR. DAVID SWISHER: David Swisher with
22 Avalon. Okay. I won't say what I was thinking. No,
23 I'm just joking. With regards to CCME it almost
24 sounds like you're indicating that the -- the
25 guidelines that are put forth are not protective. I -

1 - I'm just trying to make sure I understand what --
2 what you're insinuating there if you could clarify.

3 MR. NATHAN RICHEA: Thank you. It's
4 Nathan Richea with the Water Resources Division. I
5 guess to provide some context it gets -- it can go on
6 for quite some time, but in the north we've been del -
7 - developing a number of different policies and
8 strategies over the last two (2) to five (5) years.

9 One (1) being the water strategy for
10 the Northwest Territories as well as other documents
11 such as the Land and Water Board's water and effluent
12 quality policy. Those policy and strategy documents
13 talk about minimizing red -- degradation of the
14 receiving environment if reasonably and practically
15 achievable.

16 Aspects of -- principles in those guide
17 -- in those documents talk about using best available
18 treatment technology, source control, preventing
19 effluent from leaving the site if you can, all kinds
20 of mechanisms.

21 So I guess the context to why if
22 something is reasonably and practically achievable,
23 why you wouldn't set an objective at a target that's
24 higher than what's needed is the concern I have.

25 And -- and the reason why I'm bringing

1 up the concern is if you set objectives that are
2 further in -- further down from where you're actually
3 going to have it in your discharge -- what you're
4 actually going to have in your discharge, you can use
5 those -- people can perceive those as being plew
6 (phonetic) up to limits in the event that if things
7 don't go according to plan during operations. Nothing
8 is being done until you exceed the objective in your
9 receiving environment. Whereas if you set something
10 where it still gives you the flexibility to -- to
11 maintain a number, it's agreed to that it's -- it's
12 protective and appropriate to minimize pollution, the
13 adaptive management principles can be applied earlier
14 in the process to minimize degradation of the
15 receiving environment.

16 So that's the context to my question.
17 And if this is a worst-case scenario, chances are the
18 five (5) day decant is going to be better than what's
19 presented in the table, and they can meet both in the
20 effluent and in the receiving environment, that
21 number. So I was just curious as to -- there is
22 hesitation.

23 MR. DAVID SWISHER: Davis Swisher,
24 with Avalon. Yeah, I just want to be clear that, you
25 know, Avalon's intention is not and nor will it be

1 during operations to look at these guidelines or look
2 at these SSWQOs as a "pollute up to." I just want
3 that to be very clear for the record. That's not part
4 of our sustainability and our practice and -- and what
5 we're developing.

6 I do appreciate the -- the background
7 there, Nathan. I think -- I think I understood you in
8 -- in that to indicate that CCME guidelines are
9 protective, and -- and I agree with you in that
10 regard. I think maybe to -- the best way to answer
11 this is that, you know, Avalon proposed these SSWQOs
12 as proposed.

13 And when we get to the next stage of
14 the regulatory process certainly there's going to be,
15 I would assume, more discussion. But I think what
16 helps that next stage is the fact that the Review
17 Board has asked us to provide these proposed SSWQOs to
18 determine if there's any significant or concerning
19 impacts on what we're proposing and -- and what we
20 believe we can meet.

21 And so, you know, we look forward to
22 further discussions at the next stage of the
23 regulatory process based on what we've proposed.

24 THE FACILITATOR MERCREDI: And as I
25 said yesterday, insofar as the Review Board is

1 concerned, again that's a -- it's a starting point.
2 The Review Board has no control over what -- over what
3 the company proposes. It is a starting point for
4 discussion. And -- and where the Review Board is
5 concerned, what does matter is -- is how this relates
6 to their determination of significance and likelihood
7 for a significant adverse impact on the environment.

8 So that -- you know, that -- any
9 information that's presented to the Review Board does
10 need to be considered or -- that is kind of the -- the
11 context within -- within which the Review Board needs
12 to -- to consider it, so. Anne...?

13 MS. ANNE WILSON: Anne Wilson. I just
14 have a couple of points of clarification while we're
15 talking about site-specific water quality objectives.
16 In yesterday's presentation on slide 50 it was stated
17 that the water quality objectives were determined by
18 using the Environment Canada methodology of taking the
19 most effect level identified and dividing it by ten
20 (10).

21 That is not an Environment Canada
22 methodology. That would be through the CCME. And it
23 was the older method of taking a safety factor and
24 applying it to the lowest observed toxicological level
25 eliciting an effect. So I was reminded to -- I should

1 have flagged that yesterday, that that isn't really an
2 EC thing. So just a point for the record.

3 The other point I should clarify is
4 with respect to the hundred milligram per litre
5 sulfate guideline that is on the table. I believe
6 that is a BC guideline. CCME does not have a sulfate
7 guideline at this time, so just to clarify that, okay.

8 THE FACILITATOR MERCREDI: Anne,
9 consider it on the record.

10 MR. DAVID SWISHER: David Swisher,
11 with Avalon. Thank you for the clarifications. And
12 we agree.

13 THE FACILITATOR MERCREDI: Thank you.
14 We'll take maybe two (2) more questions before we
15 break, take a health break. Yes...?

16 MS. SARAH-LACEY MCMILLAN: It's Sarah-
17 Lacey, with Environment Canada. I was going back to
18 yesterday's discussion about groundwater. And I just
19 would like to know, do we have a depth that we're
20 going to for the mine?

21 MR. DAVID SWISHER: Yes. So the --
22 the main basal zone that we call for the -- the heavy
23 rare earths that we are mining is between a zone of
24 175 to 225 metres in depth below the surface.

25 THE FACILITATOR MERCREDI: Sarah, do

1 you have a follow-up question or comment? Okay, I'll
2 throw my question in as the second.

3 On the agenda we have the next item as
4 being the hydrometallurgical plant. I'm going to put
5 it out there. Is making that transition a fair one or
6 is there still maybe some more questions? Okay, it
7 looks like there's some more questions for Nechalacho
8 site, and that's fine (MISSING AUDIO).

9

10 --- Upon recessing

11 --- Upon resuming

12

13 THE FACILITATOR MERCREDI: Okay, so we
14 are back from break. And I believe Marc had some
15 questions that he'd -- and comments that he'd like to
16 clarify.

17 MR. MARC CASAS: Yeah, thanks. It's
18 Marc Casas from the Mackenzie Valley Land and Water
19 Board. I did take your advice and -- and had a
20 sidebar conversation, so I think just to get it on the
21 record, I'd just maybe like to summarize it.

22 And -- and then when I'm done doing
23 that maybe if Avalon wants to add anything further to
24 what I said or correct anything that I may have said
25 wrong, which is entirely possible, they can do that

1 then.

2 So my initial question sort of stems
3 from some -- some conversation that happened at the
4 end of yesterday, responding to Anne Wilson's
5 question, that Avalon seemed to indicate that they
6 have not sampled mine water, the water quality, at all
7 mining depths.

8 And so, to that, in speaking with Rick
9 Hoos, he said that that is correct, that the deepest
10 bore holes for water quality were a hundred metres and
11 they sampled the ground -- they were for groundwater
12 samples and rock porosity.

13 And so then, I -- I asked that, how can
14 you be certain -- if the mine depth goes to 225 metres
15 below the surface, how can you be certain that connate
16 water, or that your groundwater numbers are correct.

17 And so, to that end, he responded that
18 -- that a lot of the -- this connate water that --
19 that a lot of regulators, including myself, are
20 concerned about is -- is a result of the unique
21 geology of the diamond mines in the kimberlite pipes
22 and that it's a more porous type of rock.

23 And so that's where they have run into
24 issues with it, that it's come up from below the
25 permafrost and -- and into the underground workings.

1 And it's -- it's caused a lot of issues with total
2 dissolved solids and associated ions such as chloride.

3 And -- and so he -- he confirmed that
4 that's why they were not concerned about the connate
5 water, was because this particular development has a -
6 - has a basal fault, or basal something -- ore body, I
7 guess, and that there's sort of solid competent rock
8 below that and above that. And that is why they are
9 confident that -- that connate water will not be
10 encountered during the mine life.

11 So that was -- that was, sort of, my
12 understanding of -- of their response. So maybe I
13 could -- I could pass it over to them to either
14 elaborate or -- well, to elaborate.

15 THE FACILITATOR MERCREDI: Thank you.
16 And Avalon...?

17 MR. RICHARD HOOS: Rick Hoos, here.
18 We did have that discussion over coffee and that was a
19 pretty good summary, a reasonable summary of what we
20 did discuss. So the bottom line is, it's an entirely
21 different kind of geology at Thor Lake, as compared to
22 the diamond mines.

23 And in particular, the kimberlite pipes
24 which are essentially, you know, historic lava flows
25 from -- from below the earth's crust to the surface

1 through the basalt in that area. And it -- those kind
2 of conditions do not exist at...

3 THE FACILITATOR MERCREDI: Thank you.

4 And that's -- that's great to see that sidebar
5 discussion has some -- some value to -- to this
6 process. So hopefully -- hopefully, a lot of other
7 issues can be sol -- resolved by that. Anne, did you
8 have a follow-up to that?

9 MS. ANNE WILSON: It's Anne Wilson.
10 I'm still concerned about this issue, because I know
11 in the Con Mine locally here, there are significant
12 pockets of connate water with very high salinity that
13 have had to be -- and how do we know in this case that
14 none of these exist below, or at the level of the ore?

15 MR. DAVID SWISHER: David Swisher with
16 Avalon. And I -- I think Don Bubar would like to
17 comment on that, being a geologist and understanding
18 the geologic structure, which is what I was going to
19 start commenting on. But since I'm not a geologist,
20 I'll let Mr. Bubar proceed. Thanks.

21 MR. DONALD BUBAR: Thanks. Don Bubar,
22 and yes, I am a geologist. One (1) of the reasons we
23 know that is, the drillers who drill those holes can
24 report when the holes encounter water. We've had no
25 reports that they've encountered any water in those

1 holes that have reached those depths.

2 MR. DAVID SWISHER: David Swisher,
3 with Avalon. Just to also confirm and add on to Mr.
4 Bubar's comments, those -- we typically drill all of
5 our holes within the zone of the basal zone and then
6 deeper below that.

7 So we go well below the two hundred and
8 twenty-five (225), two hundred and fifty (250), and
9 sometimes 300 metres. And we've even gone as deep as
10 1,000 metres on several holes and have never
11 encountered water within the drilling. So I'm -- I
12 appreciate the reminder there from the drill program
13 that we've done. Thank you.

14 MR. DONALD BUBAR: Don Bubar. An
15 addendum to that, further, we do RQD evaluation of the
16 drill core in every hole to look at fracture patterns.
17 And by and large, the rocks there are unfractured and
18 virtually impermeable to any water flow, from what
19 we've seen in the drill core.

20 THE FACILITATOR MERCREDI: And,
21 actually, Mr. Bubar, could you -- you mentioned an
22 acronym there. Can you please state that for the
23 record?

24 MR. DONALD BUBAR: Yes, Don Bubar.
25 RQD is "rock quality designation". It's a standard

1 way of measuring the amount of fracturing in there for
2 permeability in a rock mass.

3 THE FACILITATOR MERCREDI: Thank you.
4 And I -- I spoke too soon. Maybe not resolved, but
5 moved the discussion forward, so -- and hopefully
6 it'll move more forward. Anne?

7 MS. ANNE WILSON: Thanks. Anne
8 Wilson, Environment Canada. No, substantially
9 resolved. I had just heard that the drilling was to
10 100 metres. And since it was deeper -- you had said
11 to 1,000 metres -- that certainly helps address the
12 concern.

13 MR. DAVID SWISHER: And --

14 THE FACILITATOR MERCREDI: Spoke too
15 soon, again, so I'll just say less. Go ahead, David.

16 MR. DAVID SWISHER: David Swisher,
17 with Avalon. Thanks, Paul. Sorry to interrupt. Yes,
18 just to clarify, Anne, the -- the 100 metres that was
19 discussed in the sidebar was meant with regards to the
20 hydrogeologic sampling we were doing.

21 So we went down to the distance of 100
22 metres. I think Stantec drilled those holes. We also
23 had geomechanical work done by Knight Piesold. That's
24 where that sampling was, just to ensure that we
25 weren't encountering any water deeper than that,

1 knowing the background that we have from the
2 exploration program at much deeper depths.

3 THE FACILITATOR MERCREDI: Anne, do
4 you have any followup on that?

5 MS. ANNE WILSON: Anne Wilson. No,
6 thank you.

7 THE FACILITATOR MERCREDI: Thank you.
8 And if -- if my mic walked on yours, Anne said "no".
9 Marc, did you have any followup on that?

10 MR. MARC CASAS: No, just maybe to
11 confirm that -- that in the drill cores, that you did
12 not find any water, or evidence of water, and that's
13 correct? Is that right?

14 MR. DAVID SWISHER: David Swisher,
15 Avalon. Yes, that's correct. David Swisher, with
16 Avalon. That would also support the -- yesterday's
17 assertions regarding the -- the actual experiences in
18 development and underground in that area, where they
19 did not encounter any water. So it just supports the
20 discussions we had yesterday, as well.

21 MR. MARC CASAS: Marc Casas, Mackenzie
22 Valley Land and Water Board. No, that's good. Thank
23 you.

24 THE FACILITATOR MERCREDI: Nathan?

25 MR. NATHAN RICHEA: Back to me. It's

1 Nathan Richea, with the Water Resources Division. I
2 had a couple more questions about site-specific water
3 quality objectives, and particularly the table on rare
4 earth elements.

5 I was wondering if the numbers or the
6 values presented here are dissolved or total values?
7 Can you just confirm?

8 MR. RICHARD HOOS: That's an
9 interesting question, because the -- the EPA testing
10 had to use solutions whereby -- sorry, it's Rick Hoos.
11 I don't think I said that. I don't know why I have
12 that lapse.

13 The EPA testing had to use rare earth
14 elements in the form of a salt in order to get enough
15 dissolution into water to allow the REE to express
16 itself as a potentially toxic agent.

17 So I -- I guess it almost seems like
18 the EPA numbers must have been based almost -- you --
19 I would assume, perhaps, on undissolved components,
20 because it's virtually impossible to get the total
21 form of these REEs, which is this general form that
22 they are in, to become dissolved or become in
23 solution, other than as a particulate.

24 So the numbers are probably based on
25 dissolved. We have treated them as totals, but we'll

1 never, ever be able to get a dissolved value to -- to
2 reach -- to -- to those kind of numbers.

3 UNIDENTIFIED SPEAKER: Is that it?

4 MR. RICHARD HOOS: Yeah.

5 MR. NATHAN RICHA: Thank you. It's
6 Nathan Richea, with the Water Resources Division.

7 Yeah, so the second question I had was regarding I
8 guess the modelled value in Drizzle Lake for lanthanum
9 and neodymium.

10 UNIDENTIFIED SPEAKER: Neodymium.

11 MR. NATHAN RICHA: Yeah, that one.

12 The day five (5) decant for both parameters is around
13 60 to 68 micrograms per litre. The mean background in
14 Drizzle Lake is less than 0.05 micrograms per litre.
15 But when you get the modelled value, we see a model
16 difference. For lanthanum it's one point six (1.6),
17 and for the neody it's fourteen point one (14.1).

18 I was just curious if you can explain
19 the difference there?

20 MR. JIM STRONACH: Jim Stronach here.

21 Yeah, I'm quite sure that's an error in transcription.
22 When you look also then across at Thor Lake, the --
23 the concentrations are then back to very similar
24 values. So I think the -- without doing the checking
25 carefully, I would say the lanthanum number should be

1 probably sixteen (16).

2 MR. NATHAN RICHEA: All right. Thank
3 you. It's Nathan Richea, with the Water Resources
4 Division. Could I get that confirmed, that other --
5 lanthanum should be modelled at a higher number or
6 neodymium -- dymium should be modelled at a lower
7 number respectively, and maybe have an updated table?

8 MR. DAVID SWISHER: It's David
9 Swisher, Avalon. We're -- we're just talking about
10 transcription, not a modelling error.

11 MR. NATHAN RICHEA: Thank you. It's
12 Nathan Richea, with the Water Resources Division. Can
13 I get an updated transcription for the table, just for
14 the record, to have a hard copy of -- of something
15 that does reflect what it is instead of having it
16 stand? That is actually a fairly important item to
17 clar -- have clarified for the Board.

18 MR. DAVID SWISHER: David Swisher,
19 Avalon. I can change the decimal point over from one
20 point six (1.6) to sixteen (16) and send it right off
21 to you.

22 THE FACILITATOR HUBERT: Chuck Hubert,
23 with the Review Board. If Avalon can perhaps check
24 all of the numbers and provide us with a final table
25 that they are comfortable with, that would be helpful.

1 Thanks.

2 MR. DAVID SWISHER: David Swisher,
3 Avalon. I'm assuming you mean to make sure there's no
4 further transcription errors.

5 FACILITATOR HUBERT: Chuck Hubert,
6 Review Board. That's correct.

7 MR. DAVID SWISHER: We'll provide that
8 at lunch. Thank you.

9 MR. NATHAN RICHEA: Thank you. It's
10 Nathan Richea, with the Water Resources Division.
11 Could I also get confirmation that it's the lanthanum
12 number that's got the transcription error or whether
13 it's the neodymium number that's got the transcription
14 error?

15 MR. DAVID SWISHER: David Swisher,
16 with Avalon. From the nodding heads on this side of
17 the table, it is only the lanthanum that has the
18 transcription error and not the neodymium.

19 MR. NATHAN RICHEA: Thank you. It's
20 Nathan Richea, for -- with the Water Resources
21 Division. All right, I'll take that answer as proven.
22 Regarding the zinc concentration in the previous
23 table, I know I'm going to go back to the five (5) day
24 decant, but this is my last question on it.

25 In the May 10th response to the

1 Mackenzie Valley Impact Review Board, toxicity testing
2 was conducted on a simulated effluent. It's response
3 to MVRB IR clarification request number 1. It states
4 in the response to the MVR -- MVEIRB:

5 "Using pi -- pilot plant water,
6 Avalon simulated the holding period
7 for the effluent in the tailings
8 management area consistent with the
9 time frame identified in the DAR.
10 It was then subject to the effluent
11 -- it then subjected the effluent to
12 standard filtration plant treatment
13 technol -- technologies or
14 methodologies to remove these
15 reagents to the extent practical by
16 proven technologies. These
17 technologies are being incorporated
18 into the project design as per
19 commitments made by Avalon in the
20 DAR."

21 However, if you look in the table, it's
22 Table 1 of that May 10th response, and you go to the
23 zinc concentrations in the treated process water, it's
24 tabled PP22 (phonetic). The measured total
25 concentrations of zinc are 0.028 milligrams per litre,

1 or 28 micrograms per litre, and the dissolved
2 concentration for zinc is 0.023 milligrams per litre,
3 or 23 micrograms per litre.

4 When you get to the table that was
5 presented in the presentation earlier today and
6 yesterday, the proposed five (5) day decant
7 concentration for zinc is 7 micrograms per litre, and
8 that was presented as the worst case. So it seems
9 like the worst case might actually be 28 micrograms
10 per litre.

11 So yeah, I was just hoping that we
12 could sort of get an update to the five (5) day -- day
13 decant concentrations, similar to the discussions we
14 had previous today.

15 MR. MARK WISEMAN: Mark Wiseman,
16 Avalon. In fairness to David, I gave him the
17 misinformation that they were all lower. And he's
18 quite right, we have discovered that zinc, it was
19 higher in the subsequent work than it was in the
20 original.

21 However, I would point out that the
22 twenty-eight (28) is still below the CCME guideline.
23 And just doing some quick back-of-the-envelope
24 modelling, the Drizzle Lake number would be, instead
25 of three (3), it'll be about 9 microns, and the Thor

1 Lake, instead of being two point one-four (2.14),
2 would be somewhere between four (4) and five (5)
3 microns; again, well below the CCME guidelines. And
4 we can confirm that in writing later if you wish.

5 THE FACILITATOR MERCREDI: Did you
6 have follow-up to that, David? No. Nathan?

7 MR. NATHAN RICHEA: It's Nathan
8 Richea, with the Water Resources Division. Yes, I
9 would like that con -- confirmed and maybe potent --
10 potentially an updated table if that's possible.
11 Thanks.

12 THE FACILITATOR MERCREDI: Okay. Just
13 for -- it sounds like a homework item or an
14 undertaking, depending on the timeline that David can
15 comment on.

16 MR. DAVID SWISHER: David Swisher,
17 with Avalon. Yeah, we can provide the -- the updated
18 table at lunchtime with regards to making sure the
19 transcription errors are -- are correct.

20 With regards to the zinc, you're
21 correct in -- in that -- that for that particular
22 quantity, it didn't have the -- the worst case. So I
23 can update this table to reflect that for lunchtime.

24 THE FACILITATOR MERCREDI: And just to
25 clarify, this is a -- a hard copy, a -- a printed copy

1 for after -- after lunch, or it will be emailed after
2 lunch?

3 MR. DAVID SWISHER: David Swisher,
4 Avalon. I'll email it to you, Paul.

5 THE FACILITATOR MERCREDI: Okay. And
6 so it'll be available -- I'll -- sorry? We'll make
7 copies of that and -- but that -- that is what will go
8 on the registry as well, so. And again, if that is
9 not possible to produce then, we'll have it as an
10 homework, an -- an undertaking, but we'll expect that
11 by lunch.

12 Ralph, go ahead.

13 MR. RALPH GRISMALA: Ralph Grismala,
14 ICF Marbek. For clarity, in that table for each
15 parameter can we please indicate the source of the
16 five (5) day decant concentration. My understanding,
17 from what you sat at the table would be nice.

18 MR. DAVID SWISHER: David Swisher,
19 Avalon. You've read my mind, Ralph. I was going to
20 put a notation on the table to indicate that the --
21 the zinc comes from a -- a different source scenario.

22 MR. RALPH GRISMALA: Thank you. And
23 if you could also cite in the table the source for the
24 other ones, because it does go back...

25 MR. DAVID SWISHER: Yes, we can do

1 that.

2 THE FACILITATOR MERCREDI: And so that
3 will be -- that will be on the public registry as well
4 and fodder for discussion, I'm sure, at some point
5 this week. Do you have a followup, David, to any of
6 that?

7 Sorry, it sounded like Marc had an
8 additional comment. No? Fair enough. Okay. And
9 moving on -- or, Ralph, go ahead.

10 MR. RALPH GRISMALA: A slightly new
11 topic. In the -- in the May 10th submittals by
12 Avalon, there's a table 1 in attachment 3, which
13 compares the twenty (20) year concentrations to the
14 toxicity data, but I believe those numbers are the
15 erroneous modelled numbers.

16 So that -- that may need updating.

17 MR. RICHARD HOOS: Rick Hoos here.
18 Did you say that was attachment 3?

19 MR. RALPH GRISMALA: Ralph Grismala,
20 ICF Marbek. Yes, it's table 1 in attachment 3.

21 MR. RICHARD HOOS: Rick Hoos here.
22 Sorry, what was the actual question you were asking
23 about that table?

24 MR. RALPH GRISMALA: Ralph Grismala,
25 ICF Marbek. It appears to me that the column

1 labelled, "Max predicted concentration years 1 to 20,"
2 are the lower erroneous numbers based on the error
3 between the zinc concentration and the tracer
4 concentration, and, therefore, the comparison to the
5 LC-50 is not usable.

6 MR. RICHARD HOOS: Rick Hoos here.
7 Yes, I -- I understand now. And -- and, in fact, the
8 -- what should be in those number -- in that column
9 now are the ones that we had on the slide related to
10 REs here, yeah.

11 MR. RALPH GRISMALA: Ralph Grismala,
12 ICF Marbek. So perhaps for a homework item, an update
13 of that table would be useful.

14 THE FACILITATOR MERCREDI: Depending
15 on the timing of it, it can be either homework or an
16 undertaking. David, do you have a comment on the
17 timing? David, for the record, said homework. So
18 we'll go to Simon for wording. And, Ralph, could you
19 please reiterate the question?

20 MR. RALPH GRISMALA: We request that
21 Avalon please update Table 1 in Attachment 3 of the
22 May 10th submit -- submittal.

23 THE FACILITATOR MERCREDI: And to
24 reflect?

25 MR. RALPH GRISMALA: To reflect to the

1 corrected max predicted concentration, years 1 through
2 20, for a comparison to the LC-50 concentrations. How
3 far did you get?

4 The -- to reflect the maximum predicted
5 concentration in years one through 20 to the LC-50
6 concentration.

7 THE FACILITATOR MERCREDI: Simon, if
8 you could read that as a complete homework item.

9 MR. SIMON TOOGOOD: Simon Toogood,
10 with the Review Board. I have this as Avalon to
11 update Table 1 in the -- in Attachment 3 of the May
12 10th submission to reflect the max predicted
13 concentration through -- of years 1 through 20 to the
14 LC-50 concentration.

15 MR. RALPH GRISMALA: Ralph Grismala,
16 ICF Marbek. Yes, that's correct. Thank you.

17 THE FACILITATOR: Thank you. And
18 again, that will remain as homework unless Avalon
19 requests more time, in which case it would be an
20 undertaking. David, followup?

21 MR. DAVID SWISHER: Dave Swisher,
22 Avalon. Thank you for the homework.

23 THE FACILITATOR MERCREDI: Okay. And
24 moving along. Ralph?

25 MR. RALPH GRISMALA: On a -- on a

1 similar vein, the original Table 6.4-2 in the DAR had
2 the simulated results for years 1 through 20 for the
3 tracer concentration modelling. I don't know that
4 that table has been updated based on the recent
5 corrections to show all the intervening years. I
6 believe we have the year 20 data.

7 MR. DAVID SWISHER: Dave Swisher, with
8 Avalon. I -- I think we've already -- what we are
9 providing this afternoon was going to be an update to
10 the recent informa -- the concentrations indicated
11 here. Isn't that -- isn't that correct, what you're
12 looking for?

13 MR. RALPH GRISMALA: Ralph Grismala,
14 ICF Marbek. For the record, Mr. Swisher was pointing
15 to the table of metal concentrations in the
16 presentation that includes the year 20 maximums.

17 I was referring to the table that shows
18 each of the years, from one (1) through twenty (20),
19 that appeared in the DAR so that we could see the
20 buildup in the -- in Drizzle Lake and the -- the other
21 lakes over the life of the project, which would be
22 advantageous for modelling to see -- or, for
23 monitoring to see if the expected concentrations are
24 on track with the predictions.

25 MR. DAVID SWISHER: David Swisher,

1 with Avalon. I'm -- I'm not certain of the validity
2 of updating that table in the DAR, knowing that we're
3 going to be doing further updates in the next
4 regulatory process that will certainly have more
5 recent data and, of course, updated SSWQOs when we get
6 to that stage.

7 That table will not be used -- if we
8 update it right now, would not be used for future
9 operations. As we know, we would have -- be working
10 with regulatory bodies to -- to make sure we have the
11 most recent information prior to starting operations.

12 MR. RALPH GRISMALA: Ralph Grismala,
13 ICF Marbek. Since this table is what appears to be
14 just a spreadsheet calculation based on the tracer
15 studies, it appears to me that it would be very simple
16 to, you know, change a few cells in the spreadsheet
17 and get an entirely new table. I -- I don't see this
18 as a major undertaking.

19 MR. DAVID SWISHER: I -- I -- yeah.
20 David Swisher, Avalon. I -- I don't disagree with
21 what you're asking for, Ralph. I'm just having a hard
22 time understanding the purpose for that.

23 I'm -- I'm -- and from my -- my
24 perspective, I just -- I, you know, I want to -- I
25 want to focus on the -- the latest information moving

1 forward, versus getting into an exercise of having to
2 go back and update every table in the -- in the DAR.

3 I -- I don't think that's the intent.
4 It's just I'm -- I'm having a hard time understanding
5 the purpose of -- of updating this table when we've
6 provided some of the answers from the homework.

7 THE FACILITATOR MERCREDI: I'll -- I
8 mean, if it does relate to the Review Board's
9 consideration of evidence towards their determination,
10 then it is -- it is -- it would be a valid request for
11 -- for the Board to consider that. So if -- if it --
12 if it fits within that -- that realm, then can you
13 comment on -- on how it would?

14 MR. RALPH GRISMALA: Ralph Grismala,
15 ICF Marbek. As I stated earlier, I -- I guess the
16 main value in the updated table would be to compare
17 the predicted values of all the parameters during the
18 life of the project to the future monitoring results.

19 So you're correct that -- the -- an
20 updated table is not time critical, you know, so
21 perhaps it is something that -- that could wait till
22 later. But at some point it should be updated so that
23 the predicted concentrations of all the parameters
24 that are being measured can be tracked against the
25 actual monitoring.

1 THE FACILITATOR MERCREDI: Nathan?

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

3 Nathan Richea with the Water Resources Division. I'd

4 just like to confirm that we'd also be interested in

5 that updated table. I just want to make sure that the

6 -- the record for the environmental assessment is

7 complete and has the most in -- most complete

8 information at this point in time, moving forward.

9 We acknowledge that it will change over

10 time, but the record right now, for a few of these

11 tables, is incomplete or incorrect. So it would be

12 good to have at least a couple of the key tables, the

13 ones that we're talking about today, corrected with

14 the right numbers.

15 THE FACILITATOR MERCREDI: And I -- I

16 think the most important thing here is that there's a

17 line of evidence. And -- and that's -- it's -- it's

18 fair, I think, for the Review Board to have a complete

19 line of evidence that is either -- that, you know, an

20 agreement of facts. And I think that -- for the Board

21 to consider, and that it -- it...

22 So I -- I think it's important to have

23 -- have a table like this in that light, so that there

24 is a line of evidence that shows what the developer is

25 proposing, it is complete, and it is something that

1 also all parties are able to comment on as either
2 being valid as presented, and -- and that the Review
3 Board can consider that, and comprehensively.

4 So I think it -- that's how I see that.
5 I -- I think that's reasonable. And I -- I believe
6 that the -- go ahead, David.

7 MR. DAVID SWISHER: Yeah, you don't
8 have to convince me any more. So I'm just told by our
9 experts that we can provide that as homework tonight
10 and get it to you tomorrow.

11 THE FACILITATOR MERCREDI: Fair
12 enough. Thank you. So, Simon -- oh, we -- we do have
13 to capture it, just so that we -- that is something
14 that we can close a loop for -- for having been done.
15 So I'll go back to Simon.

16 MR. SIMON TOOGOOD: It's Simon Toogood
17 of the Review Board. If I could just get some
18 additional info on what the table is, so...

19 MR. RALPH GRISMALA: Ralph Grismala,
20 ICF Marbek. The request is for an update of what was
21 originally Table 6.4-2 in the DAR, to reflect the
22 correction in the error between the use of the zinc
23 concentration and the tracer concentration and to also
24 reflect the changes, because the new analysis also
25 includes the -- the background concentrations in the

1 calculations.

2 MR. SIMON TOOGOOD: Simon Toogood of
3 the Review Board. So if you could just bear with me.
4 I have the question as:

5 "Avalon to update Table 6.4-2 of the
6 DAR to reflect the correction of the
7 zinc concentration and the tra --
8 tracer concentration to essentially
9 include updated information."

10 Would that be correct?

11 MR. RALPH GRISMALA: Ralph Grismala,
12 ICF Marbek. Yeah -- yes, that's fine.

13 THE FACILITATOR MERCREDI: Okay.
14 Simon, I'll get you to read that out one (1) more time
15 so that -- just so that Avalon is aware of -- of
16 homework and if it is something that they -- just --
17 it's important to get the wording right, in fairness
18 to Avalon. So can you please repeat that for Avalon?

19 MR. SIMON TOOGOOD: Simon Toogood with
20 the Review Board. Avalon to provide an update of
21 Table 6.4-2 of the DAR to reflect the correction of
22 the zinc concentration and the tracer con...

23 THE FACILITATOR MERCREDI: Thank you.
24 And, Ralph, does that capture the -- the essence of
25 what you were asking?

1 MR. RALPH GRISMALA: Ralph Grismala,
2 ICF Marbek. The -- the wording you had there
3 regarding the zinc and tracer, I don't think was quite
4 the request.

5 MR. SIMON TOOGOOD: Sure. Simon
6 Toogood, with the Review Board. Avalon to provide
7 update of Table 6.4- --

8 MR. RALPH GRISMALA: That's fine.
9 Thank you.

10 THE FACILITATOR MERCREDI: Okay. So I
11 understand that's a good read. I will ask Avalon if
12 the timing for that is still homework related or if it
13 would be an undertaking?

14 MR. DAVID SWISHER: David Swisher,
15 Avalon. No, we should be able to provide that. I --
16 I'm -- my understanding is we have that already. It's
17 just a matter of pulling it out.

18 THE FACILITATOR MERCREDI: Okay.
19 Thank you. And getting the wording right is -- is
20 important, because Avalon is -- would be looking at
21 this later and -- and working hard to -- to meet the
22 wording as -- as it is. So we do -- we would need to
23 revisit that. So just again, wording is important.

24 Before we go back to the room here, I
25 know we have one (1) participant on the -- or at least

1 one (1), there might have been additional participants
2 on the teleconference line, so we'll go to them for
3 any questions that they might have in the run up to
4 lunch.

5 And, teleconference line, is -- are
6 there any questions?

7

8 (BRIEF PAUSE)

9

10 THE FACILITATOR MERCREDI: And our
11 sound tech is indicating "no". So we'll turn the
12 discussion back to the floor. Are there any further
13 questions or comments on Nechalacho site and water
14 quality? Anne is nodding. Anne...?

15 MS. ANNE WILSON: It's Anne Wilson,
16 Environment Canada. And this is just flagged in
17 respect of the derivation of the site-specific water
18 quality objectives in Drizzle Lake that were presented
19 in yesterday's table.

20 And it stated in the table on the slide
21 that these are based on 10 percent of the lowest
22 observed adverse effect level. I just wanted to
23 clarify that in -- in fact they were derived using
24 acute toxicity data.

25 And that was presented in Table 1 of

1 the February 2012 response to AANDC's IR. I've got
2 the number of it here. I think it was number 3. The
3 effect that that will have is to raise the level at
4 which we'll see effects, because you would expect to
5 see chronic effects long before you would see acute
6 effects. I just wanted to clarify that for the
7 record.

8 That said, I know there are not a lot
9 of toxicity data for these compounds, and the recent
10 report summarizing the aquatic toxicity data does show
11 toxicity occurring for chronic effects at higher
12 levels than are proposed here.

13 So I'm not asking for an action item
14 for this, but I am flagging it for the record that the
15 protocol did not reflect the most conservative
16 approach there.

17 MR. MARK WISEMAN: The approach we
18 used to come up with those numbers was -- Mark
19 Wiseman, yeah, thank you. Avalon. We took the
20 Environment Canada study that was done by Sir Wil --
21 Sir Wilfred Laurier University, which was six hundred
22 (600) or so peer-reviewed papers, and took the lowest
23 effect levels from those which included both acute and
24 sublethal, or chronic, toxicities.

25 And I don't know for sure whether there

1 was any of those elements where it was only acute.
2 I'm pretty sure it was all using the lowest level in -
3 - in that report that -- that we could find and then
4 dividing that number by ten (10).

5 MS. ANNE WILSON: Anne Wilson,
6 Environment Canada. I wonder if we haven't got
7 proposed numbers that are not updated, then, in the
8 slides from yesterday. Because the -- the proposed
9 numbers are exactly 10 percent of the LC-50
10 concentrations from the study that just used hyalella
11 and acute toxicity. And that was the one (1) on Table
12 1 of the Information Request. So maybe if you just
13 want to check on that.

14 MR. RICHARD HOOS: Rick Hoos, EBA
15 here. I would like to check again, but my
16 recollection of -- of these data, these are seven (7)
17 day LC-50s, if you will, for a long-term survival-type
18 test mode. In other words, chronic tests, chronic
19 testing.

20 And as far as I know, it's not your
21 normal two (2) day or four (4) day LC -- LC-50, it's a
22 seven (7) day, chronic, long-term survival type of
23 test that these results reflect. But I'll be happy to
24 check that over lunch, perhaps, and get back to you on
25 that.

1 MS. ANNE WILSON: Thank you for that.

2 It's Anne Wilson, Environment Canada. I think it's --
3 certainly I agree that the end points were different
4 for the hyalella test if they are looking at survival
5 versus growth and reproduction effects. You aren't
6 going to see as sensitive of effects detection using
7 that.

8 The real question is, which data source
9 were used to derive the objectives, because the --
10 we've just heard that they were from the Wilfrid
11 Laurier report, which had quite an extensive chronic
12 database, versus whether they were from the hyalella
13 data that was listed in Table 1.

14 MR. MARK WISEMAN: Mark Wiseman,
15 Avalon. Yeah, we'll confirm.

16 MS. ANNE WILSON: Anne Wilson. Thank
17 you.

18 MR. DAVID SWISHER: Dave Swisher,
19 Avalon. I -- I'd also just -- just like to remind
20 everybody the -- the discussion yesterday as well. I
21 certainly understand wanting to make sure we've got
22 the appropriate source information.

23 I just want to also just clarify again
24 with the information we provided yesterday with
25 regards to the conservatism that we implemented in

1 that regarding the soft water and the -- the hard
2 water characteristics and how that significantly
3 changes even though we still use the soft water
4 characteristics.

5 And understanding that Drizzle Lake is
6 around the 200 to 250 milligrams of hard water, if you
7 will, versus that study that only went up to a hundred
8 and twenty-four (124), and yet we -- we used the
9 eighteen (18).

10 So just, again, it was just another
11 level of conservatism that went into it. I just want
12 to remind that -- of that discussion we had yesterday.
13 Thanks.

14 THE FACILITATOR MERCREDI: Any follow-
15 up to that? No? Any further questions? Ralph...?

16 MR. RALPH GRISMALA: This is a change
17 in topic. In the July, 2012, letter from Avalon there
18 were some updated figures for the configuration of the
19 tailings management facility.

20 And the, in particular, Figure 1
21 compared, I believe, it was the May, 2011,
22 configuration to the July, 2012, configuration. But
23 the resolution of that figure was not high enough to
24 actually see many of the features. So I would just
25 ask for higher resolution versions of those figures so

1 that we can understand the configuration.

2 Second, the -- there was a comment also
3 in that memo that said on, I believe, it was the west
4 side of the tailings management facility, that the
5 embankment height was 258 metres, versus 252 metres
6 everywhere else. And I was just curious why that
7 would be so.

8 MR. KEVIN HAWTON: Kevin Hawton, with
9 Knight Piesold. That's because we're discharging our
10 tailings off that embankment and sloping them towards
11 the east.

12 MR. RALPH GRISMALA: Also, in the --
13 sorry, Ralph Grismala, ICF Marbek. Also in those
14 drawings of the configuration and comparing it to the
15 text, I -- and, in fact, I don't recall if it was in
16 the text of that memo or whether it was something he
17 said yesterday, that the current location of the
18 quarry is inside the tailings management facility
19 footprint. And I, maybe it's a resolution issue in
20 that figure, but I did not see that identified.

21 And there was some coloured area to the
22 west of the embankment that was where the old quarry
23 was. And I just wasn't clear what that was. So if
24 you could clarify that.

25 MR. KEVIN HAWTON: Kevin Hawton, with

1 Knight Piesold. That's correct. The -- the initial
2 quarry is inside the limits of the tailings facility
3 at the southwest corner, basically. And we had
4 identified a quarry to the -- directly to the west of
5 -- which I believe would be a contingency quarry if
6 required later in the life of the mine. But at this
7 point, I don't believe we will have any need for it.

8 MR. DAVID SWISHER: David Swisher,
9 with Avalon. Yes, we can -- as homework tonight, more
10 homework, please feel free to hold off on the
11 homework, but as homework tonight we can provide the
12 updated resolution drawings for the before and after
13 on the tailings management facility.

14 THE FACILITATOR MERCREDI: Okay. And
15 just for the sake of clarity, we will go to -- to
16 Simon. While he's getting the wording on that, I --
17 I'd like to gauge the temperature because I -- there
18 is still another site for this project. And that's
19 the hydrometallurgical plant. And -- and there are --
20 there are -- Avalon has team members here for water
21 quality that may not be here tomorrow, so I think it's
22 important to switch gears to the hydrometallurgical
23 plant after lunch.

24 So if there's any kind of higher
25 priority questions, we can finish up on the Nechalacho

1 site, and then maybe re-address those at -- at a later
2 time if there are -- if there is an availability for
3 that. But it is important also to consider the -- the
4 other site that Avalon is proposing for their project,
5 so -- within the -- within the technical session.

6 So again, I'll -- I'll put it out
7 there. If it is -- it is -- we do need to make that
8 transition, so I will put it out there. Were there
9 any follow-ups to that exchange? If -- I will go to
10 Simon for the wording on the -- on that homework.

11 MR. SIMON TOOGOOD: Simon Toogood,
12 with the Review Board. I have it as Avalon to provide
13 updated higher resolution images of proposed changes
14 to the tailings management facility.

15 THE FACILITATOR MERCREDI: And Ralph
16 nod. And again, that's for the -- as far as timeline
17 goes, it's homework. And I'm not sure the number
18 we're on for that. Three (3) for today. Okay. And,
19 Ralph, did you have any follow-up to that at all?

20 MR. RALPH GRISMALA: Ralph Grismala,
21 ICF Marbek. No, I do not. I'm done.

22 THE FACILITATOR MERCREDI: Thank you.
23 And unless Avalon had any other follow-up, we'll go
24 back to the floor. Or we can make the switch to the
25 hydrometallurgical -- oh, actually, if there -- we can

1 go to lunch so that everybody can beat the lunch
2 crowd. And, in fact, I'll -- I'll make the call to do
3 that. And we can -- one o'clock firm, everybody back
4 sharp. So we'll break now for lunch. We will come
5 back for hydrometallurgical plant.

6 Five (5) to 1:00, I'm told, would be
7 even better because we are giving you fifteen (15)
8 minutes head start. I will endeavour -- if -- if it
9 is possible, I will post that to the registry if -- if
10 I do have that information before 1:00. So we'll
11 break now, returning at five (5) to 1:00 for hydromo -
12 - hydrometallurgical plant discussion. Thank you.

13

14 --- Upon recessing

15 --- Upon resuming

16

17 THE FACILITATOR MERCREDI: So I -- I
18 see that most everybody's sitting down, so we'll get
19 started. A couple housekeeping items after lunch
20 there. The updated tables, there's about thirty (30)
21 printed co -- copies at the back table there in case
22 anybody wanted -- wanted to -- to grab those. Don't
23 all get up at once. Those are also posted on the --
24 on the Review Board public registry.

25 It should be available -- available in

1 about a half an hour on -- on the website in case
2 anybody wanted to access that. The homework items are
3 also posted, also available in about a half an hour.
4 The paste backfill feasibility study that was the
5 subject of discussion won't be posted until the end of
6 the day. Again, that'll be available probably about
7 six o'clock.

8 I'd like to introduce to my left
9 Shannon Hayden, an environmental assessment officer at
10 the Review Board. She will be co-facilitating with me
11 today. And as far as the topic of discussion for this
12 afternoon, we are going to make the transition to the
13 hydrometallurgical plant on the south side of the
14 lake. That is part of Avalon's project.

15 So again, if there -- there may be
16 further questions and -- and discussion for the
17 Nechalacho site, but at this -- at this point, it's
18 best to make that transition so we capture some of the
19 -- any -- any concerns that might be out there on --
20 on this -- for this part of the project.

21 Did Avalon have any -- any comments af
22 -- after lunch relating to any -- any of the
23 discussion that -- that's taken place or any insights
24 over the lunch hour?

25 MR. DAVID SWISHER: No comments.

1 David Swisher, Avalon.

2

3 HYDROMETALLURGICAL PLANT AND WATER QUALITY:

4 THE FACILITATOR MERCREDI: Thank you.

5 With that, we'll start discussions on the -- the
6 hydrometallurgical plant on the south of the lake for
7 water quality issues. I'll turn the floor over to --
8 to the audience for that. Don't all speak at once
9 either.

10 Nathan looks like he has a question, so
11 I'll -- I'll go to Nathan Richea.

12 MR. NATHAN RICHEA: Again, it's Nathan
13 Richea, with the Water Resources Division of
14 Aboriginal Affairs. I don't have many questions about
15 the Pine Point site. I've focussed a lot of my
16 attention over the last few weeks and months on the
17 Thor Lake project site and site specific water quality
18 objectives for that region.

19 However, I do have some overarching
20 bigger picture questions, I guess, for the company.
21 And I'll try to do my best to -- to cover that site.
22 Even though I probably won't have the same amount of
23 questions, we're still just equally as concerned with
24 the two (2) project areas.

25 My first question happens to be related

1 to the change from the freshwater supply from T-37 to
2 J-44. And the question is in relation to Avalon's
3 response to our IR number 21. At the time of the
4 response, it said that no drilling was conducted in
5 the vi -- vicinity of J-44 pit. But at the time, it
6 was also expected that it would have similar
7 conditions to the rest of the site.

8 A little bit further on in that
9 response, it basically indicates that additional
10 measurements will be taking -- taken at the site. And
11 I was just wondering if more work has been done in the
12 vicinity of the J-44 pit and if that information's
13 available. Thanks.

14 MR. DAVID SWISHER: David Swisher,
15 Avalon. I just needed to confirm there. Yes, we did
16 do followup work at all of the area this spring, this
17 past spring, and just as -- as we had indicated in the
18 IR.

19 MR. DAVID SWISHER: David Swisher
20 again with Avalon. Just for clarification too, on the
21 May 4th memo, we did supply to the Review Board the
22 updated results from that sampling that was done in
23 the pipeline area.

24 MS. SHANNON HAYDEN: Nathan, is -- is
25 that fine?

1 MR. NATHAN RICHEA: Thank you. It's
2 Nathan Richea with the Water Resources Division
3 Aboriginal Affairs. I'm not sure if I have the May
4 4th memo. Can we confirm whether or not that's on the
5 Public Registry.

6 MR. DAVID SWISHER: Davis Swisher,
7 with Avalon. I'm pretty sure I saw it posted on the
8 Public Registry. I'll leave it to Shannon to confirm.

9 MS. SHANNON HAYDEN: Shannon, from the
10 Review Board. I don't know offhand, but I can double
11 check and let you know later this afternoon.

12 MR. NATHAN RICHEA: Thank you. It's
13 Nathan Richea with the Water Resources Division. Yes,
14 please do, and if you have it, we could have a copy.
15 Upon reviewing some of the information related to the
16 N-42 pit, and I believe that's the pit that will
17 receive excess water.

18 Is that correct?

19 MR. DAVID SWISHER: Davis Swisher,
20 yes. Receive decanted water from L-37.

21 MR. NATHAN RICHEA: Thank you. Upon
22 review of the information regarding the N-42 pit, I
23 was just trying to understand what the expected
24 infiltration rate or the ability of the pit to take
25 the additional water.

1 I know there was some response to .75
2 metres per day movement from the pit towards Great
3 Slave Lake, but I was just wondering what is the
4 anticipated infiltration rate.

5 I think there was some numbers thrown
6 around about it would need to have something in the
7 order of 2 to 4 litres per second infiltration, and I
8 was wondering if you have been able to sort of nail
9 down what sort of infiltration you'll receive in the
10 N-42 pit. Thanks.

11 MR. DAVID SWISHER: David Swisher,
12 Avalon. While Kevin's looking up the specific work
13 that Knight Piesold did for us in that regard, I can
14 confirm that there's been extensive hydrogeologic work
15 in this area that I've -- I've become quite familiar
16 with over past projects.

17 The infiltration rates within that
18 aquifer are ext -- extraordinarily high and also based
19 on past operations that were done there between 1964
20 and 1987 when Tech was mining in that area.

21 So we have a lot of really good
22 information there and data and the -- the information
23 there that Kevin will pull up for you here just
24 shortly to -- to confirm.

25 MR. KEVIN HAWTON: Kevin Hawton here.

1 Can you reference that IR?

2 MR. NATHAN RICHEA: Thank you. It's
3 Nathan Richea with the Water Resources Division
4 Aboriginal Affairs. I believe it's IR number 25,
5 February -- the response from Avalon is February 2012.
6 I don't know the exact date. It just says, "February
7 2012."

8

9 (BRIEF PAUSE)

10

11 MR. KEVIN HAWTON: Kevin Hawton here
12 with Knight Piesold. Basically we didn't do any
13 detailed modelling of the -- of how much water would
14 inflow, but historically as David was mentioning, the
15 -- the permeability is extremely high there.

16 You know, we confirmed that with a num
17 -- number of packer tests around the site, but not
18 specific to the J-44 pit. But based on visual
19 observations of the pit, conditions were very similar.

20 So doing a back of envelope
21 calculation, considering the parameter of the pit and
22 surface area, et cetera, we basically determined that
23 with -- without even considering the bottom of the
24 pit, just the walls, that the pit would take about
25 3,600 cubic metres per day, and we're only

1 discharging, I -- I believe, around seven hundred
2 (700) at most.

3 And we -- we don't even believe that
4 we'll manage to get that much to the pit because we
5 believe the infiltration at the tailings pit will be
6 greater than what we assumed.

7 MS. SHANNON HAYDEN: This is Shannon
8 with the Review Board. Thanks. Nathan, did you have
9 anything to follow up?

10 MR. NATHAN RICHEA: Thank you. It's
11 Nathan Richea with the Water Resources Division. No,
12 I -- I believe that's sufficient. Have you done any
13 assessments of how the pit will perform over time,
14 well, I guess over the twenty (20) year life
15 expectancy?

16 I know it's the wa -- it's the pit that
17 will have -- will receive the decant water from the
18 original tailings pit. But the potential for that
19 water to have some higher suspended sediments is
20 possible. I know we have a bit of a polishing pond in
21 the original tailings disposal pit.

22 However, with wave action, even the
23 potential influence of having a pump removing water
24 from that disposal pit, over time you may see some
25 suspended sediments getting into the N-42 pit. So

1 have you done any sort of performance assessments on
2 whether that pit will meet your needs over the twenty
3 (20) year life expectancy of the operation?

4 MR. KEVIN HAWTON: Kevin Hawton here
5 with Knight Piesold. You know, in all honesty, we --
6 we believe that the majority of the water from the --
7 the tailings facility is going to infiltrate at the
8 tailings facility.

9 So, you know, basically the excess
10 water transfer system is -- is almost a contingency
11 just to ensure that, you know, we do have that ability
12 to transfer the water out if required. We've -- we've
13 -- as you mentioned, we put in the separator berm
14 during the initial construction. And we plan to use
15 that, you know, ideally for two (2) years or so
16 depending on performance.

17 If we need to, we can continue to raise
18 that berm and maintain that supernatant -- that
19 polishing pond if required.

20 MR. DAVID SWISHER: Just -- oh, sorry,
21 David Swisher, Avalon. Just something to add here.
22 We also have -- particularly around the L-37 pit,
23 Knight Piesold has conducted quite a bit of
24 groundwater work for us. And we still have the
25 monitoring wells in place which we were able to put in

1 last year.

2 So we've been, you know, monitoring
3 that from a baseline standpoint. And then we also
4 have those monitoring wells there then in position for
5 -- for the start of operations.

6 And -- and we also believe that we'll
7 probably end up putting a few more monitoring wells at
8 a bit more of a step off distance from that L-37 just
9 so that we can -- we can monitoring those paths. That
10 is in direct reflection with my experiences going
11 through this type of process with a prior company and
12 dealing with this same type of aquifer system.

13 MR. NATHAN RICHEA: Thank you. It's
14 Nathan Richea with the Water Resources Division of
15 Aboriginal Affairs. I guess just switching gears, do
16 you know if the pits that are proposed to be used for
17 receiving tailings or water extraction or decant
18 water, do you know if they're on leased land by
19 yourself or whether they're crown lands? Like, who
20 has title to the land where those pits are located?

21 MR. DAVID SWISHER: David Swisher,
22 Avalon. The J-44 is on crown land for the makeup
23 water, the same as the N-42 is on crown land. The L-
24 37 proposed tailings facility is actually on a mineral
25 lease that is currently owned by Tamerlane Ventures.

1 And Avalon is in negotiations with Tamerlane to take
2 over this lease.

3 MR. NATHAN RICHEA: Thank you. It's
4 Nathan Richea with the Water Resources Division.
5 Thank you for the answer. That answers my question.
6 Do you have any expectation on the final agreement or
7 transfer of the lease?

8 MR. DAVID SWISHER: We -- we expect to
9 be able to have this completed hopefully by the time
10 that we've completed our feasibility study. We do
11 have some time to -- to continue that work. But we're
12 working diligently on -- on completing that transfer
13 early next year.

14 MR. NATHAN RICHEA: Thank you. It's
15 Nathan Richea with the Water Resources Division.
16 Similarly on that topic, Teck Cominco has been doing
17 some work, reclamation work, in the area for some time
18 now. In the area of their -- their tailings
19 impoundment there's a settling pond located on the
20 north section of that tailings facility.

21 And over the past few years, they've
22 been actually decanting water from that settling pond.
23 The most recent report suggests that as of August
24 2011, approximately 34,000 cubic metres of water was
25 discharged from that facility to the surface.

1 And again, this year at -- it began in
2 July of 2012. And towards the end of July, they had
3 already discharged approximately 34,000 cubic metres
4 per day. So I'm interested in -- in sort of
5 understanding how the project that currently is being
6 done by Teck Cominco may interact with the proposed
7 activities at the Pine Point site.

8 MR. DAVID SWISHER: Yes. David
9 Swisher, Avalon. We're fully aware of Teck's
10 activities there. I'm not certain of any other
11 reclamation activities other than the required
12 activities on their existing lease that does cover the
13 north side of that old tailings facility as you'll see
14 here on the -- the map that I've provided.

15 And it does cover, as you mentioned,
16 the discharge point for the water that encompasses
17 that tailings. I might also add that that tailings
18 covers a massive area, surficial area. It's a 2
19 square kilometre tailings facility that combines into
20 the end of that.

21 They do have requirements under their
22 reclamation process to do annual geotechnical analysis
23 of the tailings dam's facility and -- and of course
24 the annual discharge.

25 With regards to their discharge,

1 they're still discharging, as they have in the past,
2 to the surficial waters. And whereas the L-37 pit and
3 -- and what we're proposing is -- is not a discharge
4 to the surficial waters.

5 So we -- we don't have the same impact,
6 if you will. And I think Rick Hoos wants to comment a
7 little further on that. I'm told that I an --
8 answered it adequately enough, so Rick doesn't have to
9 correct me. Thanks.

10 MR. NATHAN RICHEA: Thank you. It's
11 Nathan Richea with the Water Resources Division
12 Aboriginal Affairs. Thank you for putting up the map
13 on the screen there. I'm interested in understanding,
14 sort of, the company's perspective on whether or not
15 if there was an impact noted outside of the mineral
16 lease for Teck Cominco, whether -- what they would
17 feel the party responsible for that potential impact
18 may be.

19 I'm just wondering what your thoughts
20 are on that subject matter.

21 UNIDENTIFIED SPEAKER: I'll answer a
22 question with another question. You can't be the only
23 one (1) ans -- asking questions today. So my only
24 question would be then were is Teck's position, and --
25 and I'm sure that AANDC has asked this question to

1 Teck with regards to outside of their lease boundary
2 and their release, what their responsibility is.

3 So I would ask AANDC if they could
4 provide that information for us because I would be
5 first curious in terms of what their position would
6 be. Thanks.

7 MR. NATHAN RICHEA: Thank you. It's
8 Nathan Richea with the Water Resources Division. We
9 will endeavour to contact Teck Cominco; however, we're
10 not proposing the project, so I was just wondering if
11 the company has actually contacted the other company
12 who was actively operating in the region. Thank you.

13 MR. DAVID SWISHER: David Swisher,
14 Avalon. We have not contacted Teck only because they
15 are not a -- an active proponent in this region.
16 Again, the -- the studies that are done are done on a
17 -- on an annualized basis once a year, and it's really
18 a geomechanical analysis of the -- the dam structure
19 itself and then of course the -- the sampling efforts.

20 So it's -- it's not an active area
21 other than that annual inspection that's required in
22 their licence.

23 THE FACILITATOR MERCREDI: I have a
24 question. I -- is there -- would there be a record of
25 -- of basically the water licences maybe for what Teck

1 Cominco is -- is doing that might -- that might be
2 able to shed some light on -- on that issue?

3 MR. NATHAN RICHEA: It's Nathan Richea
4 with the Water Resources Division Aboriginal Affairs.
5 Teck Cominco has an active water licence. Inspection
6 reports have been posted to the registry. It's the
7 Mackenzie Valley Land and Water Board registry. The
8 most recent inspection report was completed in the end
9 of July 2012. But the previous inspection reports
10 that date back I think as far as 2008 are on the
11 registry.

12 So the information can be found on the
13 Mackenzie Valley Land and Water Board's website for
14 what Teck is doing and what the quality of water is
15 that's being discharged from the site.

16 THE FACILITATOR MERCREDI: Just so far
17 as the board would be concerned, there's one (1) of
18 two (2) ways that the Board -- obviously that isn't
19 evidence on the registry for this environmental
20 assessment yet. The Board can either take judicial
21 notice should AANDC request that of the Board, or else
22 simply those items can be put on the registry for the
23 Board to consider for its determination.

24 So again, that's -- that's not
25 something I can do if -- if it is reque -- if a party

1 requests it. That -- that is kind of how. But until
2 -- until such time, it's not -- and -- and obviously
3 the rationale for -- for doing so, so.

4 MR. NATHAN RICHEA: Thank you. It's
5 Nathan Richea, with the Water Resources Division.
6 Yeah, I'll just leave that one (1) where it is for
7 right now. Moving on. I was just wondering if the
8 company has the ability to determine whether -- if an
9 impact is measured downstream from their site in Pine
10 Point, whether they have the ability to determine
11 whether the impact is related to their operation or
12 whether it's someone else?

13 MR. DAVID SWISHER: David Swisher with
14 Avalon. I just want to clarify that there is no
15 downstream discharge from this project since it -- we
16 do not have any surficial discharge of -- of water.

17 But understanding that that was what
18 you meant, Nathan, the intent, as mentioned earlier,
19 is we will have water monitoring wells. We're already
20 gathering the baseline data from the existing wells.
21 And -- and Rick just reminded me we have thirteen (13)
22 wells already existing in that area, so we have an
23 extensive region of -- of monitoring, if you will.

24 So the intent would be that we would
25 continue that monitoring process from the wells

1 and/or, when we get to a later stage, determine if
2 there needs to be additional wells say further out by,
3 to also take comparables on, say, a down aquifer
4 stream or basis, then -- then we would be able to do
5 that.

6 MR. NATHAN RICHA: Thank you. It's
7 Nathan Richea with the Water Resources Division. And
8 thank you for the clarification. Yes, it's understood
9 that the discharge from the site or from the proponent
10 in this site would be to the groundwater. However,
11 there is obviously surface -- subsurface interactions
12 in the area. So if there was a scenario sta --
13 statement here, if a groundwater well picked up
14 deviation from background conditions or accedence of
15 an accepted standard downstream.

16 So basically between the proposed
17 activity and Great Slave Lake, would the company be
18 able to determine whether that change has been the
19 result of their operation versus some other operation
20 or a natural occurrence? Thanks.

21 THE FACILITATOR MERCREDI: And when
22 you say "downstream," do you mean -- do you mean
23 subsurface, or do you mean surface? Just -- that's --
24 that is a distinction that I -- I think should be
25 made, just...

1 MR. NATHAN RICHEA: Thank you. It's
2 Nathan Richea with the Water Resources Division.
3 Yeah, it would be both surface and subsurface,
4 understanding that the proposed is discharged to the
5 subsurface, but there are interactions between
6 subsurface and surface water in all areas, and it just
7 -- it could occur where subsurface water may surface,
8 so -- so both, yes. Thank you.

9 MR. DAVID SWISHER: David Swisher,
10 Avalon. So, you know, currently we have wells in the
11 area surrounding the L-37 pit. We also have wells in
12 this area as well, and N-42, which is actually further
13 down -- or excuse me, down this way.

14 So we would be able to -- in that gap
15 between wells, we'd be able to determine if there was
16 any differences. So if there are differences in wells
17 down on this end versus the wells in the immediate
18 area or over in -- in the J-44, N-42 area, then we
19 would be able to, you know, consolidate that
20 information and understand if there was a source
21 actually coming from -- from here given that we know
22 the general flow direction of the groundwater aquifer.

23 MR. NATHAN RICHEA: Thank you for that
24 response. It's Nathan Richea with the Water Resources
25 Division of Aboriginal Affairs. I'm looking at

1 response -- it's still the February 2012 response to
2 Aboriginal Affairs IR number 21. It's on page 46.
3 And it's Avalon Response number 21.5.

4 The response states that:

5 "Based on water level measurements
6 recorded and reported to date at the
7 Pine Point monitoring wells,
8 definitive site specific conclusions
9 related to the direction of
10 groundwater flow cannot be
11 confirmed."

12 So I'm just -- just curious on whether
13 you've done additional groundwater monitoring in the
14 area and whether you've, in fact, confirmed the flow.

15 MR. DAVID SWISHER: I'm just trying to
16 figure out who answered that because that's not
17 accurate. We've got a tremendous amount of data in
18 this area that indicates the general flow direction of
19 that aquifer as it's quite well-known.

20 MR. RICHARD HOOS: It's Rick Hoos.
21 Sorry for interrupting you, David. It is a rather
22 convoluted answer we gave you, I have to admit,
23 because in the first paragraph we do say we don't seem
24 to know anything about where the water's moving or
25 whatever.

1 But in the third paragraph, which is
2 the last paragraph of this response, we describe in a
3 paragraph form and refer to the DAR the particle
4 tracking model -- modelling work that was done which
5 allowed us to demonstrate in graphic form in the DAR,
6 and as stated here, that figure 6.54 of the DAR
7 illustrates simulated piezometric contours and
8 particle tracking for the Pine Point area after twenty
9 (20) years of pumping and discharge.

10 So we do actually know where the water
11 is going to be going. And we actually show particle
12 tracking pathways. They -- they basically sweep
13 towards Great Slave Lake, but not directly towards the
14 lake, but rather following the aquifer which tends to
15 the -- I'll say I guess that's north -- northeast.

16 So basically, if you're looking at the
17 N-42 pit, the particle tracking indicated that the
18 water -- yeah, okay. It's moving in that direction,
19 yes, exactly.

20 MR. DAVID SWISHER: Davis Swisher here
21 with Avalon. And also in discussions with our
22 technical expert from Knight Piesold, they're not sure
23 where that statement came from either because that's
24 not the conclusion that they did from their particle
25 tracking work in -- in the investigations on the model

1 -- modelling in this area for that aquifer.

2 MR. KEVIN HAWTON: Kevin Hawton here.

3 And I'd just like to add that, you know, this is a
4 historic site, and there's been a huge amount of
5 groundwater work done here in the past. So there's --
6 the -- it's -- it's commonly known, the direction of
7 the groundwater flow for this site.

8 MR. NATHAN RICHEA: Thank you. It's
9 Nathan Richea with the Water Resources. I guess you
10 could understand the confusion I had in the response
11 to my IR. So if -- if the -- if there's data that is
12 available that's newer than the data that has been
13 provided to date, can we get that information
14 provided?

15 Like, obviously the flow direction, the
16 question's been answered. But in a number of the
17 responses through some of IRs, there says that -- you
18 know, it's mentioned that additional assessment will
19 be provided or is going to be undertaken, and reports
20 will be available in September or October.

21 Can we get the most recent information
22 when that -- that information is available?

23 MR. DAVID SWISHER: David Swisher,
24 Avalon. I'm pretty sure we submitted the -- the
25 latest particle tracking work that was done by Knight

1 Piesold for the public registry that -- that goes into
2 the methodology and background there.

3 THE FACILITATOR MERCREDI: Is there a
4 date for that submission, just to kind of give
5 coordinates for where people need to search?

6 MR. RICHARD HOOS: Rick Hoos, Avalon.
7 Okay, just to clarify, the one (1) and only set of
8 particle tracking data were pro -- produced by Knight
9 Piesold and -- and were presented in the DAR. That is
10 the latest, greatest information on how the
11 groundwater moves in the area between the N-42 and L-
12 37 pits and Great Slave Lake.

13 The other thing, though, that Avalon
14 has indica -- had indicated in the response to an IR
15 was that there was continuing groundwater quality
16 sampling taking place. And we had mentioned that
17 there was -- the sampling program in April, another
18 one (1), I believe, in October, and another one (1)
19 before the end of the year or something along those
20 lines.

21 And plans continued to be the case that
22 that groundwater sampling will be conducted, and the
23 results of the first round of groundwater sampling
24 completed in April were presented to the Board in
25 letter form to -- to Paul's attention.

1 UNIDENTIFIED SPEAKER: That was in
2 May.

3 MR. RICHARD HOOS: In May. We have --
4 we have a copy of the letter here if no one else knows
5 about it. But I'm pretty confident that the Board not
6 only has it, but has probably put it on the Registry.

7 THE FACILITATOR MERCREDI: Okay. So
8 the May letter -- I -- as far as reference purposes go
9 and coordinates for searching. Nathan, do you have
10 any followup to that?

11 MR. NATHAN RICHEA: No, it's just an
12 overarching question I have. It -- it was just
13 basically in response to our IR number 21, IR number
14 22, and IR 24, there's indication that additional
15 assessments will be conducted, which probably includes
16 the work that they've been doing, that's been ongoing.

17 I was just wondering if we could get
18 the most recent information, which may be beyond the
19 May submission, sampling done maybe past -- this past
20 summer prior to our technical report. Thanks.

21 MR. DAVID SWISHER: David Swisher with
22 Avalon. No, the -- the Board has the latest
23 information that we have, which was submitted in May.

24 MR. NATHAN RICHEA: It's Nathan Richea
25 with the Water Resources Division. I'm looking at

1 table 4. It's a response to our IR number 21. In the
2 table, it talks about a var -- a variety of monitoring
3 wells where water levels have been determined.

4 I was wondering if someone could speak
5 to the difference in the water levels. It seems like
6 on the extreme the difference in water levels in the
7 area can be as much as twen -- 10 metres.

8 I'm just wondering if anyone can speak
9 to that. It's table 4, response to IR number 21 from
10 Aboriginal Affairs. It's on page 46. I'm
11 specifically looking at monitoring well DH-2010-04. A
12 sample date was taken on August 9th, 2011.

13 It reports a water level elev --
14 elevation of 184.87 metres. And then I'm looking at
15 monitoring well DH-2010-05. A sample was taken on
16 August 9th, 2011, and the water level was measured at
17 193.07 metres.

18 And in general terms, there's about 10
19 metres difference between those two (2) monitoring
20 wells. And I was just wondering if someone can speak
21 to that from the company.

22 MR. DAVID SWISHER: David Swisher with
23 Avalon. Yeah, based on past experience with this
24 aquifer, you've got several variables. One (1), no
25 aquifer is -- is completely uniform from a static

1 situation. You have varying -- varying pressures
2 within the ground itself and/or different types of
3 ground strata that would fluctuate an aquifer
4 elevation as we would know it from a mean level.

5 Having said that, though, in this area,
6 the deposit itself and the main trend, it's -- it's
7 quite widely known that this area from a main trend
8 standpoint where these deposits and aquifer originate
9 from plunge away from the east towards the west.

10 So it gets deeper as you go to the
11 west. And as you do that, there are different eroding
12 effects within the geology that encounters different
13 formations, whether it's the Hay River formation, Pine
14 Point formation, that sort of thing.

15 And within that, you end up having
16 adjustments within the aquifer, natural adjustments
17 within the aquifer, which is why you see that -- that
18 fluctuation.

19 MR. NATHAN RICHEA: Thank you. It's
20 Nathan Richea with the Aboriginal -- with Aboriginal
21 Affairs Water Resources Division. Thank you for the
22 explanation. I'm just looking at page 45, Avalon's
23 response to Aboriginal Affairs IR number 21.

24 It says that:

25 "Although it is not expected that

1 there is a large seasonal variation
2 in groundwater table at the Pine
3 Point site, additional measurements
4 will be needed to verify this."

5 So this is consistent with my request
6 for the most recent information. The context, I
7 guess, where I'm going with this is if there is
8 potentially a 10 metre fluctuation in the water table,
9 it's hard to assess whether or not there's a potential
10 for the water to surface prior to reaching Great Slave
11 Lake. And we're concerned about the potential effects
12 of the project on the groundwater, but also surface
13 water. So a 10 metre fluctuation is important to
14 consider.

15 MR. DAVID SWISHER: David Swisher with
16 Avalon. I think the key word there is "seasonal."
17 You're talking about different seasonal effects.
18 Precipitation, obviously, is going to vary your
19 aquifer.

20 But I think what would be prudent is we
21 provide you the technical report, where it explains
22 that the aquifer itself is a confined aquifer. It is
23 not an aquifer that is distributed to the surface,
24 other than what the prior developments have done in
25 terms of accessing the top of that aquifer.

1 MR. RICHARD HOOS: Rick Hoos, Avalon.
2 We're just looking at that response again that you
3 were referring to, Response 21.4. We were, in that
4 response, trying to explain what we've been observing
5 with the top of the groundwater layer.

6 And we did note, as noted from the data
7 presented in this table, there is some difference in
8 water level elevations between summer and winter me --
9 measurements. We also noted that that varies by
10 location. We also noted that there was no clear
11 pattern of higher or lower water levels in the summer
12 compared to the winter.

13 We also indicated that, although it was
14 not expected that there -- we'll see much more
15 variation than we've seen so far, additional
16 measurements will be needed to verify this. And part
17 and parcel of the groundwater -- continuing
18 groundwater quality monitoring program, is to measure
19 the top of the water table each time we do the
20 sampling programs. And those results will continue to
21 be reported to all interested parties following that.

22 And the last comment, I guess, that
23 should be made is that this is all -- we consider this
24 to be natural variation, because we're not doing
25 anything to the groundwater whatsoever at this point

1 in time, other than measuring it from time to time.

2 Thank you.

3 MR. NATHAN RICHEA: Thank you. It's
4 Nathan Richea with Aboriginal Affairs Water Resources
5 Division. Thank you for your responses. I guess I'm
6 just still a bit confused, because I'm looking at the
7 same season monitoring results.

8 Table 4 monitoring well DH 2010 04, the
9 measurement was taken on August 9th, 2011. It
10 reported 184 metres. I'm also looking at DH 2010 05,
11 that's the monitoring well. The sample was taken on
12 August 9th, 2011, same season. And the report was 193
13 metres. There's nearly a 10-metre difference.

14 So the question still stands and I'm
15 looking for the most information that I can get,
16 right? I'm trying to do an assessment. So, thanks.

17 MR. DAVID SWISHER: Yes. And, again,
18 we can only reply in the fact that it's natural.
19 Nothing's been done in there, other than us taking the
20 measurements, which we will continue to do as Rick
21 indicated.

22 We can have the -- the historic
23 detailed aquifer reports that discuss the aquifer in
24 much more detail and to much more complexity than,
25 certainly, any of us understand. And we can provide

1 that for you, if you'd like to -- to understand the
2 aquifer system a bit more.

3 THE FACILITATOR MERCREDI: Nathan,
4 would that -- and am I to understand that that's not
5 on the registry at this point?

6 MR. DAVID SWISHER: David Swisher with
7 Avalon. I think we may have -- it may be, actually,
8 within the appendices of the DAR with regards to that
9 backup detailed analysis in the Pine Point aquifer.
10 So the Stephenson International Report (phonetic) in
11 the -- I think the ERB, Beak International Report
12 (phonetic), I believe, were the two (2).

13 MR. NATHAN RICHEA: Thank you. It's
14 Nathan Richea with the Water Resources Division
15 Aboriginal Affairs. Like I preferenced at the -- pref
16 -- prefaced at the start of the session on Pine Point,
17 I haven't been able to get through all of the
18 information, so maybe the information does exist.
19 I've focussed a lot of my attention on the Thor Lake
20 area.

21 However, I have looked at the data
22 that's been provided in our response and -- well, in
23 their response to our Information Requests, and I've
24 noticed these differences. Again, all I can do is
25 sort of indicate why I'm looking at the information

1 and what context that brings to an effects assessment.

2 If within a season there are
3 differences in the water table and tailings and
4 tailings water will be discharged to the groundwater
5 table, I'm trying to understand how the groundwater
6 table will change over time during the project and
7 whether there is an opportunity for that groundwater
8 to surface prior to entering the Great Slave Lake.

9 The assessments that have been done as
10 -- in response to our Information Requests suggest
11 that it will not surface, but I don't see any
12 definitive information provided that suggests that
13 we've done an analysis and there's no depressions
14 between our proposed area and Great Slave Lake where
15 the water will or will not surface.

16 There's just a statement saying that
17 everything will be fine and diluted prior to
18 surfacing, but we don't know where that is. And
19 obviously there is some difference in the water table
20 naturally and they're proposing to put tailings in --
21 tailings water into the groundwater system.

22 So I'm just trying to understand from
23 an assessment point of view where would this surface
24 if it did? Will the input of the additional tailings
25 and tailings water cause an increase in the water

1 table? And if it did happen, where would we expect
2 something like this to -- to happen. Thanks.

3 MR. DAVID SWISHER: David Swisher with
4 Avalon. I think probably the easiest way to answer
5 that is I would recommend looking in the appendices at
6 the detailed reports, because it can answer your
7 question with regards to surfacing or not.

8 We know it does not surface. We also
9 know that with regards to this aquifer and the much
10 smaller amounts that we're proposing to infiltrate
11 into this aquifer versus another project I was
12 involved with, which was significantly more, you can
13 compare this to probably a -- a -- dropping a cup of -
14 - a coffee cup full of fresh water into the Great
15 Slave Lake and will you have that effect on Great
16 Slave Lake. The answer would be no.

17 I would -- you don't have to take my
18 word for that as a comparison, but take a look at the
19 reports that are in the appendices and I think that
20 will help solidify any concerns you may have. Thanks.

21 THE FACILITATOR MERCREDI: On that
22 note, is -- is it possible off the top of your head,
23 or maybe by the end of the afternoon for -- just to
24 facilitate that review, to have more precise
25 coordinates for that -- for those -- those reports.

1 Is that possible?

2 MR. DAVID SWISHER: I would love
3 nothing more than to do more homework tonight, so,
4 yes, I can provide that report directly to you, Paul,
5 to help facilitate that.

6 THE FACILITATOR MERCREDI: Thank you.
7 And I'm sure Simon will get the word -- wording for
8 that. One (1) question I do have for Nathan is just
9 for the Board to consider, is it -- for this
10 discharge, is it the quality of the discharge that
11 might be a concern or is it -- is -- is there a
12 quantity that might -- maybe that the water quality of
13 the aquifer and discharge might cause that aquifer to
14 surface prematurely and therefore the quality would be
15 a concern? I -- that -- that is what I -- I'd like
16 some clarification on just so there's a distinction
17 there and just -- just so the issue is -- is defined.

18 MR. NATHAN RICHEA: Thank you. It's
19 Nathan Richea with the Water Resources Division
20 Aboriginal Affairs. It's a tough question to answer,
21 but I'll do my best. I think what the company has
22 been telling us in -- in the responses to our
23 Information Requests is under the natural condition
24 the water does not surface between the site and Great
25 Slave Lake.

1 There is some variability seasonally,
2 but also within the season on the water table at
3 different monitoring locations in the area. However,
4 under a natural condition if the water surfaced and it
5 caused an effect to surface waters, it's a natural
6 occurrence.

7 If the water surfaced and inputs from
8 an anthropogenic source is put into that area then
9 it's a different story. I'm trying to understand how
10 the inputs from the project may influence the water
11 table and not only the quality but -- or not only the
12 quantity, but the quality.

13 And if that water was to surface, maybe
14 not in a natural situation, but through an augmented
15 situation where twenty (20) years of water being added
16 to the system, and keeping in mind climate change,
17 cumulative effects from other operations, and the
18 surface discharge that's occurring at the Teck Cominco
19 area.

20 Whether -- if the water did surface, 1)
21 they can determine whether it is a natural occurrence
22 or it's an issue that the company or other factors are
23 causing, and try and get an assessment from an aquatic
24 effects, sort of, EA-type assessment, right?

25 So there's -- there's a bunch of things

1 that need to be considered. I haven't done an
2 exhaustive read, but it's something that needs to be
3 considered for the site. I know it's an influent
4 site, because it's, you know, been impacted from
5 previous activities.

6 But the assessment still needs to be
7 done on what your impact will do to that existing
8 facilit -- area. They have done that. They've done,
9 like, you know, some work to identify what the water
10 table is, how -- what the quality is, that kind of
11 stuff.

12 What I'm trying to understand is, what
13 are the impacts from their project on that and what
14 potential synergistic effects from other things like
15 climate change and other aspects may influence the
16 project over time?

17 MR. KEVIN HAWTON: Kevin Hawton here.
18 I just -- one (1) comment I'd like to make is that you
19 mentioned that what would be the impact of us adding
20 water to the groundwater system. And, really, we're -
21 - we're not adding any water. We're -- it's basically
22 a balance.

23 We're taking groundwater and then we're
24 putting groundwater back. So, if anything, there's
25 actually going to be a slight loss going out with the

1 concentrate to the United States. So, anyway, that
2 would just be my comment.

3 MR. NATHAN RICHEA: Thank you for your
4 comment and it's Nathan Richea, Water Resources.
5 Yeah, I don't know if it's something that can be
6 resolved here today. It's just something that an
7 assessment needs to be done, so we need to look at all
8 the information. Thanks.

9 THE FACILITATOR MERCREDI: For sure.
10 And, along those lines, Simon, do you have the wording
11 for that -- that homework?

12 MR. SIMON TOOGOOD: It's Simon Toogood
13 with the Review Board. It says:

14 "For Avalon to provide reference for
15 reports on the Pine Point aquifer--"

16 THE FACILITATOR MERCREDI: And,
17 Nathan, does that addre -- would that facilitate the
18 review of -- of that data?

19 MR. NATHAN RICHEA: Thank you. It's
20 Nathan Richea with Water Resources. I don't want to
21 make the proponent do work that it doesn't need to do.
22 I don't think that's going to address my concern. I
23 don't think that's going to address my concern.

24 The -- the DAR was developed over a
25 year and a half ago. They've been doing water

1 monitoring at the site since then. They have new data
2 since then. The reports that are available from that,
3 then, probably aren't going to answer my question. So
4 I don't think it'd be worthy for them to, like, dig
5 through and say, oh, we provided this in this report
6 and that in that report, when it has been over a year.

7 It -- it's the newer information that
8 I'm most interested in. And they provided some in May
9 and I -- I obviously didn't look at that. So
10 obviously I need to take a look at that. But they are
11 obviously also doing continued monitoring, right? So
12 I'm interested in any new information, but if the
13 newest is May then I'm going to look at May.

14 THE FACILITATOR MERCREDI: One (1)
15 clarification. For -- given that the developer hasn't
16 done anything as of yet, to the -- to the water table,
17 I -- I know this is a tough question, but how would
18 this seasonal data that they reference -- they would
19 reference, as part of this homework, how would that
20 not, kind of, address that question?

21 That's -- it's a distinction that I
22 think is -- is important to make. Un -- unless I -- I
23 might be off base in -- on making that --

24 MR. NATHAN RICHEA: I have a
25 suggestion. It might be best -- it's Nathan Richea,

1 Water Resources. It may be best just to sit down with
2 the company on a sidebar meeting, talk about what
3 information they have, what assessments they've done,
4 in an offline type situation. We can rep -- we can
5 provide a meeting report to be put on the registry.

6 Is -- it's just too complex to, sort
7 of, get into. Like, this memo and that type of
8 report and, yeah, it's probably best to do a sidebar
9 and just sit down with them and chat about it.

10 THE FACILITATOR MERCREDI: I love that
11 word, "sidebar." Hopefully -- hopefully that happens
12 soon. And, David, I know you wanted to follow up on
13 that.

14 MR. DAVID SWISHER: Yeah. No, we're -
15 - we'd be happy to sit down and have sidebar
16 discussion and -- and go through and -- and probably
17 by the time we schedule the sidebar when everybody's
18 available, we'll have more information that we can
19 share at the time, too.

20 So, yeah, we'll -- so sidebar would be
21 fine with us. I just want to clarify that homework
22 item number 4 has been stricken from the list.

23 THE FACILITATOR MERCREDI: In lieu of
24 a very productive sidebar meeting, I hope. So I think
25 it's fair that we can strike that. And then less

1 homework for -- for Avalon tonight.

2 With that, we'll continue the
3 discussion, opening the floor up to any -- David, did
4 you have any further comment on that?

5 MR. DAVID SWISHER: David Swisher,
6 Avalon. No, no, just waiting for Nathan's next
7 questions.

8 FACILITATOR MERCREDI: For sure.
9 Opening the floor up again for hydrometal --
10 hydrometallurgical plant questions. Anyone? Ralph?

11 MR. RALPH GRISMALA: Ralph Grismala,
12 ICF Marbek. This is just a quick one (1), and it
13 refers to the Table 4 that has the monitoring data
14 that Nathan had referred to before. The title for one
15 (1) of the columns is "Water Level Elevation." It was
16 mentioned that this is a confined aqui...

17 FACILITATOR MERCREDI: I'm going to
18 let Avalon caucus for a few moments.

19 MR. DAVID SWISHER: That's what I
20 thought. David Swisher, Avalon. I just want to
21 confirm that that's actually the elevation at the top
22 of the water.

23 MR. RALPH GRISMALA: Ralph Grismala,
24 ICF Marbek. So if it's the top of the water, does
25 that mean it's a phreatic condition, so it's not

1 actually in a confined aquifer? Or can you please
2 explain the -- the apparent contradiction there?

3 MR. KEVIN HAWTON: Kevin Hawton, with
4 Knight Piesold. I mean, basically these are just
5 monitoring wells installed into the ground, and we
6 measure the top of the water within the wells. So is
7 that...

8 MR. DAVID SWISHER: Davis Swisher,
9 Avalon. And -- and that this aquifer in this area is
10 not under pressure, which is why you're not seeing an
11 -- an exuding of water coming out of those mo --
12 monitoring wells.

13 If you'd like more information, again,
14 I can post the detailed hydrogeologic reports that
15 indicate and discuss the confined aquifer and the
16 characteristics of this aquifer that is very well
17 known in this area.

18 MR. RALPH GRISMALA: Ralph Grismala,
19 ICF Marbek. I want to thank Kevin for that
20 explanation of the monitoring well behaviour measure.
21 Well, and I understand you're measuring the water
22 level, the surfaces of the water, in the wells itself.

23 And is it my -- am I correct in
24 understanding that the water level measured in the
25 well is higher than the top of the -- the confining

1 layer of the aquifer? Be -- because if not, then the
2 aquifer wouldn't be saturated and there wouldn't
3 actually be a confined aquifer, or at least not a
4 saturated confined aquifer, and if...

5 MR. DAVID SWISHER: Yeah, David
6 Swisher here. With regards to this aquifer, again,
7 none of us here are hydrogeologic experts. So I would
8 recommend that if it would make it easier for you to
9 review the reports, extensive reporting that's been
10 done on this aquifer in this area, you could get a
11 better answer.

12 I could -- I could answer it based on
13 my knowledge with regards to dealing with this
14 aquifer, not only for this project, but with past
15 projects, but that would be the extent of it. I'd
16 hate to get into more details that would be maybe
17 picked out with regards to the wrong word that I would
18 use. So I'll leave it to you to determine if you want
19 to add homework number 4 back on the list.

20 THE FACILITATOR MERCREDI: Just to
21 clarify, the information that you're referring to --
22 David, the information you're referring to is on the
23 registry?

24 MR. DAVID SWISHER: Yes. And I -- if
25 you -- David Swisher here, with Avalon. Rick Hoos

1 wanted to me to read just a tidbit from the DAR that
2 we have on the aquifer as well. It might help provide
3 some context with regards to the size or the ma -- you
4 know, the massive nature of this aquifer.

5 During the historic Cominco days, just
6 for context, they mined out over forty-eight (48) open
7 pits. They had massive dewatering well systems in --
8 for each open pit. So basically they would have to
9 drill a whole ring of dewatering wells around the
10 outer perimeter of the pit. And then they would ring
11 -- drill a second ring of wells outside of that.

12 The inner ring was with 250 horsepower
13 pumps, and the outer ring was about 350 horsepower
14 pumps. And they had a series of probably a minimum of
15 forty (40) to fifty (50) of those pumps operating at
16 the same time. And they were pumping -- let's see,
17 what -- yeah, so over the period between 1968 and 1982
18 the yearly average dewatering rate from the Presquile
19 aquifer due to mining activities was as high as
20 269,000 cubic metres per day. It's also estimated
21 that the maximum draw down of the water table in
22 response to this dewatering was approximately 20
23 metres.

24 So hopefully that gives you an idea of
25 how massive this underground aquifer was. I can only

1 assume that the aquifer itself -- I don't know as --
2 in -- in the research we've done before on my prior
3 project that there are sulphuric springs along the Big
4 Buffalo River, which is about 35/40 kilometres to the
5 west of this area where those are just bubbling up out
6 of the ground right into the Buffalo River.

7 I know that this aquifer is a stable
8 aquifer, and based on those detailed reports, they are
9 confined aquifer. So I don't know if that answered
10 your question or not, but it -- it hopefully gives you
11 an idea that this aquifer is a massive aquifer. I do
12 know talking to people as well who worked at the Pine
13 Point mines when the pump systems or the power would
14 go down and the pumps would stop in the pit, the water
15 level would raise so quickly and re-establish itself
16 that they -- it would literally chase the trucks out
17 of the -- out of the pit.

18 So it -- it's just a massive aquifer in
19 this area and -- and I think the reports, if, you
20 know, if you choose to want to go through those, would
21 help support what we've indicated in the DAR and --
22 and what I've mentioned here as well. Thanks.

23 MR. RALPH GRISMALA: Ralph Grismala,
24 ICF Marbek. That -- that does, you know, demonstrate
25 it's a very massive aquifer with high-reach arch

1 protection and things like that.

2 I guess my original question was more
3 to is your understanding that there is a -- a good
4 connection between the water in the aquifer and the --
5 either the surface water or the -- you know, the
6 highest level of groundwater in the ground? Or is
7 there a confining layer over the aquifer, you know,
8 since you're referring to it as a confined aquifer
9 except perhaps in the areas of the pits and where
10 there's been other perforations?

11 MR. DAVID SWISHER: David Swisher
12 with Avalon. Yeah, that -- that's my understanding,
13 Ralph, is that the -- with the exception of the areas
14 that, you know, have -- have opened up access to the
15 aquifer manmade wise, that it's -- it's -- it's a
16 relatively confined aquifer. And, of course, with the
17 exception along the Buffalo River where -- the -- the
18 only place I know of. And -- and probably because the
19 Buffalo River does cut into the ground quite deeply,
20 you do have quite large elevation difference from the
21 bank to the bottom of the river, which is why it
22 probably exposes some of that aquifer which is
23 draining directly into the Buffalo River as well.

24 So other than that natural event and
25 other than the -- the manmade events exposing the

1 aquifer, my understanding is that it is a -- a
2 confined aquifer.

3 MR. RALPH GRISMALA: Ralph Grismala,
4 ICF Marbek. Thank you for that clarification.

5 THE FACILITATOR MERCREDI: Marc, I saw
6 your hand go up just about the same time as Ralph, so
7 I'll -- you're next.

8 MR. MARC CASAS: Yeah, thanks, Paul.
9 It's Marc Casas from the Mackenzie Valley Land and
10 Water Board. And, I mean, I think we're -- I'm going
11 to try to just clarify some questions that I have, and
12 I think some of them may be a bit of a repeat, but I -
13 - I think they're slightly different. So maybe I'll -
14 - I'll summarize my understanding is that at this --
15 at this particular -- the metallurgical --
16 hydrometallurgical plan that you -- there will be a
17 discharge of waste. However, that waste is -- is to
18 be discharged underground and that there's monitoring
19 stations, sort of, surrounding in -- in sort of, like,
20 a radius away from -- from the discharge point. So
21 that's -- that's my understanding. And initially my
22 question was: How do you propose to...

23

24 (BRIEF PAUSE)

25

1 MR. MARC CASAS: Okay. I'm going to
2 stop there and see if that's correct.

3 MR. DAVID SWISHER: Thanks, Marc.
4 David Swisher with Avalon. Yeah, so as outlined on
5 the map here, these are -- this is -- L-37 is an open
6 pit, not underground. And L-37 is one of forty-eight
7 (48) open pits that were mined by Cominco between 1964
8 and 1987.

9 This open pit is not open to the
10 aquifer, and this open pit here is a very large open
11 pit. So the idea behind the waste products coming out
12 of the tailings facility is that normally we would
13 build a tailings facility just like Cominco did in
14 this 2 square kilometre tailings facility and
15 discharge materials on top of the surface, and then
16 those waters would then discharge to the sur --
17 surficial environment.

18 We're fortunate enough in this area and
19 taking advantage of this area that's already denuded
20 to conduct what we consider to be progressive
21 reclamation and the tailings that we have from the
22 hydromet plant being able to discharge into the L37
23 pit.

24 And then, of course, the reclamation
25 and closure plan, as you'll hear from Mark later on

1 this week, goes into how we would then cap that and
2 basically reclaim an historical open pit back to
3 natural topographic levels in the area.

4 And that would be the -- that -- that
5 was the whole idea and probably the -- the largest
6 benefit for the placement of the hydrometallurgical
7 facility on this side of the lake. And that, and
8 being close to the existing substation for the power
9 from the Taltson Dam.

10 MR. MARC CASAS: Okay. Marc Casas
11 from the Mackenzie Valley Land and Water Board. So
12 then -- so you're not actually directly discharging
13 into the underground aquifer.

14 You're -- you're putting it in that L37
15 pit and then closing that pit. Is that correct?

16 MR. DAVID SWISHER: It's David
17 Swisher, with Avalon. The pit's already confined and
18 enclosed. In fact, if I go -- if you bear with me
19 here, I can show you in one (1) of the cover pages to
20 the DAR -- Developer's Assessment Report -- this
21 picture here, lower right-hand corner, is a picture of
22 that pit.

23 That pit is basically -- it's a deep
24 pit. It's confined already and it will contain the --
25 the solids. A barrier, as I actually had my page up

1 on too, which I don't know where -- we will have a
2 barrier within that pit -- I'll have to find it later
3 -- on this end of the pit which would be the -- which
4 would be this end of the pit here.

5 We'll have a barrier where the water
6 will be able to filter through, make sure it decants
7 before infiltration.

8 MR. MARC CASAS: Mark Casas here from
9 Mackenzie Valley Land and Water Board. Okay, thanks.
10 That -- I mean, it -- it's helping, but I don't think
11 I -- I -- in terms of the -- I understand that that's
12 sort of the -- the waste product. Now with he's --
13 they're talking about the -- I guess the -- the water
14 fraction of -- of that in terms of -- I guess that's
15 what I'm getting at is, where is -- where will that
16 go?

17 Is it going to be, you know, is -- the
18 idea that it's going to be all contained within that
19 pit and it won't seep or be any leakage, or -- or that
20 will be discharged somewhere else?

21 MR. DAVID SWISHER: No. The water --
22 the water -- decanted water from -- from this pit then
23 -- the idea is that what -- that that will infiltrate
24 back into the groundwater aquifer and that -- that's
25 why we have this line here into the N42 pit, which is

1 open to the aquifer and is a direct line into the
2 aquifer.

3 MR. MARC CASAS: Okay, so -- so,
4 ultimately, though, the water fraction will -- will
5 eventually go into the underground aquifer then. Is
6 that correct?

7 MR. DAVID SWISHER: That is correct.

8 MR. MARC CASAS: And thank you. It's
9 Marc Casas from the Land and Water Board. So then in
10 terms of -- I guess initially I had some questions,
11 and I feel like you guys have sort of answered them,
12 so my question would -- was initially: How will you
13 assess, you know, the impact of -- of this decanted
14 water on the -- on the aquifer?

15 And you can certainly quote volumes and
16 stuff, which I think you have. So maybe you can just
17 speak to that a little bit.

18 MR. DAVID SWISHER: Dav -- David
19 Swisher with Avalon. A -- again, in terms of -- I --
20 I think we've -- we've indicated before in our example
21 the -- the -- the massive portion of the aquifer, we
22 know the -- what was the water again? Is it in?

23 Yeah, the maximum water into the
24 aquifer itself is seven hundred (700) cubes a day, but
25 it's not necessarily in addition, as Kevin from Knight

1 Piesold explained. It's more of a -- a -- we're
2 already putting it back in from what we're drawing out
3 at J-44.

4 So we're -- it's -- it's more of the --
5 almost a recycle, if you will, into that. Now, as I
6 mentioned in the report that I read off, during the
7 Cominco days they were pumping over two hundred and
8 sixty-three thousand (263,000) -- on average, 263,000
9 cubic metres a -- a day out of that groundwater
10 aquifer, and that groundwater aquifer only displaced
11 20 metres. So I think that just in itself speaks to
12 how massive that aquifer is in the area.

13 MR. MARC CASAS: Marc Casas, Land and
14 Water Board. Thank you. Yeah, so I guess -- so what
15 you're saying is that the amount of water that you're
16 going to be decanting and re -- reinserting into the
17 groundwater aquifer will have no impact based on --
18 because of the -- the huge volume of water that's
19 moving through there.

20 And maybe -- I -- I see you nodding
21 there, and so I'm wondering if -- I know we're --
22 we're sort of throwing out these numbers off the top
23 of our heads. Is there -- is it possible to maybe say
24 -- to get like a -- a concrete, like, ratio of like,
25 This is how much we're going to discharge and this is

1 how much water we've measured going through here.

2 Is that a simple enough thing to maybe
3 sort of just get on record?

4 MR. DAVID SWISHER: Yeah, the water
5 balance is already in the DAR and what we have
6 indicated in terms of our discharges in the DAR as
7 well.

8 THE FACILITATOR MERCREDI: Anne?

9 MS. ANNE WILSON: It's Anne Wilson.
10 That was exactly one (1) of my questions, is I
11 couldn't find that for the hydromet site in the DAR.
12 Could you provide a reference for that?

13 UNIDENTIFIED SPEAKER: Just give us a
14 minute.

15 UNIDENTIFIED SPEAKER: Yes.

16 THE FACILITATOR MERCREDI: Avalon
17 caucus.

18 UNIDENTIFIED SPEAKER: Hi, this is
19 Yellowknife. We're just checking to see if there's
20 anybody there.

21 MR. DAVID SWISHER: David Swisher with
22 Avalon. Anne, the -- the water balance for the
23 hydromet plant is in figure 4.8.7 of the DAR.

24 THE FACILITATOR MERCREDI: Thank you.
25 And while Anne looks that up and processes that,

1 Nathan, did I see -- Marc, did you have any follow-up?

2 MR. DAVID SWISHER: Before Marc's
3 follow-up -- sorry, Paul, David Swisher with Avalon.
4 Page 720 of the DAR also provides the expectations of
5 what we expect to happen as well. Thanks.

6 THE FACILITATOR MERCREDI: Thank you.
7 Marc?

8 MR. MARC CASAS: Yeah, thank you.
9 Marc Casas, from the Land and Water Board. And does
10 that water balance include the -- the volumes going
11 through the -- the aquifer in that -- in that area?
12 I'm -- I guess that's sort of what I was -- was
13 looking for.

14 Sure. I guess like a lot of what
15 you're saying is basically there's so little -- like
16 the water that you're putting back is so little
17 compared to the -- the volume that's moving through
18 the aquifer in that area.

19 So I'm wondering just what that ratio
20 is, like, so that it's -- so that we sort of have it
21 on the record. Now you're saying you had the water
22 balance, but does the water balance include the volume
23 going through the area at that time? Well, not at
24 that time, but at -- you know, in general, I guess.

25 MR. DAVID SWISHER: Again, in terms of

1 volume of the aquifer itself, there -- there is no
2 volume. You've based it on the flow rates and the
3 flow rates in the aquifer are available in those
4 technical reports as well as in the DAR.

5 MR. MARC CASAS: Marc Casas from the
6 Land and Water Board. Okay. If they're there then we
7 can -- we can look them up then. Thanks.

8 THE FACILITATOR MERCREDI: Ralph?

9 MR. RALPH GRISMALA: Ralph Grismala,
10 ICF Marbek. Based on some of the earlier discussion
11 today, I'd like a little clarification on the
12 infiltration of water at the Pine Point site.

13 I believe that we said that it's
14 expected that most or all of the 700 cubic metres per
15 day, that was the figure, would actually infiltrate
16 into the L-37 pit. It was also said that the L-37 pit
17 is not connected to the -- to the confined aquifer.

18 MR. DAVID SWISHER: David Swisher,
19 Avalon. Yeah, I can clarify that. There's a -- I --
20 I don't have it up on the screen any more, but on the
21 very furthest tip, which would be the eastern tip of
22 the -- northeastern tip of the L-37 is where it is
23 open to the aquifer. But in part of our design
24 aspects we'll be covering that so that there is no
25 exposure to the aquifer. But that's also going to be

1 where the decanted water is going to be.

2 So we -- we predict that a lot of that
3 will just naturally infiltrate into the aquifer there.
4 However, we'll have that decantation pond, if you
5 will, there so that we can -- depending on any
6 buildup, if it does occur, then the contingency is to
7 go to the N-42 pit for infiltration.

8 MR. KEVIN HAWTON: Kevin Hawton here.
9 I'll just add one (1) clarification. When -- when
10 David says "covering," what he means is we're just
11 going to fill it with granular-type material, either
12 waste rock or -- to basically form a filter barrier
13 and -- so that we're not putting the tailings directly
14 into the aquifer, but they'll still -- the -- the
15 water will still seep through into it.

16 MR. RALPH GRISMALA: Ralph Grismala,
17 ICF Marbek. So just to recapitulate the -- or to --
18 to re -- restate it, the L-37 pit is connected to the
19 confined aquifer but only in the portion of the table
20 you're going to be decanting the water or at least in
21 the decanted water?

22 MR. DAVID SWISHER: David Swisher,
23 with Avalon. As soon as the lights are killed here, I
24 think, and -- and this comes up you'll be able to see
25 visually what we've been discussing. This is the L-37

1 open pit. This is the discharge points for the --
2 coming from the hydromat facility and the tailings.
3 These are the barrier dikes, Kevin Hawton, from Knight
4 Piesold, was referring to. And this is then the
5 decanted supernet (phonetic) pond that then we would
6 pick up that water and discharge to N-42 depending on
7 the natural infiltration rates here.

8 MR. RALPH GRISMALA: Ralph Grismala,
9 ICF Marbek. And from what you clarified a few minutes
10 ago, that area where the decant pond is in direct
11 connection to the confined aquifer, even though
12 previously you said the L-37 pit was not connected?

13 MR. DAVID SWISHER: Davis Swisher,
14 with Avalon. Yes, for clarification, this is not in
15 direct contact with the aquifer in the natural form
16 today as we know it. There's an area right on the end
17 here that does have a direct connection. And as Kevin
18 Hawton, from Knight Piesold, indicated, then a coarse
19 material, till material basically, would be filled to
20 prevent that direct connection in the future.

21 MR. RALPH GRISMALA: Ralph Grismala,
22 ICF Marbek. Okay, thank you. So the water will be
23 infiltrating into the confined aquifer, not into --
24 not into any other surface aquifer. Thank you.

25 MR. DAVID SWISHER: Dave Swisher.

1 That is correct.

2 FACILITATOR MERCREDI: I think we'll
3 take a break. I -- and I think there's some looming
4 sidebar discussions possibly during this time. Again,
5 please feel free to have those discussions. And
6 again, it's important to bring those back on mic
7 should there be any resolution or if not.

8 So we'll take -- I'll say fifteen (15).
9 We'll -- we'll come back. And I will hold 2:40, firm
10 to that. So we'll take a break. And again, hopefully
11 there's some discussion there. Thank you.

12

13 --- Upon recessing

14 --- Upon resuming

15

16 THE FACILITATOR MERCREDI: I'll ask
17 that everybody make their way back to their seats, and
18 give about a two (2) minute warning here. And then
19 we'll get underway.

20 Okay, we'll get underway again. One
21 (1) question. It sounded like a lot of the discussion
22 after lunch has been about water quantity and the
23 effects of discharging, and that's fine. I think some
24 ground was covered. I -- but, the agenda did say
25 water quality at the hydro -- hydrometallurgical

1 plant. And I'd like to throw that out there before we
2 go back to any water quantity questions.

3 So water quality, if there are any --
4 I'm going to throw that out there and ask what
5 considerations the Review Board -- what -- what should
6 be brought atten -- to attention there on that, if
7 anything? So I will throw that out there. Anne...?

8 MS. ANNE WILSON: No surprise. Anne
9 Wilson, Environment Canada. I have a few questions
10 with respect to the quality of the hydromet
11 supernatant and the -- the main one (1), is what type
12 of plume do we expect to see in the groundwater? And
13 could you produce a diagram showing concentrations?

14 MR. DAVID SWISHER: We don't have a
15 diagram at this point in -- to show that. That is
16 something we're -- we're looking at modelling once we
17 get a bit more information on the -- on the test work
18 that we're currently working on.

19 MS. ANNE WILSON: It's Anne Wilson
20 again. My concern is that the aquifer has sulphur --
21 sulfate levels in the order of, say, in the -- in the
22 few hundreds range. One (1) study showed up to
23 fifteen hundred (1,500) or so.

24 The results that we had in the DAR for
25 the tailings supernatant at the hydromet site show

1 11,000 parts per million of sulphur -- sulfate,
2 rather. So, for me, it's trying to visualize what
3 that's going to mean. And, hence, the question on the
4 volume, which I understand from the water balance
5 diagram is 256.2 thousand metres cubed per year. But
6 I can't really visualize that and what that's going to
7 mean in a plume.

8 So I wonder if it would be possible to
9 get a -- an idea of concentrations and the extent,
10 based on the information that you have at this point?

11 MR. DAVID SWISHER: David Swisher of
12 Av -- Avalon. That -- that is something we're working
13 on, Anne. It's -- it's something that it's -- it's
14 obviously been in the works, as we've been stepping
15 through some of the metallurgical work that
16 Henrietta's been involved with and -- and working on.

17 I would suggest that that be an
18 undertaking, but, again, I couldn't guarantee that we
19 could provide that by August 31st, because we're still
20 -- we're still in the test works phases.

21 MR. RICHARD HOOS: Rick Hoos, Avalon.
22 We did discuss this subject, of course, in the DAR
23 using whatever information we had at our disposal.
24 And what we did do at that time was, we -- we compared
25 the -- the make up of the hydromet solutions, or si --

1 projected solutions, or simulated solutions, I guess
2 they're called, in the DAR, compared to what the
3 background values in the groundwater were, based on
4 all of the historical work that had been done at that
5 time.

6 And I -- I might add since that time,
7 of course, we have actually initiated and completed
8 more than a year of groundwater sampling at the Pine
9 Point site and the kind of numbers we're finding in
10 the wa -- water -- in the underground water are
11 comparable to the more historic data.

12 But, anyway, in the DAR what we said
13 was:

14 "A comparison of the projected
15 chemical properties of the tailings
16 water with the historically-
17 documented groundwater quality
18 results shows that the
19 concentrations of all metals
20 parameters in the tailings water
21 will be lower than or within the
22 same range of concentrations for
23 these parameters in the existing
24 groundwater of the area."

25 And then we went further to say:

1 "In particular, the concentrations
2 of arsenic, mercury, iron, lead,
3 zinc, are expected to be lower, and
4 the concentrations of copper and
5 nickel will be within the same range
6 as existing groundwater conditions."

7 We did also point out that -- we talked
8 about the pH is expected to be slightly above neutral.
9 We've, at that point, thought it would be around seven
10 point seven (7.7):

11 "While conductivity, sodium
12 chloride, and other parameters that
13 contribute to water hardness,
14 including calcium, magnesium, and
15 sulfate, will be elevated compared
16 to current background conditions."

17 Which I think is what you've noted,
18 Anne. What we then went on to say, without the
19 benefit of groundwater modelling, but based on our
20 previous experience with the previous project in this
21 same general area, we -- we antic -- we pre --
22 predicted that these elevated levels of -- for -- for
23 certain parameters would be expected to rapidly
24 diffuse and dilute to natural background values within
25 the Presquile Formation. We did that, though, of

1 course, without the benefit of actually physical new
2 modelling.

3 MS. ANNE WILSON: Yeah, thanks. It's
4 Anne Wilson. That -- I am aware of that and I guess
5 my question is: At what extent will they be back to
6 background levels? At what distance?

7 MR. DAVID SWISHER: Yeah, Dave
8 Swisher, Avalon. Thanks, Anne. Certainly understand
9 that, and that's something that, you know, we -- we --
10 we can provide. We're still -- it's still in the
11 works, but just not certain if we can provide it by
12 the end of the undertaking. But we can provide it to
13 the Review Board as soon as it -- it comes available.

14 THE FACILITATOR MERCREDI: Is there a
15 guesstimate for a date?

16 MR. DAVID SWISHER: Yeah, I would say
17 that we should be able to provide that before the end
18 of September.

19 THE FACILITATOR MERCREDI: We can
20 maybe capture that as a commitment if that date is --
21 if that is something that is acceptable to Avalon.

22 MR. DAVID SWISHER: I think that's a
23 good idea. David Swisher, Avalon. We can commit to
24 have some more information with regards to that
25 modelling, to answer your question, Anne, by the end

1 of September.

2 THE FACILITATOR MERCREDI: Thank you,
3 and let's go to our timekeeper, Simon, for wording on
4 that. Just, again -- again, wording is important so I
5 know Simon may not be the most popular person here,
6 but we will go to Simon for wording. That's -- at
7 least on this side of the room maybe. He's an
8 excellent colleague. Simon...?

9 MR. SIMON TOOGOOD: Man, getting
10 dirty. I have the wording, it's a work in progress
11 here, but:

12 "Avalon to provide information at
13 the Pine Point site on modelling on
14 the contaminant plumes stemming from
15 the discharge of effluent to the
16 aquifer."

17 THE FACILITATOR MERCREDI: Anne, does
18 that address the concern?

19 MS. ANNE WILSON: Anne Wilson,
20 Environment Canada. Could we add "including a plume
21 diagram"? I would just like a -- a diagram of this
22 based on what is known about the movement of the
23 aquifer so we can see how it's going to go and what
24 the shape would look like.

25 MR. DAVID SWISHER: As long as you

1 don't ask for anything more. David Swisher, Avalon.

2 Yes, that -- that would be find.

3 THE FACILITATOR MERCREDI: Thank you,
4 and we'll get a final reading from Simon.

5 MR. SIMON TOOGOOD: Essentially, it's:
6 "Avalon to provide at the --
7 information at the Pine Point site
8 on modelling of the contaminant
9 plume stemming from the aquifer,
10 which includes a plume diagram."

11 MS. ANNE WILSON: Yeah, it's Anne
12 Wilson. I would ask for it in full colour, but I was
13 told not to ask for anything more.

14 THE FACILITATOR MERCREDI: Thank you.

15 MR. DAVID SWISHER: David Swisher,
16 Avalon. We'll -- we'll endeavour to try to have that
17 prior to the end of the month so we have no more
18 outstanding items, but I feel better as a commitment
19 by the end of September. So -- and, Anne, we'll try
20 to do that in colour as well. Thanks.

21

22 --- COMMITMENT NO. 2: Avalon to provide
23 information at the Pine
24 Point site on modelling of
25 the contaminant plume

stemming from the aquifer,
including a plume diagram

4 THE FACILITATOR MERCREDI: For sure,
5 thank you. With that, we'll move on with the
6 discussion.

7 MS. ANNE WILSON: It's Anne Wilson,
8 Environment Canada. I'm going back to the approach
9 that was taken with the Tamerlane Project where
10 discharge to groundwater was proposed.

11 Are you planning to propose any
12 effluent quality criteria for discharge into the
13 exfiltration pit?

14 MR. DAVID SWISHER: David Swisher,
15 Avalon. We weren't planning on that, and just because
16 of Rick's review there and the fact that the majority
17 of the constituents are going to actually be better
18 than the groundwater aquifer itself. So we weren't
19 planning on that.

20 I think we'll know a lot more after we
21 conduct the modelling and we have a chance to take a
22 look at the modelling to determine if that would be
23 necessary. We'd certainly be willing to work with
24 AANDC and EC on that in September.

25 MS. ANNE WILSON: Okay. Thank you for

1 that. It's Anne Wilson. My next question is to do
2 with the monitoring. The AEMP that we've got, of
3 course, doesn't cover the groundwater monitoring at
4 the hydromet site. Can you just say a little bit
5 about what is proposed for future monitoring once
6 discharge or exfiltration has begun?

7 MR. DAVID SWISHER: David Swisher,
8 Avalon. I think it would be very similar to what
9 we've -- what we've seen in the past with the
10 exception of we'd probably propose a couple more
11 monitoring points outside of what we've got already.
12 So that -- and it would be within the plume, if you
13 will, that you're interested in taking a look at.

14 So I think all of that will really
15 become much more clear to both us and yourself and
16 AANDC once we have a chance to -- to sit down and have
17 that discussion in terms of what makes the most sense,
18 to make sure we're capturing and monitoring things in
19 a -- in a -- in a responsible manner.

20 MS. ANNE WILSON: Anne Wilson,
21 Environment Canada. Okay, thank you for that. My
22 next question has some things to do with water quality
23 and some things to do with birds.

24 How will you keep birds out of the
25 standing water at the exfiltration and the tailings

1 area there? Because it is -- would be highly
2 deleterious to them, I believe.

3 THE FACILITATOR MERCREDI: One --

4 MR. DAVID SWISHER: David -- what?

5 THE FACILITATOR MERCREDI: One moment.

6 Anne, I'm just wondering if this would -- could also
7 extend to the Nechalacho site or is it just the
8 hydrometallurgical site that you were -- that your
9 question would be directed at?

10 MS. ANNE WILSON: Anne Wilson,
11 Environment Canada. The sites that would be of
12 concern would be the -- the -- sorry, the
13 hydrometallurgical site because of the high major ions
14 there, particularly the sulfate. Then any land farm
15 areas that might attract birds to land on open water
16 that contain hydrocarbons, and a lot less so with the
17 tailings, but keeping an eye on the quality as it was
18 filled in that, you know, could be added to a site
19 that would need bird deterrence.

20 MR. DAVID SWISHER: David Swisher
21 with Avalon. I think we'll just shoot all the birds.
22 Just joking. Let the record show that I am joking.

23 No, I think -- again, I think this kind
24 of goes back to what I was mentioning with regards to
25 the modelling. Once we kind of put together some of

1 the -- the -- the modelling efforts then I think it
2 will also come to light. Because we're -- what we're
3 working on, to be honest with you, is trying to make
4 sure we have more of the most recent information for
5 that modelling effort.

6 In the DAR we provided simulated
7 samples. Well, we're conducting a pilot test so we'll
8 actually have actual information to be able to
9 incorporate into that model. And -- and what we're --
10 what we're seeing pre -- preliminarily right now is
11 that the DAR is reflecting again what we had always
12 reflected. And the DAR was more conservative numbers,
13 more of a worst-case scenario than what we're actually
14 seeing in the pilot scale.

15 So once we have that information I
16 think it will be important for us to then talk about
17 that with regards to birds. But there are -- there
18 are bird deterrence systems out there for tailings
19 facilities that we've seen at various operations. And
20 -- and, you know, certainly part of our sustainability
21 would be to make sure that if there is any harm --
22 we're not saying there would be any harm right now
23 because we want to confirm the data -- but if -- if
24 it's determined that there could be any harm to any
25 bird species then -- then we would certainly look at

1 bird deterrence for that area.

2 MS. ANNE WILSON: Thank you for that.

3 It's Anne Wilson, Environment Canada. Now my last
4 point is just going to be a note on a sidebar I had
5 with Henri earlier.

6 And I looked at the levels of sulfate
7 in the proposed effluent and I thought, Those are so
8 high, they have to be able to do something with that.
9 I'm advised the only other alternative -- just for the
10 record -- was to bake it off into the air, so we're
11 going to leave it happily status quo. And I just
12 wanted to go on the record that we were thinking about
13 recycling, because Environment Canada thinks about
14 those things. So that was just a comment.

15 THE FACILITATOR MERCREDI: Thank you.
16 And -- okay. On -- again, on the hydrometallurgical
17 plant water quality, were there any further comments?
18 Ralph?

19 MR. RALPH GRISMALA: Ralph Grismala,
20 ICF Marbek. And it's possible I'm not up to date on -
21 - on the submission. Do the water quality parameter
22 testing that's been done for the hydromet plant
23 include rare earth elements in -- for the supernatant
24 water qual -- or parameters? Does that analysis
25 include...

1 MR. RICHARD HOOS: Rick Hoos, Avalon.

2 As of the last water quality sampling period, which
3 was in April -- this was partly as a res -- result of
4 a request from the Board and others -- we are now
5 analyzing all those samples for rare earth elements as
6 well.

7 MR. RALPH GRISMALA: Ralph Grismala,
8 ICF Marbek. Thank you.

9 THE FACILITATOR MERCREDI: Okay,
10 again, how ma -- water -- HMP water quality, I'll just
11 say that. Opening the floor up for any questions on
12 that. If not, we can go back to water quantity.
13 Nathan?

14 MR. NATHAN RICHEA: Thank you. It's
15 Nathan Richea, with the Water Resources Division. I
16 just thought I had to chime in on the water quality
17 part. But I don't have anything to say. It's just a
18 comment. I'm looking forward to the modelling and, I
19 guess, the sidebar that will be done in the next
20 couple weeks.

21 And as Water Resources Division of
22 Aboriginal Affairs, we're concerned about water
23 quality and quantity. Like I said previously, I
24 haven't had an opportunity to go in any detail into
25 water quality at the Pine Point site to date. I spent

1 a lot of time looking at the water quality at the Thor
2 Lake site. So, yeah, I don't really have anything to
3 say at this point. But we'll be looking at this as
4 well.

5 And I think a good starting point will
6 be the meeting that we'll have with the company in the
7 next few weeks.

8 THE FACILITATOR MERCREDI: Thank you.
9 Okay, it sounds as though the water quality, at least
10 for today, discussion has maybe reached its -- its
11 logical conclusion. Unless I -- I will open it up
12 again, just open the floor. And I believe Shannon has
13 a question.

14 MS. SHANNON HAYDEN: It's Shannon,
15 with the Review Board. And it's not a question. I
16 just wanted to follow up. While you were gone, Nathan
17 had asked for a reference to a document that was on
18 the registry, a May 4th memo for groundwater drilling.
19 I can't remember the title of the -- the memo, but it
20 would be in the transcripts. And I had provided that
21 to Nathan, so.

22 I think it's document number 160 in the
23 public record. Okay, that's all.

24 THE FACILITATOR MERCREDI: And another
25 excellent Review Board colleague to my left here. I'm

1 surrounded by talent. Okay, if there -- again, I'll
2 open up the floor for the HMP water quality -- water
3 quantity. If there are no questions, we'll move to
4 fish.

5 DFO, I see, is here. I'll ask them if
6 they have any questions for the Developer for today.

7 MS. SARAH OLIVIER: Hi. This is Sarah
8 Olivier, with Fisheries and Oceans. I guess, for the
9 record, based on Avalon's IR responses to date, and
10 they also provided additional clarification on the
11 Review Board site, it was a letter to DFO in response
12 to some additional questions we had related to the
13 spillway, the decant pipe, the dock infrastructure,
14 and sediment and erosion control. And that -- that's
15 on the Review Board site.

16 So based on all that information, DFO
17 doesn't have any additional questions at this time.

18

19 FISH AND FISH HABITAT

20 THE FACILITATOR MERCREDI: Thank you.
21 On the subject of fish and fish habitat, I'll open up
22 the floor for any questions for that. And I see
23 nobody's jumping up, waving their arms. Simon or
24 Ralph? That's a good point. I will go to the
25 teleconference line.

1 Teleconference line, do you have any
2 questions on any of the issues: Nechalacho water
3 quality, hydromedical -- metallurgical plant water
4 quality, any water quantity, fish or fish habitat?
5 And let the record show the sound tech is -- is
6 indicating "no".

7 So as far as subjects today, if there
8 are any further subjects -- at this point if there's
9 no HMP water quantity/water quality questions, no fish
10 habitat questions, we can go back to Nechalacho, or we
11 can -- and I am throwing it out there, just because
12 people may have scheduled not to be here today we
13 won't move up the agenda, but now might be a good time
14 -- if we do break -- I see one (1) person at the
15 table.

16 Unless there are no more questions,
17 this would be an opportunity perhaps for two (2) to
18 six (6) or seven (7) hours of sidebar discussion.
19 Just throwing it out there. So -- or home -- or
20 homework, for sure.

21 So again, I'm -- if -- if there are no
22 further questions, we can break for the day and --
23 either for homework and/or sidebar discussions. I do
24 see a question here, so we will field that.

25 MS. LAURA JONES: Hi, it's Laura Jones

1 here from Transport Canada. And I have questions, but
2 I think they're more suited to the emergency response
3 portion of the agenda. I'm not sure if you're
4 comfortable talking about them now or if the Review
5 Board staff is comfortable talking about them now.

6 THE FACILITATOR MERCREDI: By that, do
7 you mean accidents and malfunctions?

8 MS. LAURA JONES: Oh, yeah, that's
9 what I mean.

10 THE FACILITATOR MERCREDI: Fair
11 enough. Are you going to be here tomorrow?

12 MS. LAURA JONES: Yes, I will be here
13 tomorrow.

14 THE FACILITATOR MERCREDI: In that
15 case, just because there might have been other
16 agencies or parties that would have -- would have
17 liked to have discussed that, I think it's -- we -- we
18 do have some time allotted for that. So if -- if
19 that's all right -- David, go ahead.

20 MR. DAVID SWISHER: If I may. As
21 well, I'll also have a -- just an -- an introductory
22 presentation for tomorrow's agenda items to provide,
23 which may cover some of those items as well.

24 THE FACILITATOR MERCREDI: Okay. I'll
25 ask David, were there any -- were there any comments -

1 - I know that the presentation on fish and fish
2 habitat is on the -- is posted on the public registry,
3 available on the web -- the Review Board website.

4 Were there any further comments from --
5 from Avalon on -- on that that they wanted to add,
6 just -- just as far as having an opportunity now?

7 MR. DAVID SWISHER: David Swisher,
8 Avalon. No further comments. Appreciate the extra
9 time for homework.

10 THE FACILITATOR MERCREDI: Okay. If
11 there are no further questions for those that are
12 present or on the teleconference line, again, this is
13 a -- speak now, or else we will break, so -- until
14 tomorrow, or before -- we will review the homework
15 items for -- from today.

16 Again, if there is -- we can go back
17 into Nechalacho water quality. If that's not the
18 case, then, again, for the final time, we will break.
19 And I am not seeing -- Nathan?

20 MR. NATHAN RICHA: Hi, it's Nathan
21 Richea, with the Water Resources Division Aboriginal
22 Affairs. Almost got away. I don't know if this the
23 appropriate time, so I'm just going to ask whether or
24 not I should talk about this or wait until tomorrow,
25 just because you were like really trying to see if

1 there was any other questions.

2 I had some -- some thoughts on the
3 tailings containment facility at the Thor Lake project
4 site, and I was just wondering if it's something that
5 I should wait until tomorrow to talk about? It's kind
6 of an emergencies -- in the emergency section, or
7 accidents or (AUDIO MISSING) put it there, but I think
8 it also has bearing on site-specific water quality
9 objectives. So I wasn't sure if I should wait or
10 bring it up now or -- or what I should do. So what do
11 you think?

12 THE FACILITATOR MERCREDI: If it -- if
13 it has to do with water quality objectives, then yes.
14 I know that Transport Canada is -- it's a little
15 different along those lines. If it does have -- deal
16 with water quality then, yeah, I think we'll field
17 that for -- for a few minutes here.

18 MR. NATHAN RICHEA: Thank you. It's
19 Nathan Richea with the Water Resources Division,
20 Aboriginal Affairs. I had a question about the design
21 for the tailings containment facility and the
22 precipitation events.

23 I guess the design criterion for
24 precipitation. I think the structure itself is built
25 for design -- a design flood of one hundred (100) --

1 one (1) to twenty-five (25) year. However, the
2 spillway design, the emergency spillway was designed
3 to one (1) to one thousand (1,000) year.

4 And I was just curious if I can get the
5 Proponent to discuss aspects of the design for the
6 tailings containment area in the spillway.

7 MR. KEVIN HAWTON: Kevin Hawton, with
8 Knight Piesold. Yeah, that's correct. The -- the EDS
9 is the -- what we call the environmental design storm.
10 And basically what that means is that we're going to
11 maintain enough freeboard to always contain the one
12 (1) in twenty-five (25) year storm event.

13 The spillway was modelled for the one
14 (1) in a thousand (1,000), as you've mentioned. To
15 model that, we basically simulated that the water
16 level was at the spillway invert and then passed the
17 storm through that using our hydr -- hydrology
18 modelling software. I hope that answers the question.

19 MR. NATHAN RICHA: Thank you. It's
20 Nathan Richea, with the Water Resources Division.
21 Yeah, it answers the question. I guess I was just
22 curious as to why the design standard for the spillway
23 is one (1) to one thousand (1,000) when the
24 environmental design storm is one (1) to twenty-five
25 (25).

1 Are you expecting a precipitation event
2 that would be greater than the one (1) to twenty-five
3 (25) year return period?

4 MR. KEVIN HAWTON: Kevin Hawton, with
5 Knight Piesold. No, basically, I mean we -- we
6 mandate the -- the design storms based on the Canadian
7 Dam Association guidelines. And what we do is, we do
8 a -- we -- we assess the facility for its risk and
9 consequences.

10 And it's -- it's pretty much mandated
11 by that -- it's not mandated, but it is, you know,
12 that -- that's just a guideline we use, and it's
13 generally accepted throughout the world.

14 MR. DAVID SWISHER: David Swisher,
15 with Avalon. If I could -- if I could add to that.
16 We -- we also -- I guess, what contributes to this is,
17 although that's mandated throughout the world, it's
18 also mandated in areas that it -- it's currently used
19 in much higher-precipitation areas. We do have a low-
20 precipitation area here that is known in the -- in the
21 climate. So it just adds, maybe, a little bit higher
22 level or degree of -- of confidence in that.

23 MR. KEVIN HAWTON: Kevin Hawton, with
24 Knight Piesold, again. And Mark made a good point is
25 that the -- the EDS, the one (1) in twenty-five (25)

1 year storm, is -- is what we consider to be our
2 minimum freeboard.

3 In reality, the way the facility is
4 going to be operated, I mean, I can't quote the exact
5 number, but I suspect we could contain the one (1) in
6 a thousand (1,000) year anyway if we have the pond
7 levels at normal operating levels.

8 MR. NATHAN RICHEA: Thank you. It's
9 Nathan Richea, with the Water Resources Division.
10 Yeah, I'm familiar with the dam safety guidelines. In
11 the tables that referenced a dam consequence
12 classification, there are a series of consequence
13 classifications, starting with low, significant, and
14 they get on and on in severity past then.

15 I think, typically, a one (1) to one
16 hundred (100) year event is the minimum -- minimum
17 standard for low to significant. I was just curious
18 if you could -- if you had any thoughts on that or any
19 -- any input on the -- on the low to significant
20 classification? I think the lowest one (1) you can
21 get is low.

22 So I was just wondering why there's a
23 difference between, sort of, the minimum standard of
24 one (1) of twenty-five (25) versus the one (1) to one
25 hundred (100) year return period?

1 MR. KEVIN HAWTON: Kevin Hawton, with
2 Knight Piesold. The -- the CDA doesn't mandate an
3 (MISSING AUDIO). It -- it mandates a spillway design,
4 what you need to be able to safely pass to prevent
5 failure of your dams. So the EDS is, you know,
6 basically an Avalon commitment more than anything.
7 It's not necessarily something they need to have.

8 MR. NATHAN RICHEA: Thank you. It's
9 Nathan Richea with the Water Resources Division. So I
10 guess I'm just trying to -- to understand. The
11 projected life of the project is twenty (20) years.
12 The design standard for the tailings is currently set
13 at one (1) to twenty-five (25) years.

14 The potential for that storm to
15 actually occur during the life of your project is
16 relatively high, meaning the spillway would actually
17 be in action. And, potentially, effluent or tailings
18 water could be released to the receiving environment,
19 meaning you're out of compliance with your licence,
20 plus you're not meeting your site-specific water
21 quality objectives.

22 So I'm just curious as to why a more st
23 -- you know, the design for the spillway is a one (1)
24 to one thousand (1,000) year, but the design for the
25 facility is one (1) to twenty-five (25), why there's

1 such a great distinction between. Your spillway will
2 survive, but you're going to overtop your tailings
3 facility.

4 So I'm not really sure why you would
5 design it that way, especially if you have a twenty
6 (20) year mine life.

7 MR. KEVIN HAWTON: Kevin Hawton, with
8 Knight Piesold. I mean, basically, like I said
9 before, the capa -- you know, we've specified these
10 minimum capacities for the EDS, et cetera. And -- and
11 the EDS is -- is the volume available above the
12 maximum operating level. Which, you know, Avalon has
13 no intent of operating the facility at the maximum
14 operating level.

15 So, you know, really, like I said
16 before, there is -- there is extra capacity there,
17 especially in the initial years. We could probably --
18 I mean, you know, we're building the dams to -- to a
19 certain height. And -- and really we only -- we only
20 approached these -- these limits towards the end of
21 the facility life, once the -- once the tailings start
22 to fill the capacity.

23 Does that help?

24 MR. NATHAN RICHA: Thank you. It's
25 Nathan Richea, with the Water Resources Division. No,

1 thank you for your explanation. And I understand, you
2 know, what the dis -- your discussion and your
3 answers. It's typically towards the end of mine life,
4 when we start to run out of capacity, where we run
5 into these issues. And -- and that's why I'm bringing
6 up the concern.

7 When you start the production of
8 tailings and you start construction or operation at
9 the -- at the site, there's lots of flexibility to do
10 things. But over the course of an operation,
11 sometimes ice la -- ice lenses within your tailings or
12 the density of your tailings may change depending on
13 different characteristics of the ore or the waste rock
14 or the source of -- of the ore itself, and conditions
15 within your tailings facility change.

16 A commitment to operate the facility at
17 the operating level is an acceptable standard, and
18 thank you for -- for saying that.

19 My concern is, in the event that, you
20 know, we can't meet the operating level of the
21 facility and we do in ha -- in fact experience a one
22 (1) to twenty-five (25) year storm event, which
23 includes snow melt and runoff, like rainfall at the
24 same time, which typically can increase to volumes in
25 their facility, how we would handle that event in that

1 circumstance and whether or not, you know, a more
2 safety-cautious design standard may be appropriate.

3 MR. KEVIN HAWTON: Kevin Hawton,
4 Knight Piesold. I mean, you mentioned that, you know,
5 we're having the one (1) in twenty-five (25) year
6 storm for the EDS over a twenty (20) year life, when
7 really it's the one (1) in twenty-five (25) year storm
8 for about a one (1) to two (2) year period at the end
9 of the -- at the end of the lives of the -- of the
10 facility. So, you know, the risk isn't as great as --
11 as what -- as what you've portrayed.

12 MR. DAVID SWISHER: David Swisher,
13 with Avalon. In addition to that, because of the
14 design and the design of the spillway, as -- as
15 Kevin's outlined, there certainly wouldn't be any
16 concerns with the SSDWQOs in this case, because if you
17 do end up with one (1) in twenty-five (25) in the last
18 couple years of the facility life, you're actually
19 significantly diluting any of the potential flu --
20 effluent.

21 MR. NATHAN RICHEA: Thank you. It's
22 Nathan Richea, with the Water Resources Division. No.
23 And thank you for your answers. Like I -- like I was
24 saying, it's usually towards the end of the operations
25 where this really becomes an issue.

1 And presuming your projections for
2 water quality within the tailings facility are equal
3 to the projections today, then dilution may be
4 sufficient to meet the objectives in a receiving
5 environment. But we won't know that until we're at
6 those later stages. So we -- I'm just going from
7 experience in running into issues at other operations,
8 so the concern I have still remains.

9 I understand your answers, but I think
10 that's all I have for today. Thanks.

11 MR. DAVID SWISHER: David Swisher,
12 with Avalon. I appreciate that. I certainly
13 understand it. And I think, given the -- the timing
14 there that we've discussed towards the end, you know,
15 we're going to have a lot of time during the operating
16 period. And, of course, with the reporting
17 requirements we're going to have to -- to assess and
18 evaluate and make those determinations.

19 Not to say that we wouldn't have to
20 change something operationally down the road to
21 accommodate those changes. You know, again, Avalon,
22 given where -- where our commitments are, to be a
23 socially responsible company, you know, it's hard to
24 say where we're going to be in -- in year 23 -- or
25 excuse me, year 18, 19, 20.

1 But, you know, we -- we have committed
2 to meeting these -- these principles and these
3 guidelines and making sure that we're working with the
4 regulators to ensure that not only is there
5 compliance, but -- but we -- we're accounting for --
6 for all accidents and malfunctions as well. Thanks.

7 THE FACILITATOR MERCREDI: Thank you.
8 Nathan, any followup? Okay, I know we do have tele --
9 well, it -- it appears that Shannon Gault, with
10 Yellowknives, YKDFN, has -- is having trouble
11 contacting us through the teleconference line, so I'm
12 just -- while we're on the record, what we will have
13 to have happen is have Shannon email us her question
14 or questions. We'll read those into the -- the record
15 tomorrow, and then either Avalon can respond with the
16 -- or else there might be an undertaking -- there may
17 or may not be an undertaking or commitment. And then,
18 unfortunately, she has not been able to -- to get
19 through. So for now, we will email her and read --
20 read that into the record and address that depending
21 on -- on how Avalon is able to address those
22 questions.

23 So with that, I do believe I just saw
24 Mike Tollis with Lutsel K'e come in, and do you have
25 any further questions before we break for the day?

1 No? Okay. So at this point, I'm not seeing any --
2 stand up and shout unless -- otherwise we will break
3 for the day.

4 With that, and again, I'm -- I'm asking
5 because there are a couple of advisors in the audience
6 here today on both sides that will not be -- likely
7 not be available tomorrow, so it -- it's just
8 important to get those questions in.

9 The paste backfill study that David
10 submitted for Avalon, that will be posted by the end
11 of the day today. I will -- the agenda for tomorrow
12 is wildlife for the morning; accidents and
13 malfunctions in the afternoon; and then mine waste
14 management, closure reclamation, and -- and any other
15 such issues. So that's the agenda for tomorrow.

16 I appreciate everyone's participation
17 today. It's just, again, I think, been a productive
18 day. I'd like to thank my colleagues for their
19 awesome help, and again I'd like to thank the
20 technical advisors for -- for the Avalon team for --
21 for coming and -- and -- and participating, it's been
22 very helpful. So thank you.

23 Before we go, I will have Simon read
24 out the homework and commitments for -- for the Avalon
25 team if the Avalon team is prepared. And, Simon?

1 MR. SIMON TOOGOOD: It's Simon Toogood
2 with the Review Board. So continuing numbering from
3 yesterday, but it's commitment -- sorry, homework
4 number 9, which is number 1 for day 2. And it's:

5 "Avalon to provide an update of
6 Table 1 in attachment 3 of Avalon's
7 May 10th submission to reflect the
8 predicted max LC-50 concen..."

9 Nods all around. Okay.

10 Homework number 10, that's number 2 for
11 day 2:

12 "Avalon to provide an update of
13 Table 6.4-2 of the DAR to include
14 updated information of the zinc
15 concentration and tracer
16 concentration."

17 Everyone's agreeing? Yes? Commitment
18 number -- oh, sorry, homework number 11:

19 "Avalon to provide updated higher
20 resolution images of hose changes to
21 the tailings management facility."

22 Okay. And we'll go up to -- we're
23 going to go to commitments. And there was a
24 commitment to:

25 "Avalon to provide information at

1 the Pine Point site on modelling of
2 the contaminant plume stemming from
3 discharge of effluent to the
4 aquifer, including a plume diagram."

5 And we have undertakings.

6 "Requested -- Avalon request
7 sorry]. Updated water balance --"

8 THE FACILITATOR MERCREDI: Simon, just
9 -- I believe it is early September that --

10 MR. SIMON TOOGOOD: Oh, timeframe?

11 THE FACILITATOR MERCREDI: -- that was
12 -- yeah.

13 MR. DAVID SWISHER: David Swisher
14 with Avalon. The commitment was for the end of
15 September. However, we'll endeavour to provide that
16 just as quickly as we can. We want to make sure the
17 data is correct.

18 MR. SIMON TOOGOOD: To undertakings.
19 We have a request for updated water balance for the
20 Thor Lake site showing flows and reflecting changes in
21 the project as shown in Figure 4.7-10 of the DAR.
22 Seeing no objections?

23 Number 2:

24 "Avalon to provide an updated
25 commitments table."

1 Number 3:

2 "Avalon to provide MSDS (phonetic)
3 sheets for reagents listed in Table
4 4.7.2.4 of the DAR and any other
5 repos (phonetic) at the Thor Lake or
6 Pine Point sites."

7 MR. DAVID SWISHER: David Swisher,
8 with Avalon. Avalon agrees with all undertakings,
9 commitments, and homework that has been read back.

10 THE FACILITATOR MERCREDI: Thank you.
11 And are there any objections to the -- to that
12 reading? I'm not seeing any objections, so.

13

14 (BRIEF PAUSE)

15

16 THE FACILITATOR MERCREDI: Yeah.
17 Yeah. That was not on the record. So with that, I --
18 again, I thank everybody for their participation
19 today. Thank you again. Have a great day. See you
20 tomorrow at 9:00.

21

22 --- Upon adjourning

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1 Certified correct,

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8 Wendy Warnock, Ms.

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