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NATURAL RESOURCES CONSERVATION BOARD

AOPA HEARING: LA19036

MUILWIJK AOPA REVIEW HEARING

P R O C E E D I N G S

Volume 1

April 20, 2021

(Via videoconferencing)

1 Natural Resources Conservation Board in Alberta,
2 proceedings taken virtually.

3

4 Volume 1

5 April 20, 2021

6

Peter Woloshyn	Panel Chair
L. Page Stuart	Panel Member
Earl Graham	Panel Member
Indra Maharaj	Panel Member

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William Kennedy	NRCB Counsel
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Laura Friend	NRCB Staff
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11

Jim Prince
Sylvia Kaminski
Carolyn Taylor

12

Fiona Vance	For the NRCB Field Services
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13

Cody Metheral	Spokesperson for Arie and Willemina Muilwijk
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14

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Donna Gerbrandt, CSR(A) Deanna DiPaolo, CSR(A)	Official Court Reporters
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18

(PROCEEDINGS COMMENCED AT 9:28 A.M.)

19

THE CHAIR: Well, good morning, everyone, and

20

welcome. My name is Peter Woloshyn, and I'll be

21

chairing this Panel of the NRCB to hear Mr. and Mrs.

22

Muilwijk's appeal of Decision LA19036.

23

So, first of all, I'd like to thank all the

24

parties for accommodating the Board request for holding

25

this hearing in late April. This did accommodate our

09:28

1 hearing of the Springbank Dry Reservoir Project. That
2 hearing was March 22nd through April 6th, or April 7th.
3 So we really do appreciate that accommodation.

4 I would like to briefly introduce the Panel. For
5 your reference, the Board bios are all on the NRCB
6 website in more detail, but I would like to
7 introduce -- we can maybe give a wave so people can see
8 you, as I introduce you to Page Stuart. Page has a lot
9 of background experience in the feeding industry. She
10 was management -- on management of a large feedlot in
11 central Alberta, chair of the Alberta Cattle Feeders
12 Association, worked with Elanco, and has been with the
13 Board for over three years.

09:29

14 Mr. Earl Graham, a familiar wave, perfect,
15 Mr. Graham, has extensive experience in municipal
16 politics, including being deputy reeve of
17 Clearwater County for a number of years. Mr. Graham
18 has spent time on various committees of Alberta Water
19 Council, and he also has experience with the
20 Subdivision Appeal Board.

09:30

21 Ms. Indra Maharaj -- where are you there? There
22 you go. Thank you. Indra is a lawyer with 30 years of
23 experience, including adjudicator tribunals and energy
24 regulation. She's also served as the chair of the
25 Criminal Injuries Review Board.

1 And I am Peter Woloshyn. I grew up on a forage
2 and beef farm near Devon, Alberta. I have been with
3 the NRCB since my appointment as CEO back in May 2006,
4 and then had that position, when I was voted chair late
5 in December 2017.

6 I have a background in resource economics, policy,
7 and led several research divisions in both crops and
8 the livestock area. During my tenure as CEO I led the
9 management team, of course, here at the NRCB, and that
10 management team included Mr. Cumming.

09:31

11 Assisting the Board today, we have Mr. Kennedy,
12 your general counsel. Good morning, Mr. Kennedy. And
13 many of you have been speaking with both Mr. Kennedy
14 and Ms. Friend, our manager of Board reviews. So
15 welcome.

16 And, as well, the Panel has contracted Mr. Jim
17 Prince, a professional engineer, to assist the Panel
18 with technical review of submissions and the evidence
19 provided today. Mr. Prince spent a good part of his
20 career with Lafarge.

09:31

21 So at appeal services we have a number of NRCB
22 staff, of course, including the participants of the
23 review. We have Ms. Vance, the chief legal officer for
24 operations. Good morning, Ms. Vance.

25 MS. VANCE: Good morning, Mr. Chair.

1 THE CHAIR: Good morning. Mr. Scott
2 Cunningham, an environmental specialist, is also here,
3 as he assisted the approval officer here in making his
4 original determination on the application.

5 And we have a couple staff from the NRCB for
6 document management. And these folks helped us out on
7 the SR1 project. Ms. Sylvia Kaminski will be running
8 document management today.

9 And, Ms. Kaminski, are you there? You're often a
10 little shy. There she is. Hi, good morning.

09:32

11 And backing up Ms. Kaminski in case something goes
12 wrong is Ms. Carolyn Taylor. Ms. Taylor, are you
13 online?

14 MS. TAYLOR: Good morning, Mr. Chair. Yes, I
15 am. Thank you.

16 THE CHAIR: Good morning. So they did a
17 phenomenal job with SR1, and they are now seeded
18 veterans at document management in the virtual hearing
19 setting. But when you do want a document shared, we
20 would ask you to clearly say the exhibit number. And
21 if you have it, if you repeat it once or twice, that's
22 okay. These folks will be busy looking for that number
23 on the fly. So if you clearly say the exhibit number.
24 And, if you can, if you have it available, the pdf page
25 number so they can get to the exact location in that

09:32

1 exhibit quickly. And then just give the document
2 manager, you know, a couple of moments to get that up.
3 They're very quick, but it isn't instantaneous. So
4 just give them a moment or two to get that document up
5 on the screen.

6 And I would like to introduce our Zoom host, who
7 also hosted our SR1 hearing, Mr. Wiebe with MNP.

8 Mr. Wiebe, are you online? Will you be online?

9 MR. WIEBE: Yeah. Of course I am.

10 THE CHAIR: Yes. We hope you are, or we're
11 flying solo.

12 MR. WIEBE: Yeah.

13 THE CHAIR: All right, okay. Thank you,
14 Mr. Wiebe. And he'll be overseeing all of our
15 technical end on the virtual hearing.

16 And if you have an issue, Ms. Friend, did you want
17 folks to contact you or Mr. Wiebe directly?

18 MS. FRIEND: Yeah, either is fine. Whatever
19 they can get to quickest is...

20 THE CHAIR: Okay. So, Mr. Wiebe, I've got --
21 I think I have this right. And if you don't have this
22 number, please write it down. Mr. Wiebe can be reached
23 at 780-424-6398, and he is at extension 345.

24 MR. WIEBE: Yeah, that's correct.

25 THE CHAIR: Thank you. And, Ms. Friend, your

09:33

09:34

1 cell number, if you could just read that out, please.

2 MS. FRIEND: Sure. It's 403-620-8294.

3 THE CHAIR: So if something happens, just get
4 ahold of one of those two folks. And if we notice it,
5 we'll of course alert them as well. If there's
6 something that happens, you're having difficulty or
7 your audio goes out or whatever, just let them know so
8 that we can get you back online.

9 Also present are our ace court reporters from
10 Amicus Reporting, who will provide a transcript of
11 today's hearing. Welcome, Ms. DiPaolo. And I believe
12 Ms. Gerbrandt is on this afternoon; is that right?
13 Okay, thank you. So welcome this morning, Ms. DiPaolo.
14 And Ms. DiPaolo will give us the signal, wave her hands
15 or sometimes -- and also just via audio if she's having
16 difficulty hearing, getting things down, or if you're
17 speaking too quickly, Ms. DiPaolo will let us know.
18 Hopefully I'll be on top of that, but if not,
19 Ms. DiPaolo, don't be shy.

20 MR. KENNEDY: I see Ms. DiPaolo actually has her
21 hand raised on the Zoom screen, so...

22 THE CHAIR: I don't see it.

23 MR. KENNEDY: Oh. Maybe it's unique to my
24 screen.

25 THE CHAIR: She's waving at Mr. Kennedy.

09:34

09:35

1 Okay. I don't know.

2 So do you have something up on your Zoom,
3 Ms. DiPaolo? It's all working? Okay.

4 MR. KENNEDY: I just got a text. It was my
5 operator error.

6 THE CHAIR: And we'll leave it there, even
7 though that is a perfect opening for me, Mr. Kennedy.
8 Thank you.

9 Okay. So the NRCB has also provided a YouTube
10 link on its website for members of the public to
11 observe the proceedings. You can get to that link on
12 the NRCB's main web page. It's fairly clearly laid out
13 there. If you have any difficulty, you could also text
14 Ms. Friend, and she'll have someone from the
15 organization, Ms. Decosemo here, to help folks out, but
16 it should be pretty clear.

09:36

17 If there are any members of the media on our
18 YouTube feed and you have a question regarding today's
19 process, I would ask you to contact Janet Harvey, our
20 NRCB communications specialist. And Ms. Harvey can be
21 reached at janet -- J-A-N-E-T -- .harvey --
22 H-A-R-V-E-Y, @nrcb.ca, or you can phone her directly at
23 780-720-2317.

09:36

24 So your participation in this hearing is important
25 to the Panel. We do recognize that this decision will

1 have a significant impact on those folks involved, and
2 particularly the Muilwijks, and we take this
3 responsibility seriously.

4 The process, as you can see, is inherently formal.
5 This is a quasi judicial proceeding. And so a certain
6 level of formality is necessary. However, we do try to
7 minimize this formality to the extent possible so that
8 you folks can feel comfortable as we move through the
9 process.

10 Mr. Muilwijk and Mrs. Muilwijk, we understand that
11 you are not represented by legal counsel, and this is
12 your first NRCB hearing. And, Mr. Metheral, the Board
13 also understands that the hearing process is new to
14 you. So to both of you folks, the Board encourages you
15 to ask questions. If you're unsure about the process
16 or when you're allowed to interject, and please do this
17 at any point, I'll do my best to answer your question
18 or I can -- if necessary, I'll direct Mr. Kennedy to
19 help you out. And if we need to take short breaks so
20 Mr. Kennedy can spend a few minutes with you to help
21 you understand the process, that's fine as well. We do
22 recognize that it is somewhat popucated (phonetic),
23 it's new to you, it's probably a little bit
24 intimidating, but we don't want you to get lost in the
25 process. If you have any questions, please don't be

09:37

09:38

1 shy and let us know. We'll do our best to accommodate.

2 In addition, if there's a need for parties, field
3 services or the Muilwijks, to caucus off the record, we
4 have created breakout rooms for you to do that. I
5 understand that in the test session, I think the
6 breakout rooms were up and running. So I think you
7 have a feel for those already. But if you do need to
8 use those breakout rooms and caucus, they are
9 available, and Mr. Wiebe is here to help you get there
10 if there's any difficulties.

09:39

11 So the purpose of this hearing is to review
12 Decision Summary LA19036, dated January 14th, 2021. It
13 was issued by approval officer Andy Cumming. You can
14 find the feeding operation, or CFO, is located at
15 northeast Section 10-Township 9-Range 27-west of the
16 4th meridian in the Municipal District of Willow Creek.
17 The approval officer denied the application by Mr. and
18 Mrs. Muilwijk to convert a swine CFO to a feed calf
19 CFO. Subsequently, a request for review from the
20 operators, the Muilwijks, was filed by the deadline of
21 February 4th, 2021.

09:39

22 We received two rebuttals on February 11, 2021,
23 from John Green and Dean and Hannah Brauer. I
24 understand the Brauers have notified Ms. Friend by
25 email that they recently sold the property and will not

1 be participating.

2 The Panel met on February 16th and 17th, 2021, and
3 in a letter dated February 18th, 2021, advised the
4 parties that it made its decision to grant the RFR date
5 of oral hearing on four subject issues.

6 The Panel's RFR Decision 2021-02 followed on
7 February 24th, 2021, and provided reasons for granting
8 that appeal. In its decision, the Panel advised that
9 we would hold a virtual hearing using the Zoom
10 platform, and that would commence today, 9:30 a.m.,
11 April 20th.

09:40

12 In that decision the Panel also requested a
13 submission from field services. That submission was
14 received on March 19th, 2021. And the Panel also
15 directed that the approval officer make the complete
16 application record available by March 26th; and the
17 record was received on March 19th, 2021.

18 The Panel also directed that written submissions
19 by all directly affected parties should be filed with
20 the Board no later than April 8th, 2021. Submissions
21 were received from John Green and Terri McCullough on
22 April 7th, and from the Muilwijks on April 8th, 2021.

09:41

23 The McCullough and Green parties have decided not
24 to participate today and will not be providing further
25 direct evidence or cross-examining. The Board has read

1 and will consider those submissions from the
2 McCulloughs and Greens in reaching our final decision.

3 The legislation requires that the NRCB consider
4 the municipality where the operation is located be
5 given directly affected party status. And in this case
6 that is the MD of Willow Creek. They did not provide a
7 hearing submission, and they will not be participating
8 formally at today's hearing.

9 So all Panel members have read and are familiar
10 with the complete set of documents that parties have
11 submitted as evidentiary materials for the hearing. So
12 given this, there is no need for you to reread into the
13 record materials already submitted. We would ask that
14 in order to make the best use of your time, we request
15 that each party use the presentation time to highlight
16 or to clarify the important points that are relevant to
17 your written submissions.

18 So just a brief overview of process. First, all
19 parties will be registered. Then each participant will
20 have an opportunity to raise any preliminary matters
21 that they may have. We will then begin with the
22 evidentiary or direct evidence portion of the hearing.
23 In the past AOPA appeal hearings the Board has found it
24 beneficial for the approval officer, in this case
25 Mr. Cumming, to proceed as the first witness; followed

09:42

09:42

1 by the applicants for the review, or in this case the
2 Muilwijks.

3 When it is your turn to provide evidence, you will
4 be sworn in by the court reporter. And once sworn in,
5 any new written evidence that you may want us to
6 consider to be entered into the record on request.
7 We'll then give you a chance to highlight or expand
8 upon any points of your submission that you feel are
9 particularly significant. And after each witness has
10 concluded their presentation, they will then be open to
11 questions by NRCB field services, or in the case when
12 the field services are up, the Muilwijks, Board
13 counsel, and Panel members.

09:43

14 Once questioning is complete, if you are up --
15 were up giving the direct evidence, you will have an
16 opportunity to redirect, and essentially, that gives
17 you a chance to Schmidt any further evidence or
18 comments to address areas raised in the questions that
19 were posed to you that you believe are useful for the
20 Panel to have.

09:44

21 Once we've completed direct evidence and
22 cross-examination from both field services and the
23 Muilwijks, we'll allow for final argument. So for
24 final argument, though, we reverse that order and we
25 have the Muilwijks go first, followed by the approval

1 officer; and that gives the Muilwijks the final word in
2 a reply argument near the close of the hearing. And
3 this would be your opportunity, so Mr. Muilwijk,
4 Mr. Metheral, to address any issues that may be raised
5 in the approval officer's final argument.

6 So that's sort of the lay of the land for the day.
7 And if you have any questions right now, please field
8 them. Ms. Vance or Mr. Metheral, are there any
9 questions that you have?

10 MS. VANCE: I don't have any. Thank you,
11 Mr. Chair.

09:44

12 THE CHAIR: Mr. Metheral?

13 MR. METHERAL: No questions, thanks.

14 THE CHAIR: Okay, thank you.

15 So we did indicate in our -- the notice that went
16 out that obviously the hearings would be today, and we
17 ask for you to reserve tomorrow morning, should the
18 hearing go past today.

19 Now, we're hoping that we can get this done today;
20 I think we can. But if we are close, I would ask the
21 Muilwijks, Ms. Vance, court reporters, and Mr. Wiebe,
22 if we do have the ability to stay a bit later, so that
23 would -- you know, typically we would go till 5:00, if
24 necessary. But if we needed to go, say, an hour later
25 to wrap things up, and we could then not need to

09:45

1 reconvene tomorrow, are you available to sit a little
2 later? So Mr. Metheral and the Muilwijks?

3 MR. METHERAL: Yes.

4 THE CHAIR: Thank you. And Ms. Vance and your
5 clients?

6 MS. VANCE: Yes, I'm available. Thank you.

7 THE CHAIR: Great, thank you. Ms. DiPaolo?

8 THE COURT REPORTER: Yes.

9 THE CHAIR: And Mr. Wiebe?

10 MR. WIEBE: Of course I'm available.

09:46

11 THE CHAIR: Okay, that's great. And now that
12 I've asked, we may be wrapped at 1:00 or something.

13 Okay. Well, thank you very much. I think we can
14 begin with the registered parties. Sorry, was somebody
15 asking a question? I thought I heard something. No?
16 Okay.

17 So Ms. Vance will be representing Mr. Cumming,
18 Mr. Cunningham?

19 MS. VANCE: That's correct.

20 THE CHAIR: Thank you. Mr. Metheral, you'll
21 be representing Mr. and Mrs. Muilwijk, Mr. Lobbezoo,
22 Mr. Both. Do we have that correct?

09:46

23 MR. METHERAL: Yes.

24 THE CHAIR: Are there any other parties that
25 anyone has that we weren't aware of that you were

1 intending on bringing for a witness?

2 MR. METHERAL: No.

3 THE CHAIR: Okay. Hearing none, perfect.

4 So are there any preliminary matters that anyone
5 has for this morning, Ms. Vance?

6 MS. VANCE: I do not have any preliminary
7 matters, thank you.

8 THE CHAIR: Okay. Mr. Metheral?

9 MR. METHERAL: No.

10 THE CHAIR: Mr. Kennedy?

09:47

11 MR. KENNEDY: I'm ready to start, Mr. Chair.

12 THE CHAIR: We're ready to roll?

13 MR. KENNEDY: Perfect.

14 THE CHAIR: Okay. That's his opportunity to
15 let me know if I've forgotten something. All right,
16 perfect. Thank you, Mr. Kennedy.

17 We have a pretty extensive exhibit list, and that
18 hearing exhibit list was prepared and posted on the
19 NRCB website for all parties to reference and help
20 prepare for the hearing. I'd like to propose that we
21 formally adopt that hearing exhibit list, which
22 includes the relevant documents that are before the
23 Panel.

09:47

24 Are there any objections to adopting the entire
25 exhibit list as it stands for our hearing?

1 MS. VANCE: We have no objections to that.

2 Thank you, Mr. Chair.

3 THE CHAIR: Thank you. Mr. Metheral?

4 MR. METHERAL: We have no objections.

5 THE CHAIR: Okay. So hearing no objections,

6 that is adopted.

7 And we can get started with the evidentiary

8 portion with field services, Ms. Vance. And

9 Ms. DiPaolo, you can swear in the witnesses. So

10 Ms. Vance.

09:48

11 MS. VANCE: Thank you, Mr. Chair. I wonder if

12 the Panel would indulge me with just a few opening

13 comments, which the purpose of them is to lay out a bit

14 of foundation so that when I come to asking questions,

15 I think, all the parties will understand sort of where

16 I'm coming from and why I'm asking the questions that I

17 am. Can I have about five minutes tops for that,

18 Mr. Chair?

19 THE CHAIR: Yes, please proceed with that.

20 MS. VANCE: And then I'll ask Ms. DiPaolo to

21 swear in my witnesses.

09:49

22 THE CHAIR: Thank you.

23 MS. VANCE: So thank you very much for the

24 opportunity to present evidence and make some select

25 submissions.

1 A bit of verbal housekeeping. If I refer to
2 "AOPA," I am referring to the *Agricultural Operations*
3 *Practices Act*. If I refer to the "Standards Reg," I am
4 referring to the Standards and Administration
5 Regulation promulgated under AOPA by the Minister of
6 Agriculture.

7 If I refer to "the site," this will be the
8 Mulwijk's site at NE 10-9-27 West to the 4th. And if
9 I refer to "RCC," and I'm betting I'm not going to be
10 the only one referring to RCC, I mean roller compacted
11 concrete.

12 So there's two things that I want to just talk
13 about briefly before we get to evidence to understand
14 why field services is providing the evidence that we
15 are.

16 So I want to talk about the role of the approval
17 officer in this kind of review and also the scope of
18 our presentation. We're going to focus on issue 1, and
19 I will explain why we're doing that, and then we will
20 be into the evidence. So thank you for your patience.

21 I will ask when -- we get to the evidence, I will
22 be asking Mr. Cumming, who was the approval officer on
23 this file, for a few clarifications on his decision.
24 Then I will ask Scott Cunningham to answer some
25 questions. Mr. Cunningham is a member of the NRCB's

09:49

09:50

1 science and technology team. And Mr. Cunningham does
2 not have a decision being reviewed by this Panel, but,
3 of course, you will recall that he did assist the
4 approval officer in the ERSTs on this file; that's the
5 environmental risk screening tool.

6 He also provided some analysis on the uppermost
7 groundwater resource and average calculated
8 permeability as presented in the revised Wood report
9 last November.

10 So as to the role of the approval officer in this
11 hearing, I want to be clear that the approval officer
12 takes no position on remedy. So no position on what
13 the Board should do about application LA19036, with the
14 information that the Board has already, and the
15 information it will hear today.

16 My goal is not to persuade you that the approvals
17 officer decision was right or wrong. My goal is to
18 help everybody, but in particular, the Board,
19 understand the approval officer's decision.

20 The Courts in Alberta, and indeed the Supreme
21 Court, have been clear that the role of the
22 decision-maker in a review of that decision is limited.
23 This particularly -- this particular statutory review
24 under Section 25(4) of AOPA is also a de novo review,
25 so the Board has information before it that the

09:51

09:51

1 approval officer did not have when he made his decision
2 in January. And of course the Board has extensive
3 remedial powers.

4 So in this way, if you trace the eventualities, it
5 is possible that this application will come back to
6 this same approval officer at some point in time,
7 perhaps with new information or new direction, and for
8 that reason, the role of the decision-maker in this
9 review is limited to clarifying the record and
10 responding as necessary to any allegations of
11 procedural unfairness.

09:52

12 Fundamentally, why the approval officer denied the
13 permit is contained in the decision documents, and this
14 would be Exhibits 2 and 3, the decision summary, and
15 the technical document.

16 So the presentation is not intended, to be clear,
17 as a defence of the decision or to supplement reasons
18 for the decision; that's important to realize. So the
19 approval officer will offer explanation when
20 explanation is needed, and of course answer any
21 questions as best he can.

09:53

22 In terms of the scope of the presentation and the
23 evidence, the Panel did identify four issues for
24 hearing in its RFR decision in February. Our evidence
25 will really focus on issue 1. This is where the --

1 whether the RCC met AOPA's groundwater protection
2 requirements. The other three issues are related to
3 the application that was before the approval officer,
4 and did I touch on them briefly in the written field
5 services submission, which is Exhibit 80.

6 You will recall issue 2 is about potential permit
7 conditions in the event the permit is eventually
8 granted. Because this was a denial, the potential
9 conditions and the decision summary are, of course,
10 suggestions only, and the approval officer is happy to
11 answer questions about those. 09:54

12 Issue 3 is about risk associated with the water
13 well in the yard. Our written submission at Exhibit 80
14 explains a bit about the difference between an
15 exemption under the Standards Reg and a variance under
16 the Act related to the 100-metre setback to water
17 wells.

18 Since the decision was a denial, both a variance
19 or an exception -- exemption were premature, but again,
20 the approval officer is happy to answer questions about
21 that as best he is able to. 09:55

22 And finally, issue 4 is about deemed capacity
23 determination. The approval officer did put some
24 reasons into his decision summary at Appendix E
25 relating to that, but as you will have seen from our

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 written submission, the approval officer concedes that
2 the permitted capacity of the operation on January 1,
3 2002, was 100 sows farrow to finish.

4 Unless the Board has any questions, I will move
5 ahead with the evidence.

6 THE CHAIR: Hearing none. Thanks, Ms. Vance.
7 Please proceed.

8 MS. VANCE: Thank you, Mr. Chair.

9 So I'm offering two witnesses in panel format. My
10 questions in direct are framed to be one at a time. I
11 will do Mr. Cumming and then Mr. Cunningham. But of
12 course -- actually inspired by a question I received
13 from Mr. Woloshyn. The hearing, I think, will be more
14 efficient if Mr. Cumming and Mr. Cunningham can answer
15 questions from the Muilwijk team or from Board staff
16 and Panel together, and then you get the appropriate
17 answers from the appropriate witnesses without having
18 to choreograph that.

19 Okay. Mr. Cumming and Mr. Cunningham, you will
20 need to be sworn or affirmed by the court reporter at
21 this time.

22 **A. CUMMING, S. CUNNINGHAM** (For NRCB Field Services),
23 **sworn/affirmed**

24 **MS. VANCE EXAMINES THE PANEL:**

25 THE COURT REPORTER: Ms. Vance, you're on mute.

09:56

09:56

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 MS. VANCE: Yeah, I know. It's not the last
2 time that's going to happen to me, guaranteed. I
3 apologize.

4 So potentially during this hearing, Mr. Cumming
5 may wear several hats. So he is, of course, the
6 approval officer, whose decision is under review. At
7 the same time, he is the head of NRCB applications. He
8 is the director of NRCB field services, and he's also a
9 member of the Technical Advisory Group, or TAG.

10 So I will do my best, but if anybody else, when we
11 get to questions for Mr. Cumming, if you think that he
12 should be wearing a hat other than the approval officer
13 hat, I think Mr. Cumming would appreciate that being
14 made clear, just for all our benefit.

15 Q. So, Mr. Cumming, just to start out somewhat gently, can
16 you tell me a bit about your education.

17 A. MR. CUMMING: Thank you, Ms. Vance. Yes, I hold
18 a degree, a Bachelor of Science degree in engineering,
19 specializing in agricultural engineering from the
20 University of Natal in South Africa.

21 Q. And what is your experience post-education in
22 agriculture?

23 A. MR. CUMMING: Following receipt of my degree, I
24 worked for a consulting engineering firm in
25 South Africa, and our projects related to both

09:57

09:58

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 agricultural, as well as more commercial type of
2 operations.

3 I then moved to an agricultural development
4 corporation, which I worked at in Southern Africa for a
5 number of years prior to immigrating to Canada.

6 Once I was in Canada, I spent several years
7 working with Alberta Agriculture, and subsequent to
8 that, with the Natural Resources Conversation Board.

9 Q. And moving on to that, could you tell us about some of
10 your experience in the NRCB. For instance, what your
11 roles have been.

12 A. MR. CUMMING: I was hired on to the NRCB just
13 prior to the AOPA mandate coming into effect, and my
14 primary responsibility there was to assist and develop
15 a system where we could receive applications into the
16 NRCB related to confined feeding operations and process
17 those.

18 I was also instrumental in setting up the
19 applications division of the NRCB, and continued to do
20 that to this day to manage applications across the
21 province.

22 Q. Thank you. So as director field services application,
23 in broad terms, what do you do?

24 A. MR. CUMMING: I primarily manage and look after
25 staff, approval officers, and other support staff

09:59

09:59

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1 across the province. I am also instrumental in
2 developing policy, liaising with Alberta Agriculture
3 and other stakeholder organizations and the public.

4 And as you pointed out earlier, I'm also a member
5 of the Technical Advisory Group. I also sit on the
6 NRCB's operational management team.

7 Q. Thank you. And when you put on the approval officer
8 hat, what do you do in that role?

9 A. MR. CUMMING: As an approval officer, I am
10 responsible under the legislation to receive and
11 process permits for confined feeding operations and
12 manure storage facilities to assess whether or not they
13 meet all of the requirements that are set out in the
14 Act and its regulations.

15 Q. How is it that you came to be the approval officer on
16 this file?

17 A. MR. CUMMING: In early 2020, the approval
18 officer who was handling this file at the time took
19 some health-related leaves and then resigned from the
20 NRCB.

21 In the Lethbridge office, we had three approval
22 officers. The other two approval officers were really
23 busy processing applications that they already had on
24 their plate. We sat down as a group and shared the
25 workload, and I took over several of the files of the

10:00

10:01

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1 approval officer who left in order to make workloads
2 manageable.

3 Q. Thank you. So we have your decision summary and your
4 technical document. Those are -- those are somewhat
5 lengthy, but maybe you could just tell the Board in
6 your own words why you denied application LA19036?

7 A. MR. CUMMING: The decision document Section 6 --
8 so that's Exhibit 2, I believe -- Section 6 sets out
9 the rationale and the reasons for my decision, my
10 denial decision. The primary reason is that I did
11 not -- well, I concluded that the applicant did not
12 meet their burden to show that the roller compacted
13 concrete that they were proposing as a liner for the
14 covered and open pens could meet the AOPA groundwater
15 protection requirements set out in the Standards and
16 Administration Regulation.

10:02

17 I also identified that there was a shallow water
18 table at the site and that the requirement for the
19 catch basin to meet the 1 metre separation at the -- at
20 the time of construction may not be able to be met.

10:03

21 And then the third one was the setback distance
22 from the water well that the operation could not meet.

23 Q. Mr. Cumming, at what point did you know you were going
24 to deny this application?

25 A. MR. CUMMING: It would have been when I was

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1 writing the decision summary. So this would have been
2 sometime in December, early January that I had reached
3 the conclusion that it was going to be a denial.

4 Q. Thank you. It has been pointed out that the NRCB
5 issued a permit for RCC as a liner under application
6 LA18053, be as it turned out. Also, you know that the
7 Board in its RFR decision acknowledged, quote:

8 (as read)

9 "Stakeholder expectations that the
10 consistent application of AOPA
11 legislation and associated regulations
12 is an important pillar for a respected
13 regulator to uphold."

10:04

14 End quote. And so my question to you, Mr. Cumming, is
15 when you made this decision on this file, LA19036, what
16 steps did you take to ensure that your decision would
17 meet the expectations of consistent decision-making at
18 the NRCB?

19 A. MR. CUMMING: That's -- it's an interesting
20 question because the file that you referred to, the
21 LA18053, is -- would have been the very first time that
22 roller compacted concrete would have been considered
23 and permitted by the NRCB as a -- as a liner.

10:05

24 Subsequent to that decision, we have done a lot to
25 try and determine the requirements for roller compacted

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1 concrete, the feedlot sector, primarily, has been very
2 interested in utilizing impact roller compacted
3 concrete in their feedlots. Typically our experience
4 has been that they have put this on top of existing
5 liners.

6 When we did some investigations, spoke to a number
7 of different people, received presentations on roller
8 compacted concrete, it became clear through all of this
9 that roller compacted concrete can be very variable and
10 that it's not necessarily 100 percent clear as to
11 whether or not it can meet the AOPA groundwater
12 protection requirements.

13 The other thing that is -- should be taken into
14 consideration is that every single application that we
15 deal with has some level of uniqueness. The soils at
16 the site, the slope of the site, et cetera, et cetera.
17 With LA18053, the permit was issued prior to any roller
18 compacted concrete actually being placed in the pen
19 floors. And if you look at the conditions in the -- in
20 that particular permit, there is a lot of requirements
21 that relate to the preparation of the base on which the
22 roller compacted concrete is placed, as well as to
23 detail how the -- and the expectations for the roller
24 compacted concrete placement on top of that.

25 With the application that I dealt with, LA19036,

10:06

10:06

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1 when I took over the application, I was informed by
2 the -- by the applicant that they had already placed
3 the roller compacted concrete on -- on top of or in the
4 areas that they were looking to place it, so that
5 precluded any potential conditions about the site
6 preparation, any testing that might be required prior
7 to placement of roller compacted concrete, and any
8 supervision or -- or testing on the -- on the actual
9 roller compacted concrete itself. So they're two
10 distinctly different things.

10:08

11 In addition, in the time frame between the
12 issuance of -- of LA18053 and this permit or the
13 decision that I made here, we had done a number of
14 things, tried to review a number of studies. Alberta
15 Agriculture had provided one study, and that's actually
16 included in the record. I do forget the -- the
17 exhibit number, but it is included in the record here.

18 And then we also raised this at the Technical
19 Advisory Group, and it was agreed that the Technical
20 Advisory Group that we -- the group would put forward a
21 request to go and look at the research to determine
22 whether or not a guideline could be developed to assist
23 with providing direction on roller compacted concrete
24 and how it could potentially meet the groundwater
25 protection requirements in AOPA.

10:08

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1 As you are aware, and as is indicated in my
2 decision summary, that report was circulated to
3 Technical Advisory Group members just prior to
4 Christmas, I think December 23rd of last year. It had
5 a protected A status, which means that it was not a
6 public document at that point in time, so I was not
7 able to utilize that as part of my decision-making
8 process.

9 Subsequent to that, and the TAG team has reviewed
10 the document, and they have released it publicly, and
11 it is included in the record and forms part of the
12 record. But just to be clear, I did not utilize that
13 document and the findings in the document in my
14 decision summary or my decision).

15 Q. Thank you very much.

16 At the time as you and the prior approval officer
17 were processing this application, there was also some
18 compliance activity going on. I wonder if you could
19 just explain to what extent that compliance activity
20 might have coloured how you processed this application?

21 A. MR. CUMMING: It didn't -- it didn't colour how
22 I processed the application at all. In fact, when I
23 contacted Mr. Muilwijk in May, and there is copies of
24 that correspondence in the record, as well, he did
25 indicate that he had already constructed the roller

10:09

10:10

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1 compacted concrete liners in the different pen areas.

2 I informed him that I would have to pass this on
3 to one of our inspectors, which I did do, and that they
4 would follow that up through one of their processes,
5 which I understand that they did.

6 One of the other things that typically happens in
7 a case of non-compliance is that, in many instances,
8 the way for the operator of that confined feeding
9 operation to come back into compliance is to obtain a
10 permit, and the two processes run independently of each
11 other.

10:11

12 Q. Thank you.

13 Document manager, could you kindly bring up
14 Exhibit 77?

15 So Exhibit 77 is a technical guideline for
16 non-engineered concrete liners, as you can see.

17 Mr. Cumming, this is one of the guidelines that
18 you reference in the decision summary?

19 A. MR. CUMMING: That is true.

20 Q. In general terms, can you tell us, what is the purpose
21 of this document; what is it used for?

10:12

22 A. MR. CUMMING: The document helps to provide
23 information for applicants of -- who are wanting and
24 looking to utilize concrete as part of their -- for
25 liners for their confined feeding operations or manure

1 storage areas.

2 It provides guidance --

3 Document manager, if you could scroll down a
4 little bit, please, to the next page? Thank you.

5 It provides guidance. And you can see here it
6 sets out four different categories for -- for concrete
7 and sets what the -- what they would be.

8 For this particular application, if you have a
9 look at Category C and Category D, you will note that
10 one is for pen floors and the other one is for indoor
11 or covered solid manure storage facilities. Pen floors
12 and outdoor solid manure storage facilities.

13 So pen C would be for the outdoor open pens, and
14 pen -- sorry, Category C would be for the outdoor open
15 pens, and Category D would be for the indoor or covered
16 pens.

17 Could you go onto the next page, please, document
18 manager? Thank you.

19 And then when you get to look at what the
20 guideline does, it sets out what would be acceptable
21 types of concrete and acceptable reinforcing crack
22 control, types of cement utilized in the mix.

23 This -- this essentially provides the applicant
24 with an option to utilize one of these types of
25 concrete, which meets these specifications, and not

10:13

10:13

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1 have to utilize an engineer to design the concrete for
2 the particular manure storage liner.

3 If -- if you scroll -- I think it's scrolling up.
4 The exhibit, the concrete liner here. If you go to the
5 previous page, please, up one page. Stop right there.
6 Thank you.

7 You will notice that it offers two different ways
8 that operations could meet the AOPA requirements. And
9 the first one is -- and we're looking down on the
10 left-hand side of the page here -- is for B, C, and D,
11 and you'll remember we're looking at C and D type of
12 liners, is that the liners should be engineered by a
13 professional engineer. And if it's not engineered by a
14 professional engineer, then it must meet the design and
15 construction requirements will be in accordance
16 within -- as on the table that we just reviewed.

10:15

17 So essentially if you're not going to use the
18 concrete that's in there, you need to get it designed
19 and engineered by a professional engineer.

20 Q. Mr. Cumming, what exactly does that mean, to have it
21 engineered?

10:15

22 A. MR. CUMMING: The engineer would look at the
23 specific circumstances and come forward with a design,
24 which would include the mix of the concrete, the
25 specifications for the concrete, the type of aggregate

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1 utilized in the concrete, the water/cement ratio, all
2 of that sort of technical detail that goes into the
3 design of a concrete mix, as well as dealing with crack
4 control and ensuring that it could meet the
5 requirements that are set out in the standards and
6 administration -- regulation.

7 Q. Thank you. We may be looking at this document again,
8 but I think I'm done with it for now.

9 Document manager, if you could bring up -- this is
10 one that's actually not an exhibit number, it's a new
11 Document Number 1. 10:16

12 MS. VANCE: While she's doing that, I will
13 just advise the Board that I did send this document to
14 Mr. Muilwijk and to Mr. Metheral on Friday. I'm not
15 asking it to be marked as an exhibit at this point as
16 it's actually not part of our evidence; it's sort of
17 more of a reference, but...

18 Q. So this one, this is Agdex 096-61. This one is
19 determining equivalent protective layers and
20 constructed liners. You know, when I read the decision
21 summary, I did not see a reference to this guideline in
22 there, and I'm wondering if you can tell me why that
23 is. 10:17

24 A. MR. CUMMING: It's actually quite
25 straightforward. I did not use it. The applicant

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1 proposed as the liner the roller compacted concrete.
2 They did not propose to utilize protective layer or
3 layers. And they actually told me, when I asked them,
4 that the materials, the soils at the site weren't
5 suitable for a protective layer. That's why they chose
6 to go with the roller compacted concrete.

7 Q. Thank you very much.

8 Document manager, could you kindly bring up
9 Exhibit 58?

10 So while she's doing that, these are -- Exhibit 58
11 and 59 are site forms, site information forms. And
12 these -- so Exhibit 58 is the form for the covered
13 pen -- covered pens and the two barns. And then
14 Exhibit 59 is for the open pens, the catch basin, and
15 the two earth and liquid manure storage facilities,
16 which I will call EMSes in the future, if I have to
17 talk about them again.

10:18

18 So I thought we would look at this one just as an
19 example, one of the two. What are -- what are these
20 site information forms used for?

10:18

21 A. MR. CUMMING: The site information form is
22 utilized to gather information about the site for the
23 various facilities to be utilized in the ERST. Do we
24 need to say the whole thing or can we use the acronym
25 ERST? Environmental risk screening tool.

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1 Q. Yes, we all know that ERST means environmental risk
2 screening tool. Thank you.

3 So just to get an idea of how these forms work, it
4 appears that there's information entered in red. And
5 at the top of this page, I could see that staff
6 completing assessment, there are actually two names:
7 your name and Mr. Cunningham's names. Why are both
8 names on here?

9 A. MR. CUMMING: I had asked Mr. Cunningham to do
10 the initial and assist me with the ERST for the site. 10:19
11 He is very experienced at doing this, and he had not
12 been on the site before. And so he was gathering some
13 information that -- that he could out of the
14 application and other sources, and then I was able to
15 fill in and go through the information that had been
16 provided there to make sure that it actually fit the --
17 what was actually present on the site.

18 Q. So although there's two names on here, which of you had
19 the final say over the information that went in here?

20 A. MR. CUMMING: I did. 10:20

21 Q. And we will go a little bit further into this document
22 in a moment, but where did you get the information to
23 put on these forms?

24 A. MR. CUMMING: From various sources. It would be
25 from the application. As I had indicated, Google Earth

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1 provides the basis for doing it. We also look at the
2 Alberta Environment water well database to provide
3 information there, as well as on site.

4 Q. And document manager, if you could just scroll to sort
5 of the bottom part of this page. Perfect. Thank you.

6 So the bottom of this page, there's some bold
7 writing about protective layer and then some entries
8 for that. And it appears that the references for the
9 protective layer in this case was borehole AM4-19. Can
10 you tell us why you chose that particular one as the
11 reference?

10:21

12 A. MR. CUMMING: We -- we chose it, it was
13 representative of the site. We could have chosen any
14 of them, and they would have given us essentially the
15 same. For consistency sake we just chose this one.

16 Q. So for consistency sake with what?

17 A. MR. CUMMING: Across the site information forms.

18 Q. Okay. Okay, let's -- if we could just scroll down to
19 page 3 of 4. Thank you. And so this is for -- it says
20 the west barn. And if you go a few lines down, there's
21 liner thickness, and then there's liner meets AOPA, and
22 there appear to be four choices: yes, no, liner may
23 need AOPA, and concrete no specs.

10:22

24 So can you explain why concrete no specs was
25 chosen here?

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1 **A. MR. CUMMING:** It was initially checked off on --
2 on that one.

3 **Q.** This is for the barn, one of the barns?

4 **A. MR. CUMMING:** Okay, sorry, sorry, sorry, I am
5 looking at the wrong one then.

6 Okay, concrete no specs, when we -- when I was
7 discussing the barns with the applicant, he indicated
8 that it had a concrete liner. The barns were
9 constructed a long time ago; there wasn't any
10 specification available for those barns, and hence the
11 choice for the barns was concrete no specs.

10:23

12 **Q.** Okay, thank you. And the next box down is visible
13 condition of liner, and you have marked
14 "uninspectable." Why was it uninspectable?

15 **A. MR. CUMMING:** I didn't actually enter the barns.
16 The barns were populated with livestock, and the pits
17 in the barns, which would be the manure storages, had
18 manure on top of them, so you couldn't actually see the
19 concrete.

20 **Q.** Okay, that makes sense.

10:23

21 And then it says -- just underneath that there's a
22 text in red that says, in the second sentence:

23 (as read)

24 "Concrete no specs represents a
25 best-case scenario."

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1 What does that mean?

2 **A. MR. CUMMING:** It would provide the lowest
3 **potential risk for that particular facility.**

4 **Q.** Okay. If we could just scroll up to page 2, which is
5 the page immediately before this. So this -- if you
6 just scroll to the top, this is for the proposed
7 covered pens. And in this one we can see under "liner
8 meets AOPA," which is several boxes down, again the
9 four choices, and under this one, the box is checked
10 off that says "liner may meet AOPA." Can you tell me
11 why that was chosen here?

10:24

12 **A. MR. CUMMING:** At the time that we did the ERST,
13 I had not made the determination that it does not meet
14 the AOPA requirements. So it was my decision to say
15 that it may meet AOPA again, it provides the lowest
16 level of risk for that particular liner.

17 **Q.** Okay. And is that why it says "liner may meet AOPA
18 chosen as best-case scenario" there?

19 **A. MR. CUMMING:** Yes.

20 **Q.** And then for this one, again, we have "visible
21 condition of liner," the box "uninspectable" is checked
22 off. Why were the covered pens uninspectable?

10:25

23 **A. MR. CUMMING:** The -- when I did my inspection,
24 it was approximately a year after the liner had
25 actually been installed, there had been livestock in

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1 there the majority of that time. The pens were
2 essentially covered in manure and bedding material, and
3 you couldn't see the concrete.

4 Q. Okay. And we're just going to keep in mind that you
5 have marked off the box that says "liner may meet
6 AOPA."

7 Okay. And then, document manager, if you could
8 just scroll to the end of this page.

9 We have some notes in red at the bottom, and the
10 first line says: (as read)

10:26

11 "Liner chose as concrete no specs,
12 worst-case scenario for RCC."

13 This seems to be a little inconsistent with the box
14 that's checked above. Can you explain that?

15 A. **MR. CUMMING:** Yes. And this is the -- this is
16 an error. As I've mentioned initially, the -- I'd
17 asked Mr. Cunningham to go through and look at the --
18 the RCC -- the site and enter the information, which he
19 did in red in the document. I then went through it
20 with him and did the corrections -- did the corrections
21 on the top and forgot to change the note on the bottom.

10:26

22 Q. Okay, thank you for that explanation.

23 And I actually have one more question about
24 consistency.

25 So, document manager, if you can scroll up a

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1 little bit. I love -- I have to say I love how big
2 this page is.

3 So at the very top there we've got a box called
4 "Liner thickness in metres," and you've got 0.18.
5 Okay. So this is for the covered pens.

6 And, document manager, if you could just bring up
7 document -- or Exhibit 59. And so -- and then down to
8 page 2.

9 This is for the open pens. So both open and
10 covered have roller compacted concrete. And in this
11 one you've got a liner thickness of 0.15 metres.

10:27

12 Why different thicknesses?

13 **A. MR. CUMMING:** It's -- it's reflective of the
14 6 inches to 7 inches indicated and shown through the
15 coring samples in the Wood report. It actually doesn't
16 have any significant bearing on the ERST itself, but
17 it -- it's -- it fits within the range of what was
18 there at the site and tested.

19 **Q.** And so when you talk about bearing on the ERST, the
20 3-centimetre, the 3 --

10:28

21 **A. MR. CUMMING:** The 3-centimetre difference, it
22 does not have any implication or effect on the risk
23 ranking for the facilities.

24 **Q.** Okay, thank you.

25 **A. MR. CUMMING:** It says 15 here -- .15 or .18

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1 here. It would not change the risk rate.

2 Q. Okay, thank you.

3 I am done with those documents. However, I would
4 like to see Exhibit 63.

5 So at 63 is again one example of several ERST
6 documents that we have in the record for this hearing.
7 I believe they run from 60 to 63. This one is for the
8 new open pens, the existing open pens, and the proposed
9 catch basin.

10 Now, just on this page, on the right-hand side
11 near the top it says: "Date completed: December 9,
12 2020, revised." Why revised?

10:29

13 A. **MR. CUMMING:** As I mentioned earlier on,
14 Mr. Cunningham went through, did an initial risk
15 scoring based on the information that he had. I then
16 went through and worked through the document with him,
17 and we corrected some of the information that he had
18 utilized in that document. And our way of
19 differentiating between the two was to add the
20 "revised" here.

10:30

21 Q. Okay, thank you. And it appears to me that catch basin
22 numbers will be in blue. Is that fair to say?

23 A. **MR. CUMMING:** That is correct. The way that
24 the -- this form is utilized is that Facility Number 1
25 is on the extreme left-hand side, Facility Number 2 is

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1 the middle row, and Facility Number 3 is on the
2 right-hand side. So when you're looking at the
3 scoring, you will also see that they're colour coded,
4 and so catch basin would be the one in blue and on the
5 right-hand side.

6 Q. And I personally appreciate the colours. I really find
7 that handy.

8 Could we please go down to page 4, I think it is.
9 Perfect. So this -- when I'm looking at the score
10 about two-thirds of the way down the screen, the blue
11 for the catch basin is 14. Now, Mr. Metheral has said
12 in Exhibit 97, no need to bring it up -- or 96, pardon
13 me, that: (as read)

14 "If the water well is upslope from the
15 catch basin, it should score 1."

16 And I have to say that that does seem to be what the
17 text at the top of this page says. Do you agree with
18 that?

19 A. MR. CUMMING: I do agree that. And you'll see
20 there that we put it in as 14, and I'm quite prepared
21 to change that to 1.

22 Q. To 1?

23 A. MR. CUMMING: Yes.

24 Q. So if we change that blue score from 14 to 1, that will
25 change the score also at the bottom of the page, which

10:30

10:31

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1 is kind of a summary, I suppose. That would also go to
2 one. If we could just walk through this and let's see
3 what the impact of changing that from a 14 to a 1 is.

4 If you could scroll down, please.

5 And then here we have --

6 I think a little bit further, please, to the
7 bottom. There we go.

8 Total groundwater pathway score. So, presumably,
9 what would the 47 change to?

10 **A. MR. CUMMING:** The 47 would be amended by taking
11 away that number there, and it would go down to 34.

12 **Q.** 34, 47 minus 13. Okay, even I got that.

13 And then another page, please. And here -- okay,
14 that's good. That's good.

15 Groundwater. Okay. So and then there's three
16 lines with some spaces and coloured text, and we're
17 going to look at the blue one, of course.

18 So the groundwater pathway score you've just told
19 me would go to 34?

20 **A. MR. CUMMING:** Correct.

21 **Q.** So what would that do to the next number, which is 58?

22 **A. MR. CUMMING:** So that would mean that the hazard
23 potential score plus the groundwater pathway score
24 would be 45 instead of 58.

25 **Q.** Okay.

10:32

10:32

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1 **A. MR. CUMMING:** You would then need to multiply
2 that number 45 by the exposure potential multiplier of
3 1.1, which remains the same; and the risk score, the
4 final risk score, would be 49.5 instead of 63.8.

5 **Q.** And so what impact -- if we follow that change all the
6 way through, what impact does this have on the risk
7 score for the catch basin?

8 **A. MR. CUMMING:** The risk score for the catch basin
9 does not change. The risk score as it's shown there
10 with -- of 63.8 would still show a low potential risk
11 to the environment, and with the changes that we have
12 just discussed of bringing the risk score down to 49.5,
13 it would remain in that low potential risk to the
14 environment rating.

10:33

15 **Q.** So it's still in the green zone on the rainbow chart
16 there?

17 **A. MR. CUMMING:** That is correct.

18 **Q.** Okay. Thank you very much for being patient with me to
19 take me through that. I think we're done with that
20 document for now.

10:34

21 Mr. Cumming, I'm going to move into some questions
22 on roller compacted concrete. Can you tell us the
23 difference between surface hardness and compressive
24 strength?

25 **A. MR. CUMMING:** Compressive strength is the

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1 strength of a material when you put compressive forces
2 onto it, and it would be -- strength would be the
3 ultimate pressure under which that material would fail.
4 So compressive strength of concrete, if we just choose
5 a number, 25 megapascals as an example, would indicate
6 that that particular mix of concrete under the
7 conditions that are prescribed would fail at 25MPA on
8 the low end.

9 Q. And what about surface hardness? Is that related?

10 A. MR. CUMMING: Surface hardness is a different
11 measure. Surface hardness is just that, it talks about
12 the hardness of the surface of a material. And
13 materials can have different properties where the
14 outside or the surface of them is particularly hard,
15 but that doesn't necessarily reflect what the
16 properties of that same material are on the inside.

17 A very simplistic way to consider something like
18 that is that there are, you know, types of chocolates
19 where they'll have a really hard outer core and then a
20 soft inner core, so the hardness on the outside would
21 be greater than the hardness of the inner core. So,
22 you know, that's just a simplistic, obviously.

23 Q. Thank you. That speaks my language when you talk about
24 chocolate.

25 If we could please have Exhibit 2. This is the

10:35

10:35

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 decision summary. And we want page 6, please. Okay,
2 perfect.

3 So starting at around the -- well, actually, the
4 second paragraph, but definitely into the third and
5 fourth paragraphs, you discuss a Schmidt hammer,
6 including limitations of a Schmidt hammer. Could you
7 please tell me, Mr. Cumming, what is your understanding
8 of what a Schmidt hammer is and what it does?

9 **A. MR. CUMMING:** The Schmidt hammer is a type of
10 rebound movement tool. It's going to measure the
11 hardness of the surface of a material. It has
12 limitations as to how it can be used and where it can
13 be used. The information that I have says that it
14 should not be used against a rough surface, and if you
15 are wanting to utilize it to measure the hardness, it
16 needs to be calibrated so that the rebound shows up on
17 a specific scale, and from that scale, you can then
18 determine what the surface hardness of that material
19 is.

10:36

20 In the report that was provided by Wood, they
21 tested the -- they used a Schmidt hammer to test the
22 roller compacted concrete that was placed at the
23 Muilwijk CFO and utilized the surface hardness of the
24 Schmidt hammer readings to provide an indication of
25 what the compressive strength of the entire roller

10:37

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1 compacted concrete layer would be.

2 Typically, I would expect that if you were going
3 to provide -- use a surface hardness -- excuse me. Use
4 a surface hardness tool to -- to predict what the
5 compressive strength would be for a material, then you
6 would do some sort of calibration of that tool for that
7 material and then be able to utilize that calibration
8 to give you that information.

9 Q. Okay. On this same page, a little further down, this
10 last paragraph on the page. Thank you.

10:38

11 So here you're talking about reinforcements and
12 crack control. In simple terms, why is crack control
13 important?

14 A. MR. CUMMING: Controlling cracks is a way to
15 keep the integrity of a liner or a material together.
16 If you have cracks, you are obviously going to allow
17 whatever it is that you're trying to contain an
18 opportunity to go through that material.

19 With concrete, it is -- has really good strength
20 properties when it's under compression, but when it's
21 under tension, it's a far weaker material. That is why
22 you typically will start to see reinforcing, steel
23 reinforcing or other types of reinforcing put into
24 concrete mixtures to improve the tensile properties of
25 the material and -- and therefore help to limit or

10:39

A. CUMMING, S. CUNNINGHAM

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1 prevent cracking.

2 Concrete by its nature will tend to shrink a
3 little bit once it's been placed, and that shrinkage
4 provides some tensile forces to the material, and it
5 will typically crack, depending on how much and how
6 large of area of concrete is placed.

7 The other thing that's going to impact tensile
8 strength is any movement of the base onto which the
9 concrete material is placed. So any heaving or
10 movement of that base, be it from frost heave or any
11 other types of movement are going to influence those
12 tensile forces within the material and potentially
13 induce cracking and speed up the deterioration of the
14 material.

15 Q. Is cracking inevitable in concrete?

16 A. MR. CUMMING: It -- it is inevitable, but it can
17 be controlled by utilizing reinforcement, and there's
18 clear guideline on how that gets done with, if I can
19 call it, normal or regular type of concrete.

20 Q. Okay. And I'm just going to circle back for a moment.
21 You did talk about tensile strength. So this is a
22 question that I have, is, you know, what is tensile
23 strength? Because we've talked about compressive
24 strength. Can you tell me a little bit about the
25 difference between those two?

10:40

10:41

A. CUMMING, S. CUNNINGHAM

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1 A. MR. CUMMING: So tensile strength would be when
2 you're trying to pull a material apart and its ability
3 to resist breaking whilst you're trying to pull it
4 apart.

5 Compressive strength, on the other hand, is when
6 you're trying to squish or squash that material and its
7 ability to resist those forces that you're trying to
8 squash it.

9 Q. For, let's call it, regular concrete, is that -- are
10 those important, both of those important?

10:42

11 A. MR. CUMMING: They're both properties of the --
12 of the concrete, absolutely. Reinforcing -- normally
13 steel reinforcing that we see, although we do see other
14 types of reinforcing from time to time, helps to
15 provide additional tensile strength to the material.

16 MS. VANCE: Mr. Chair, I'm not sure what
17 you're looking at in the way of a break. I probably
18 have another 10 or 15 minutes left with Mr. Cumming.
19 I'm in your hands.

20 THE CHAIR: We started at 9:30, relatively
21 late, so if you've got 10, 15 minutes, let's finish up.

10:42

22 MS. VANCE: Okay.

23 THE CHAIR: Then we take that break.

24 MS. VANCE: Okay. Thank you. I will keep
25 going.

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1 THE CHAIR: Thanks for the heads-up.

2 Q. MS. VANCE: Okay, I think we're done with
3 Exhibit 2, and we're going to move on to Exhibit 3,
4 please, if I could have that pulled up.

5 Okay, page 46, please. If we could just zoom out
6 a little. Yeah, perfect. You anticipate what I'm
7 going to say.

8 Okay. This page is the last page that was part of
9 the November 6, 2020, Wood report. And in the top
10 left, it says, "Certified Concrete Testing Laboratory." 10:43
11 And the date on sort of the middle of the page is
12 June 9th, 2020. At least I assume that's what that is,
13 and the date cast is November 2019.

14 Take your time, and tell me what does this page
15 tell you?

16 A. MR. CUMMING: The information on this page
17 provides details of concrete specimens. And if you
18 read the rest of the report, it's led me to believe
19 that these were the specimens that were taken from the
20 Muilwijk roller compacted concrete layers. 10:44

21 On the right-hand side of the document, it says
22 the core location, you can see that some of them are
23 from the shelter, that would be the covered pens. Then
24 I referred to some of the north pens, centre pen, and
25 south pen; those would be the open pens.

A. CUMMING, S. CUNNINGHAM

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1 It provides information on the length of the
2 specimen which I understood to be the thickness of the
3 roller compacted concrete that was placed, and it
4 provides information on specimen density. So that's
5 the density of that core, if I can call it that, that
6 was taken.

7 In the lower left-hand part of the page, there is
8 a block which includes some information, and it says
9 the supplier is Prairie Stone Concrete. I don't have
10 any information from Prairie Stone Concrete under their
11 letterhead or signature to say that this information is
12 correct or to -- to say that it's false. I don't have
13 that information.

10:45

14 But in that box, you can see there that its
15 strength is shown as 25 megapascals, but it does not
16 give the time period at which that strength is expected
17 to be seen in the material. It does show a target
18 density of 2,400 kilograms per cubic metre, which is
19 very similar to the specimen densities in A through H
20 above.

10:46

21 And it says an aggregate size of 20 millimetres,
22 but that's -- that's the limit of the information that
23 we have on the actual concrete.

24 Q. Okay, thank you. If we could please go to PDF page 98
25 of this same Exhibit 3.

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 So this is the beginning of a three-page, I'm
2 going to call it a memo, for lack of a better term,
3 provided, I think, to you by Mr. Cunningham, at least
4 that's how it appears. In the first line, it says, Hi
5 Andy." And then it says: (as read)

6 "Thank you for accepting my offer on
7 November 23, 2020, to provide you with a
8 written analysis of the average
9 calculated permeability on page 4."

10 And I don't have enough spittle in my mouth to read the
11 rest of it, but my question to you is why did you take
12 Mr. Cunningham up on this offer?

10:47

13 **A. MR. CUMMING:** So this refers back to the Wood
14 report that was provided to support the application,
15 and there is a number there. There's some assumptions
16 that are made, and then the response is given. But
17 there's no information to show how the result was
18 actually achieved.

19 So Scott offered, and I accepted his offer, to
20 calculate it, and my intention there was just to say,
21 Okay, so long as I can understand this, then it gives
22 me a clearer picture of what is being proposed. And
23 when I initially took Scott up on his offer, my
24 assumption was that they'd come out to exactly the same
25 number.

10:47

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1 However, when you follow this through, and the
2 logic that is utilized which I was able to follow very
3 clearly in Mr. Cunningham's document, it comes out and
4 shows that the -- we were not able to duplicate the
5 result that was calculated by Mr. Lobbezoo in the Wood
6 report and that we show that the -- well, our
7 calculation indicates that the hydraulic conductivity
8 is 4 1/2 times greater than what was suggested in his
9 report.

10 Q. Okay, thank you. And I think I will probably ask
11 Mr. Cunningham some questions about his work later on.

10:48

12 Document manager, briefly, you see Exhibit 97.
13 Exhibit 97 is a document authored by John Both.

14 And I just have the one question for you,
15 Mr. Cumming, on this. Did you have this report before
16 you -- well, actually, I have two questions. Did you
17 have this document when you made your decision on
18 January 14th of 2021?

19 A. **MR. CUMMING:** **No, did I not.**

20 Q. And then document manager, if we could scroll down, I
21 think it's page 2. Right, perfect.

10:49

22 Under the heading shrinkage considerations, there
23 are 20 bullets; I counted them. And these appear to be
24 factors -- this is what it says: (as read)

25 "Factors affecting shrinkage induced

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1 cracking within concrete."

2 Mr. Cumming, please take your time, look through this
3 list of bullets, and could you please advise the Board
4 which factors of these that you had information on when
5 you made your decision on the Muilwijk's application.

6 **A. MR. CUMMING:** So -- so, you know, just a little
7 bit of clarity, it indicates that these are some of the
8 factors. And you're right, I counted them too, and
9 there are 20 there, but having the statement, some of
10 the factors, I would assume that there would be more.

10:50

11 When I went through this list in detail, there is
12 some information that I have on the aggregate content
13 in the concrete. And just in the previous exhibit or
14 so, where we spoke about the aggregate being
15 20 millimetre, that is the information that I have on
16 aggregate content. There's no quantity, there's no
17 design mix, per se. So there's some information on
18 that I would suggest that it is limited.

19 If I go down further through the list, the
20 concrete mean compressive strength of 28 days, well, I
21 don't have that, but as -- in that same document where
22 we spoke about the aggregate being 20 millimetres,
23 there is something there that says that the concrete
24 strength is 25MPA; it does not say that it's at 28 days
25 or any -- any particular time frame for that example.

10:50

A. CUMMING, S. CUNNINGHAM

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1 So I have some information for that.

2 If I go down further through this, then the
3 information that I do have is respect -- relates to
4 unit density, and that is exactly that same report
5 that's I've been speaking about which provides density
6 of the core samples for that particular RCC at
7 different locations.

8 Q. And that's it?

9 A. MR. CUMMING: That's it. I don't have any
10 information on -- on any of the other 17 factors that
11 are listed.

10:51

12 Q. Thank you. I think that I would like to ask just a few
13 questions about the catch basin.

14 Now, this is not strictly part of your decision
15 because your decision was to deny the application;
16 however, you did suggest some -- and thank you, we're
17 done with this document, yeah.

18 You did suggest some conditions in your decision
19 summary; I believe it was Appendix D. And a couple of
20 them relate to the catch basin.

10:52

21 So I just kind of want to talk about those in a
22 general way because they are not conditions. And I
23 think -- all right. You don't need to bring this up,
24 but in the RFR filed by the Muilwijks, Mr. Muilwijk
25 suggested that you could have told him that his catch

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1 basin would be too deep, that he could have changed it
2 back to 1.5 or 1.6 metres in depth instead of
3 1.8 metres in depth.

4 So why didn't you tell him that the catch basin
5 was too deep?

6 A. MR. CUMMING: If you look at the decision
7 summary, you will see that, in my decision summary,
8 it's about the base of the liner of the catch basin
9 being 1 metre above the water table, and there's a
10 potential that it may not be.

10:53

11 If you have a look at the requirements in the
12 Standards Regulation, that requirement is to be met at
13 the time of construction.

14 As I hope is more commonly known, the water table
15 can vary, move up and down a bit, depending on the time
16 and the season, so depending on when the catch basin
17 was going to be constructed, this may be able to be
18 met.

19 Typically in a circumstance like this, we would
20 provide a condition requiring that it be met, and that
21 if it can't be met, that they need to contact us, and
22 then we will relook at it at that point in time.

10:54

23 Q. Okay. And, you know, one of your potential conditions
24 is a leakage detection and collection system. What is
25 a leakage detection and collection system?

A. CUMMING, S. CUNNINGHAM

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1 A. MR. CUMMING: It's -- it's a system which you
2 should not confuse with a groundwater monitoring system
3 because it is different.

4 So a leakage detection system -- I need to
5 backtrack a little bit here. What is being proposed
6 for the catch basin liner is a synthetic liner;
7 essentially a thin sheet of material that will prevent
8 the contents of the catch basin from migrating into the
9 soil and therefore into that shallow groundwater.

10 A leakage detection system is something that can
11 be installed at the time of construction, and it is
12 essentially to capture any leakage, should there be any
13 damage to that thin synthetic material, and bring that
14 to some sort of a sump or collection area, and that
15 then can be sampled on a frequency that -- that the
16 operator can look at. And you can very quickly
17 determine whether or not you have a damage to your
18 liner, and it is -- it is leaking. At that point in
19 time, remedial action can be done.

10:55

20 So this is to be installed prior -- at the same
21 time that everything is being constructed. Yes,
22 certainly it adds a little bit of cost to the
23 construction because you have to put this
24 infrastructure, this sort of collection system in
25 underneath the liner and into a sump, but it doesn't

10:56

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1 require ongoing chemical monitoring -- sorry,
2 monitoring for chemicals and laboratory costs that are
3 associated with things like that. It's something that
4 can be monitored easily over time, and it's something
5 that we -- I want to say virtually every time we see a
6 synthetic liner would encourage to be put in, if not
7 condition to be put in.

8 Q. You spoke about some of the costs associated with a
9 leakage detection and collection system. If you don't
10 know the answer to this, please don't guess, but how do
11 the costs of, say, a groundwater monitoring regime
12 compare with the costs of this synthetic liner leak
13 detection system?

10:57

14 A. MR. CUMMING: I can't tell you the exact cost
15 because I don't know what they are, but I can tell you
16 that I have spoken to quite a number of different
17 producers who have put in both systems.

18 Monitoring wells, as an example, have to have
19 special equipment come out to drill the -- drill the
20 wells, and they have to be installed in specific
21 locations, and there is -- and developed, and they need
22 to be monitored and test results taken as specified in
23 whatever permit is issued for that particular facility.

10:57

24 So there are unique costs to them, and there are
25 ongoing costs associated with monitoring any samples

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1 that get taken.

2 The ground leakage detection system is typically
3 installed utilizing the same equipment that is used to
4 excavate and prepare the bed for a liner. There is a
5 little bit of additional time that is utilized for the
6 equipment just to make sure that the details for that
7 leakage detection system and how it's supposed to be
8 installed can be met, but the cost to have that
9 equipment is already -- on site is already borne by the
10 construction of the catch basin of the liquid manure
11 storage facility that's being put in there.

10:58

12 The ongoing monitoring costs are not there. It
13 requires somebody to go and check and -- to make sure
14 that the sump or the collection area that collects
15 any -- any liquid that drains through it or is caught
16 by the system can be sampled, and if those samples then
17 indicate that there is some leakage, at that point in
18 time, it may trigger some sampling. But it -- and when
19 I say "sampling," some costs to have those samples
20 processed at a laboratory, but not until that point in
21 time.

10:59

22 Q. Would you require, you as an approval officer, would
23 you require a leakage detection system for all
24 synthetic liners?

25 A. MR. CUMMING: I have as an approval officer,

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1 yes.

2 Q. Okay. And one last question on the synthetic liner.
3 Mr. Muilwijk, I believe, the way I read the record, not
4 just the technical document, he is proposing a 60-mil
5 liner. And he's been asserting that because he has a
6 60-mil liner, as opposed to, say, a 40-mil liner, that
7 he shouldn't also have to have a leakage detection
8 system.

9 For reference of the transcript, this is Exhibit 3
10 of the technical document at pages 26 and 27, which
11 compares the two sets of specs.

11:00

12 So is there a relationship between thickness of a
13 liner and the likelihood of a leak?

14 A. MR. CUMMING: Let me go back a little bit before
15 I come to your question, if you don't mind.

16 Just for context, a 40 mil is 40 thousandths of an
17 inch, which is equivalent to 1 millimetre,
18 approximately. 60 mil, 60 thousandths of an inch,
19 which is approximately equivalent to 1 1/2 millimetres.

20 So we're talking about a liner which is, in the
21 case of a 60 mil liner, approximately 1.5 millimetres
22 thick.

11:00

23 Damage to synthetic liners like that normally
24 occurs from physical damage, and that physical damage
25 could be from the liner material -- liner resting on

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1 sharp rocks or sharp objects and then piercing it --
2 the liner over time. It could be from animals, be they
3 domestic or -- or wild animals coming through there,
4 and their hoofs poking holes through it. It could be
5 something chewing a hole through it, as well as the
6 potential for degradation through UV; although that
7 typically takes place over a much, much longer time
8 frame.

9 So we also see with catch basins and other liquid
10 manure storages that they normally insert a pump,
11 mechanical pump to empty -- put into the facility and
12 then use that to empty the facility. Those pumps can
13 also damage the liner, and we've seen that in quite a
14 number of situations in southern Alberta and across the
15 province.

11:01

16 So the -- to answer your question, is the
17 difference between 40 mil and 60 mil for a liner
18 thickness; is that significant? You know, it's
19 50 percent thicker, 60 mil is 50 percent thicker than a
20 40 mil liner.

11:02

21 It is however still subject to mechanical damage,
22 and you could imagine a pump or some sort of a stirring
23 impeller probably would slice through that really
24 easily, irrespective of whether it was 40 mil or
25 60 mil.

A. CUMMING, S. CUNNINGHAM

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1 Q. Okay. Mr. Cumming, I have, I think, just three final
2 questions for you. What information would the
3 Muilwijks have to provide for you to be satisfied that
4 the RCC they install, that they have installed meets
5 Section 9(6) of the Standards Reg?

6 A. MR. CUMMING: That is a really challenging
7 question. And when I say it's challenging, a lot of
8 that is because the material has already been
9 installed.

10 So the -- there is a lack of information right now
11 with respect to the preparation of the base onto which
12 the material was placed.

13 There is a lack of information with respect to the
14 design and mix of the roller compacted concrete, how
15 cracking is proposed to be controlled, and,
16 essentially, I don't have any of the -- of the
17 specifications for that.

18 In one of the responses, and I don't have the --
19 the exhibit number, but it was a response -- one of the
20 later exhibits -- a response from Mr. Muilwijk. He
21 indicated that the concrete provider had taken samples
22 of the roller compacted concrete at the time that they
23 were going to be placing the concrete. It's now over a
24 year since that material was placed.

25 I would have hoped that that information would

11:03

11:04

A. CUMMING, S. CUNNINGHAM

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1 **have been able to have been provided, but none of it**
2 **has been forthcoming in the information that I have**
3 **been able to see.**

4 **Q.** And, Mr. Cumming, as kind of a follow-up to that
5 question, there has been some new information since
6 January 14th of 2021, when you made your decision put
7 before even just in this hearing.

8 Does the new information that has been put
9 forth -- and this is highly hypothetical, so I
10 apologize for that -- does that new information answer
11 your questions?

11:04

12 **A. MR. CUMMING:** To date, I haven't seen anything
13 in the information or material that has been submitted
14 that would provide me with the information to show that
15 the roller compacted concrete that was installed can
16 meet the AOPA requirements.

17 **Q.** Is it possible -- so my last question, in your view, is
18 it possible with the information that you have
19 identified is missing, if you were to get that, is it
20 possible for an approval officer, with all that
21 information to agree that the RCC layer that has
22 already been -- a RCC layer that has already been
23 installed meets AOPA?

11:05

24 **A. MR. CUMMING:** I would hope so, but without
25 seeing that material, I can't say conclusively one way

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1 or the other.

2 MS. VANCE: Okay. Those are my questions for
3 Mr. Cumming. I obviously have some for Mr. Cunningham,
4 as well. I'm happy to keep trucking along or?

5 THE CHAIR: Well, I think we'd all probably
6 benefit from a short break, Ms. Vance. How long were
7 you thinking you might need with Mr. Cunningham?

8 MS. VANCE: It depends how wordy
9 Mr. Cunningham is, sir.

10 THE CHAIR: I assume he's practiced or gone
11 through this. Perhaps not, but that would be a
12 surprise.

13 MS. VANCE: I would say not quite as long as
14 Mr. Cumming.

15 THE CHAIR: Okay.

16 MS. VANCE: If that's helpful.

17 THE CHAIR: Slightly. Could we break until 20
18 after 11, and we'll return at 20 after 11 sharp.
19 Thanks.

20 MS. VANCE: Thank you.

21 (ADJOURNMENT)

22 THE CHAIR: Okay. Mr. Metheral, are you and
23 your clients ready for Ms. Vance to proceed? Perhaps
24 you're on mute. Mr. Wiebe, are they on line? Can you
25 tell?

11:06

11:06

A. CUMMING, S. CUNNINGHAM

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1 MR. WIEBE: Just give me one sec here. I'll
2 request that they unmute.

3 THE CHAIR: Thanks.

4 MR. METHERAL: Yes, we're prepared. Thanks.

5 THE CHAIR: Okay. Thank you. I just wanted
6 to make sure so that we didn't have to backtrack.
7 Thank you very much.

8 Ms. Vance, please proceed.

9 MS. VANCE: Thank you, Mr. Chair.

10 Q. MS. VANCE: All right. Mr. Cunningham, you'll
11 acknowledge that you have already been sworn in?

11:21

12 A. MR. CUNNINGHAM: Yes.

13 Q. If we could, document manager, please briefly see
14 Exhibit 85 at page 9 of 17. Thank you.

15 And we do not need to go through this, but I just
16 wanted to confirm that this is your CV; correct?

17 A. MR. CUNNINGHAM: Correct.

18 Q. Could you in brief tell me about all the different
19 roles you've had at the NRCB?

20 A. MR. CUNNINGHAM: I started in May 2002 as an
21 approval officer, and so that was my first position.

11:22

22 And in January 2015, I became a member of the
23 Science and Technology Group.

24 Q. And as a member of the Science and Technology Group,
25 what do you do?

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 A. MR. CUNNINGHAM: I assist approval officers and
2 inspectors on technical matters related to applications
3 for confined feeding operations or if any -- any parts
4 of their job where they're looking for technical
5 assistance.

6 Q. On this particular file, tell me what your role was?

7 A. MR. CUNNINGHAM: On this file I -- Mr. Cumming
8 asked me to do -- complete the site information forms
9 and the risk screenings. And so we worked together on
10 completing that and the steps as to who would complete
11 which parts, which ended up being, as we showed
12 already, the site information forms with both our names
13 on it jointly completed, and I completed the risk
14 screenings themselves with the actual scorings.

11:23

15 And as well I did a couple -- the memos for the
16 protective layer, that is within Exhibit 3, and the
17 memo for the groundwater resource and upper water --
18 uppermost groundwater resource, also in Exhibit 3.

19 Q. And did you also do a memo relating to hydraulic
20 conductivity of the RCC?

11:23

21 A. MR. CUNNINGHAM: I did. That's all -- yeah. I
22 provided that memo as well as part of assistance to
23 Mr. Cumming.

24 Q. Thank you. Have you ever visited this site?

25 A. MR. CUNNINGHAM: No, I have not.

A. CUMMING, S. CUNNINGHAM

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1 Q. How can you be confident in your assistance of the
2 approval officer if you have not been to site?

3 A. MR. CUNNINGHAM: Document manager, I believe this
4 document can come down.

5 Q. Yes.

6 A. MR. CUNNINGHAM: So I -- I rely on the approval
7 officer for looking at the site information things.
8 Things like, okay, distance. So with the site plan
9 that is submitted, for example, are there things that
10 are not documented on the air photo that have been
11 drawn in for those types of things. Or topography,
12 slopes. So the slopes of a particular site usually are
13 not captured by a topographic map and require on-site
14 eyes to -- to see and observe.

11:24

15 And so I -- I -- on the site information forms,
16 the parts that I could do from a computer is -- that's
17 the part I worked on in creating the protective layer
18 and the UGR, those memos, and that input in there, as
19 well as filling in a bunch of the -- many of them
20 blanks on the site information forms using what was
21 filed by the applicant in their Part 2 application.

11:25

22 Q. Thank you. And maybe since we're on it, we can just
23 pull up one of the site information forms. As an
24 example -- there are two, but as an example could we
25 please see Exhibit 58.

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1 So the two site information forms are Exhibit 58
2 and 59. This one I think is the same one we looked at
3 previously, is the site information form for the
4 covered pens and the two barns.

5 If you please scroll down to -- I think the bottom
6 of this page. Yes, perfect, thank you.

7 And I asked Mr. Cumming about the protective layer
8 and the reference to the borehole AM4-19. I'm
9 wondering if you are able to tell me, the protective
10 layer you've identified -- or this form has identified
11 as predominant geology being VF sandy loam, which I
12 believe is very fine sandy loam. Why didn't you use
13 the silty clay as a protective layer?

14 **A. MR. CUNNINGHAM:** So I did consider -- in this
15 determining of protective layer, you do look at what's
16 the best quality material that could be a protective
17 layer.

18 So in my -- in my memo in Exhibit 3 -- we don't
19 need to move to it, but in Exhibit 3, on protective
20 layer, I did consider the silty clay layers. They were
21 present in all four boreholes. In two of the four
22 boreholes the silty clay was above the groundwater; in
23 the other two the silty clay was below. And so based
24 on that, that doesn't -- that's not protection if it's
25 below. So then I went to the next best quality

11:25

11:26

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1 material, subsoil material, that was above the water in
2 all four boreholes, which was -- yes, VF is for very
3 fine sandy loam. Just a function of how many
4 characters actually fit in a box is what...

5 Q. And the subsoil texture chosen here is coarse. Why is
6 that?

7 A. MR. CUNNINGHAM: That relates to what's above the
8 tier in the uppermost groundwater resource.

9 Q. Okay.

10 A. MR. CUNNINGHAM: The uppermost groundwater resource
11 memo is quite a bit longer in the -- in Exhibit 3.

12 But in determining -- and borehole AM4 was chosen
13 because it was the shallowest, it showed the shallowest
14 presence of the water. And the -- in that borehole,
15 the sandy loam was actually where the water was. And
16 then, in addition, above the water, there was more
17 sandy loam but was dry. So dry. But because of all
18 the -- like the same material, I assigned the same --
19 so I assigned the subsoil texture of coarse for the
20 groundwater resource portion, and then applied the same
21 subsoil texture as coarse in the protective layer
22 portion.

23 Q. Okay.

24 And actually, document manager, while we're
25 talking so much about Exhibit 3, maybe we should just

11:27

11:28

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1 move to that. And we're looking for page 47, which I
2 think will bring up Mr. Cumming -- Mr. Cunningham's
3 memo on upper ground -- uppermost groundwater resource.
4 Thank you.

5 And we'll just walk as quickly as we can through
6 this, but making sure we do justice to it. Can you
7 tell me what is the uppermost -- what is an uppermost
8 groundwater resource?

9 **A. MR. CUNNINGHAM:** Well, if there are -- so
10 usually -- often you have to assess, first of all, if
11 there are more than -- like, how many groundwater
12 resources there are at site. And then whatever the
13 highest or uppermost becomes the uppermost groundwater
14 resource, which is in Section 9 of the standards, that
15 is the groundwater resource that's specified that must
16 be protected.

11:28

17 **Q.** Okay. And on this page, 47 of Exhibit 3, the bottom --
18 under "Are there other groundwater resources at site,"
19 that's the boldface heading near the bottom of this
20 page, you discuss lithology for water well ID 115735.
21 Then in the next paragraph you discuss the water well
22 ID 115734. Where is well 115734 on this site?

11:29

23 **A. MR. CUNNINGHAM:** I'm not sure. It's identified in
24 the Alberta Environment's water well database as a well
25 for this site with this land location. In their

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1 database they -- if they don't specifically show a
2 location, their GPS shows it's the centre of the
3 quarter section, but often that's not geographically
4 correct. It's just a matter of assigning a record
5 somehow to a piece of property.

6 Q. But we can gather that it's somewhere on that quarter
7 section; is that right?

8 A. MR. CUNNINGHAM: Yes.

9 Q. Okay. How do water wells with IDs 115734 and 115735
10 compare?

11 A. MR. CUNNINGHAM: So the paragraph above, the
12 existing water well's groundwater resource, that was
13 the assessment I did of what's -- for the well that --
14 the current water well. The trouble is that what does
15 it look like and where -- what does it have for a
16 groundwater resource. And it shows the, at about the
17 fourth line there, that it's the -- the hard shale and
18 gravel that's in that -- on that lithology. So from
19 22.9 metres to 29.0 metres would be the groundwater
20 resource that's shown in that water well.

21 With the lithology above that, the brown till
22 surface, the 12.2, and the blue clay, from 12.2 to
23 22.9, there's nothing obvious in there about there
24 being a groundwater resource in either of those
25 lithologies.

11:30

11:31

A. CUMMING, S. CUNNINGHAM

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1 Q. Okay. And what about -- sorry, go ahead.

2 A. MR. CUNNINGHAM: And then for 734, there's no
3 lithology listed on 734. But the details of the well,
4 it lists its depth, it's a hand-dug well and a total
5 depth of 4.6 metres. So that made -- that's -- there
6 are definitely some wells like that, but there's not a
7 lot of wells at that depth that are still in use. Many
8 of those wells were drilled back as the prairies were
9 settled, long -- long before electricity made it to
10 rural Alberta. Or in this case, did the other --
11 there's no record of a well being drilled on site till
12 1982.

11:31

13 Q. Okay.

14 Document manager, if we can scroll down, I think
15 it's going to be on the next page. I'm looking for
16 Table 1. There it is.

17 Table 1, what does this table tell us?

18 A. MR. CUNNINGHAM: So I looked to the groundwater --
19 Alberta Environment's groundwater database, and I
20 looked at all the wells within a mile, so
21 1.6 kilometres of the site, and got the 27 wells.
22 Using the depth in there, I -- I picked all the wells
23 that had well depths of 20 feet or less, and some of
24 them which were zero, and then analyzed them -- placed
25 the information in this table and then did an analysis

11:32

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1 on the next page of each of those wells and with what
2 information was there; to see if did it match the
3 possibility of the 734 well on site of the -- of a
4 shallow well that had been -- that had been used at
5 some point in time.

6 Q. Just out of interest, why did you -- why did you go
7 1.6 kilometres in all directions to look for water
8 wells?

9 A. MR. CUNNINGHAM: I did this work as part of my memo
10 to support the groundwater resource and selection of
11 uppermost groundwater resource for completing the site
12 information plan. And in the companion document for
13 filling out the environmental risk screening tool,
14 there -- if you're going to look at wells beyond the
15 site, it's specified to look out 1.6 kilometres.

16 Q. That's the ERST companion guide Version 1.2, is it?

17 A. MR. CUNNINGHAM: Correct.

18 Q. Okay. And for the transcript reference, I believe that
19 that is at Exhibit 73. We don't need to bring it up.
20 I thought I would just put that out there.

21 And then you actually go into the chemistry on
22 this. This is part of this table. What is the
23 significance of total dissolved solids, which is the
24 column that is third from the right in this table?

25 A. MR. CUNNINGHAM: Well, the definition in the

11:33

11:34

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1 standards of what an upper -- of what a groundwater
2 resource is, there's basically two sub bullets to it.
3 One is that it's water that's being used; and the other
4 one includes a flow rate, a minimum flow rate, and a
5 maximum total dissolved solids. And the maximum in the
6 regulation is 4,000.

7 So these wells actually had -- some of them had
8 chemistry information from the time periods reported
9 here, and so I included that as a means of comparing to
10 the 4,000 that was in the -- that's in the standards
11 definition.

11:35

12 Q. Okay. Thank you.

13 If we could scroll down, I believe, to the next
14 page. And here -- actually, it will be the following
15 page. Yeah, Table 2.

16 So here we have what I -- what appears to me,
17 Table 2, is the borehole information for the Muilwijk
18 site. And we have holes AM1 through 4-19. You know,
19 what does Table 2 tell us?

20 A. MR. CUNNINGHAM: So that's correct, it's those
21 boreholes that were provided in the -- in the --
22 they're in the technical document. I forget the page
23 number. But I took the texture, the depths of where it
24 appeared the water was, and through them all put them
25 into one table for easy comparison.

11:35

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1 A couple of things. The depths were similar. The
2 depths -- the top row within approximately a metre,
3 from a 2.7-metre depth below grade to a 3.6-metre below
4 grade starting depth. The textures were all logged the
5 same, as a very fine sandy loam. Moisture, they were
6 all logged as saturated or very moist to saturated.
7 And three of the four had -- had additional notes with
8 them. Two of them stating free water on boreholes 2
9 and 3, and then on the first one, slough, which looks
10 like the word slough but it's different. It's the
11 word -- so this would be the -- when they were drilling
12 this well, this borehole that the sides actually
13 started to fall in, to slough in, and that's an
14 indication of how much -- that there's water present
15 and how much there is.

11:36

16 Q. Okay.

17 A. MR. CUNNINGHAM: So we concluded that all these
18 boreholes showed a saturated zone shallower than the
19 groundwater resource in well ID 735. So this supported
20 the idea that 734 was actually completed into an
21 aquifer and that was useful for some period of time.

11:37

22 Q. Okay. So it appears that there -- the conclusion from
23 this is that there were -- there are two aquifers, one
24 shallower, one deeper, and so the uppermost one is that
25 shallower one. Is that fair to say?

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1 A. MR. CUNNINGHAM: Yes. And that said --
2 Document manager, if we go down a couple of lines
3 here, please. Thank you.
4 Under the heading "What is the Uppermost
5 Groundwater Resource," that's my conclusion that the --
6 it's the same well that -- the same aquifer that 734
7 was completed into and the four boreholes intersected
8 it when they were drilled. And then listed here --
9 basically all the boxes that would be filled in on the
10 site information form and the information I was going
11 to use as a source document, is the word it had come
12 from.

11:38

13 Q. Okay. Thank you.

14 Document manager, could we move to, the same
15 exhibit, page 98, please.

16 This is -- this is a further memo from you. We
17 saw this earlier in the morning, but this is your memo,
18 so I'm going to ask you a few questions about this.

19 In the -- near the bottom of this page, you say
20 that: (as read)

11:38

21 "An applicable methodology that uses
22 area and permeability is Darcy's Law."

23 Please tell me, what is Darcy's Law about?

24 A. Darcy's Law is about the flow of liquid through a
25 porous material. It was developed -- or discovered by

1 a French engineer Darcy using water as the liquid and
2 sand as the material, but it has since been found to
3 apply to -- also to oil and gas through rock
4 reservoirs, it had some chemical engineering
5 applications, and even some biomedical, looking at flow
6 of liquid within a body, for example, through different
7 parts, from one part of a body to another.

8 Q. Okay. And the formula you have down there has four
9 different elements: Q is flow rate, K is hydraulic
10 conductivity or permeability, I is hydraulic gradient.
11 What is hydraulic gradient?

11:39

12 A. MR. CUNNINGHAM: Hydraulic gradient is a measure of
13 the pressure. So if the -- it's the term that came
14 from Darcy's Law. Of course pressure was known before
15 Darcy's Law, but that's how they termed it there. And
16 it was the piece of -- it's kind of one of the -- it
17 made perhaps the defining -- hydraulic conductivity is
18 a defining piece from Darcy's Law.

19 Hydraulic gradient is the part, well, if you want
20 the water -- for example, in Darcy's experiments, if
21 you want the water to flow through the sand more
22 quickly, add pressure, and it will move faster.

11:40

23 Q. How does that kind of pressure work on, say, a solid
24 manure collection area?

25 A. MR. CUNNINGHAM: Well, it's -- that's difficult to

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1 measure. Or you can know which numbers to use.

2 So if you -- one of the assumptions in my report,
3 I think it's.

4 Can we go down one page, document manager, please?

5 Yeah, onto the third paragraph here. Where

6 "Darcy's Law is valid for..."

7 The -- in the regulations they have used hydraulic
8 conductivity, which quite clearly comes from
9 Darcy's Law, but they don't -- the regulations don't
10 give us what to use for a gradient. And in the 11:41
11 regulations, they're specific. It's -- this is use
12 hydraulic conductivity for solid manure. Well, it
13 shouldn't -- some would say it should be zero, but then
14 the whole formula goes to zero because there's no
15 pressure. And so that doesn't really -- it's unlikely
16 that was the intent of the regulations.

17 So one way we have found that works quite well to
18 look at it is using the thickness of a layer which is
19 specified in the Regulations, and the hydraulic
20 conductivity, and just make the assumption that the 11:41
21 gradient is whatever the legislature or the Minister
22 intended it to be. And it's the same for solid manure
23 storages.

24 So we can do that, and that's what I did here.
25 It's similar -- we used this similar concept when we

1 developed the guidelines, that Technical Advisor Group
2 guideline, that 096-61, we looked at earlier. It's not
3 an exhibit, but the comparisons in there for equivalent
4 constructive layers and liners do not include a
5 gradient. They include the hydraulic conductivity end
6 of things.

7 Q. Okay. On this page at the top, you have assumed --
8 you've made an assumption about overall flow. My
9 understanding of that is you were adding the cracked
10 and the uncracked.

11:42

11 Instead of an average, why use overall flow rather
12 than an average?

13 A. MR. CUNNINGHAM: Well, an average is -- so to
14 average between the two areas, for example, or the
15 average between two flows, the -- because of the way
16 that the formula works as you change the area, an
17 average doesn't come up with your answer directly
18 enough. It's more because of the -- it's about the
19 hydraulic conductivity of the cracked multiplied by the
20 area of the cracked, and then that has to be added to
21 the area of the uncracked and the hydraulic
22 conductivity of the uncracked.

11:43

23 So it's a multi -- while you may come out with an
24 the average in the end, it's a multistep process. It's
25 related on two things; not just one.

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1 Q. Okay. And you don't average it -- you didn't average
2 it until the end, if you like?

3 A. MR. CUNNINGHAM: Until the end, yes.

4 Q. Okay. I think we're done with this exhibit.

5 So that -- that memo on hydraulic conductivity
6 that's included in the technical document, that was
7 based on the November 6, 2020, Wood report; correct?

8 A. MR. CUNNINGHAM: Correct.

9 Q. Okay. If you wrote a similar memo about hydraulic
10 conductivity based on the April 8th, 2021, Wood report,
11 which is Exhibit 98, I believe, what might that look
12 like?

13 A. MR. CUNNINGHAM: It would look different --

14 Q. Okay.

15 A. MR. CUNNINGHAM: -- because in the April 8th
16 report, Wood, they have included their formula that
17 they used, which is -- it's the same formula I provided
18 in equation 6 in my memo.

19 So -- and I could easily follow their
20 calculations, and I got the same result they did.
21 So -- when I did that calculation.

22 So I would have discussed with Mr. Cumming to see
23 how much information do you want in a memo? Do you
24 want me to go through line by line to show the
25 calculations? At times that may be valuable for an

11:44

11:44

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1 approval officer in -- for other parties than the
2 engineers informed.

3 So it would look different, and the -- based on
4 what I know today, I would have concluded that I could
5 get the same answer that Wood provided in their report.

6 Q. The formula -- we can bring this up if you need to, but
7 the formula in that April 8th, 2021, Wood report, are
8 you in agreement with that methodology?

9 A. MR. CUNNINGHAM: Yes. It's the same formula I
10 used. The -- comparing the formula that's in the Wood
11 report and equation 6 on the last page of my report,
12 they are the same formula. They do have different
13 subscripts for the variables, so if you -- they -- but
14 when you look at the details there, they are the same.

15 Q. Right. Okay. When I read the April 8th, 2021, report,
16 which is Exhibit 98, to me it seems to suggest a kind
17 of hybrid with RCC plus some soils underneath that are
18 not bad as a kind of a hybrid.

19 Have you seen -- in your experience with the NRCB,
20 have you seen hybrid kind of proposed liners before?

21 A. MR. CUNNINGHAM: I have seen some hybrid liners.
22 Not ones that involved concrete as a hybrid, but I have
23 seen some where they -- where they did cement soils
24 investigation. They had part of what they needed for
25 protective layer, but not enough, and they looked at

11:45

11:46

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1 proposing a compacted soil liner on -- on top of that,
2 and the combination of the two to provide the required
3 protection under the regulations.

4 And we do provide in our -- in that 096-61
5 guideline, there is a method for combining appropriate
6 layers and liners.

7 Q. Thank you. I'm going to ask some questions -- I'm
8 going to take advantage of you being here,
9 Mr. Cunningham, because you have such a wealth of
10 historical knowledge, especially in relation to the
11 environmental risk screening tool.

11:47

12 So I just wanted to ask you a few questions, and I
13 do ask the Board's patience to kind of just bear with
14 me, and the reason for this history lesson will
15 hopefully become clear.

16 If we could please see Exhibit 73. So this is the
17 environmental risk screening tool. I call it a
18 "guide." I'm not sure that that's -- you have called
19 it a "companion document." Version 1.2. This is the
20 one that you and Mr. Cumming will use, especially use,
21 for this file, LA19036; yes?

11:48

22 A. MR. CUNNINGHAM: That's correct.

23 Q. Okay. And this is the current. So if we had an
24 application today and you wanted to run the ERST, you
25 would use this version; is that right?

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1 **A. MR. CUNNINGHAM:** Correct.

2 **Q.** Okay. And before Version 1.2, what was the version
3 before that called?

4 **A. MR. CUNNINGHAM:** Version 1.1, and it was issued in
5 February of 2009.

6 **Q.** Okay. At this point, I'm going to ask the document
7 manager to bring up a new document which is not an
8 exhibit. It is Document Number 2. Thank you.

9 This is Version 1.1?

10 **A. MR. CUNNINGHAM:** Yes.

11:48

11 **Q.** Okay. I believe that you had a role in switching from
12 1.1 to 1.2. Could you please tell us about that?

13 **A. MR. CUNNINGHAM:** Yeah. So part of -- in my time at
14 NRCB I've worked on all three versions of the
15 environmental risk screening tools, the original,
16 Version 1.0, the amendments to create Version 1.2, and
17 then the changes from Version 1.1 to 1.2. And I did a
18 bunch of the authoring of the changes of going from
19 Version 1.1 to Version 1.2.

20 **Q.** Okay.

11:49

21 **MS. VANCE:** And perhaps, Mr. Chair, if this is
22 a good opportunity, I could ask this be marked as an
23 exhibit.

24 **THE CHAIR:** Yeah. I was going to ask you that
25 same thing, so please do.

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1 Ms. Friend, what number are we at?

2 MS. FRIEND: Mr. Chair, that would be 103.

3 THE CHAIR: Okay, thank you. So 103 for ERST
4 February '09.

5 **EXHIBIT 103 - ERST FEBRUARY 2009**

6 MS. VANCE: Thank you very much.

7 Q. So if we compare, I'm going to drill -- I'm not going
8 to review the whole document, obviously. I'm looking
9 at -- I want to look at Part 8, which you actually
10 excerpt in the technical document in one of your memos
11 in there.

11:50

12 But I wonder if we could just look -- while we've
13 got Version 1.1 open, if we could look at page 11 of
14 45, and this will take us to Part 8, which deals with
15 uppermost groundwater resource. And the bullet that
16 I'm interested in in particular is the second bullet.
17 And I don't know if we're able to lay these side by
18 side or whether we just need to flip back and forth
19 with a good memory. Could we please look at Part 8 for
20 the 1.2 Version, which should be at PDF page 12 of
21 Exhibit 73. Thank you.

11:50

22 So the second bullet looks a bit different here.
23 And I'm wondering, Mr. Cunningham, can you just
24 generally walk us through why these bullets -- why
25 they're different. What changed from Version 1.1 to

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1 1.2?

2 A. MR. CUNNINGHAM: So probably the best -- maybe a
3 good place to start here is Version 1.2 on this page.
4 So under the section bullet, there are three
5 paragraphs. The third paragraph did not change from
6 Version 1.1 to 1.2.

7 The first paragraph changed with what's within the
8 brackets. The other one just said geotechnical
9 hydrogeological. This one got a little more specific
10 to what was there.

11:51

11 And at paragraph 2 in this one is all new.
12 That -- there was none of that information in the
13 previous -- in Version 1.1.

14 Now, this -- this -- so actually perhaps, document
15 manager, if we could go to number -- to the new
16 exhibit, just quickly.

17 Q. Exhibit 103?

18 A. MR. CUNNINGHAM: Yes. Yeah. And so here's the --
19 here's the information that -- the third paragraph is
20 the third sentence. The first two paragraphs, the
21 first two sentences here are the first paragraph in
22 Exhibit 73, and that other information is not there.

11:52

23 So, document manager, if we go back to Exhibit 73,
24 please. So this paragraph changed from Version 1.1 to
25 1.2, but it only matters if it affected this site.

A. CUMMING, S. CUNNINGHAM

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1 And if we look at paragraph 2, the first part of
2 that sentence, and I'll read it up to the column:
3 (as read)

4 "If the site specific geological
5 information shows that there may be a
6 shallow aquifer located above the
7 aquifer used on site."

8 So the aquifer used on site is down in the -- down below
9 20 metres, down 22.9 metres; that's what we see from
10 well 735.

11:53

11 And then looking at the site specific geological
12 information, might there be -- maybe is there a
13 shallower aquifer on site? And the answer is yes. Both
14 from 734, the chemistry well, and from the borehole
15 logs.

16 So then after the comma, this is the trigger to --
17 then the water well drillers logs from wells located
18 within 1.6 kilometres of the facility's property
19 boundary need to be reviewed.

20 So that was my trigger to look out the mile at
21 those -- at those wells and see -- and that is part of
22 what's in the last sentence in this -- in this
23 paragraph 2.

11:53

24 So it's not just about is there an aquifer under
25 the site of the confined feeding operation because the

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1 definition in the standards of the groundwater resource,
2 it's specific to its use. It does not directly use the
3 aquifer definition from the *Water Act*. And so it's --
4 the last sentence here says: (as read)

5 "If you -- if an aquifer, the uppermost
6 one, is currently in use, can we
7 correlate it back to the specific site
8 information, then it can be called an
9 uppermost groundwater resource at the
10 site."

11:54

11 This is broadly in place if the -- a well on site goes
12 down deeper, like through one aquifer to it and uses a
13 deeper aquifer, for whatever reason, there may be
14 someone using a shallower aquifer nearby, and that
15 aquifer, it then, because it's being used by somebody,
16 does -- it could fit the groundwater resource
17 definition.

18 So there are many sites that are assessed that
19 this -- paragraph 2 does not apply to or doesn't change
20 what the groundwater resources are, but in this file it
21 did.

11:55

22 Q. And if we were to transport back into time to, say,
23 2009/2010, you would be using Version 1.1, not this;
24 correct?

25 A. MR. CUNNINGHAM: Correct.

A. CUMMING, S. CUNNINGHAM

Examined by Ms. Vance

1 Q. Okay. All right. I think we're done with this
2 document and the other one. Could we bring up
3 Exhibit 96, please.

4 So the questions I'm going to ask do not relate to
5 file LA19306 or even your work on this application;
6 this is why I've asked the Board's patience a little
7 bit on this.

8 They do, however -- this document does relate
9 to -- this is Mr. Metheral's submission. My questions
10 will relate to the site, however.

11:56

11 So one of the issues that the Board's identified
12 for hearing is the risk to the water well associated --
13 sorry, risk associated with the water well in the yard.

14 At number -- I think if you could scroll down to
15 page 2. Right. And I think under hearing issue 4 -- a
16 little bit further. There it is, thank you -- there's
17 a quotation in italics. This submission indicates that
18 this quote is from permit LA10054N. I actually believe
19 it's from the monitoring statement, but I will be
20 asking Mr. Metheral about this just to get some clarity
21 on that.

11:57

22 Could we please have up the new Document Number 5,
23 which is the monitoring statement for LA10054N. And if
24 you just scroll down a little bit, there's a paragraph
25 under the boldfaced indentations that says: (as read)

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Examined by Ms. Vance

1 "The results of the risk screening
2 exercise."

3 You see that paragraph?

4 **A. MR. CUNNINGHAM: Yes.**

5 **Q. And then it says: (as read)**

6 "The catch basin facility has over
7 20 metres of clay till."

8 Now, let's leave the catch basin part out of it for now.
9 The 20 metres of clay till underlying the bottom of the
10 facility and above the uppermost groundwater resource.

11:57

11 Now, I'm not going to ask you about this monitoring
12 statement in particular because you didn't write this;
13 your signature's not on this. But I'm going to ask you
14 a bit of a hypothetical question, although it should be
15 grounded in history, which is if an NRCB field staff
16 member were doing a risk assessment of a facility at the
17 Muilwijk site in, say, December or November of 2009,
18 using Version 1.1 of the ERST, knowing about and having
19 access to well log for ID 115735, what might that look
20 like?

11:58

21 **A. MR. CUNNINGHAM: They would -- potentially would**
22 **look at it and go, that's the only well log at the site**
23 **that has lithology, and they would use that as their**
24 **sole piece of information for determining what the**
25 **ground water resource is at the uppermost groundwater**

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1 resource.

2 Q. So in 2009 or 2011, would this conclusion make sense
3 for this site?

4 A. MR. CUNNINGHAM: Yes. If we're using that one --
5 that single well, which the direction in Version 1.2
6 changed as to how to do that, but under Version 1.1 and
7 the depth to where the uppermost groundwater resource
8 is here was in well 735. For the groundwater resource
9 in 735 was at 22.9 metres. And you've got that well
10 logged (phonetic). And the depth to the -- the deepest 11:59
11 facilities on the site were 2 1/2 metres and --
12 approximately, so that would be the 20 -- that could
13 be, easily, the 20 metres.

14 Q. Okay.

15 MS. VANCE: Those are actually my questions.
16 But before I leave you, perhaps I could ask for this
17 monitoring statement to be marked also as an exhibit.

18 THE CHAIR: Number 104, I believe, Ms. Friend?

19 MS. FRIEND: Yes, that's correct.

20 EXHIBIT 104 - MONITORING STATEMENT FOR

21 LA10054N 11:59

22 MS. VANCE: Thank you.

23 Those are my questions for my witness panel. I
24 would ask both of you to make yourself available and
25 recognize you are still under oath to answer questions

A. CUMMING, S. CUNNINGHAM

1 from the Muilwijk team, and then after that from Board
2 staff and the Panel.

3 THE CHAIR: Right. So we're right at noon.
4 We did have a short break not that long ago, but it
5 will most definitely interrupt the cross-examination, I
6 think, because hunger and bio break will take over. So
7 why don't we do that now.

8 And we're all in different spots. I mean, at
9 times I've gone a little bit shorter, but, you know,
10 I'm sort of thinking we're going to be quite later, 12:00
11 maybe tomorrow. I mean, I'm guessing a bit, obviously,
12 but rather than shorten our lunch break now, which can
13 be a challenge for some folks to really get lunch and
14 take a couple minutes to, you know, prepare for the
15 next session, let's take an hour and come back at 1,
16 and proceed with Mr. Metheral and Mr. Muilwijk's
17 cross-examination. Thanks a lot. We'll see you at
18 1:00.

19 And, Panel, we can go to a breakout room.

20 (PROCEEDINGS ADJOURNED AT 12:01 P.M.) 12:01

21

22 PROCEEDINGS ADJOURNED TO 1:00 P.M.

23

24

25

A. CUMMING, S. CUNNINGHAM

1 Volume 1

2 April 20, 2021

3 P.M. Session

4

5 (PROCEEDINGS RESUMED AT 1:00 P.M.)

6 THE CHAIR: Mr. Metheral, are you folks ready
7 to go?

8 MR. METHERAL: Yes, hi.

9 THE CHAIR: Hi.

10 MR. METHERAL: We believe we are. You'll have to
11 be very patient with us. This is our first time.

12 In fact, as we were establishing the team here, I
13 was talking to Laura about the role of being both
14 spokesperson and -- what am I?

15 THE CHAIR: Witness, perhaps?

16 MR. METHERAL: Witness, spokesperson and witness.
17 So I will try to help the Board understand when I will
18 be speaking as the spokesperson and then presenting
19 some material from my own.

20 But I've also realized that I have an engineer
21 here with a far higher calibre and criteria than I have
22 when it comes to roller compacted concrete, and I would
23 like to have him somehow included as a spokesperson to
24 carry on some of the discussions when it comes to the
25 technical review of concrete.

13:01

13:01

A. CUMMING, S. CUNNINGHAM

1 Is that an acceptable thing to have, is to have
2 two spokespeople?

3 THE CHAIR: Well, yes, Mr. Metheral. In terms
4 of direct, if you're thinking about your other engineer
5 to give us some evidence about RCC, we can accommodate
6 that, put him under oath, and that would be under your
7 direct, but right now is sort of your opportunity to
8 ask Mr. Cumming and Mr. Cunningham questions based on
9 their direct.

10 So is your question you would like to ask some of
11 those questions, but you would also like your -- and
12 who is this we're talking about, sorry?

13:02

13 MR. METHERAL: Yes. My question is, I'll be
14 leading the start and have some details that I would
15 ask Andy and Scott about, but when it comes time for
16 the more technical nature of the concrete, I would have
17 John Lobbezoo lead the concrete discussion.

18 THE CHAIR: So questioning, not -- [crosstalk]

19 MR. METHERAL: Right.

20 THE CHAIR: Questioning, okay. So that should
21 work. As long as neither one of you are providing sort
22 of evidence at this point, you don't need to be under
23 oath, you just need to be asking the question. But --

13:03

24 MR. METHERAL: Yes.

25 THE CHAIR: -- later on, after we've concluded

A. CUMMING, S. CUNNINGHAM

1 the questioning of field services, then you'll likely
2 go under oath because at that point you may be
3 performing both those roles, so fair enough. We'll try
4 and keep them straight when you are. But for now, it's
5 your opportunity to ask questions.

6 Mr. Kennedy, do you see any issues with that kind
7 of dual questioning there?

8 MR. KENNEDY: No, I'm quite familiar with that
9 kind of process happening in our proceedings. It's --
10 I have to go back a few years, but clearly it can work
11 very effectively because the questions come with a --
12 the understanding of what answers might -- might
13 follow.

13:03

14 So it can be very constructive.

15 THE CHAIR: Perfect. Okay. So with that,
16 Mr. Metheral --

17 MR. METHERAL: Thank you.

18 THE CHAIR: -- the floor is yours.

19 MR. METHERAL: Very good. We appreciate that.
20 It will save us from having John having to flow those
21 questions through me.

13:04

22 So... And when I perhaps address Andy or Scott,
23 should it be Mr. Cumming, Mr. Cunningham? What would
24 you prefer?

25 THE CHAIR: Well, I think the court reporter

A. CUMMING, S. CUNNINGHAM**Cross-examined by Mr. Metheral**

1 particularly, we sort of started that way. You know,
2 it's a little more formal, but the court reporter, I
3 think that's the way she's kind of got everybody
4 documented. So when we're looking through transcripts,
5 we can search and look for Cumming or Cunningham. So
6 if that rests well with you, Mr. Metheral, let's
7 proceed that way.

8 MR. METHERAL: I'll do my best.

9 THE CHAIR: Okay, all right.

10 MR. METHERAL: I know these guys a little bit
11 from my previous work, so we were never so formal, but
12 I'll do my best today.

13 THE CHAIR: We also know who Scott and who
14 Andy are. So, you know, we'll figure it out on the
15 transcripts as well, but...

16 MR. METHERAL: Very good.

17 **MR. METHERAL CROSS-EXAMINES THE PANEL:**

18 Q. Okay. To start our opening round of questions, we
19 would just ask for clarification from Mr. Cunningham.

20 What -- in his opinion, what is roller compacted
21 concrete? Sorry, my first error.

22 Mr. Cumming, what is roller compacted concrete?

23 A. MR. CUMMING: Mr. Metheral, roller compacted
24 concrete, as I understand it, is concrete that is
25 placed on the ground and spread utilizing normally sort

13:05

13:05

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 of earth-moving type equipment, it could be front-end
2 loaders and the like, and then compacted using some
3 sort of compacting equipment.

4 Q. Okay. Can you describe the type of concrete that you
5 saw at Arie's in the -- in the covered feedlot we'll
6 say. Was there any evidence of concrete at that
7 facility?

8 A. MR. CUMMING: I did see evidence of concrete. I
9 can't describe it because, as I testified earlier and
10 in my decision summary, the pens, both the covered and
11 the open pens, had livestock in them, a significant
12 amount of manure, and bedding materials as well.

13:06

13 Q. Was there any exposed concrete, say around the barns or
14 from clean-up activities?

15 A. MR. CUMMING: The barns hadn't been cleaned. It
16 appeared that they hadn't been cleaned any time
17 recently when I did my site inspection at the
18 facilities. There were areas where I could see some
19 concrete, but it was still covered with a smudge or a
20 smear of manure and other material.

13:07

21 Q. Did you ask Mr. Muilwijk to clean his barn, covered
22 born? Sorry. I guess it's the covered feedlot. I'll
23 try and keep that straight, the covered feedlot. Did
24 you ask Mr. Muilwijk to clean out any portions of the
25 covered feedlot prior to your inspection or your visit?

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 **A. MR. CUMMING:** No, I did not.

2 **Q.** Do you think that would have aided in your
3 understanding of what -- and your assessment of the
4 site?

5 **A. MR. CUMMING:** Unless he could have cleaned
6 the -- the concrete down to essentially without -- so
7 that it didn't have any manure or bedding material on
8 it, I don't believe that it would have aided in my
9 assessment.

10 **Q.** Okay, you've been to other feedlots with roller
11 compacted concrete?

13:08

12 **A. MR. CUMMING:** I have.

13 **Q.** And have you seen how they clean those pens?

14 **A. MR. CUMMING:** I have.

15 **Q.** And it's your opinion that those pens can't be cleaned
16 for inspection?

17 **A. MR. CUMMING:** It's my opinion that when I went
18 to look at the roller compacted concrete, that even if
19 there was -- if they had had livestock and manure on
20 top, that being able to inspect the concrete would have
21 been difficult. Typically an inspection of concrete or
22 roller compacted concrete takes place prior to any
23 livestock or manure entering or being placed on top of
24 the roller compacted concrete, or other liner for that
25 matter.

13:08

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 Q. Is there any technical work, testing that can be done
2 after concrete is placed?

3 A. MR. CUMMING: I don't fully understand your
4 question.

5 Q. There -- you don't believe there's anything that we can
6 do after concrete has been placed for testing?

7 MS. VANCE: Can I just interrupt for one
8 second?

9 Mr. Metheral, I'm going to ask --

10 THE COURT REPORTER: Sorry, who's -- I'm sorry, who's
11 speaking?

13:09

12 MS. VANCE: This is Fiona Vance. I apologize.

13 THE COURT REPORTER: I'm sorry.

14 MS. VANCE: As a piece of advice, I advise
15 that distinguishing between RCC and other kinds of
16 concrete may be helpful in this line of questioning.

17 MR. METHERAL: Certainly.

18 Q. MR. METHERAL: I can ask you -- I can try to
19 illustrate those distinctions. But let's use that
20 then.

13:10

21 Thank you, Ms. Vance.

22 Let's use that as the next round of questioning.

23 Is roller compacted concrete concrete, Mr. Cunningham?

24 MR. METHERAL: Sorry. For the Board, my mind is
25 focused on Mr. Cumming here, these questions are for

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 him, and I will engage Mr. Cunningham when it's -- when
2 we're there.

3 Q. So the question was, is roller compacted concrete
4 concrete, in your opinion?

5 A. MR. CUMMING: By its name, it is concrete. It
6 does have cement products in there and constituents
7 that would normally be found in concrete. So I believe
8 that it can be categorized as a type of concrete.

9 Q. What would you consider the main difference to be
10 between roller compacted concrete and concrete?

13:11

11 A. MR. CUMMING: I think that there are several
12 significant differences between roller compacted
13 concrete and what I would call normal or ordinary
14 concrete, or typical concrete, that we see. The method
15 as to how it is placed, the method as to how it is
16 compacted, the mixes are typically different for -- for
17 both of them.

18 The roller compacted concrete, in my experience
19 and in the literature that I have read, typically does
20 not include any type of steel reinforcement in it,
21 whereas your normal concrete would have that included
22 in it.

13:11

23 I have also seen articles where roller compacted
24 concrete has been used to aid drainage in that it is
25 designed to be porous, and therefore addresses some

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 concerns, especially in urban centres.

2 Q. So you suggested that we have different designs for
3 different purposes in concrete?

4 A. MR. CUMMING: Absolutely.

5 Q. Okay. Thank you for that. I would agree with you
6 there.

7 Do you believe that the Muilwijk site, with the
8 proposed roller compacted concrete liner, is a liner
9 that's engineered or non-engineered?

10 A. MR. CUMMING: I have no information to show that
11 it's engineered. The information -- if you have a look
12 at the technical document, which I believe is Exhibit
13 Number 3... I will find the page for you. Page 21 of
14 100. If you have a look there at how it is described
15 as: (as read)

13:12

16 "6 to 7 inches of roller compacted
17 concrete to make a durable liner,
18 professionally installed."

19 It does not provide any information that it was
20 engineered or -- or anything like that.

13:13

21 Q. Okay. Who constitutes the level of engineering needed
22 for an engineered liner?

23 A. MR. CUMMING: Are you talking about a concrete
24 liner?

25 Q. Engineered concrete liner.

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 **A. MR. CUMMING:** I will refer you to Exhibit 77,
2 which is the technical guide Agdex 096-93, and it says
3 that if you're talking about a concrete liner,
4 engineered means it needs to be engineered by a
5 professional engineer.

6 **Q.** Discuss the level of engineering, please, required
7 to -- that you would need to see -- to have something
8 required or to be considered engineered?

9 **A. MR. CUMMING:** I would need to see something from
10 an engineer which details the design and purpose for
11 which the concrete is proposed, and include in it how
12 the factors -- and I believe that the Agdex that I just
13 referred to, 096-93, for non-engineered concrete liners
14 provides guidance as to the type of information that
15 needs to be included in any engineering proposal for an
16 engineered concrete liner.

13:14

17 **Q.** Is an engineer required to stamp a liner that they
18 design?

19 **A. MR. CUMMING:** If -- if you're talking about the
20 APEGA requirements, I believe that if they're acting as
21 a professional engineer, they do need to provide their
22 stamp and their number.

13:15

23 **Q.** Okay. Did Mr. Muilwijk provide you with a stamped
24 engineered submission for consideration?

25 **A. MR. CUMMING:** I have a submission after the

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 fact, and it came from Wood. You were a coworker on
2 it. It is part of a technical guide at page -- it
3 starts at page 40 of 100. And Mr. John Lobbezoo
4 stamped that, and it showed that it is reviewed by
5 yourself, it doesn't have a stamp there, and also a
6 person by the name of Adam Johnson, who's a CET.

7 Q. How many stamped engineered submissions did Woods group
8 under John Lobbezoo submit to the NRCB for this
9 application?

10 A. MR. CUMMING: For this application, two. One
11 was dated October 29th, and that was withdrawn and
12 replaced by one which is dated November the 6th, which
13 is the one that I was instructed to use.

13:16

14 Subsequent to my decision, another document has
15 been placed into evidence.

16 Q. Okay. Mr. Cumming, are you a practicing engineer with
17 APEGA?

18 A. MR. CUMMING: No, I am not.

19 Q. Are you critiquing the work of another engineer without
20 practicing with a license?

13:17

21 A. MR. CUMMING: I am reviewing the information
22 that's provided to me under the *Agricultural Operation*
23 *Practices Act* in my capacity as an approval officer.
24 As an approval officer I need to verify that an
25 application will meet the requirements set out in the

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 legislation, and that is what I did with this
2 application.

3 Q. Do you have any certificates or training related to
4 concrete?

5 A. MR. CUMMING: I don't have certificates related
6 to concrete, but I have been trained at various stages
7 of my career and received input on concrete in various
8 phases.

9 Q. Can you describe the training that you received over
10 your career?

11 A. MR. CUMMING: It varied from when I was at
12 university, and we did courses on concrete
13 presentations there, right the way through to having
14 presentations and courses done on concrete testing,
15 concrete uses in -- in different careers that I have
16 had.

17 Q. Okay, are you providing a professional opinion when you
18 submit -- submitted your decision about John Lobbezoo's
19 work?

20 A. MR. CUMMING: My opinion is under my -- under
21 the authority of an approval officer under AOPA. I
22 assume that that is a professional opinion, although it
23 is not an opinion as a professional engineer under
24 APEGA.

25 Q. Thank you.

13:17

13:18

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 Moving on, you were on the TAG team, the Technical
2 Advisory Group, which is a membership -- which I
3 understand is a membership between Alberta Agriculture,
4 NRCB, and industry?

5 **A. MR. CUMMING: That is correct.**

6 **Q.** And I understand this issue came to your attention in a
7 March TAG meeting. Were you in attendance at that
8 meeting?

9 **A. MR. CUMMING: Are you -- sorry, can you be more**
10 **specific than that?**

13:19

11 **Q.** I understood that the -- that the -- sorry, let me
12 restart.

13 I understood that the TAG committee received
14 information that initiated a TAG report on whether
15 roller compacted concrete could be used as a liner.
16 And that meeting occurred in March.

17 **A. MR. CUMMING: Of which year are you talking**
18 **about?**

19 **Q.** 2020.

20 **A. MR. CUMMING: I have attended TAG meetings for**
21 **quite a number of years, and yes, roller compacted**
22 **concrete has been something that has been discussed at**
23 **TAG. And you're correct, I don't have the exact date,**
24 **but at a TAG meeting last year, a research -- sorry, a**
25 **group was tasked with researching roller compacted**

13:19

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 concrete to see if there was sufficient information to
2 develop a TAG guideline.

3 So this was in 2020.

4 Q. Great, thank you for clarifying. That's the report I'm
5 wondering about. And just to confirm your involvement,
6 were you at the -- perhaps the kick-off meeting for
7 that review committee or review team?

8 A. MR. CUMMING: For the actual team tasked with
9 looking at roller compacted concrete?

10 Q. Yes.

13:20

11 A. MR. CUMMING: I was never a member of that team,
12 no. I was on the steering group at TAG.

13 Q. Okay, when did you first become aware of that TAG
14 report, that a TAG review report was being initiated?

15 A. MR. CUMMING: Well, I was -- I was part of the
16 TAG steering committee, and we set out the requirements
17 for it and initiated that process to move forward. So
18 I was aware of it in the development stages.

19 Q. In the development stages, okay. So that would have
20 been at the March meeting?

13:21

21 A. MR. CUMMING: And -- and possibly before.

22 Q. And before, even before, earlier. Okay.

23 And when did you receive the draft classified
24 version of that report?

25 A. MR. CUMMING: I received it by an email from

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Methera1

1 Vince Murray, who is a cochair of the Technical
2 Advisory Group. The email was dated December the 23rd
3 of 2020.

4 Q. Thank you. In your submissions, and even earlier on
5 today, you've suggested that you have no opinion about
6 the outcome of this decision. Is that still the case?

7 A. MR. CUMMING: I don't have an opinion as to
8 whether or not my decision gets overturned or if it's
9 upheld, that is true.

10 Q. Okay. If I can ask the file manager to pull up
11 Exhibit 19, December -- we'll look specifically at
12 December 12th -- 16, phone conversation. I believe
13 it's the first page. Please help me. I understand
14 this to be a screenshot of your database --

13:22

15 A. MR. CUMMING: Yes.

16 Q. -- that the NRCB maintains?

17 A. MR. CUMMING: That is correct.

18 Q. And can you maybe describe across the row and columns
19 what the different entries mean?

20 A. MR. CUMMING: Well, the first one is a date.
21 The second one is from a drop-down menu and
22 describes -- provides a brief sort of overview of what
23 was done. The third column from the left-hand side is
24 filled in by the person who is doing the -- or making
25 the entry into the database. The fourth column would

13:23

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 be any documents that would be attached to that
2 particular conversation. And the fifth column allows
3 stuff to be edited or deleted.

4 Q. Okay, thank you. And how do we know these are your
5 entries or not someone -- or someone else's entries?

6 A. MR. CUMMING: My entries, if you have a look at
7 the third column, will all have a -AC after them. So
8 the person's initial, the person who made that entry's
9 initial.

10 Q. Okay, thank you.

11 I might -- just for the file manager, I'll be
12 referring to this document a couple of times.

13 So if we look at entry, the 12th of 16, 2020, a
14 phone conversation, can you help us and read the
15 first -- can you read that entry for us please?

16 A. MR. CUMMING: So there's an entry made on
17 December the 16th, 2020. It's indicated as a phone
18 conversation. What I entered into the database was:
19 (as read)

20 "Had a phone call from Arie wondering if

21 I had received the AF --"

22 Which would be the Agriculture and Forestry.

23 "... report yet. I told him that I had

24 not yet received it and that I had

25 continued to process and write my

13:24

13:24

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 decision so as not to delay it. I told
2 him that if I did receive it before I
3 was ready to issue my decision, that I
4 would take the information into account.
5 He asked when I would be releasing my
6 decision, and I told him that it
7 currently -- that it is --"

8 There's a word missing there.

9 "...currently being reviewed, and I was
10 hoping to be able to release it early in
11 January."

12 And my initials follow that.

13 Q. Okay. Specifically I think the document says that you
14 would take the information into account; is that
15 accurate?

16 A. MR. CUMMING: That is -- that is true. And as
17 of December the 16th, it was my assumption that any
18 document coming out of that would be a public document.

19 Q. And, sorry, the distinction between -- how would a
20 distinction between a classified and a public document
21 influence your decision?

22 A. MR. CUMMING: So a public document means that it
23 is able to be looked at by the public, and it is a
24 document that I would have shared, if I was able to,
25 with Mr. Muilwijk when I had received it and if I was

13:25

13:25

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 going to use it. It also then -- if I'm going to use a
2 document and it is a public document, it is available
3 for anybody else to have a look at.

4 If it's classified, as the TAG report that I
5 received on December the 23rd was, it means that it is
6 not a public document. And, therefore, because it was
7 not a public document, I was not able to share it with
8 Mr. Muilwijk, and I therefore could not take it into
9 consideration for -- for my decision, because how would
10 people know what I was referring to and whether I was
11 referring to it accurately.

12 Q. Okay. So your position here is that if it was a -- if
13 it wasn't -- if it was a public document, you would
14 have taken the information into account?

15 A. MR. CUMMING: It would have been an additional
16 piece of information that I could have used when I was
17 writing the decision on Mr. Muilwijk's application,
18 absolutely.

19 Q. Okay. At the start of our -- this question session, I
20 asked you if you had any opinion on the outcome of this
21 decision. Does this not appear to you like a conflict?

22 A. MR. CUMMING: When you -- when you asked me at
23 the start, you asked me if essentially I interpreted to
24 you asking me whether or not I took a position as to
25 whether my decision was going to be upheld or my

13:26

13:27

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 decision was going to be overturned, and I responded to
2 it that way.

3 I don't understand your question at the moment
4 because you're now suggesting that a document which I
5 wasn't able to use, and I was clear in my decision
6 summary that I wasn't able to use it, that somehow
7 that -- that clouded that point.

8 Q. Okay. Let's move onto Exhibit -- the same exhibit,
9 database entry May 25th, 2020. Can you read the (audio
10 issues).

13:28

11 THE CHAIR: Whoa, whoa, whoa, whoa. Hang on.
12 Sorry, I'm not sure if it's you, Mr. Metheral, but
13 somebody with a mic got muted.

14 MR. WIEBE: I fixed it, Mr. Chair.

15 THE CHAIR: You got it?

16 MR. WIEBE: Yeah.

17 THE CHAIR: Sorry about that, but we couldn't
18 hear you, Mr. Metheral, so please proceed.

19 MR. METHERAL: Thanks.

20 Q. MR. METHERAL: If we scroll down to exhibit --
21 or, sorry, May 25th, 2020. This is a note and phone
22 conversation, a couple note, phone conversation, date.
23 Specifically a note that starts with: "Spoke to Arie
24 this morning..." Can you read that submission for us,
25 please?

13:29

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 A. MR. CUMMING: Yes, so just for the record, there
2 are a number of database entries on May the 25th of
3 2020. The one that Mr. Metheral I believe is referring
4 to is the one that comes immediately after the
5 May 22nd, 2020, note, and it's a note that I wrote into
6 the database file which says as follows: (as read)

7 "Spoke to Arie this morning as a
8 follow-up to my email from Friday. He
9 sent an email with some very general
10 information about how they had installed
11 the RCC. I let him know that the
12 information did not satisfy what I
13 needed him to provide to support his
14 application.

15 I discussed what we needed," and in
16 brackets, "(information to show what he
17 is proposing can meet AOPA
18 requirements)," closed brackets, "and
19 outlined four options for him to
20 consider.

21 1, to provide the information to show
22 how the RCC liner can meet AOPA
23 requirements.

24 2, to show how an alternative liner can
25 meet the AOPA requirements for the

13:30

13:30

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 site." And in brackets, "(e.g., a
2 naturally occurring protective layer).
3 3, to direct me to process his
4 application with the information already
5 supplied. I told him this would be a
6 denial but that he could choose to
7 appeal it if he wanted to.
8 4, to withdraw his application. In
9 discussion, he mentioned that the reason
10 he was proposing a RCC liner was because
11 the natural soils weren't great. He
12 said that he would speak to his engineer
13 to discuss what he could provide. I
14 provided the options to him in an email.
15 I told Arie that I would not proceed
16 with processing his application until he
17 provided me with information regarding
18 which option he wanted to pursue
19 followed by initials."

20 There is also an email attached to this which would have
21 reflected that conversation.

22 Q. Thank you. The Option 3 that you proposed, can you
23 read that for me again, please.

24 A. MR. CUMMING: The Option 3 was: (as read)
25 "To direct me to process his application

13:31

13:31

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 with the information already supplied.
2 I told him this would be a denial but
3 that he could choose to appeal it if he
4 wanted to."

5 Q. You initiated your testimony here under Ms. Vance that
6 you had made your decision in December. Here it
7 appears by this data entry that you also have a
8 decision as early as May. Can you reflect on those two
9 statements?

10 A. MR. CUMMING: I can. I'd actually just direct 13:32
11 you to the May 22nd, 2020, database entry, which is a
12 note there, and I'll read that to your quickly:
13 (as read)

14 "An email sent requesting more
15 information on how the proposed RCC
16 liner can meet AOPA requirements.
17 Apparently not enough information on the
18 application to show how the proposed
19 liner can meet AOPA requirements."

20 Followed by my initials. So you can see that there is a 13:33
21 conversation happening here that is included in the
22 database to show that I have gone through his
23 application, Mr. Muilwijk's application, and determined
24 that there isn't sufficient information in the
25 application as it stood on May 22nd, 2020, to issue a

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 permit, and -- because of the lack of information on the
2 RCC liner.

3 Following several conversations, and the database
4 entry on May the 25th reflects that, I provided
5 Mr. Muilwijk with four different options for him to
6 consider for -- to proceed or withdraw his application.

7 So essentially four different options as I -- as I
8 saw them. He chose to go with the Option 1, which was
9 to provide information to show how the RCC liner can
10 meet the AOPA requirements.

13:34

11 So from that time on, I was waiting for that
12 information, which came through in what is, I think, the
13 October 29th report from Woods, and when I discussed
14 that with Mr. Muilwijk, he said that he wanted to speak
15 with his engineer about updating that, and that resulted
16 in the November 6th document from Woods, which
17 Mr. Muilwijk identified was the document that he wanted
18 me to use to process his application.

19 Q. So to confirm, you had reviewed the file after
20 taking -- sorry, what date did you take over the file?

13:34

21 A. MR. CUMMING: If -- document manager, if you
22 could scroll down, I believe the date of that is on
23 there. It's up above that. It'll be -- there you go.
24 You can see one May the 4th is -- so May the 1st was
25 when I took over the file. May the 4th was when I

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 called Mr. Muilwijk to advise him that I had taken over
2 the file.

3 Q. Okay. So we've illustrated two exhibits that suggest
4 you have formulated an opinion and that documents were
5 going to be -- a document that was received would have
6 influenced your decision.

7 The Muilwijks have maintained that there is a
8 biased position here and were wondering if you can see
9 how your biasedness is illustrated in these
10 submissions?

13:35

11 MS. VANCE: This is Fiona Vance. I have to
12 object to that question. He did not admit to a bias.
13 In fact, I believe that the issue of bias, which was
14 put forward in the RFR, was not a hearing issue.

15 THE CHAIR: I'll agree.

16 MR. METHERAL: Let's move on.

17 Q. MR. METHERAL: If the Board can allow -- or the
18 file manager can please bring up Exhibit 10, the Board
19 review. Specifically focus on the four questions that
20 the Board asked the NRCB related to their RCC
21 experience.

13:36

22 Mr. Cumming, did you provide the responses to
23 these or support the response, the submission for these
24 questions?

25 A. MR. CUMMING: I'm -- I'm not exactly sure what

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 you're talking about. Are you referring to the -- the
2 field services submission?

3 Q. Sorry, this is the hearing issues. I'm -- more
4 specifically the four questions about the NRCB
5 experiences right here. Yeah, sorry. This is the
6 correct page.

7 A. **MR. CUMMING:** I think if you go and have a look
8 at the field services submission, and you're going to
9 have to help me on the exhibit number there. I think
10 that'll answer your question.

13:37

11 Q. No. Just confirming your involvement in responding to
12 these four questions. And you're familiar with the
13 four issues in front of us, if we scroll up. The --
14 the focus of this hearing, perhaps, could be considered
15 the RCC with some other considerations around potential
16 permit conditions and the existing water well and the
17 livestock determination. Do you agree with those --
18 that those are our hearing issues?

19 A. **MR. CUMMING:** It's clearly stated in the Board's
20 document.

13:38

21 Q. Okay. The last part of this document, the Board
22 reflects on its expectations that an approval officer
23 follow NRCB fact sheets and pulls four statements from
24 the working -- work submitted by professional engineers
25 fact sheet. Can we scroll down to those points. Keep

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Methera1

1 going. Yes, here we go.

2 If we were to look at these two paragraphs here,
3 do you believe that you have fulfilled your obligations
4 in meeting this fact sheet?

5 **A. MR. CUMMING:** I don't understand what you're --
6 what you're trying to say. And if you read the Board's
7 submission, that this wasn't part of the issue for the
8 hearing.

9 **Q.** Let's move on. Exhibit Number 80, file manager,
10 please. Page 3. Sorry, is this the right -- yes, of
11 the -- no, sorry, I must mean the document. It's
12 basically Question 1. Let's zoom to Question 1. I
13 think it's the -- right here. Sorry, up a little bit,
14 to the top of the -- whoa, whoa, whoa, whoa. Part A,
15 responses to the Board's questions.

13:39

16 Can I have you read the question, please,
17 Mr. Cumming.

18 **A. MR. CUMMING:** Question, are you talking about
19 question A?

20 **Q.** Question A.

13:40

21 **A. MR. CUMMING:** (as read)

22 "What, if any, guidelines exist with
23 respect to the specifications necessary
24 for RCC liners to meet AOPA's
25 groundwater protection standards?"

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 Q. Okay. And maybe quickly, to summarize, what are
2 your -- what was your response from field services?

3 A. MR. CUMMING: So field services' response to
4 this document was prepared by Fiona Vance on behalf of
5 field services, and it starts off with Item 4:

6 (as read)

7 "Field services is not aware of any
8 guidelines with respect to
9 specifications necessary for roller
10 compacted concrete liners to meet the
11 groundwater resource protection
12 standards set out in Section 9(vi) of
13 the Standards and Administration
14 Regulation under the *Agricultural*
15 *Operation Practices Act.*"

13:41

16 Q. Okay. So no guidelines were available was the NRCB's
17 position?

18 A. MR. CUMMING: We are not aware of any
19 guidelines; that is what it says.

20 Q. Okay. If we can -- can you keep this document close at
21 hand, but also bring up Exhibit 2, the decision
22 summary, the approval officer's decision summary,
23 page 5.

13:41

24 In your decision summary, it appears like you've
25 referenced the Agdex Document 96-93?

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 A. MR. CUMMING: That is correct.

2 Q. And it's a -- it's quite a significant illustration.
3 Can you describe why you used it in your decision
4 summary?

5 A. MR. CUMMING: So Agdex 96-93 is the
6 non-engineered concrete liners for manure collection
7 and storage areas guideline.

8 It provides public guidance, so it's a publically
9 available document on concrete liners, which can be
10 utilized for confined feeding operations. And of
11 importance in my mind here is that it provides some
12 concrete options for the different types of
13 guidelines -- sorry, for the different types of --
14 category of concrete, with the exception of Category A,
15 which has to be engineered.

16 And then if you read it, it says that if you don't
17 meet those -- the criteria there, whatever you're
18 proposing as a concrete liner would need to be
19 engineered by a professional engineer.

20 I should note that this was provided to
21 Mr. Muilwijk back in May of 2020.

22 Q. Thank you. How many times did you provide this
23 document to Mr. Muilwijk?

24 A. MR. CUMMING: I don't know the exact number, but
25 it was more than once.

13:43

13:43

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 Q. Well, I'm getting a Number 2 signal from Mr. Muilwijk,
2 so we'll at least say two times.

3 So what's your opinion of this document? Is it
4 relevant in this decision? Is this an important part
5 of your decision process?

6 A. MR. CUMMING: If you read my decision summary,
7 you will find that I used this to -- this document to
8 help me -- help provide guidance with respect to what
9 to expect with -- regarding a concrete liner. What
10 Mr. Muilwijk was suggesting was a roller compacted
11 concrete liner, which is a type of concrete liner, but
12 he didn't provide any specifications, and what this
13 guideline does is it says that if you are providing
14 something other than what is shown in the acceptable
15 liners, if I can use that term, that it has to be
16 professionally engineered.

13:44

17 Q. So --

18 A. MR. CUMMING: There's no information that I
19 received to show that the RCC liner that Mr. Muilwijk
20 used was professionally engineered.

13:45

21 Q. Okay. So this is an important document for your
22 decision. If the applicant would have provided
23 information that would have illustrated some of these
24 points, you would have been more inclined to approve
25 his application?

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 **A. MR. CUMMING:** It certainly would have been
2 supportive of what he was proposing.

3 **Q.** Okay. Can you confirm how the Agdex document
4 calculates concrete liner -- or how it illustrates how
5 concrete liner requirements meet the regulations?

6 **A. MR. CUMMING:** I think it's fairly
7 self-explanatory here. It doesn't go into exact
8 details with respect to how Section 9, and depending
9 whichever subsection you're looking at, can be met, but
10 what it does do is it provides an option for
11 non-engineered liners to be used if they are meeting
12 the requirements of those non-engineered concrete
13 liners in Table 2.

13:46

14 **Q.** So this document doesn't actually calculate how one
15 would achieve or meet the regulations using concrete?

16 **A. MR. CUMMING:** No, that's not the purpose of the
17 guideline.

18 **Q.** How would an approval officer use it, then, to
19 determine that concrete meets the guideline?

20 **A. MR. CUMMING:** Typically what we see from -- in
21 applications is that the operators are choosing to use
22 the concrete outlined in Table 2 as -- as their liner,
23 and they are providing those specifications. We very
24 seldom see --

13:46

25 **THE CHAIR:** Mr. Cumming --

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 **A. MR. CUMMING:** -- [crosstalk] that is engineered.

2 **THE CHAIR:** Sorry, Mr. Cumming, it may be you;

3 I'm not sure, but as you're talking, if the papers are

4 really rustling, it's difficult for us and probably

5 difficult for the court reporter, as well. It sort of

6 overdrives the mic, so I think that may have been you.

7 I'm not certain, but just folks with the mic unmuted,

8 if you could just be conscious of that. Papers aren't

9 helpful. Thank you.

10 **A. MR. CUMMING:** I apologize if it was me,

11 **Mr. Chairman.**

12 **THE CHAIR:** No problem.

13 **Q. MR. METHERAL:** Sorry, the question was how does

14 one arrive at the calculations required to show

15 concrete meets the requirements using the Agdex

16 guideline?

17 **A. MR. CUMMING:** I think I answered your question

18 already, Mr. Muilwijk. The purpose of the guideline is

19 not to walk a person through the -- the requirements.

20 That is why the requirement is to -- to have that

21 designed by a professional engineer.

22 The purpose of the guideline is to show applicants

23 what they can do if they're wanting to utilize concrete

24 as a liner but do not want to have it engineered. And

25 then it provides -- Table 2 provides details of that.

13:47

13:48

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 We -- I went on to say that we very seldom see in
2 applications applicants who are proposing a concrete
3 liner, which is different to that which is in Table 2.

4 Q. Again, where are the calculations that come from this
5 guideline that illustrate how an applicant can show he
6 meets the liner requirements? I just want the
7 calculations. Please illustrate from this document
8 where the calculations are.

9 A. MR. CUMMING: Again, Mr. Chairman, the purpose
10 of the guideline is not to provide a step-by-step
11 design of -- of the calculations made. In fact, if you
12 go to the front page of that guideline, it tells you
13 who the audience is for that.

13:49

14 I'm doing my best not to rustle papers.

15 THE CHAIR: Thank you.

16 MS. VANCE: This is Fiona Vance. The
17 guideline is Exhibit 77, in case anybody is looking for
18 that.

19 THE CHAIR: Thank you. I was just going to
20 text to see if I could find that. Thank you very much.
21 77?

13:50

22 A. MR. CUMMING: That's correct.

23 MS. VANCE: I believe so.

24 Q. MR. METHERAL: Mr. Cumming, does the -- now that
25 this document is up, does this document illustrate any

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 calculations at all?

2 **A. MR. CUMMING:** I -- I -- I've answered the
3 question before. The answer is no. But if you have a
4 look at the purpose statement here, it's: (as read)

5 "To provide guidance for the design and
6 construction of non-engineered concrete
7 liners used for manure collection and
8 storage areas."

9 And then if you can scroll down to page 3, I believe it
10 is, Table 2. Thank you very much, document manager.

13:51

11 Here you can see the details of the non-engineered
12 concrete liners, including depth from the bottom of the
13 liner from the water table, the cement type, concrete
14 strength, crack control, and leak control.

15 **Q.** And if Arie would -- Mr. Muilwijk would have submitted
16 information following this guideline, he wouldn't have
17 needed to provide the calculations to illustrate he
18 meets the groundwater protection requirements?

19 **A. MR. CUMMING:** If Mr. Muilwijk had provided the
20 concrete details specified in Category C and Category D
21 for the open or covered pens, then -- and he had chosen
22 these specifications in there, then that would have met
23 the liner requirements.

13:51

24 **Q.** Please explain how you came to that conclusion as an
25 approval officer that these requirements meet the liner

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 requirements in AOPA.

2 A. MR. CUMMING: I have to go back quite a long way
3 on that one and refer back to the Technical Advisory
4 Group who hired consultants, as well as had in-house
5 professional engineers work on developing equivalency
6 guidelines for concrete liners to meet the requirements
7 set out in the legislation.

8 The guideline that you have here provides the
9 result of those -- that detailed work that had been
10 carried out.

13:52

11 Q. So as an approval officer, you wouldn't have had to do
12 any calculations on your end should Mr. Muilwijk have
13 submitted based on categories D?

14 A. MR. CUMMING: Well, two categories are
15 applicable for Mr. Muilwijk. One is Category C; one
16 is Category D. So depending on the facility that is
17 being looked at, the -- either Category C or
18 Category D, if those specifications were provided as
19 his application, and he chose to use a concrete liner
20 that met all of that for his facilities, the -- the --
21 we've simplified the process by allowing the applicant
22 to use this and -- knowing that this would meet the
23 AOPA requirements.

13:53

24 If an applicant wants to use something different
25 than these pre-approved, if you will, concrete designs

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 and mixes, then the onus is on the applicant to have
2 what they're proposing designed by a professional
3 engineer, and it would then be the responsibility of
4 that professional engineer to show how the concrete
5 that is being proposed can meet the AOPA technical
6 requirements.

7 MR. CUNNINGHAM: Mr. Chairman, may I supplement
8 Mr. Cumming's answer?

9 THE CHAIR: Please proceed.

10 A. MR. CUNNINGHAM: So on this document, document
11 manager, if we go to page 1. And show the introduction
12 please, both paragraphs. Yes, thank you.

13 So in the first paragraph, the last sentence, the
14 second sentence, it says: (as read)

15 "This technical guideline describes
16 specifications for concrete liners that
17 can be used to satisfy the requirements
18 of the *Agricultural Operations Practices*
19 *Act* and its regulations."

20 So perhaps that's what you're looking for, the direction
21 to an approval officer as to how it would -- what they
22 can rely on in this document to say, yes, the table says
23 this; therefore, it meets the regulations.

24 Thank you Mr. Chairman.

25 Q. MR. METHERAL: So then, Mr. Cumming, this is an

13:54

13:55

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 important document for you. You sent it to Arie twice.
2 You illustrated it in your decision summary. Is this
3 still your opinion that this document can be used to
4 calculate concrete requirements? And can it also be
5 used to calculate roller compacted concrete
6 requirements?

7 **A. MR. CUMMING:** It's my opinion that this
8 guideline, Agdex 096-93 provides some -- I'll try not
9 to rustle papers -- provides some information for
10 applicants and provides guidance to them as to the
11 concrete mixes that can clearly meet the AOPA
12 requirements.

13:56

13 It also provides guidance to applicants that if
14 they choose not to use this, and they want to use a
15 concrete liner, that the responsibility and the onus is
16 on them to have a professional engineer design the --
17 the concrete that they're proposing to use for the
18 liner that they're proposing.

19 **Q.** So help me understand. You were aware Arie was
20 submitting an application for roller compacted
21 concrete, yes?

13:56

22 **A. MR. CUMMING:** That's what it says in his
23 application.

24 **Q.** And you provided him with a document that illustrates
25 traditional or more plastic concrete?

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 A. MR. CUMMING: Yes, it provides information on
2 more -- the traditional concrete, which is acceptable,
3 and it also provides guidance to say that if you're not
4 going to use one of those pre-approved concrete mixes,
5 that you need to have whatever it is that you're
6 proposing designed by a professional engineer.

7 Q. Okay. And so this would have worked for Arie, for
8 Arie's submission.

9 Okay, let's -- let's move to Article Number 4.
10 It's the Muilwijk submission, page 10: The Muilwijk
11 submission suggests that this document was not intended
12 to be used for roller compacted concrete or else the
13 criteria in the document would illustrate the proper
14 placement and curing.

13:57

15 Do you agree or disagree with that position, with
16 that statement?

17 A. MR. CUMMING: I'm just trying to find where the
18 statement is written.

19 Q. "However --" or sorry --

20 A. MR. CUMMING: On page 10.

13:58

21 MR. METHERAL: If we can screen scrape it.

22 THE CHAIR: Which paragraph are you referring
23 to?

24 MR. METHERAL: Muilwijk submission,
25 page number 4.

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 THE CHAIR: But which paragraph?

2 MR. METHERAL: Exhibit 4. Muilwijk's RFR. Yes.

3 Page 10. In middle of the page there, bottom
4 paragraph: (as read)

5 "It's the Muilwijk's position that this
6 guideline was not intended to be used
7 for roller compacted concrete, otherwise
8 the document would also illustrate the
9 criteria for proper placement and curing
10 of this material."

13:59

11 Do you agree with that statement or not?

12 **A. MR. CUMMING:** It's the -- it's the Muilwijk's
13 statement. That's their opinion.

14 Q. It's our opinion that roller compacted concrete
15 guidelines is not applicable to this application.

16 **A. MR. CUMMING:** I -- I've been clear, I think,
17 that we don't have a guideline specifically on roller
18 compacted concrete, so I'm not sure. You've just
19 referred to a roller compacted guideline.

20 Q. Okay. Can we now move to Exhibit 84. This would be
21 the field services submission, page 3, for Walter
22 Ceroici.

14:00

23 Can you please help the Board understand who
24 Walter Ceroici is?

25 **A. Walter Ceroici is a director of our science and**

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 technology division within the operations division of
2 the NRCB.

3 Q. And why has he submitted something for this?

4 A. MR. CUMMING: One of the questions that was
5 raised, and you raised this earlier in the Board's
6 review, was the Board had asked what experience the
7 NRCB has had with respect to roller compacted concrete.
8 And three of us, the three managers of the three
9 different divisions within the operations division,
10 myself, Kevin Seward, and Walter Ceroici provided
11 responses, and those are the responses that are
12 included there.

14:01

13 Q. Thank you. Can you read bullet three for?

14 A. MR. CUMMING: The third bullet starts with:
15 (as read)

16 "Sci-Tech staff were involved in the
17 preparation of the TAG concrete
18 guideline. TAG considered including RCC
19 in the June 2015 guideline, but chose
20 not to and to address RCC as a separate
21 issue."

14:01

22 Q. Thank you. So just to confirm, Walter Ceroici does not
23 believe that roller compacted concrete should be
24 used -- can be referred to in the TAG guideline. The
25 Muilwijks do not believe that the TAG -- sorry, the

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 Agdex's guideline is appropriate. Is it still your
2 opinion that the Agdex's guideline is an appropriate
3 tool to assess roller compacted concrete?

4 **A. MR. CUMMING:** It is the best tool that we have
5 at the moment and the best guideline which is
6 publically available to show the sorts of information
7 and what we would expect for a concrete liner.

8 And for roller compacted concrete, it is not
9 included as a pre-approved, if I can use that
10 terminology, liner in Table 2. And anything that's not
11 included in Table 2 would need to be designed by a
12 professional engineer, as included in that guideline.
13 And that would be true for roller compacted concrete.

14 **Q.** I'm going to move on.

15 **MR. METHERAL:** At this time I would ask
16 John Lobbezoo to participate in the cross-examination.

17 **THE CHAIR:** Do we need this exhibit up or can
18 we take this down now?

19 **MR. LOBBEZOO:** That one can be taken down.

20 **THE CHAIR:** Thank you.

21 **MR. LOBBEZOO:** It's John Lobbezoo. Just a few
22 questions --

23 **THE CHAIR:** You may have to -- Mr. Lobbezoo,
24 perhaps you can -- yes, perfect. If you have the mic,
25 that will be great.

14:02

14:03

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 MR. LOBBEZOO: There it is.

2 THE CHAIR: Much better, thank you.

3 MR. LOBBEZOO: All right.

4

5 **MR. LOBBEZOO CROSS-EXAMINES THE PANEL:**

6 Q. Mr. Cumming, I just wanted to follow up on some of
7 these RCC questions just to -- and I'll be shorter and
8 more concise, I think.

9 Let's just cover off some of your earlier, where
10 you described Schmidt hammer testing and those sorts of
11 things. So I just want to ask you, do you have
12 experience using an impact hammer to test concrete
13 strength?

14 A. MR. CUMMING: I have watched people do it, and
15 it is something that I've seen information on, and we
16 were led through courses.

17 Q. Would you know -- so in your document you described a
18 concern with a texture of the surface not providing
19 accurate results. So my question is this, if the
20 surface is not smooth, if you will, or compromised in
21 any way, do you know what effect that would have on the
22 test results?

23 A. MR. CUMMING: No, I don't. I --

24 Q. [Crosstalk]?

25 A. MR. CUMMING: I didn't hear the last part of

14:03

14:04

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 your question, sorry.

2 Q. Would they be lower or higher is the basic gist of the
3 question?

4 A. MR. CUMMING: I don't know the answer to that
5 question. My gut tells me is that the results would be
6 variable, depending on how and exactly where the
7 Schmidt hammer was used on the surface of the material
8 if it was not smooth.

9 Q. And we'll talk about that later during the other part
10 of this.

14:05

11 Let's talk about crack control. Will
12 reinforcement of the subject concrete for the pen liner
13 eliminate cracking is the yes-or-no question?

14 A. MR. CUMMING: It will not totally eliminate
15 cracking, but it will certainly provide a significant
16 amount of control of cracking.

17 Q. When you say "control of cracking," can you describe
18 what "control of cracking" -- what you mean by "control
19 of cracking"?

20 A. MR. CUMMING: It's -- as I was referring to --
21 in testimony that I provided earlier, when Mrs. Vance
22 was asking me questions, it's to do with the tensile
23 strength of the concrete. And your internal
24 reinforcing, be it steel or some other type of
25 reinforcing, will help to increase the tensile strength

14:05

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 in that concrete material, and thereby help to minimize
2 and control cracking.

3 Q. Okay. Thanks for that. So my next question pertains
4 more to -- to how we apply the AOPA in the engineering
5 process.

6 So the Agdex that we keep referring to, Exhibit
7 Number 77 --

8 MR. LOBBEZOO: Maybe -- can we pull that up
9 again? It's probably very handy. On page 1 of this
10 document -- right there. Beautiful. Let me look.

14:06

11 Q. MR. LOBBEZOO: (as read)

12 "Professionally engineered designs may
13 differ from the specifications outlined
14 in this guideline."

15 I think that's important to note.

16 There's another reference to -- to engineered, and
17 that's on page 2, and I just want to move to that. And
18 this -- and this is key. A little bit lower, please. A
19 little bit lower. Right there, okay.

20 So Category B, C, and D liners, and we already
21 talked about this site being C and D. So as far as this
22 Agdex goes, this is where we are.

14:07

23 Mr. Cumming, I'm not going to ask you to read in
24 all this stuff, but I just want to highlight here that
25 "engineered by a professional engineer or if not

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 engineered..." So my question is this, you're clear on
2 the term in between Number 1 and 2, "or"; correct?

3 **A. MR. CUMMING:** **Yes.**

4 **Q.** My question is this, why do you keep referring to this
5 guideline as guidance for engineered liners as well?
6 So you -- I think that's a concise question, okay.

7 **A. MR. CUMMING:** **Because, in my opinion, it**
8 **provides guidance to an applicant to say that if you're**
9 **not going to be using the specifications for the**
10 **concrete liners which are set out in Table 2, that you**
11 **need to have whatever you are proposing as a liner**
12 **engineered by a professional engineer.**

14:08

13 **Q.** Okay, good.

14 Cody asked this --

15 And you can put that down, we're done with that
16 exhibit. Yeah, thanks.

17 Can we reflect once again on who -- in terms of an
18 engineered liner, an engineered concrete liner, who
19 would develop the criteria that establishes whether
20 this is engineered or not? Who would develop that
21 primarily, at the outset let's say?

14:09

22 **A. MR. CUMMING:** **I'm not sure that I understand**
23 **your question.**

24 **Q.** Okay, let me rephrase that. And I don't want to be out
25 of line in all this stuff, but I would submit that the

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 engineer doing the design of the liner in the context
2 of AOPA here would, at least at the outset, outline
3 what constitutes the level of engineering required for
4 this particular liner. Would you agree with that?

5 **A. MR. CUMMING:** Yes. Yeah, I would hope that
6 would be included, yes.

7 **Q.** Okay. If the level of engineer -- so in your role,
8 you've said you're not practicing engineering, I
9 appreciate that, but you do reserve the right to
10 request more and more information to satisfy yourself
11 in your capacity as director? 14:10

12 **A. MR. CUMMING:** No, negative. As in my capacity
13 as an approval officer, I'm responsible to make a
14 determination on an application that comes into us
15 under AOPA. It's not my role as a director. So I just
16 wanted to be clear about that.

17 **Q.** And that's what I meant, so yes. The difficulty that I
18 have here is that there was no line of -- of detailed
19 requests for more information. After an engineer
20 provided a stamped opinion that the liner meets AOPA,
21 that wasn't good enough, and yet you didn't provide
22 what exactly information you were looking for to
23 satisfy yourself. And I would submit that that's one
24 of the reasons why this has spiralled to where it is.
25 We've only submitted things in response to, you know, 14:10

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 kind of what you say to Arie, but as we -- you know,
2 once we get to the decision summary, you list all these
3 other things that you're looking for.

4 So why would you have not provided this
5 information as we were going through, the level of
6 information that you would require to satisfy yourself
7 is my question?

8 A. MR. CUMMING: Document manager, can I get you to
9 call -- pull up Exhibit 44, I believe it is. Can I get
10 you to go down to the bottom of that document, please.
11 It's the second-last page. There you go, right there.

14:12

12 So, Mr. Lobbezoo, to answer your question, back on
13 May the 22nd of 2020 I provided Mr. Muilwijk with some
14 details that I was looking at, and you can see those
15 details are set out in that particular document.

16 As an approval officer, I have to walk a very fine
17 line with respect to telling people exactly what I need
18 from them and being able to make a decision on the
19 information I receive.

20 But to answer your question, I went into a fair
21 amount of detail right there back on May the 22nd of
22 2020 with respect to the sort of information that I was
23 looking at. I trust that answers your question.

14:13

24 Thank you, document manager.

25 Q. Okay.

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 Can we pull up Exhibit Number 2, page 5, please.

2 And as we're doing that, Mr. Cumming, can you
3 explain the Agdex's, the one that we keep looking at,
4 what sort of regulatory authority it has, if you will?
5 Is it the law or is it to provide guidance?

6 **A. MR. CUMMING:** It's called a technical guideline.
7 It provides guidance. The law is set out in the *Ag*
8 *Operations Practices Act* and its regulations.

9 **Q.** Okay. And I would agree with that, and I appreciate
10 that.

14:14

11 So the top line, the Standards and Administration
12 Regulation, line -- subsection 6, we keep referring to
13 this, simply says: (as read)

14 "A liner referred to in subsection (1)
15 if constructed of compacted soil or"
16 etcetera, "steel or other synthetic or
17 manufactured product..."

18 It includes concrete in there.

19 "...must provide equal or greater
20 protection than that provided by
21 compacted soil."

14:14

22 And number (c) provides for solid manure storage.

23 So would it be reasonable, as a starting point at
24 least, for an engineer to provide a report that
25 describes a liner and provides an engineering opinion

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 that that liner meets this regulation, which we would
2 agree is the law; right?

3 **A. MR. CUMMING:** The regulation is the law, yes.
4 The problem that I have with your assertion is that
5 it's an opinion of an engineer; it's not a -- it's not
6 an engineered design.

7 So I think that there is a difference there, as
8 opposed to providing an opinion versus a design.

9 **Q.** So where in the AOPA would it differentiate between the
10 engineer providing his opinion or actual design?

14:15

11 **A. MR. CUMMING:** I don't believe that it actually
12 specifies that in AOPA. It says that you shall meet
13 these, you need to meet these requirements. And it
14 places the onus on the approval officer to make that
15 determination.

16 **MR. LOBBEZOO:** I don't think -- we probably don't
17 have the AOPA on our list of exhibits, but would I be
18 able to read?

19 **THE CHAIR:** Yeah, I think we're pretty safe
20 using the AOPA. That's why we're here.

14:16

21 **MR. LOBBEZOO:** All right.

22 **Q.** So Section 2, subsection (3) is pretty much the only
23 reference to engineering that I can find in the AOPA,
24 and it simply says an approval officer, which is you in
25 this case, may require the documents filed under

A. CUMMING, S. CUNNINGHAM**Cross-examined by Mr. Lobbezoo**

1 subsection 2, that's application submissions, be
2 prepared by a professional engineer and may, if
3 applicable, require that the documents be stamped.

4 So would that not be consistent with an engineer
5 providing an opinion that this existing liner, if you
6 will, or proposed liner, whatever it is, meets the
7 AOPA? Those two would jive, would they not?

8 MS. VANCE: Mr. Chair, this is Fiona Vance. I
9 think we want a little bit of clarity, for the record,
10 as to I don't believe Mr. Lobbezoo is actually talking
11 about the Act. Correct me if I'm wrong, Mr. Lobbezoo.
12 You might be talking about the Administrative
13 Procedures Regulation. Just so we are on the same
14 page, I want to be clear about that.

14:17

15 MR. LOBBEZOO: That's correct.

16 MS. VANCE: Thank you.

17 THE CHAIR: Thank you.

18 A. MR. CUMMING: Sorry, I was about to make the
19 same question. Could you repeat your question,
20 Mr. Lobbezoo.

14:17

21 Q. MR. LOBBEZOO: Okay. So taking into
22 consideration the Board Administrative Procedures
23 Regulation, that would be Section 2, subsection (3),
24 would it not be consistent for the engineer, just based
25 on what it says here, to be able to provide an

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 engineered opinion to satisfy the requirements to --
2 for -- for, you know, the liner thickness,
3 subsection (6) that we have posted up here?

4 **A. MR. CUMMING: Absolutely, the approval officer**
5 **has that authority to request the engineer provide that**
6 **information, absolutely.**

7 **Q.** Would that not be consistent with all of the other
8 reports being provided to support site characterization
9 in terms of natural occurring liner, which -- and I
10 don't think we have it here, but the subsection (9)
11 right above that, in subsection -- in Section 8 I think
12 it is, talks about existing -- that would be
13 consistent, would it not, in your -- that's actually
14 listed wrong, isn't it? Section 9, subsection (6).
15 Oh, no, that's correct. Okay.

14:19

16 **A. MR. CUMMING: I'm not exactly sure what you're**
17 **referring to, so if you can pull it up...**

18 **Q.** Yes, okay. Let me clarify. And I appreciate you bear
19 with me, all, because this isn't my forte.

20 Subsection (5), right above subsection (6),
21 outlines the requirements for natural occurring liner.
22 And it is standard practice -- and, Mr. Cumming, you're
23 the director, so you would know that I have submitted
24 many, many of these. It's standard practice for the
25 engineer to provide his opinion, his engineered

14:19

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 opinion, that the site meets the natural occurring --
2 the criteria for naturally occurring liner.

3 So would -- my question is this, would it not be
4 consistent that we would use the same approach for
5 this? And I do appreciate that there would be some
6 back and forth as to the amount of information that you
7 would require to support that, but that is my question?

8 **A. MR. CUMMING:** Okay. So we're actually talking
9 about the Standards and Administration Regulation, I
10 believe, and not the...

14:20

11 **Q.** That's correct.

12 **A. MR. CUMMING:** -- previous regulation that we
13 were talking about before. And you were talking about
14 subsection 9, sub (6), and then (a), (b), and (c) is my
15 assumption.

16 **Q.** I was actually talking about subsection 5.

17 **A. MR. CUMMING:** 5.

18 **Q.** Where it says that the protective layer.

19 **A. MR. CUMMING:** Okay. A protective layer referred
20 to in subsection 1, okay. The -- we have typically
21 seen a lot of that -- reports from your engineering
22 company under your signature, as well as from others
23 under their signature, come to us. Generally the
24 reports list a lot of testing that's been done in the
25 field, together with sometimes laboratory testing,

14:21

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Lobbezoo

1 sometimes in situ hydraulic conductivity testing, and
2 then the calculations as to how -- what is being
3 proposed as a protective layer can meet the
4 requirements of the legislation.

5 So I think that that answers the question that you
6 were asking me.

7 Q. Yeah -- and okay. So it is an engineering opinion.
8 And as you are also aware, it took some time back and
9 forth between the approval officers and myself, and
10 probably the other engineers that do this, to come up
11 with the amount of background data, testing,
12 calculations that they would be comfortable.

14:22

13 So my question is -- I don't even know if I have a
14 question anymore. But what I just want to point out is
15 the engineering opinion under subsection (5) should be
16 consistent with the engineering opinion under
17 subsection (6), rather than coming up with some other
18 scheme of what does "engineered liner" means when the
19 AOPA says, you know, your engineer can provide his
20 opinion that the liner meets AOPA.

14:22

21 MS. VANCE: Mr. Lobbezoo, this is Fiona Vance.
22 I have given you a lot of latitude in your questions,
23 but, please, if there is a question, I would want to
24 hear it. There will be a time, I believe, for
25 submissions.

A. CUMMING, S. CUNNINGHAM**Cross-examined by Mr. Metheral**

1 MR. LOBBEZOO: Okay, I will leave that. I think
2 that's all I have on that, so thank you for your
3 patience with me. This is back to Cody Metheral.

4 MR. METHERAL: Thanks, John.

5 **MR. METHERAL CROSS-EXAMINES THE PANEL:**

6 Q. If we can return to Exhibit 80, page 6, the question
7 reads: (as read)

8 "What resources did the approval officer
9 rely on in assessing RCC liner
10 suitability?"

14:23

11 Mr. Cumming, can you comment on the submissions 16?
12 This comes from the AOPA regulations, does it not?

13 A. MR. CUMMING: Is that going to be up on your
14 screen?

15 Q. I have it on my screen. Is it on yours?

16 A. MR. CUMMING: Sorry, it's different to -- okay,
17 sorry.

18 THE CHAIR: Is it working?

19 A. MR. CUMMING: Yeah, I can see it up here. So
20 question (b)?

14:24

21 Q. MR. METHERAL: Yes, question (b).

22 A. MR. CUMMING: And you wanted my comment on this?

23 Q. Yes. This is the regulations we're looking at. And it
24 specifically talks about two items that you'd be
25 looking for for us to address, and they are liner

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 thickness and permeability; is that accurate?

2 A. MR. CUMMING: That is -- that is accurate
3 because that is what's set out in the 9 sub (6) of the
4 Standards and Admin Regulation. So that's what you
5 need to end up with, but that doesn't necessarily mean
6 that those are the two items that need to be provided.

7 Q. But, sorry, clarify what you mean there. We need at
8 least these two, but perhaps more detail, is that what
9 you mean?

10 A. MR. CUMMING: So -- so what is being proposed
11 is -- fits in with a liner that is set out, and it
12 could be constructed of material other than compacted
13 soil or naturally occurring protective layers. And the
14 equivalency would be to show how what is being proposed
15 can meet that equivalency to the -- I believe it's the
16 compacted soil requirement.

14:25

17 Q. Okay. So these are the two key indicators. And then
18 when you did your assessment, you relied on some of the
19 submissions. And I'm assuming that's where you would
20 have found the calculations that worked towards
21 addressing these two key points?

14:26

22 A. MR. CUMMING: Document manager, if you could
23 scroll down the page, please. So you can start to see
24 there the resources that I relied upon in my decision.

25 Q. Very good. Let's have a quick look at the -- I've got

A. CUMMING, S. CUNNINGHAM**Cross-examined by Mr. Metheral**

1 it as Number 2 here. It's the November 6th submission.
2 Okay. That's the revised Wood report. That's the
3 document you looked at in making your decision?

4 **A. MR. CUMMING:** **That is correct.**

5 Q. Okay.

6 **THE CHAIR:** Did you want a document up here,
7 Mr. Metheral?

8 **MR. METHERAL:** No, I'm just clarifying the answer
9 to the question which --

10 **THE CHAIR:** Oh, okay. 14:26

11 **MR. METHERAL:** -- what resources did the approval
12 officer reply on -- or rely on. And he's listed quite
13 a few, but I want to draw attention to the November 6
14 entry and the protective layer calculation from
15 Mr. Cunningham.

16 Q. **MR. METHERAL:** So in those -- in the first
17 document, November 6, John Lobbezoo provided
18 calculations that looked at roller compacted concrete,
19 hydraulic conductivity, and the liner thickness and
20 attempted to equate that to the liner requirements. Is 14:27
21 that what you were looking for, some sort of
22 calculations and supporting information, that way?

23 **A. MR. CUMMING:** **It is part of what I was looking**
24 **for. I was also looking for the design of the concrete**
25 **liner and everything that went into that; because**

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 roller compacted concrete is a type of concrete liner.
2 I would expect to see design requirements set out
3 there. And there's been no information to date from
4 the people who actually made the concrete or even the
5 people who placed the concrete that has been provided
6 to me.

7 Q. Yes, great, thanks for clarifying.

8 So there is this exercise where we would look at
9 the theoretical numbers related to roller compacted
10 concrete and determine if it can be done in theory, and 14:28
11 then I think I heard from you that we would also want
12 to know if Arie's site meets that requirement too. Is
13 that what I heard right?

14 A. MR. CUMMING: The theoretical numbers, I think,
15 is what has been included in the Wood report.
16 Certainly there's -- there's not a lot of information
17 on actual -- what was actually placed there.

18 The -- the information that I was looking for is
19 the actual design and how the applicant and their
20 chosen liner could meet the AOPA requirements. And I'd 14:29
21 refer you back to the technical document, and their
22 application in particular, that I referred to earlier
23 and read earlier, where they provided just the absolute
24 minimum information, apart from saying that it's going
25 to be placed by professionals and going to be this

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 **thick.**

2 **Q.** Okay. And then in order to perhaps assess or better
3 understand John's report, you asked Mr. Cunningham to
4 assist in re-creating those calculations?

5 **A. MR. CUMMING:** That is correct. And if you go to
6 the record, you will also see that I provided -- I
7 think it was the previous report to Sci-Tech for their
8 information. No, sorry, not for the information, for
9 their comment to come back to me and share with me
10 if -- if the proposed -- what was being proposed and
11 included in that report could show that it met AOPA.
12 That is included in one of the exhibits.

14:30

13 **Q.** Sorry, I don't see it in your list here, that review,
14 or did Sci-Tech provided you with their feedback?

15 **A. MR. CUMMING:** Yes, they did. And it's an email
16 and it's included as one of the exhibits.

17 **MS. VANCE:** This is Fiona Vance. It is
18 Exhibit 48, I believe, if that's helpful.

19 **A. MR. CUMMING:** Thank you.

20 **Q. MR. METHERAL:** Okay. So would that exhibit be
21 added to your list here as a resource that you used?

14:31

22 **A. MR. CUMMING:** I think it actually referred to
23 the earlier document, and so the October -- I need to
24 go back and have a look at it, please excuse me. I
25 apologize about the paper noise.

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 THE CHAIR: Take a minute, find the document.

2 Q. MR. METHERAL: We don't have to perhaps get too
3 bogged down with that document itself. But, to
4 confirm, you're suggesting that the science tech crew
5 reviewed Mr. Lobbezoo's first submission and provided
6 feedback?

7 A. MR. CUMMING: Yes, they did.

8 Q. Okay. And then Mr. Lobbezoo provided an updated draft
9 November 6th. Did you forward that document on to the
10 science tech team for review?

14:32

11 A. MR. CUMMING: No, I didn't. It was my opinion
12 that the information, the response that they had
13 provided me, and the revised report, so the differences
14 between the revised report and the October 29th report,
15 I believe that's the right date, were not significant
16 with respect to the RCC component.

17 Q. Okay. What was the differences between John's --
18 Mr. Lobbezoo's two reports, and how was it initiated?

19 A. MR. CUMMING: I don't understand your question.
20 You're asking --

14:32

21 Q. Why -- [crosstalk]

22 A. MR. CUMMING: -- differences?

23 Q. Why did Mr. Lobbezoo submit two reports?

24 A. I would have to make the assumption that it was at the
25 request of Mr. Muilwijk, because when I met with

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 Mr. Muilwijk, I asked him and reviewed some of the
2 information in the report that had been submitted with
3 him, and asked him if he was certain that he wanted
4 that included in there or if he wanted to amend the
5 report. He said that he would speak to his engineer
6 and get back to me. And when he did get back to me,
7 the provision -- it was just a couple of days after I
8 had met with him. The provision of the November 6
9 report was -- accompanied that, and I asked him if that
10 report was going to replace the earlier report, and he
11 said that it was.

14:33

12 Q. Okay. And the items from the report that were removed
13 or changes that were made, what were they about?

14 A. MR. CUMMING: I didn't go into any details on
15 those items that were removed because, as far as I was
16 concerned, I was no longer considering that document.

17 Q. Okay. You didn't provide any feed -- sorry, did you
18 provide feedback to Arie on those -- what should be
19 included in those revisions, that Version 2?

20 A. MR. CUMMING: We had a general discussion. I
21 didn't go -- I don't believe I went into specifics.
22 Again, I come back to my earlier answer, as an approval
23 officer on the file, I need to be extremely careful
24 about what I am asking and requesting as information
25 because I will be the person reviewing and issuing a

14:34

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Methera1

1 **decision on that application.**

2 Q. Okay. So to confirm, you didn't ask Arie, or you
3 didn't ask John through Arie, Mr. Muilwijk through --
4 you didn't ask Mr. Muilwijk through Mr. Lobbezoo to
5 change his report. Did I say that right?

6 A. **MR. CUMMING: I never spoke to Mr. Lobbezoo**
7 **about Mr. Lobbezoo's report. I'm assuming you're**
8 **talking about the November 6 report.**

9 Q. Yes. Okay. The feedback you were -- the feedback you
10 received from your science tech crew, was that passed
11 on to Mr. Lobbezoo?

14:35

12 A. **MR. CUMMING: No.**

13 Q. Let's pull that -- let's have a look at that, then, and
14 see what your science crew was asking on their end.

15 If the file manager can help us find that
16 submission. I believe this is it.

17 And just to confirm timelines, John --
18 Mr. Lobbezoo presented his material on October 29th to
19 you? His first report?

20 A. **MR. CUMMING: I believe that's -- was when**
21 **Mr. Muilwijk forwarded it to me.**

14:36

22 Q. Yes, okay. And let's have a quick look when you
23 forwarded the information on to your science team,
24 science tech team, October 30th. And their response
25 appears to be quite quick. At the top of the document,

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Methera1

1 I believe it says they returned their information on
2 November 3rd.

3 And so, again, this is Walter Ceroici, Stephanie
4 Fleck, Mike Iwanyshyn, and Scott Cunningham, provided
5 you with their thoughts on what would be important in
6 the document, and they are questioning or asking for
7 specific information about sources and provided the
8 methodology and the calculations.

9 And if I understood you right, you said you did
10 not provide Mr. Lobbezoo with this information?

14:37

11 **A. MR. CUMMING: Is that a question?**

12 **Q. Yes. Did I understand you right? You didn't provide**
13 **Mr. Lobbezoo with this information?**

14 **A. MR. CUMMING: Yes.**

15 **Q. Your science tech team asked for resources, the**
16 **calculations, and the methodology that Mr. Lobbezoo had**
17 **in his report, and you chose not to push this or send**
18 **this information request on to Mr. Lobbezoo?**

19 **A. MR. CUMMING: That's true.**

20 **Q. Why is that?**

14:38

21 **A. MR. CUMMING: Well, I -- a number of reasons. I**
22 **was trying to get my head around it, and secondly,**
23 **within a very short matter of days, I had a revised**
24 **report.**

25 **Q. You met with Arie on November 4th in person. This**

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Methera1

1 email arrived November 3rd. You had an opportunity to
2 provide this email and information request to Arie in
3 person, and you didn't give Arie this information at
4 that time?

5 **A. MR. CUMMING:** I did discuss the report. I don't
6 believe -- no, I did not pass this email on to
7 Mr. Muilwijk.

8 **Q.** One of your key pieces in your decision summary was
9 lack of information and resources and calculations to
10 help you understand where John Lobbezoo -- how he
11 arrived at his determinations. Your science tech team
12 asked you for this information or suggested it would be
13 an important piece to solve the puzzle, and you didn't
14 send it to him.

14:39

15 Do you think a proper explanation of the
16 resource -- of John's decisions would have helped you
17 in your decision process?

18 **A. MR. CUMMING:** I don't know what you mean by
19 "proper decisions."

20 **Q.** Do you think these questions, John's answering these
21 questions, Mr. Lobbezoo answering these questions would
22 have aided your decision process?

14:40

23 **A. MR. CUMMING:** It may have. I don't know what
24 his answers would have been.

25 **Q.** After November 6th submission from Mr. Lobbezoo and

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Cross-examined by Mr. Metheral

1 before your decision-making -- before your decision was
2 released, did you ask for any other information from
3 the applicant?

4 **A. MR. CUMMING:** I don't believe I did.

5 Q. And the difference in time there is approximately two
6 months?

7 **A. MR. CUMMING:** That's probably about right.

8 Q. About two months. Do you think in those two months, if
9 Mr. Lobbezoo would have been provided an opportunity to
10 report on his findings or clarify his information, he
11 could have done that in the two months between your --
12 the submission and your decision?

13 **A. MR. CUMMING:** I don't know.

14 Q. When you received Mr. Cunningham's assessment of
15 Mr. Lobbezoo's calculations, did you forward that,
16 those calculations on to Mr. Lobbezoo for
17 clarification?

18 **A. MR. CUMMING:** No, I did not.

19 Q. Do you think Mr. Lobbezoo deserved the opportunity to
20 clarify his calculations?

21 **A. MR. CUMMING:** My assumption is that a
22 professional engineer, when they are providing all of
23 this information, is going to provide that
24 clarification and the clarity and walk you through the
25 steps that are going to be able to be understood and

14:41

14:41

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Cross-examined by Mr. Metheral

1 show how they're going to make -- make whatever
2 confusion that they conclusion that they come up with.
3 Mr. Lobbezoo has chosen not to do that in his report.

4 Q. Scott Cunningham came up with a calculation that did
5 not reflect Mr. Lobbezoo's. You don't believe there is
6 any obligation for Mr. Lobbezoo to add comments or
7 clarify his work?

8 A. **MR. CUMMING:** I didn't ask for additional
9 clarification from Mr. Lobbezoo. I don't know how many
10 times I have to tell you that.

14:42

11 Q. Your technical -- your fact sheet suggests -- your fact
12 sheet when working with professional engineers suggests
13 that it's appropriate to provide the opportunities for
14 open discussion and allow for errors and omissions and
15 changes and modifications and clarifications to be
16 made. Did you choose to ignore your fact sheet?

17 A. **MR. CUMMING:** At no point in time did I stop any
18 communication with Mr. Lobbezoo or yourself, for that
19 matter. The -- the communication is a two-way thing,
20 and certainly there was an opportunity for a
21 professional engineer, such as yourself, and
22 Mr. Lobbezoo to pick up the phone and find out what
23 sort of resources and what sort of information should
24 be provided.

14:43

25 So it's -- I don't believe what you're suggesting

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1 is sort of one-sided. I believe the communication
2 should be two-way.

3 Q. So Mr. Lobbezoo should have reached out to you again to
4 see if he -- if you understood his report?

5 A. MR. CUMMING: Mr. Lobbezoo, when he was -- I'm
6 not sure if I'd call it questioning, but he gave -- he
7 gave a little bit of a -- an open section there where
8 he said that when they were originally looking at
9 preparing reports for applicants for compacted liners
10 and naturally occurring protective layers, that there
11 was some iteration that went backwards and forwards.

14:44

12 I am -- would be highly surprised if he didn't
13 think that the same would be done at this point in
14 time, but at no point did he contact me to find out
15 what sort of information we would potentially be
16 looking for.

17 In fact, if you go back to that May 22nd email
18 that I sent to Mr. Muilwijk, I believe I went further
19 and outlined information. That Mr. Muilwijk didn't
20 pass that onto his engineer, I cannot comment on.

14:45

21 Q. Okay. File manager, can you please pull up Exhibit 64.
22 This is an email correspondence between Arie Muilwijk
23 and Andy Cumming, and it's an information request. Can
24 you please scroll down a little bit.

25 I think this is at January 1st. Arie specifically

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Cross-examined by Mr. Methera1

1 asked you, after some consultation in the -- in
2 November, and catching -- reaching out to you, he
3 specifically asked you if there were any changes to the
4 report needed.

5 If we look at the last paragraph, it says:

6 (as read)

7 "Is there any information or data that I
8 might have missed or that's not complete
9 that would support your decision?"

10 Is this not an attempt to reach out to you from
11 John Lobbezoo, Arie Muilwijk's side, to clarify his
12 report?

14:46

13 **A. MR. CUMMING:** I can't comment from John
14 Lobbezoo's side. It comes from Arie Muilwijk. It's
15 sent on New Year's Day, and I had essentially completed
16 my decision at that point in time.

17 **Q.** So you weren't prepared to accept any more information?

18 **A. MR. CUMMING:** No information was -- was being
19 provided there. It was a question that I saw being
20 asked. I wasn't certain at this point in time whether
21 any additional information that Mr. Muilwijk would
22 provide would change my mind or my decision.

14:46

23 **Q.** So just so I'm clear, you were given a request for
24 information from your science tech team, which you
25 chose not to provide to John -- Mr. Lobbezoo or

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1 Mr. Muilwijk? You had a report from Mr. Cunningham
2 that created some uncertainty about Mr. Lobbezoo's
3 calculations, and in the two months that you had
4 that -- between your decision time, you chose to not
5 reach out, as you expected Mr. Lobbezoo to reach out to
6 you. Is that a clear assessment?

7 **A. MR. CUMMING:** That sums up some of the
8 information, but some of the other information, which I
9 anticipated would be coming -- would be actual
10 information on the concrete and that was used there, 14:48
11 the preparation of the site and everything else, and
12 even in Mr. Lobbezoo's report, he acknowledges that he
13 wasn't at the site at the time that the RCC was being
14 placed; that he relied on photographs to give some sort
15 of opinion with respect to whether or not compaction
16 was being done correctly or if the roller compacted
17 concrete was -- was being placed appropriately.

18 So there was no information forthcoming from
19 Mr. Lobbezoo, and it was certainly my understanding,
20 based on his report, that he wasn't on site, he didn't 14:48
21 have that information, and it wasn't going to be
22 forthcoming.

23 **Q.** Does the Agdex document require a professional engineer
24 to be on site?

25 **A. MR. CUMMING:** The Agdex document does not

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Cross-examined by Mr. Metheral

1 specify that a professional engineer has to be on site,
2 but it doesn't -- it doesn't specify anything about the
3 conditions that might be included in a permit.

4 Q. Why do you believe it's important that an engineer has
5 to be on site in order to assess an engineering
6 project?

7 A. MR. CUMMING: If I go back to the Agdex, it
8 talks about the roller compacted concrete being
9 designed by a professional engineer. We would be
10 looking at having that same engineer go on site and
11 supervise the construction and placement of that --
12 that liner to be able to provide sign off. That would
13 normally be a condition of a permit if a permit was
14 being issued.

14:49

15 Q. That's for Category A. Category B, C, and D do not
16 require a professional engineer assessment in that
17 manner.

18 How did you arrive that Mr. Lobbezoo needed to be
19 on site for the inspection as a requirement?

20 A. MR. CUMMING: I point you back to the -- the
21 guideline. And it's -- the guideline points out that
22 you could utilize the concrete specified in Table 2,
23 and that is shown to be able to meet the AOPA
24 requirements.

14:50

25 If you're going to use something different, so

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1 something that is not included in the specifications in
2 Table 2, then it needs to be professionally --
3 engineered by a professional engineer. It has been our
4 practice that if somebody is going to be professionally
5 engineering something so it's different from the
6 standard, if I can use that term, that we would require
7 that they ensure that it is appropriately constructed.
8 So concrete being placed but mixed properly, the
9 correct mixes, et cetera.

10 Q. And you don't --

14:51

11 A. MR. CUMMING: That supervision -- if I may just
12 finish -- and that that supervision be undertaken by
13 the designing engineer, the professional engineer.

14 Q. And you don't believe that the product installed at
15 Arie's had any sort of engineering support behind it?

16 A. MR. CUMMING: I don't have any information to
17 show that it does.

18 Q. Did you ask for the documentation prior to issuing your
19 decision summary on whether an engineer had been on
20 site or designed the RCC mix or understood what was
21 being built at the Muilwijk site?

14:51

22 A. MR. CUMMING: There's several questions in
23 there, so I will attempt to answer them. If I forget
24 some, please remind me.

25 But you asked me whether it was my opinion that an

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1 engineer had been on site at the time that the RCC was
2 being placed. In Mr. Lobbezoo's report, he is the
3 professional engineer designated by the Muilwijks. He
4 clearly states that he was not on site when the RCC was
5 being placed.

6 There is no information to show how any of the RCC
7 was designed or any of the specifications for the
8 concrete, and I've forgotten the third part of your
9 question, if you wouldn't mind repeating it.

10 Q. Prior to issuing your decision summary, did you ask
11 what components of the site had been reviewed by an
12 engineer or had engineering design?

14:52

13 A. MR. CUMMING: I didn't ask that specific
14 question, but it's fairly clear from the report that
15 Mr. Lobbezoo provided that he only came to the table
16 after the fact, and that the RCC had been placed prior
17 to his -- his knowledge and that his observing -- his
18 opinion was based on photographs.

19 Q. Great. We'd like to address some of that in the future
20 here shortly. Thank you.

14:53

21 THE CHAIR: Mr. Metheral.

22 MR. METHERAL: Yes.

23 THE CHAIR: I just want to do a quick little,
24 I guess, canvass of potential time. And this is not to
25 rush you at all. This is your time, but, you know, we

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1 need to have direct from the Muilwijks yet. We have to
2 finish cross-examination of field services, including
3 Board staff, and then cross-examination of the
4 Muilwijks.

5 So, you know, my sense is, you know, it's possible
6 maybe by 6, but it doesn't look, you know, hugely
7 likely, so it may look like we might want to convene
8 tomorrow morning.

9 It's just -- it's kind of close, Ms. DiPaolo, and
10 we discussed at the break trying to figure this out,
11 but to me it's looking like maybe tomorrow morning.

14:54

12 Mr. Metheral, how much more time do you think you
13 have for Mr. Cumming? And did you have questions for
14 Mr. Cunningham? Because we -- I don't think I've heard
15 any yet, so if you have questions there, just a rough
16 idea.

17 And if you're not totally sure -- you know, you're
18 new to the process. You know, I don't want to -- I'm
19 not trying to tie your hands here, but just get a feel
20 for the court reporters because they may want to switch
21 over, or we may just want to decide to have our end
22 time and then start tomorrow morning.

14:54

23 So Mr. Metheral?

24 MR. METHERAL: Yes. I only have a couple more
25 questions on the concrete piece and submissions piece,

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Cross-examined by Mr. Metheral

1 and I do have some questions for Mr. Cunningham.

2 THE CHAIR: Right. And I know the Board and
3 Board staff, you know, will have some questions, and
4 there may be, Ms. Vance, probably a redirect; is that
5 fair?

6 MS. VANCE: At the moment, I have two
7 questions on redirect.

8 THE CHAIR: Oh, okay.

9 MS. VANCE: So far.

10 THE CHAIR: Okay. So, Ms. DiPaolo, when do
11 you need to know by? I mean, it's -- you know, I think
12 we'll be -- to finish today, we would be going past 5,
13 for sure. And it may be just -- if everybody is
14 available tomorrow, it may be just as well, even if we
15 didn't push it late tonight, then -- but we need a
16 natural break, of course, and then come back tomorrow
17 morning. Is that -- just to hear from parties,
18 Ms. Metheral and Ms. Vance, your thoughts?

14:55

19 MS. VANCE: Thank you, Mr. Chair. I
20 understand that my witnesses are -- have set aside
21 tomorrow, as well.

14:55

22 THE CHAIR: Okay. Mr. Metheral, is your
23 preference to try to push late tonight and finish? Or
24 tomorrow morning, does that work for you and your
25 clients?

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1 MR. METHERAL: We are available for both options.

2 THE CHAIR: Okay. So, Ms. DiPaolo, when do
3 you need to know by? I wouldn't mind taking a -- we'll
4 take a break now, but when do you need to kind of know
5 by in terms of switching over?

6 I'll tell you what, you know, let's come back
7 after break. Let's come back at quarter after 3, and
8 the Panel can caucus a bit, too, and see what -- you
9 know, I'll get some views in terms of what might work
10 best.

14:56

11 But to be honest, my opinion is it's looking like
12 we might all be a little fresher if we carry on
13 tomorrow morning, so that would be my sort of initial
14 thought, but I'd like to canvass the Panel as well.

15 So let's break until 3:15, and then we'll make the
16 decision on whether we finish tonight or tomorrow.

17 Thank you.

18 (ADJOURNMENT)

19 THE CHAIR: So, you know, it's looking an
20 awful like we'll see you tomorrow morning, but what we
21 would like to make sure of, if we can, is to finish up
22 cross-examination by you, Mr. Metheral, and -- but also
23 the Board and Board staff, and -- because we also have
24 some questions.

15:15

25 So, you know, I'd ask you, you know, if you've got

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1 a bit of a framework in mind that would take us forward
2 a little more quickly, you know, we've shown you lots
3 of deference.

4 There seems to be a little bit of crossover made,
5 perhaps, to some of the bias claims that you've made
6 that we -- you know, really we're looking to entertain
7 at the hearing, but we get that. We understand. We
8 appreciate that you wanted to get some of that on -- in
9 front of the Board despite, you know, our Board
10 decision in terms of focus on four issues.

15:16

11 But, you know, I think it would be really useful
12 if you can kind of get your thoughts together and your
13 questions a little more focused on the issues that we
14 do have at hand.

15 And, you know, with that, we'll let you continue,
16 and then we'll see if we can get -- you know, I guess
17 Ms. DiPaolo, you know, I'm still hoping by a regular 5
18 we would be complete, and then it would be kind of a
19 natural break for us for tomorrow morning to start with
20 Mr. Muilwijk's and Mr. Metheral's direct.

15:17

21 Okay. So with that, Mr. Metheral, please
22 continue.

23 MR. METHERAL: Thank you, Mr. Chairman.

24 Yes, I appreciate the Board's patience as we work
25 through some of our thoughts. There's quite a lot of

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1 information to collect and filter through, and so your
2 guidance is appreciated.

3 I would shift gears a little bit; same topic,
4 though, and we do have a couple quick questions for
5 Mr. Cunningham.

6 It does relate to this position that the Muilwijks
7 take that would be a normal courtesy and obligation to
8 talk to Mr. Lobbezoo, and it would have eliminated some
9 of the, perhaps, communications questions that would
10 have arose from his information.

15:18

11 So I ask -- I would ask Mr. Cunningham if he's
12 aware of his APEGA requirements to communicate with the
13 engineer when critiquing his work?

14 **A. MR. CUNNINGHAM:** So thank you, Mr. Metheral. I am
15 aware of the obligations under the APEGA's ethics, and
16 aware that those are -- that portion of them are
17 largely focused on an owner/engineer relationship where
18 an owner hires an engineer, gets a design, and then,
19 subsequently, the owner decides to get another engineer
20 to review it. That second engineer must contact the
21 first engineer because they're both working for the
22 same owner.

15:18

23 Regulatory does not fit underneath that same --
24 the review by regulatory does not fit under that same
25 viewpoint and -- from my discussions with APEGA.

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Cross-examined by Mr. Metheral

1 Q. So it's your position you fulfilled those requirements
2 and were not obligated to reach out?

3 A. **MR. CUNNINGHAM:** That's correct.

4 Q. Are you aware of the NRCB fact sheet regarding the work
5 with engineers?

6 A. **MR. CUNNINGHAM:** Yes.

7 Q. Do you believe you followed the NRCB policy, that NRCB
8 policy working with Mr. Lobbezoo?

9 A. **MR. CUNNINGHAM:** The policy is largely focused on
10 approval officers and what approval officers will do.
11 So I did not do what an approval officer may or may not
12 have done, but I provided my input back to the approval
13 officer for how they would administer that policy in
14 relation to -- to the consulting engineer they were
15 dealing with.

16 Q. Okay. So it's your position that it would be
17 Mr. Cumming's responsibility to follow the policy, the
18 NRCB policy?

19 A. **MR. CUNNINGHAM:** Yes.

20 Q. Thank you.

21 Okay, this next submission, file manager,
22 Number 80, field officer's submission page 8. Sorry,
23 Exhibit 80, page 8. And it's really just examining the
24 field services submission about their experiences
25 relating to technical requirements of RCC.

15:19

15:20

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Cross-examined by Mr. Metheral

1 I understand we saw quite a bit of information --
2 and, sorry, this question is directed to Mr. Cumming.
3 We saw exhibits included for review that included the
4 inspectors, approval officers, and a science tech team,
5 including CVs, but one thing we didn't see in this
6 submission is any references to what we consider would
7 be important, is the approval officer's experience
8 around the current permits -- current permitting.

9 So if I can ask the file manager to pull up
10 Exhibit 94.

15:22

11 Mr. Cumming, how many approvals has the NRCB
12 issued for roller compacted concrete as a pen floor
13 liner?

14 **A. MR. CUMMING:** As -- as the best of my knowledge,
15 it's just the two that we have there.

16 **Q.** Your field submission suggested that you were only
17 aware of one.

18 **A. MR. CUMMING:** That is correct. When I -- when I
19 was -- when I provided input to that, I did not know
20 about the Spring View Colony decision.

15:22

21 **Q.** How is that not possible? Are you not expected to
22 review decisions as they -- prior to them being
23 released?

24 **A. MR. CUMMING:** Typically, I do. I do take
25 vacation from time to time. Sometimes I'm not

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1 available, and so some of those decisions just get
2 reviewed by approval officers, and sometimes our legal
3 support, as well.

4 Q. Did you ever ask your -- the approval officers that
5 work with you how many sites they've permitted with RCC
6 as a liner?

7 A. MR. CUMMING: I -- I did. It was a while ago,
8 and the only thing that we could come up with at that
9 point in time -- and Ms. Weisbach was not on that
10 particular call at the time -- was just the one.

15:23

11 Q. Okay. File manager, if you can scroll down. Let's
12 have a quick look at what NRCB has developed for permit
13 conditions. One more. A little bit more. Yeah, right
14 here.

15 Andy, can you describe this permit and the
16 structure of it and what a permit condition means to
17 the operator?

18 A. MR. CUMMING: Well, a permit condition is a
19 condition of -- of the permit, obviously, and it's a
20 requirement that the permit holder would have to follow
21 in order to be in compliance with that particular
22 condition.

15:24

23 In this example here, the new feedlot pens it's
24 referring to as a construction completion report, and
25 the -- the information that -- for the liner is set out

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1 **there in several different bullet points.**

2 **Q. Okay. Let's have a quick look at bullet 3: (as read)**

3 **"The RCC product was placed on a bed**

4 **with an even thickness of at least**

5 **7 inches and at least 6 inches when**

6 **compacted."**

7 **That appears to me to be very similar what was submitted**

8 **by Arie in his Part 2. Would you agree?**

9 **A. MR. CUMMING: Are you talking about his Part 2**

10 **application?**

15:25

11 **Q. Part 2 application. And in your decision summary and**

12 **in your letter to Walter Ceroici, you suggested that 6**

13 **to 7 inches was what the applicant put in his Part 2;**

14 **is that correct?**

15 **A. MR. CUMMING: I don't -- I don't disagree with**

16 **you. The -- what's in the application is very clear.**

17 **It's also included in my decision summary.**

18 **This is a permit condition. This material has not**

19 **yet been placed at the time that the permit was issued,**

20 **so that there's a whole lot of other stuff that you're**

21 **not reading into this particular document that probably**

22 **took place prior to the permit being issued.**

15:26

23 **I was not the approval officer on this particular**

24 **application.**

25 **Q. Right. I'm aware of that. But you would have reviewed**

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1 this first application. I believe this is the Stronks.

2 Let's find --

3 **A. MR. CUMMING:** **No, no.**

4 **Q.** -- the Stronks application.

5 **MS. VANCE:** For clarity -- this is Fiona

6 Vance. For clarity in the transcript, there's a number

7 of Stronks applications, so I would ask, for the

8 transcript's sake, that Mr. Metheral just be crystal

9 clear about which one he's talking about.

10 **MR. METHERAL:** Sure. If we can just scroll. On 15:27

11 this document -- file manager, on the this document, if

12 we can just move to the top of this document, it'll

13 tell us -- yes. So it would be LA18053B.

14 This is the first roller compacted concrete

15 approval that the NRCB issued; it was issued by Carina

16 Weisbach. Mr. Cumming, are you suggesting -- or maybe

17 I'll ask, have you reviewed this, or did this document

18 come across your table?

19 **A. MR. CUMMING:** **Yes, it did come across my table**

20 **for review.** 15:27

21 **Q.** So you were aware of it as a -- as a NRCB permit, and

22 yet you did not include it in your submission for

23 NRCB -- as a NRCB article or a technical experience,

24 your technical experiences?

25 **A. MR. CUMMING:** **I'm not sure what you're meaning**

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1 by the second part of it. I am aware of it.

2 Q. Okay.

3 A. MR. CUMMING: I'm not sure what -- the second
4 part of the question.

5 Q. It didn't -- the Board has asked you specifically what
6 experiences does field staff have related to technical
7 requirements. I'm pointing to you -- pointing out the
8 technical requirements that were in the first NRCB
9 permit. Why weren't they added to your experiences --
10 your experiences submission?

15:28

11 A. MR. CUMMING: I think if you go to that
12 submission that you're referring to, you will see there
13 that we said that we have limited experience with
14 roller compacted concrete.

15 Q. Okay. So is that an acknowledgement that the NRCB
16 recognizes there's two permits, being limited
17 experience?

18 Let's move on to the approval officer's
19 submission, Exhibit Number 87.

20 Okay. For the Board, this is an enforcement order
21 that Arie received. This summary -- in between his
22 submissions from his Part 1 and 2 and receiving his
23 permit or permit decision or the decision from Andy,
24 this enforcement order was issued on May 22nd.

15:29

25 Let's have a quick look at what was important

A. CUMMING, S. CUNNINGHAM**Cross-examined by Mr. Metheral**

1 factors for the NRCB in issuing an enforcement order.
2 Can we scroll down to the -- I think it's the third
3 page.

4 MS. VANCE: Mr. Chair, it's Fiona Vance. I
5 trust Mr. Metheral's going to get to something that
6 actually touches on one of the hearing issues.

7 THE CHAIR: I'm waiting for it. If it's going
8 into enforcement order, in terms of debating it, that's
9 not where we're going, but just let him get to this
10 spot and see.

15:30

11 MR. METHERAL: Yeah, absolutely. If you'll take
12 my word for it. We can keep -- let's keep going.
13 Let's find it. The point being the enforcement order
14 conditions are identical to the conditions that were
15 issued in the permits. The point being the NRCB is
16 prepared to both -- to use these permit conditions for
17 both the approvals and inspections for livestock
18 facilities in Alberta.

19 MS. VANCE: Mr. Chair, is there a question
20 coming, please?

15:31

21 Q. MR. METHERAL: Is Mr. Cumming aware that his
22 staff or the staff in field services are applying these
23 for both approvals and inspections conditions?

24 A. MR. CUMMING: So I'm struggling a little bit. I
25 think in my testimony earlier on, I mentioned that the

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1 role of the approval officer and that of the inspector
2 are separate. I think if you refer to the field
3 services submission about this, that will add clarity
4 to that.

5 The other document that I would refer you to is
6 marked as Exhibit 88, and halfway down the document,
7 this is a response, I believe, from Mr. Ivarson. I
8 understand, though, the correction -- yes, it is from
9 Mr. Ivarson, and it says: (as read)

10 "Whether or not these liners meet the
11 requirements of AOPA is not the
12 determination issued in this document."

15:32

13 So I think Mr. Ivarson is clearly stating that the best
14 information they used was to look at the -- at the risk,
15 and they provided what they provided in the enforcement
16 order, and that's followed up in the June 29th, 2020,
17 letter which was sent by email to Mr. Muilwijk which
18 includes that, and what I just read to you is in bold
19 type approximately halfway through the document.

20 Q. Yes. And I think the piece there was that -- your
21 response there was that this was for immediate
22 emergency use only; is that in the document? I believe
23 the third or fourth paragraph down.

15:33

24 A. MR. CUMMING: Again, this -- this is a
25 compliance document. I had no part in this -- in the

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Cross-examined by Mr. Metheral

1 **development or writing of these documents.**

2 Q. The point being there have been two approval officers
3 that have provided NRCB technical data, technical
4 permits, technical information, for two facilities and
5 Mr. Muilwijk's facility. The approval officer is
6 referring to the technical -- NRCB's technical details
7 in their enforcement order to deal with immediate risk.

8 A. **MR. CUMMING:** I believe that you have that
9 incorrect, Mr. Metheral. I believe you're talking
10 about early one approval officer and two permits; not
11 two approval officers.

15:34

12 Q. Let's pull up Exhibit 19. This is the database,
13 9/25/2020 -- or 2019. It's in reference to
14 Mrs. Snowdon. 925. I'll make this a bit easier, I'll
15 perhaps read for you here, or summarize. The key point
16 is in the middle: (as read)

17 "Arie has suggested he would like to
18 move forward with RCC."

19 The second sentence, Mrs. Snowdon said: (as read)

20 "I emphasize that it would be up to his
21 own --"

15:35

22 I can't see that far. (as read)

23 "I emphasize that it would be at his own
24 risk as a permit is never guaranteed,
25 and if the RCC is constructed in a way

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Cross-examined by Mr. Metheral

1 that does not meet our requirements, we
2 would not be able to permit it."

3 Mrs. Snowden is apparently referring to what would be
4 NRCB requirements. So in fact there are two approval
5 officers referring to what would be NRCB technical data.

6 Is Andy -- is Mr. Cumming aware that approval
7 officer agent Snowden was promoting this material also?

8 **A. MR. CUMMING:** I can't comment on -- on the --
9 what she did or didn't say. I was not party to that
10 **phone conversation.**

15:36

11 **Q.** Mr. Cumming, you took over the file from her directly.
12 In it she would have had her notes and discussions.
13 You're saying there's no information in that file that
14 would have direct suggested she was promoting NRCB
15 technical data?

16 **A. MR. CUMMING:** The information that would be in
17 the file is essentially what you have in this database
18 record.

19 **MS. VANCE:** Chair, it's Fiona Vance, I do -- I
20 do apologize for interfering so often, and to you,
21 Mr. Metheral, as well. I just -- I'm hoping that when
22 you ask questions, you can actually use the evidence
23 that's before us. I don't see the word "promote" and I
24 don't see "NRCB technical material." So I'm just
25 hoping that you can stick to what's there.

15:37

A. CUMMING, S. CUNNINGHAM

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1 MR. METHERAL: You're right. I think everyone
2 can come to their own conclusions about what
3 Mrs. Snowden was suggesting.

4 So this would conclude my cross-referencing. I'm
5 going to ask Mr. Lobbezoo if he would like to engage in
6 any further questioning.

7 Mr. Chair, we would conclude our
8 cross-examination.

9 THE CHAIR: Okay, thank you very much. Oh,
10 sorry, am I -- you're done, Mr. Metheral?

15:38

11 MR. METHERAL: I'm getting some feedback from
12 Mr. Lobbezoo. Sorry, I apologize. Mr. Lobbezoo
13 brought forth some pieces that I had forgot. I was
14 quite excited to talk about roller compacted concrete,
15 and I forgot Mr. Cunningham's environmental risk
16 screening tool report.

17 THE CHAIR: Okay. And who's going to be
18 asking these questions?

19 MR. METHERAL: I will be.

20 Q. MR. METHERAL: Scott, I think we can move through
21 this quite quickly. We provided some work -- or some
22 suggestions that some of the key pieces in your
23 calculations weren't quite where they needed to be.

15:39

24 So I do appreciate the update that you made to the
25 catch basin risk score; that was one of them. We do --

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Cross-examined by Mr. Metheral

1 we would have identified that piece.

2 We would question, though, why you would chose to
3 pick borehole Number 4, 004. You suggested it was for
4 consistency. Would it not have been more appropriate
5 to select boreholes that were closer to the facilities
6 that you were assessing?

7 A. MR. CUNNINGHAM: So when choosing a borehole, part
8 of how the risk screen tool works is to choose a
9 reasonably conservative assumption. And so I looked at
10 all four boreholes. They all had the same -- similar 15:40
11 water bearing zones throughout all four of them, and I
12 picked the shallowest of the four. The consistency was
13 not because borehole 4 was more consistent, I chose to
14 use borehole 4 across all facilities across the site
15 for consistency in determining the risk screening tool
16 scores.

17 Q. That's interesting. If we were to have a quick look at
18 that technical guideline -- I believe it is in
19 Exhibit 3, technical document -- sorry. Yeah,
20 Exhibit 3, page 88. I believe these are similar to 15:40
21 what you -- I'm not sure if this is the document you
22 used, but it is -- it does summarize with the photo
23 here, site photo.

24 So are you aware that borehole 4 is actually down
25 gradient of these other boreholes? And there's a

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Cross-examined by Mr. Metheral

1 significant elevation difference and soil difference
2 with borehole 3 -- or sorry, borehole 4?

3 A. MR. CUNNINGHAM: Document manager, can you scroll
4 down a little bit, please. Thanks. Just to include
5 the entire table on this screen at once.

6 So there was nothing in this information about
7 this difference in surface elevations between the
8 boreholes. So in the absence of that, and that's quite
9 common when we get information, we just consider them
10 as being all the same -- at the same elevation across
11 the site because this is risk -- it's risk screening.
12 This is not an assessment. It's not where people go
13 out. It's not where the NRCB is requiring separate
14 drilling with measured elevations above the boreholes.

15:41

15 So I used that -- so you assume them all to be the
16 same for elevation at ground level, the four boreholes.
17 And then I looked at what information is here for
18 soils. And so the soils information in borehole 4,
19 there's less than in the other boreholes. But that's
20 all I had to rely on. There was nothing about how it
21 was different or just simply that -- as to what it
22 was -- why some of those are blank, I don't know, and
23 so I did not speculate.

15:42

24 Q. Yes, that's interesting. There are no remarks on
25 borehole 4. We see more clarity in boreholes 2 and 3,

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Cross-examined by Mr. Metheral

1 and perhaps a little less in 1.

2 Would you say that if you had more information or
3 more prox -- or more accurate information, that would
4 make your decision tool more accurate?

5 A. MR. CUNNINGHAM: A little bit. Potentially. It
6 depends what the information is.

7 For example, had we used borehole 3. That's one
8 with lots of information there on the soils. And so
9 the same very fine sandy loam that's shown there from
10 3.0 to 4.1, shown as saturated. That's the part that
11 says free water in it.

15:43

12 So had we used that as the top -- had I chose that
13 as the top of the groundwater resource during that
14 consideration, then it would have ended up .3 of a
15 metre -- 0.3 of a metre deeper than using borehole 4.

16 Now in -- I know from my experience in the risk
17 screening tool the scoring -- that the differences are
18 between -- the points that change the scores for risk
19 to the -- from the bottom of the facility -- or for the
20 thickness of the protective layer is at 2 and 5 metres.
21 And that's where those -- they change. And then in the
22 uppermost groundwater resource, it's more or less than
23 8 metres.

15:44

24 And so from the depths to the uppermost
25 groundwater resource, it's -- it doesn't matter which

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Cross-examined by Mr. Metheral

1 boreholes was chosen, it was going to be less than
2 8 metres. With a protective layer, it may have made a
3 minor difference from one choosing between one or the
4 other. It may have taken one that was showing at 1.5
5 or 1.7 or something and made it 2.5 or 2.7.

6 So it could have made a slight difference in the
7 score, in the calculated numerical score.

8 Q. Right.

9 A. MR. CUNNINGHAM: The calculated numerical score is
10 just to find the number of which category you're in:
11 low, moderate, or high.

15:44

12 Q. I think you can appreciate, though, the magnitude of
13 your decision-making in that eventually the ERST
14 results, the risk screen tool results, dictate perhaps
15 potential change for action. So do you think Arie
16 should have more of a precise assessment because of the
17 long-term effects of what this decision could have?

18 A. MR. CUNNINGHAM: In -- so part of when the screen
19 tool was being developed, the idea was to base it on
20 available information. And once those scores were
21 determined and provided to an operator/owner, then they
22 would have the opportunity to provide additional
23 information if they chose to pay someone to get more
24 information on the assessment of their site.

15:45

25 So it's a measured -- the scoring risk of

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1 what's -- what's shown there and the numerical score
2 and the scores, they're based on the information we
3 have now. If Mr. Muilwijk decides to drive more
4 information in the future, that may or may not reduce
5 his score. It's unknown at this time.

6 Q. Okay. There is another piece of data that was
7 submitted by Chilako Drilling. If can we can keep this
8 sheet close, the email that I'm looking for is -- I
9 believe it's Exhibit 22. Chilako Drilling -- Scott,
10 did you receive this email?

15:46

11 A. **MR. CUNNINGHAM:** No, I did not.

12 Q. Okay. Chilako Drilling has established the water level
13 between 3.6 and 3.9 metres. How should we address this
14 piece of information in this hearing?

15 A. **MR. CUNNINGHAM:** I did not include it in my -- in
16 the site information forms that I filled out, nor in
17 the information in my memos supporting to that.

18 But perhaps we could go look at the memo as to how
19 I determined the groundwater resource and look at
20 this -- and look at this relative to that. So that
21 would be Exhibit 3.

15:47

22 MR. METHERAL: In the interest of time, would you
23 be interested -- is it possible that Scott and I can
24 sit down and have a quick look at these numbers for the
25 Board?

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1 THE CHAIR: No, not off the record. We're not
2 doing that, no. I mean, it might be more time
3 efficient, but it probably isn't more transparent or
4 fair, so sorry.

5 MR. METHERAL: Okay. Then I would simply ask the
6 Board to consider directing the approval officer to
7 ensure that his pieces are accurate using accurate
8 water table information.

9 Q. MR. METHERAL: The next piece is a little more
10 vital, if we go back to Exhibit 3, page 88. It's the
11 determination of the -- I guess the texture that's
12 used. Scott, you reflected that you used the very fine
13 sandy loam and arrived at a porous texture?

15:48

14 A. MR. CUNNINGHAM: Yes.

15 Q. How did you determine if it was a medium textured soil
16 versus porous textured soil considering the scale of
17 this -- of this guideline here?

18 A. MR. CUNNINGHAM: I believe --

19 Document manager, could we go down a couple of
20 pages, please. I'm looking for a table that's from the
21 direct -- the next one. Directly from your screen.
22 This is it, thank you.

15:49

23 So this is the table I used. It is from the
24 environmental risk screening tool and the companion
25 document. And so I looked at what we had for

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Cross-examined by Mr. Metheral

1 description of materials for the -- and I think it was
2 the silty sand and the clean sand both overlaid nicely
3 with the coarse at the bottom. And so we chose coarse.

4 Q. Certainly the coarse assessment versus medium
5 assessment adds significant numbers to the Muilwijk
6 score. Do you think it would be appropriate to ensure
7 we're not overscoring him based on what is really just
8 a desktop review?

9 A. MR. CUNNINGHAM: It makes more of a difference for
10 the Muilwijks on their protective layer determination. 15:50
11 That's where there's more of a change in the score than
12 on the -- than on the groundwater resource, is how I
13 look at it.

14 The -- I guess it does change on both. But the
15 tool's been designed to be -- so it would be reasonably
16 conservative. We use what information is there. It is
17 not designed to be used -- or if there's livestock or
18 near there, therefore it's high, that's not good
19 enough. It needs to be information that supports
20 the -- that supports any choices throughout the entire 15:50
21 tool. All those choices are -- are numerically added
22 up and come out with one of the three, low, moderate,
23 or high, which really equates down to one of two
24 things: does something need to be done or not.

25 Q. Okay. Yes, our concern is the risk screening tool

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Cross-examined by Mr. Metheral

1 results for all the facilities. That includes the --

2 THE CHAIR: Mr. Metheral, you may have a
3 question coming, but it sounds like sort of a
4 commentary and a concern, as you expressed, which is
5 absolutely valid, but perhaps more appropriately placed
6 in your direct when -- which would be tomorrow, rather
7 than, you know, now, when really it's time for asking
8 Mr. Cunningham or Mr. Cumming questions.

9 So it's not that I don't think you should do it,
10 it's just I think the timing may be wrong. So if
11 there's some commentary that you have, I would ask you
12 to perhaps wait for your direct tomorrow.

13 MR. METHERAL: Yeah, fair enough. Although I am
14 saving you some time for tomorrow.

15 Q. MR. METHERAL: Specifically then, Scott, the
16 borehole logs indicate -- I'm going to call it a
17 texture, very fine sandy loam in number -- if we scroll
18 up to the logs. Let's have a quick look at the logs
19 themselves. I think it was 88. Borehole 1 describes
20 very fine sandy loam, and the remarks here say they
21 call it silty. And that is from 0 to 2 metres. And
22 very fine, sandy clay loam from 2.1 to 1.3. And then I
23 think we've kind of established that the water table
24 starts somewhere in here, perhaps at 3.5. So we'll --
25 at least in borehole 1 we've got a -- more of a silty

15:51

15:52

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 material.

2 Borehole 2, very fine sandy loam. The remarks are
3 that it's silty. And then from 2.9 to 3.6, silty clay
4 loam, which is sandy. And that is again at the water
5 table.

6 So what I'm suggesting here is, would you agree
7 that we might have actually a silty loam at surface?
8 And then if we were to correlate that down into the
9 graph, moving down to the page, then we would actually
10 have medium risk? Sorry, medium soil texture and not
11 coarse assessment?

15:53

12 **A. MR. CUNNINGHAM:** If it's possible that the -- if
13 you change the texture to either looking at the
14 information that's here, if you change and include the
15 various remarks as part of that assessment, I think you
16 would change the texture that you look at. But I also
17 look --

18 Q. Thank you.

19 **A. MR. CUNNINGHAM:** Okay.

20 Q. That's all I need on that. We'll have more for that
21 then, that we would look at that possibility.

15:53

22 **MS. VANCE:** Mr. Chair, it's Fiona Vance. I
23 would just ask that Mr. Cunningham be allowed to finish
24 his answer.

25 Q. **MR. METHERAL:** Sorry, Scott you're --

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Cross-examined by Mr. Metheral

1 A. MR. CUNNINGHAM: The remainder of my answer is that
2 normally in logs, and it's not identified how they were
3 logged here, relation from the texture and the remarks,
4 but that the texture is that's dominant, and then
5 the -- so for -- on borehole 1, the texture is very
6 fine sandy loam. The sandy is a modifier to the loam.
7 And the remarks of silty would be less important than
8 the sandy of the loam.

9 So that's how I interpret it, this information, in
10 the absence of information that -- in a report that
11 provided me other direction.

15:54

12 Q. Thank you, Scott. Or thank you, Mr. Cunningham.

13 And, secondly, a quick question on uppermost
14 groundwater resource. When you're -- and we don't need
15 to pull any of this material up. I'm just confirming,
16 when you did your research on the water wells, did you
17 confirm if any of the water wells were abandoned or in
18 use?

19 A. MR. CUNNINGHAM: I did not access any sites. I did
20 review the water well database to see if there were any
21 decommissioned reports for any of those water wells,
22 and the wells I used did not have a report of being
23 decommissioned. However, I'm aware that doesn't
24 necessarily tell the entire story, that that's not
25 always an indicator of whether a well is still existing

15:55

A. CUMMING, S. CUNNINGHAM

Cross-examined by Mr. Metheral

1 or not.

2 Q. Right. Did anybody from -- report to you that they'd
3 done -- had done field reconnaissance, where they
4 looked at those wells that you identified to determine
5 if they were actually in use or not?

6 A. MR. CUNNINGHAM: No, no one provided that
7 information to me.

8 Q. Okay. If those water wells were identified as
9 abandoned, what would that do to your risk assessment?
10 Because I understood it would change your uppermost
11 groundwater resource classification? 15:56

12 A. MR. CUNNINGHAM: It might. If the -- the
13 definition of the uppermost groundwater resource does
14 depend on usage. And so whether wells continue to be
15 use or not, it can be a factor in that. They're --
16 over the last decades things have changed as to what's
17 enough water out at a site, even simply for a
18 household.

19 Q. Right.

20 A. MR. CUNNINGHAM: But it's tough -- it's difficult
21 to speculate how what -- how those changes would be
22 applied and what the answer would be. 15:56

23 Q. Okay.

24 MR. METHERAL: Very good. Thanks for your time,
25 Scott.

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 Mr. Lobbezoo, anything to add? Very good. I'll
2 check the end of my document. I am at the end.

3 THE CHAIR: Okay, thank you, Mr. Metheral and
4 Mr. Lobbezoo.

5 We'll move onto Board staff and Panel.
6 Mr. Kennedy.

7 MR. KENNEDY: Thank you, Mr. Chair. I'll make
8 sure I turn on my microphone.

9 MR. KENNEDY QUESTIONS THE PANEL:

10 Q. I'm going to start in --

15:57

11 Document manager, if you can pull up Exhibit 94,
12 pdf page 19. And this is the Stronks decision. It's
13 been referenced extensively already. What I'd like to
14 do is just go through some of the items that were
15 important in that decision and get an understanding
16 from you, Mr. Cumming, as to whether, you know, there
17 is sufficient information to understand the various
18 factors. And if there isn't sufficient information,
19 perhaps what additional information might assist and
20 how accessible that additional information might be.

15:58

21 So with that --

22 And if we can just go down to pen liners at the
23 bottom. Yes, please, thank you.

24 MS. VANCE: Mr. Kennedy, this is Fiona Vance,
25 and I hate to interrupt you even more, but I just

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Questioned by Mr. Kennedy

1 wanted to be clear. I believe that page 19 is from
2 LA17038. If that's what you were intending to refer
3 to.

4 MR. KENNEDY: It is, it is. And this is -- it
5 is one of the Stronks decisions. I just -- I picked it
6 because it has this listing of various factors.

7 MS. VANCE: Thank you.

8 Q. MR. KENNEDY: So, Mr. Cumming, the first
9 sentence under "Pen liners" identifies the need for a
10 6-inch thick roller compacted concrete liner. And the 15:59
11 first question that I have of you is -- and I don't
12 know that I've heard this to date, but I think I've
13 heard a lot around it, is it possible that an applicant
14 could apply for pen liners using roller compacted
15 concrete and get an approval at this stage?

16 A. MR. CUMMING: I believe it is possible. They
17 would need to provide information which clearly shows
18 how they can meet the AOPA requirements.

19 In the decision that I was the approval officer
20 for, so 19036, my determination was that information 15:59
21 had not been provided.

22 Q. Okay. So the first element identified is in that very
23 first sentence under "Pen liners," and it's 6-inches
24 thick roller compacted concrete. Is that a reasonable
25 thickness?

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 A. MR. CUMMING: I was not the approval officer on
2 this particular site. When you start to talk about the
3 thickness of a concrete liner, many other factors would
4 come into play, including what equipment would be
5 placed on the preparation of the bed onto which this is
6 placed. So I can't comment that this would be
7 generally acceptable. I think you have to look at the
8 design that is proposed for that particular
9 application.

10 Q. I thank you for that. And we're going to go through a
11 number of those other factors as we move forward.

16:01

12 So what can you tell us about an understanding of
13 the thickness of the Muilwijk RCC liner? Do we know
14 the thickness?

15 A. MR. CUMMING: We do know the thickness. That
16 was in the report that was provided by Mr. Lobbezoo
17 under the Wood letterhead. And it ranges -- it's
18 approximately 6 to 7 inches. He's got the details in
19 millimetres. I think they go from -- I stand under
20 correction here, but about 150 something, 160 through
21 to right around 200 millimetres.

16:01

22 Q. And so moving down, and I'm looking at the penultimate
23 sentence in that paragraph, and what it talks about,
24 you know, it makes a simple statement that RCC meets
25 the Standards and Administration Regulation. Is it

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 your understanding -- or do you have any understanding
2 whether that would include a calculation for the
3 presence of cracks in the RCC liner?

4 **A. MR. CUMMING:** I don't know how that statement
5 came about. As I had said, I was not the approval
6 officer on the site, and the approval officer's
7 responsible for that decision.

8 **Q.** Okay. And then we get to the middle. I'm moving down
9 to the next paragraph, and this is a point in time, and
10 a point in time coming up three years ago, where it
11 states: (as read)

16:02

12 "...the investigations conducted by an
13 engineering company in cooperation with
14 AF --" Agriculture and Forestry -- "show
15 that the product is suitable."

16 Does that remain a true statement in 2021?

17 **A. MR. CUMMING:** It's an interesting statement. I
18 can't comment on what it's actually referring to. I'm
19 assuming that you're meaning is it suitable as a liner.
20 And, as I mentioned earlier, I was not the approval
21 officer. I did not see the details on this particular
22 application, so I can't comment specifically on that.

16:03

23 What I can do is I can point you to the Technical
24 Advisory Group report that is now part of the record,
25 and it's -- it's -- their conclusion was that it's not

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 clear that you -- roller compacted concrete can meet
2 the AOPA requirements, and it's not clear that it can't
3 meet the AOPA requirements.

4 So I take from that that the devil is always in
5 the details, and it depends on what the design and the
6 specifications of that roller compacted concrete might
7 be for that specific application.

8 Q. Thank you, that's helpful.

9 Now I'm moving into the paragraph (a) just at the
10 bottom of that page. And in relation to the Muilwijk
11 application, what information would you have,
12 understanding the record that you had when you made
13 your decision, and perhaps even some of the subsequent
14 filings that we've seen from Muilwijks, about the
15 uniformity of the liner?

16:04

16 A. MR. CUMMING: The only information that I
17 could -- that I'm aware of is the information which was
18 done when Mr. Lobbezoo had either himself or a member
19 of his team do coring of the already placed roller
20 compacted concrete. And those core samples that are
21 referred to just now show a depth range in the 150,
22 160, up to about the 200-millimetre range.

16:05

23 So that's the -- that's the only information that
24 I have with respect to consistency of the thickness of
25 the RCC liner.

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 Q. And paragraph (b), what information might you -- what's
2 your understanding about the proper water content of
3 the RCC when it was applied?

4 A. MR. CUMMING: So the water content of concrete
5 is critical to ensure that it can actually meet design
6 criteria and design strength. I have no information
7 with respect to what the water content was supposed to
8 be, nor what it actually was. None of that information
9 is available to me, even now.

10 Q. And now I understand you were at the site, and I think
11 both Ms. Vance and Mr. Metheral asked you questions
12 about inspections. So paragraph (c) talks about
13 properly compact the product around transition areas.
14 In your inspection, were you able to observe any of
15 those?

16:06

16 A. MR. CUMMING: I could see that there was -- that
17 there were fence posts and the like that penetrated
18 through the roller compacted concrete liner. I could
19 not determine whether or not that material had been
20 properly compacted.

16:06

21 There were some photographs that were shared, and
22 they form part of the exhibits, where it does show some
23 compaction, but whether or not that compaction is
24 sufficient is unknown to me.

25 Q. And is there any way at this point in time to confirm

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 whether or not proper compaction was -- was in fact
2 done?

3 **A. MR. CUMMING:** There's always an opportunity to
4 take samples and have those samples tested through
5 destructive testing, that they crush them and they see
6 where they fell. That would give you an idea of the
7 compressive strength of the material in that location.

8 **Q.** And can they specifically do that in these kind of
9 narrow areas around fence posts and bunk aprons?

10 **A. MR. CUMMING:** The samples are normally taken.
11 So, so long as they can take the samples in those
12 areas, they would be able to take those through to the
13 laboratory, where they have the equipment to do the
14 compressive strength testing.

16:07

15 The nondestructive method would be something like
16 a rebound hammer. And as I set out in my decision
17 summary, I don't believe that the rebound hammer is the
18 appropriate tool to be utilized in this circumstance.

19 **Q.** They talk about testing the concrete strength at
20 28 days, and obviously we're beyond that 28-day period
21 now. If cores were taken now, would those provide
22 use -- would that answer all the questions necessary to
23 understand the concrete strength at site?

16:08

24 **A. MR. CUMMING:** You also have to have the
25 correlating strength curves, so the strength versus

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 time curve. Concrete does cure over time and will
2 continue to get stronger, or the compressive strength
3 should increase over time.

4 In the one report which was submitted by Mr. Both,
5 and I forget the exact exhibit number, rock solid
6 concrete, which was provided by Mr. Both, he does
7 provide some information with respect to compressive
8 strength versus time.

9 He also does refer to some graphs, but I noted
10 that those graphs are not part of the record and
11 weren't included with the report.

16:09

12 So some information which would be specific to the
13 design of that RCC and how it would be expected to cure
14 and therefore harden over time would be needed in order
15 to correlate the information.

16 Q. And is that a difficult -- is it difficult to collect
17 that information?

18 A. MR. CUMMING: I don't know. I've never tried to
19 do it.

20 The one thing that I can say is that it's far
21 difficult to do it after the fact than it is to do it
22 at the time that things are being done for obvious
23 reasons.

16:10

24 The other piece of information which was in one of
25 Mr. Muilwijk's submissions is that, apparently, the

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 contract -- sorry, the concrete supplier took some
2 samples for testing. What -- I don't know what that
3 means. I don't know what tests were done or not done,
4 but none of that information has been available either.

5 Q. Okay. And there is some -- some evidence that after
6 this -- I'm moving onto paragraph (d) at this point.
7 There is some evidence about the application of straw
8 at surface after the roller compacted concrete was set
9 down. Does that address paragraph (d)?

10 A. MR. CUMMING: I think it goes somewhat to show
11 that some attempt was made to try and cure it, cure the
12 roller compacted after it had been cured. I am aware
13 of the photographs; they are part of the record, which
14 shows a layer of what I assume to be straw placed over
15 the RCC.

16:11

16 What I don't know is whether it was wetted down or
17 if there were any other measures taken to assist with
18 the curing and minimize the drying out of the surface.

19 Q. And then I'm moving down that page under the first
20 bullet. And what do we know about compaction? So we
21 have these core samples. Does that address the
22 compaction that was done?

16:11

23 A. MR. CUMMING: Are you talking about the roller
24 compacted concrete, or are you talking about the base
25 on which the roller compacted concrete was placed?

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 Q. Ah. So what -- I got ahead of myself. So what do we
2 know about the compaction of the bed under the roller
3 compacted concrete?

4 A. MR. CUMMING: The only thing that I am aware of
5 is in the Wood report where he refers to looking at --
6 Mr. Lobbezoo as he refers to looking at photographs and
7 makes an assumption based on looking at the
8 photographs. More information than that, I am not
9 aware exists.

10 Q. Okay. And what information do we have about the
11 installer who installed the product? Would it qualify
12 as a trained installer?

16:12

13 A. MR. CUMMING: The only information that I have,
14 again, is included in the Wood report which references
15 the name of the company that mixed the concrete, and
16 the name of the company that placed the concrete and
17 compacted it.

18 THE CHAIR: Is somebody -- I'm not sure what
19 that was.

20 Q. MR. KENNEDY: And the -- and just moving on to
21 the next bullet. And I saw in the PowerPoint
22 presentations that were filed in advance of the
23 proceeding that -- that there appeared to be GPS
24 employed as the roller compacted concrete was laid down
25 and moved -- moved about on the surface. That's really

16:13

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 what's called for by this bullet, is --

2 A. MR. CUMMING: Not only that, to the -- the --
3 what I understand this bullet to refer to is that not
4 only does the base need to be properly levelled, but
5 then you also need to provide the -- place the right
6 amount of RCC material on it and compact it down to a
7 certain level using a laser technology. Sometimes they
8 are linked to -- a GPS system, as well, can assist with
9 that.

10 I -- information that has been shared suggests
11 that that was carried out at this site. I don't know
12 for certain.

13 Q. Okay. And in terms of the RCC, we have some strength
14 information. Is that sufficient to address the fourth
15 bullet in this list?

16 A. MR. CUMMING: The only strength information that
17 we have is on that one report which shows that it
18 was -- had a design strength of 25MPA. It doesn't tell
19 you what the -- at what time that strength should have
20 been arrived at, and we don't have any -- I don't have
21 any information about when I made the decision as to
22 the actual strength of the concrete that was placed.

23 So again, there's nothing from the concrete -- the
24 person who mixed and developed this concrete mix and
25 took it to site to say what was actually done. We have

16:14

16:15

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 information at the bottom of that testing report which
2 suggests that the design strength was going to be
3 25MPA, but I don't have any other information on
4 compressive strength of that concrete.

5 Q. Okay. And if we had a complete description of the
6 formula that went into the RCC, would that go a long
7 way in addressing this question?

8 A. MR. CUMMING: I think it would. It certainly,
9 if you had -- if I can call it "the recipe," where you
10 have the amount of -- of concrete powder that goes -- 16:16
11 and the cement powder that goes in there, all of the
12 different aggregates that go in there, including their
13 sizes and strengths, et cetera. The water ratio and
14 all of that information, that would go a long way to
15 helping to be able to assist whether or not the
16 concrete mix can meet some sort of design criteria.

17 Q. And when they're referring to the minimal strength,
18 that's compressive strength?

19 A. MR. CUMMING: That would be correct.

20 Q. Okay. And that -- if cores were taken, we could get at 16:17
21 least a point in time measure now as to compressive
22 strength?

23 A. MR. CUMMING: Yes.

24 Q. And part of the recipe is, the next bullet deals with
25 moisture content at the time of application. Is that

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 part of the recipe that normally would be provided?

2 A. MR. CUMMING: It -- it would normally be that
3 way because that moisture content might be something
4 that is much easier to measure so that you can either
5 accept or reject the concrete that is being brought to
6 the site to be placed.

7 So it certainly is a very good data point to show
8 that when the design was done, it was done under these
9 criteria, and this material needs to meet those
10 criteria in order to reflect what was actually designed
11 and, assuming, approved for use.

16:18

12 Q. Now, these core samples, they attributed a compaction
13 associated with these core samples. Is this the very
14 same compaction measure, this 92 to 95 percent? And I
15 think the core samples suggested 99 to 100, something
16 over 100, which -- I never understand percentages that
17 go beyond 100 but...

18 A. MR. CUMMING: That would be my understanding.

19 Q. Okay.

20 A. MR. CUMMING: If I can just add to that, the --
21 that requirement is typically measured at the time of
22 compaction or shortly thereafter. So it's not a
23 28 days or 6 months down the road; it's at the time
24 that the material is placed.

16:18

25 Q. Now, going to the next set of bullets, which is just

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 moving down the page a little bit. And we can go
2 through these individually, but maybe there's not a
3 need.

4 I'll ask you the general question first, is I
5 think I've read in the materials that the proponent has
6 said they've done all of these things, and they've met
7 all of these things. Would you agree with that
8 statement? And if not, where would your opinion
9 depart?

10 A. MR. CUMMING: So I think on the first bullet
11 where it talks about the bed of the liner is level and
12 compacted before the RCC is installed, the information
13 that is included with the application essentially says
14 that they did level it.

16:19

15 The part about compaction talks about it, the
16 material being compacted in -- by livestock in the --
17 in the areas of the -- what they called "two existing
18 pens," and it should be noticed that -- noted that
19 these pens only appear to have been developed around
20 about 2012 or so. You can check the Google Earth
21 photographs which have a time stamp on it for that
22 information.

16:20

23 But if you have a look at the covered pens and at
24 the third pen, which wasn't one of the two existing
25 pens, it's not clear how any compaction was carried out

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 there. It essentially shows that the soils in the area
2 were levelled. And that's the only information that --
3 that I have on the bed liner preparation.

4 Again, Mr. Lobbezoo, in his report, indicated that
5 he made an assumption based on looking at photographs
6 about the level of compaction. It's something that
7 intrigues me that you can make that categorization
8 based on a photograph.

9 Q. And compacting the liner bed, that's -- am I right in
10 assuming that that's to protect the integrity of the
11 RCC overtop, prevent cracking?

16:21

12 A. MR. CUMMING: It's -- certainly that's one of
13 the primary functions. It's to level off the surface,
14 provide a uniform base on which to place roller
15 compacted concrete or anything else that you're wanting
16 to place on it. And that can have a significant
17 influence and the performance of what -- that liner.

18 One only has to look at how roads are compacted.
19 Roads are constructed, and the amount of effort that's
20 placed into developing the bed of the road before they
21 actually put the top wearing layer on the top, to know
22 the importance of having a properly prepared base for
23 some sort of a final layer.

16:22

24 Q. And just to confirm, so I've -- a lot of my questions I
25 think have already been asked, and I think this is one

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 that was asked, but I'm going to ask it again. Is
2 the -- what you've called the recipe for this RCC. It
3 was never provided to the NRCB?

4 A. MR. CUMMING: I do not have any record to show
5 what -- any recipe might be for the RCC. As I've
6 pointed out earlier, the only information that I have
7 on that is at the bottom of the report, at the back of
8 the Wood report.

9 Q. Okay. And in terms of measuring compressive strength,
10 why does compressive strength matter?

16:23

11 A. MR. CUMMING: Compressive strength is one of the
12 ways of measuring the performance of concrete, and it's
13 a non-quantity; it's a non-standard.

14 Compressive strength will also have an influence
15 on the durability of the product.

16 Q. And not being an engineer, is it fair to say that if
17 there's a problem with RCC as a medium, it's not
18 associated with the RCC where it isn't cracked; it's
19 the cracks that are the problem?

20 A. MR. CUMMING: Generally it's the deterioration
21 of the RCC product. When we talk about liners -- I
22 mentioned this earlier, in the reading that I've done,
23 and I've done a fair amount of reading about roller
24 compacted concrete over these last number of years,
25 there are articles that I have read which talk about

16:24

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 having what I can call porous concrete for use in large
2 parking lots. This is typically done in the States,
3 the United States.

4 So it's areas where they're wanting to use roller
5 compacted concrete for its abrasion resistance, for its
6 properties as a pavement for driving upon, as opposed
7 to a liner.

8 But where they have designed the roller compacted
9 concrete so that it is quote, unquote, "porous." In
10 other words, it allows rainfall and water to pass
11 through the -- through the roller compacted concrete
12 layer and be absorbed into the earth that way, and by
13 doing that, minimizes the amount of storm water
14 attention that needs to be constructed for capturing
15 storm water drainage for those types of facilities.

16:24

16 Q. But to be fair, I don't think there's any suggestion
17 that it's porous, RCC, that we're looking at in this
18 instance.

19 A. MR. CUMMING: I don't know whether it is or it
20 isn't. Again, the Devil's always in the details, and a
21 lot of that information is based on the aggregate that
22 is utilized and the different ratios.

16:25

23 So again, it comes down to the recipe and the
24 quantity of the various materials and their properties.

25 Q. Well --

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 **A. MR. CUMMING:** My point in raising that is that
2 you're able to utilize RCC for a multitude of different
3 purposes; not just as is being proposed here as a liner
4 to meet AOPA requirements.

5 **Q.** Well, when I -- and this -- this is dangerous for me
6 to -- a path for me to start down, but when I look at
7 the calculations of the permeability of the RCC liner
8 as applied, the concern seems to be focused on the
9 cracking rather than the uncracked portions of the
10 surface. I mean, the uncracked portions seem to easily
11 meet the AOPA standard? 16:26

12 **A. MR. CUMMING:** The information, as I understand
13 it, is based on information that -- that's not specific
14 to the site. So in other words, it comes out of some
15 sort of a reference manual, and that reference manual
16 obviously has certain criteria to allow it to get to
17 that point.

18 As I mentioned earlier, the actual data which is
19 specific to the site is limited at best.

20 **Q.** Well, this -- this becomes an important question. Are 16:27
21 you saying that the Panel, when it does its assessment,
22 should ignore that portion of the assessment of the RCC
23 integrity, permeability?

24 **A. MR. CUMMING:** I think that the Panel needs to
25 consider all of the information before it, and my

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 understanding is that the Panel has an expert who is --
2 who knows about concrete to assist them with any
3 questions that they have there.

4 So I'm sure that that expert could provide them
5 with the information that they're looking for.

6 Q. In terms of identifying cracking, so are you aware of
7 any evidence of inspection that once this concrete had
8 an opportunity to cure and before -- before it was
9 covered, perhaps either with straw or livestock, to
10 assess and respond to cracking, what would appeared
11 after the RCC was applied?

16:28

12 A. MR. CUMMING: I am not. The only evidence of
13 that is some of the photographs that were submitted in
14 the most recent submission from Mr. Metheral and
15 Mr. Lobbezoo, which apparently -- well, it's my
16 assumption, and I'm sure that they're going to provide
17 information on this in their testimony tomorrow -- it's
18 my assumption that they had cleared off the manure,
19 scraped the manure to try and determine what cracks
20 were there. That's the -- that's the only information
21 that I'm aware of with respect to cracking and evidence
22 with respect to cracking.

16:29

23 Q. And in terms of responding to cracking on a longer term
24 basis, what inspections might be appropriate, and what
25 response to cracks is feasible? And second,

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 appropriate, and what results might be expected from --
2 from whatever program is available?

3 A. MR. CUMMING: That's -- that's a difficult
4 question. If I make the assumption that the Board
5 overturns the decision and approves the roller
6 compacted concrete for use as a liner, I would -- and
7 as part of -- part of what I have recommended as
8 potential conditions is I have recommended that there
9 would be some sort of an inspection program carried out
10 where they could identify cracks and identify damage to 16:30
11 the roller compacted concrete and have a method of
12 repairing that damage or cracks.

13 From what I understand, in the feedlot industry
14 where they have utilized roller compacted concrete, and
15 this is typically -- it is where it's not been as a
16 liner, it's been put on top of an AOPA liner, that -- I
17 understand that they use regular plastic-type concrete
18 to -- to fill any cracks and damage that is either
19 created by the cleaning equipment, the livestock, or
20 some other -- something else that's damaged the liner. 16:30

21 Q. And these questions may be for Mr. Cunningham, but I'll
22 put them out and, please, either of you can respond.

23 In terms of the permeability calculations, is
24 there a substantial agreement as to what might be
25 anticipated for how you factor in the presence of

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 cracking? You know, size and number? And when I say
2 some agreement, between your approach and
3 Mr. Muilwijk's engineer's approach?

4 A. MR. CUNNINGHAM: I think perhaps it's best if I
5 take that one in forwarding (phonetic). And we've
6 looked at Exhibit 3, PDF. If we can bring that up,
7 please.

8 Document manager, that would be Exhibit 3 of PDF,
9 please. Yes, PDF, page 100. Thank you.

10 So Mr. Kennedy, yes, the cracking is the
11 hydraulic -- the crack percentage I used in this
12 analysis here, I used the same percentages that were
13 provided by -- by Mr. Lobbezoo in his November 6th,
14 2020, report, and I did not do another assessment of
15 them.

16:33

16 And in his April 8th, 2021, report, he provided
17 a -- different values for the -- the cracks within that
18 10-metre size.

19 Q. But is the main difference between your approach and
20 the approach by Muilwijks that you calculated values
21 for the RCC uncracked area and the RCC cracked area and
22 then added those together and then averaged them over
23 the site, whereas they may have averaged the two
24 permeability factors and then carried it out over the
25 site? So it's the time that the average was

16:34

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 calculated?

2 A. MR. CUNNINGHAM: We both started with the same
3 equation that I have here on this page as equation 6.
4 The -- so that's in the April 8th edition from
5 Mr. Lobbezoo. They provide their answer. When I used
6 this same methodology here with their updated numbers,
7 I got the same answer they did in their April 8th,
8 2021, report.

9 A. MR. CUMMING: I could perhaps add a little bit
10 to it, and I'm not sure if I totally understood your
11 question, but one of the things that your question
12 triggered in my mind was the assertion in the
13 November 6th report that the cracks would be filled and
14 compacted with manure, bedding material, soil, whatever
15 was essentially in the pen by the action of the
16 animals' hooves and that it would be equivalent to what
17 is termed a "glade layer," which would normally be
18 found in an earthen-lined storage, where it is
19 continually compacted by animals' feet.

20 And I don't tend to agree with that because the
21 only time that that might be true is if the cracks were
22 large enough that the animals' feet could actually fit
23 inside them and compact them, at which time you might
24 have a much bigger problem than is being suggested in
25 the document.

16:35

16:36

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 So the -- if you have a narrow crack, the animal's
2 hoof cannot get down into that crack and compact the
3 material in that crack. So that level of compaction I
4 do not believe could be attained as suggested.

5 Q. So is that the simple explanation? So I'm going to the
6 second-last paragraph, where you say, Mr. Cunningham,
7 you were not able to duplicate the Wood result. And is
8 it simply the fact that they were using a different
9 value in terms of permeability through the cracks?

10 A. MR. CUNNINGHAM: They provided the same
11 permeability through the cracks in both their
12 November 6th, 2020, report and their April 8th, 2021,
13 report. So I'm not -- without having seen their
14 calculations for November 6th, 2020, their formula with
15 the inputs they put in and how they arrived at the
16 answer, I don't know what the difference was.

17 Q. I'm getting close to being done. I just want to...

18 I do want to confirm, and I don't need the
19 exhibit pulled up, but much was made of Exhibit 77,
20 which was the engineered concrete or non -- yeah, it
21 was for non-engineered concrete, I think, but it's that
22 guide. And that's -- that whole Agdex piece, that's
23 dealing with traditional concrete, not roller compacted
24 concrete. So it's dealing with traditional concrete
25 with rebar. Is that fair?

16:37

16:37

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 A. MR. CUMMING: If I can respond to that. The
2 Table 2 in that document provides -- I apologize for
3 the noise of the paper -- provides the minimum
4 requirements for non-engineered concrete liners, and
5 that is what we would call "traditional" or "regular"
6 type of concrete. It does have rebar, so some sort of
7 crack control in -- bolts into it. It is not roller
8 compacted concrete. So the recipes in the -- or the
9 specifications, if I can call them that, in Table 2 are
10 not for roller compacted concrete. And hence why I
11 kept on going back to the point that if you're not
12 going to be providing one of the concretes that are set
13 out in Table 2, it needs to be engineered by a
14 professional engineer.

16:39

15 Q. That was -- I think you answered my next and -- a final
16 question on -- that is my final question on concrete.
17 I simply had a question related to the water well. And
18 the fact that you said, "I cannot grant an exemption
19 because the facility already exists and the water well
20 is there." I'm assuming that an assessment can be done
21 and -- in terms of assessing the risk with the
22 facilities in place; and if not, why not?

16:39

23 A. MR. CUMMING: That's a great question. I'm glad
24 you asked it.

25 So if you have a look at Section 7 sub (2) of the

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 Standards and Administration Regulation, sub (a) of
2 sub (2) says that subsection 1 doesn't apply, 1(b)
3 doesn't apply, so that's less than 100 metres from a
4 water well, if the owner/operator demonstrates to the
5 approval officer, or the Board, before the facility or
6 area is constructed. So key there is before it's --
7 it's constructed. So it has to be done prior to
8 construction. So at that point in time there could be
9 an exemption granted under this section.

10 Because the facilities have been constructed, you
11 can no -- I can no longer utilize that. So you have to
12 then look at what other options are there. And that's
13 where you have to look at a variance. So a variance is
14 in the Act, so the Act itself.

15 Q. That's Section 17?

16 A. MR. CUMMING: 17, correct.

17 Q. And, to be fair, you made no assessment that would kind
18 of start down that path, a Section 17 variance, so
19 that -- or do you have an opinion one way or another on
20 the potential for that variance to be granted?

21 A. MR. CUMMING: There's -- there's always a
22 potential for a variance to be granted. One would have
23 to get into the specifics of that and what is being
24 proposed and requested by the applicant seeking that
25 variance with what they're wanting to do.

16:40

16:41

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 Typically when we're talking about an exemption,
2 so prior to the fact of a water well, we're looking to
3 make sure that the water well is going to be protected
4 and not impacted by the manure storage facility.

5 So if you were to translate that to a variance,
6 then it would be an assumption of mine that you want to
7 achieve at least same protections for that -- that
8 water well through a variance, as opposed to through an
9 exemption.

10 Q. And then my final question is this: In terms of a site
11 inspection of the roller compacted concrete as set
12 down, is it feasible; and, if so, how would that be
13 undertaken?

16:42

14 A. **MR. CUMMING:** As I mentioned earlier, and if you
15 read all of our decisions, we require an inspection
16 prior to livestock or manure being placed in whichever
17 facility has been permitted.

18 The reasoning behind that is to allow for the
19 actual liner to be inspected prior to it being covered
20 with manure or livestock or a combination thereof.

16:43

21 The challenge doing an inspection at this late
22 stage, you know, over a year after the liner has been
23 down, is going to be having the liner clean enough so
24 that an inspection can actually be carried out.

25 It's not impossible, but, again, it just adds a

A. CUMMING, S. CUNNINGHAM

Questioned by Mr. Kennedy

1 huge burden to being able to get it to that state where
2 you can inspect it.

3 Q. And is the effort worth -- worth it? Is it warranted?

4 A. MR. CUMMING: If -- if the Board believes that
5 the -- my decision should be overturned and they want
6 to approve a roller compacted liner, then it would be
7 warranted at that point in time.

8 Q. Thank you.

9 MR. KENNEDY: Thank you, panel; thank you,
10 Mr. Chair; thank you, Ms. Vance. Those are my
11 questions.

12 THE CHAIR: So, Ms. DiPaolo, we mentioned
13 we're going to be going tomorrow, so we wouldn't be too
14 late today, but we are not done and we won't be done by
15 five. How much more can your mind and fingers take? I
16 mean, I hate to break this in the middle, but I also
17 need to be a little bit respectful here and we had a
18 plan. So how much longer can you go?

19 THE COURT REPORTER: I'm okay.

20 THE CHAIR: You're good?

21 THE COURT REPORTER: Yeah.

22 THE CHAIR: Okay. Well, thank you very much.
23 We really appreciate you accommodating.

24 And, Panel members, I guess -- you know, I do have
25 a number of questions, as you may as well, but let's do

16:44

16:44

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 what we can, make them snappy. And I guess we'll hope
2 that Mr. Cunningham and Mr. Cumming give us snappy
3 answers. So Ms. Maharaj.

4 MS. MAHARAJ: Thank you, Mr. Chair.

5 MS. MAHARAJ QUESTIONS THE PANEL:

6 Q. I have a couple of questions with respect to -- along
7 the line of what can happen next, and I'd just like to
8 add a little bit of precision on a couple of points for
9 myself, following up on Mr. Kennedy's questions.

10 For point of reference, if we go to Exhibit
11 Number 94, pdf page 13, where Mr. Kennedy started to
12 take you through the list of bullet points that were
13 criteria or indicators of an assessment for the RCC.

14 I don't know, document manager, if we could pop
15 that up on the screen.

16 THE CHAIR: Thank you. And, Ms. Kaminski, I
17 spoke with the court reporter. I forgot to ask.
18 Thankfully you're still there and you're still able to
19 provide document management. So you're able to stay
20 late?

21 MS. KAMINSKI: Yeah, you bet.

22 THE CHAIR: Okay, great. Thank you very much.

23 MS. MAHARAJ: So I'm looking at the decision
24 summary for LA17038, and it's page 13 of that decision,
25 rather than the pdf page because I printed mine, and so

16:45

16:46

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 I don't have the pdf page handy.

2 A. MR. CUMMING: I too printed mine, so I'm in the
3 same boat.

4 Q. It will be under Appendix C.

5 A. MR. CUMMING: There you go, you got it.

6 Q. There we go. Okay.

7 A. MR. CUMMING: We can carry on.

8 Q. So just a couple of short snappers. With respect to
9 the application of straw and/or water to ensure that
10 the curing of the -- of the concrete happens correctly,
11 your information and evidence so far has been that we
12 can't tell but for the photographs what actually
13 occurred.

16:46

14 My question to either one of the panel is whether
15 there is a method available to us today to test whether
16 or not successful curing did occur?

17 A. MR. CUMMING: I think that there probably is.
18 I'm not sure how easy it would be to accomplish. And I
19 have to apologize. I've just looked at my picture
20 here, and I see that the sun's moved, and I now have a
21 very bright background, so I'm tending to get a little
22 darker. So my apologies if you can't see my face
23 correctly.

16:47

24 However, when we talk about the curing of the
25 concrete, it's more detailed with respect to how that

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 was achieved and how long it was on there. I think
2 that there might have been a reference to it being kept
3 on for a week or so, but I stand under correction on
4 that. And then once that material had been removed,
5 one would hopefully inspect the concrete to see what
6 sort of cracking had occurred.

7 So the idea about curing concrete, and hopefully
8 your expert will be able to provide more detail on
9 this, is to make sure that you don't get drying
10 occurring which is non-uniform throughout the material
11 that's been placed. 16:48

12 So if you get a drying that is not uniform, you're
13 going to start to get scracks -- excuse me, cracks and
14 spalling occurring in different types of concrete in
15 different places, which may degrade the material.

16 Q. So I appreciate that we can't go back in time, but --
17 and we may be lacking some clarity around what actually
18 did occur.

19 So would it be a fair summary of your -- of what
20 you've just advised us, that the only way to really
21 determine whether curing was successfully done would
22 be, ideally, to have that information, but, in the
23 alternative, to conduct some kind of a physical
24 examination to determine whether there has been
25 inappropriate or excessive cracking and/or spalling? 16:49

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 **A. MR. CUMMING:** Yes, I believe you're correct with
2 that.

3 **Q.** Okay. All right. And then I would have the same type
4 of question with respect to the moisture content. We
5 have no information, that I have put my finger on in
6 the evidence yet, to identify the amount of moisture
7 that went into the original product that was installed.
8 Is there a means by which we can, without that
9 information, determine whether or not an acceptable
10 amount or an ordinarily expected range of moisture was
11 incorporated within that recipe for the product?

16:50

12 **A. MR. CUMMING:** So I'm getting sort of to the
13 fringe of what I would consider to be my experience
14 with the concrete, and your expert may be able to
15 provide more insight into this. But my experience has
16 been that when you have a material -- concrete material
17 that you're concerned about, that you can potentially
18 test it by doing destructive tests and measuring the
19 properties afterwards to figure out whether or not
20 the -- the design requirements were -- were actually
21 met.

16:50

22 To do that, as I discussed with Mr. Kennedy,
23 especially at this late stage, one would have to know
24 what the -- what the design requirements were and know
25 how that changed over the -- over the course of time or

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 **how it was expected to change over the course of time.**

2 Q. Okay. Thank you. And then I just have one question
3 for Mr. Cunningham with respect to the environmental
4 risk screening tools and the results of those
5 particular tools.

6 We talked a little bit about the fact that the one
7 well may have been either upslope or downslope, but in
8 your assessment you -- because you only have the
9 desktop information you made the assumption that all
10 four of the cores were at a similar elevation. And
11 there was the adjustment that you made with respect to
12 the one well.

13 If you could just take a look at Exhibits 60
14 through 63, with respect to that adjustment, and if you
15 can let us know which one of these particular
16 exhibits changes and whether it changed out of the
17 range. I think that's the question, is did that -- did
18 that correction change your assessment out of a low
19 potential risk into a medium potential risk.

20 And I might have just missed it. So if you can --
21 if you or one of my Panel members can point me to the
22 right exhibit, that would be helpful.

23 **A. MR. CUNNINGHAM:** **So I think those would be the**
24 **exhibits. So if the document manager could start**
25 **pulling them up. Exhibit...**

16:51

16:52

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 Q. Starting with 60?

2 A. MR. CUNNINGHAM: Sure.

3 Q. Yeah, right. So was -- is this the one that had the
4 change? And if not, is there anything that changes the
5 range here, because it seems quite within the low risk
6 when I look at it?

7 A. MR. CUNNINGHAM: So let's -- let's -- first let's
8 clarify what the change is because there is the -- so
9 there were the four boreholes --

10 Q. Yeah.

16:53

11 A. MR. CUNNINGHAM: -- which I can show as the
12 shallowest. And then Mr. Metheral showed me the water
13 table information from 2019 that was deeper than the
14 numbers that I chose. Is that the change that you're
15 referring to?

16 Q. Yes.

17 A. MR. CUNNINGHAM: Okay.

18 Document manager, I believe it would be page 3.
19 Actually, page 2 would be a better place to look.

20 So there are six lines in the middle of the page,
21 and to the right of them there's (a), (b), (c), (d),
22 (e), (f). These all come from the site information
23 forms from those various facilities. So if we --
24 instead of using for (e), the depth of UGR below grade
25 as being 2.7, but use the 3.5 metre that was provided

16:54

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 by the -- by the applicant as a water table, that would
2 change the depth below the bottom of the facility by
3 less than 1 metre.

4 So the facility -- so it would be 2.3 metres would
5 be the depth to UGR, or to the bottom of the facility.

6 It would also change the -- potentially the
7 thickness of the protective layer to that same
8 thickness of 2.3 metres.

9 So for the scores on this page, on page 2 of this
10 document, that would be -- continue to be less than
11 8 metres for the depth to UGR from the bottom of the
12 facility. So no changes here.

13 Q. Okay.

14 A. MR. CUNNINGHAM: Go to the next page, please,
15 document manager, page 3.

16 So if it changes the protective layer thickness
17 from what -- the floor was less than 2 in the table at
18 the top of this page, to now between 2 and 5 -- 2 and
19 less than 5. The score for both of these barns on this
20 point would go from scores of 20 to scores of 16. So
21 we've reduced the score by 4 -- the overall score by
22 4 points.

23 Document manager, if you go down to the next page,
24 please. Now, these were not the -- this is a -- the
25 distance -- so the relationship of the well, well to

16:55

16:55

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 the facilities, this was discussed only in relation to
2 the catch basin as it being upslope. So I would then
3 make no changes to these scores.

4 Q. Okay.

5 A. MR. CUNNINGHAM: The next page, please, document
6 manager. The infiltration potential would not change.
7 The total groundwater pathway score, instead of being
8 54 would be reduced by the 4 points that we reduced a
9 couple of pages ago, and the score for each of these
10 facilities would be 50.

16:56

11 The next page, please, so page 6. So those are --
12 become the -- on the two rows, the groundwater pathway
13 scores would now be 50. When you add the 50 to the 21
14 of the hazard potential, you come up with 71. And
15 times and exposure multiplier of 1.2. I need a
16 calculator for that.

17 A. MR. CUMMING: So 85.2.

18 A. MR. CUNNINGHAM: 85.2 for both risk scores. So
19 they were -- they were scored at 90 as a moderate.
20 Because high is greater than 90, not equal to 90. And
21 so these would both remain as moderate risks to
22 groundwater. The same as with this change.

16:57

23 Since -- I won't go through the surface water
24 part, but I believe we can go next to the Number 61.
25 And again on page 2. So you would be looking at

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 similar changes here. So change -- the depth -- so the
2 line (e) that is now marked -- it's 2.7.

3 Q. Yeah.

4 A. MR. CUNNINGHAM: If we change that to 3.5. Then
5 the depth of the storage below grade would now be 1.0
6 for both of them instead of 0.2. And the thickness of
7 the protective layer would be the same as well. That
8 would be 1.0 as well.

9 So the scores on this page, the -- in the table,
10 the uppermost groundwater resource, the 1-metre depth
11 is still less than 8. So there are no changes to the
12 score here.

13 Next page, 3, please. In this one we have -- we
14 went from a 0.2 thickness of protective layer to 1.0.
15 So there would be no changes to the scores for -- on
16 the protective layer under the top of this.

17 The next page, please. Actually, there would be
18 no other changes throughout.

19 Q. Okay.

20 A. MR. CUNNINGHAM: It's down to the page 6, please.

21 So none of the scores changed on that one. There
22 would be no changes. It would still be a 95.7.

23 Q. Okay.

24 A. MR. CUNNINGHAM: Document 62, please. Page 2.

25 Using again 3.5 instead of 2.7 for lines C and E,

16:58

16:59

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 we now have -- the thickness of the protective layer
2 would be 2.5, and the depth to UGR from the bottom of
3 the facility would be 3.5.

4 So from the table, the scoring on this page, the
5 3.5 below the bottom of the facility for the UGR, there
6 would be no change to that score.

7 Okay, next page, please. The protective layer
8 score, where it would now change is greater than
9 2 metres, so it should be as a 16 instead of a 20. And
10 that should be the only change.

11 So we can go to page 6, please. So the
12 groundwater pathways will be 4 less, because of the
13 change in the protective layer. So that would be 5
14 plus 60 equals 65, and multiplied by an exponent
15 potential of 1.2. It would be 78. So it would still
16 be within moderate.

17 That's all on there.

18 So document -- or Exhibit 63, please. Page 2.
19 Because there are three facilities in this one, I would
20 perhaps go through it twice. The first two facilities
21 are for the open pens, the one -- the existing ones and
22 the new ones. So that's the red column and the green
23 column, the left column and centre column through the
24 A, B, C, D, E, F rows.

25 Over here, the depth to -- for C and E would

17:00

17:01

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 become 3.5. We would have a thickness of protective
2 layer of 2.5, and a depth to UGR below the bottom of
3 the facility in F of 3.5.

4 Now, for the scoring for those two facilities,
5 it's still the 3.5 would be less than 8. So there's no
6 changes to those scores on this page.

7 The next page, please. And on this one, the --
8 for the two facilities, the thickness of protective
9 layer would have gone from less than 2 to now 2.5. So
10 the score instead of going being a 20 for those two
11 facilities will be 16.

17:02

12 That would be the only changes down. We could go
13 to page 6, document manager. So then the groundwater
14 pathway scores for the first two facilities here, they
15 state 62 now, would be 4 points less. So they would
16 both be 58. 58 plus 5 is 63, times 1.2. So 75.6 for a
17 risk score to the right. Again, it's currently
18 moderate, is 80.4. To reduce to 75.6 would remain
19 moderate.

20 Document manager, if we could go back to page 2,
21 please. Actually to page 1. This is the catch basin.
22 So the catch basin we've discussed a little
23 differently. So page 2, please. Thank you.

17:03

24 The depth, again, for E and C would be 3.5 metres.
25 Subtracting -- I'll use the same depth of the storage

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Maharaj

1 below grade that I used here at 1.8. There was
2 discussion about that today, so I won't change that.

3 But 3.5 minus the 1.8 metres there would be 1.7,
4 so that's what D would be, is 1.7. And it would be the
5 same for F, 1.7.

6 So for the table and the score on the right column
7 of this for uppermost groundwater resource, the 1.7
8 would be less than 8, so no changes to the score here.

9 And next page, please. Page 3. The protective
10 layer here, it would still be less than 20 for the
11 thickness of the protective layer. So no change on
12 this -- on this page.

13 Next page, document manager, please. This is the
14 change that Mr. Cumming described earlier today in how
15 that score would come up with -- how that would be
16 changed.

17 Do you want me to continue through the scoring for
18 that one?

19 Q. No, it's okay. I got that one.

20 A. MR. CUNNINGHAM: Yeah. There would be no changes
21 from the scoring from Mr. Cumming had earlier today.

22 Q. Okay.

23 A. MR. CUNNINGHAM: That would be all the facilities.

24 Q. Super. Thank you very much. I appreciate your
25 patience in walking me through that.

17:04

17:05

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 MS. MAHARAJ: Those are my questions, Mr. Chair.

2 THE CHAIR: Thank you, Ms. Maharaj.

3 Mr. Graham?

4 MR. GRAHAM: I don't think I've got any at this

5 time. I've got some questions, but I'm not sure

6 they're ones that I can ask them.

7 THE CHAIR: Well, thank you, Mr. Graham.

8 Ms. Stuart?

9 MS. STUART: Thank you, Mr. Chair.

10 **MS. STUART QUESTIONS THE PANEL:**

17:05

11 Q. I wonder if the document manager could bring up
12 Exhibit 2, which is the approval officer decision,
13 page 8, Section 9.

14 I appreciated the discussion this morning with
15 respect to the water well calculation given a score of
16 1, you know, on the up gradient versus the down
17 gradient -- down gradient assessment. And I -- but I
18 note in -- if we've got the right -- if I've got the
19 right thing here.

20 So in -- keeping this document up, document
21 manager, in Exhibit 96, the applicant comments that an
22 installation of a leak detection system below the catch
23 basin is not warranted because the site determination
24 as per the NRCB's ERST indicates the site is a low risk
25 to groundwater and surface water.

17:06

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 And when we look at the decision summary, we see
2 the description that does say in that first sentence
3 that -- in the last sentence, rather, the second
4 paragraph under Section 8, the catch basin scored low
5 risk to groundwater and low risk to surface water.
6 Despite the above, I am of the opinion that the
7 additional groundwater protection measures are
8 warranted.

9 So just to help -- help us understand, you know,
10 recognizing some of the detailed discussion we've had
11 around soil types, from an approval officer's side,
12 Mr. Cumming, how do you walk down that path to apply
13 discretion, in general, when you are -- when you have
14 the ERST that says, you know, it's a low risk to
15 surface water, low risk to groundwater, moving down
16 that path to conclude that -- that there'd be a
17 requirement for a leak detection system?

17:07

18 **A. MR. CUMMING:** Thank you very much, Ms. Stuart.
19 The -- I've tried to lay it out in my decision summary,
20 as you point out here. What we established is that
21 there is a shallow groundwater table at the site. It
22 is literally, you know, a metre or so below the bottom
23 of the catch basin.

17:08

24 The soils in the area are coarse. In other words,
25 if you poured a liquid onto them, the liquid would

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 permeate those soils pretty rapidly.

2 The synthetic liner, and I think I did this in
3 part of the testimony when Ms. Vance was speaking to me
4 this morning, and I indicated that the reason for a
5 leak -- leakage detection system is to determine if the
6 liner is failing and to be able to address that prior
7 to any significant contamination of groundwater by any
8 leakage or leachate from the -- from the catch basin.

9 The leakage detection system that we have seen
10 installed and done at other feedlots where they have
11 put synthetically lined catch basins in essentially
12 consists of some sort of a collection system underneath
13 the synthetic liner of the catch basin, which gets
14 directed into a sump or collection well, which can be
15 easily sampled either by visually looking or by putting
16 a probe down into the well.

17:09

17 If you detect any leachate from there, you can
18 then take a sample of that leachate and determine
19 whether it's manure constituents or potentially
20 groundwater.

17:10

21 So the design of that system is best done prior to
22 the installation of the synthetic liner, and as I
23 mentioned earlier today, the ongoing costs, as well as
24 the installation costs of such a system are -- are
25 typically lower than if you would consider a

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 groundwater monitoring system.

2 A groundwater monitoring system would tell you
3 when you had a problem with contaminants in the
4 groundwater, but it won't tell you -- it won't give you
5 as quick a response as a leakage detection system if
6 you have mechanical damage.

7 As was mentioned earlier, the synthetic liner that
8 is being proposed here is either a 40 mil or a 60 mil,
9 so either -- 40 mil would be about 1 millimetre thick;
10 60 mil about 1 1/2 millimetres thick. And they can be
11 damaged by the likes of improper installation or a rock
12 going through it, animals walking on it and puncturing
13 the liner, by mechanical damage from equipment used to
14 empty the facility, amongst others.

15 So being able to ensure the integrity of the liner
16 I believe is important in this -- in this situation.
17 The reason that it shows that it's low is that they
18 have a liner that could meet AOPA requirements.

19 I hope that answers your question.

20 Q. It does. Thank you, Mr. Cumming.

21 Can -- document manager, can you bring up
22 Exhibit -- I think it's 44. It's the May 22nd, 2020,
23 email. So, Mr. Cumming, you referenced a lack of
24 information. You know, we've heard lots about that
25 available due to the RCC already having been installed,

17:11

17:12

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 and in addition to what I believe you characterized, my
2 words, deficiencies in terms of what was submitted.

3 When we look at this -- this email that was
4 referenced, I think, by you and Mr. Lobbezoo, and if
5 Mr. Cunningham is the appropriate person to answer
6 this, as well, I'm wondering, if you look at this
7 particular list of items recognizing you're walking
8 that fine line in your position of an approval officer
9 versus providing, you know, technical information, in
10 this list, can you specify which -- which of this list
11 has not yet been satisfied, and if there are remaining
12 items, what would be required to satisfy them and, you
13 know, methodology, given that we are kind of where
14 we're at in terms of it's already installed?

17:13

15 **A. MR. CUMMING:** I also can try. There are five
16 bullets on the list that's on the screen right now.
17 The first bullet is the preparation for the base onto
18 which the RCC will be placed. We have very limited
19 information on how that base was -- was prepared.

20 The strength of the concrete he proposed as the
21 second item there, again, this was provided in the
22 report, which was attached to the back of the Wood
23 report, which essentially just gave a little square
24 that said "25MPA." It didn't tell us what sort of age
25 that 25MPA was, but that's the only information that we

17:14

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 have there.

2 I don't have anything from the concrete designer
3 or supplier to -- to support what the proposed strength
4 of the concrete was that they proposed to use.

5 The type of sulphate protection that's proposed,
6 this is important because of the nature of the soils
7 that we have here as well as the nature of the manure
8 will degrade concrete over time if it does not have
9 sulphate protection in there. And there are a couple
10 of ways of doing this.

17:15

11 If you refer to that -- and please don't bring
12 this up again. It's the same concrete liners,
13 Exhibit Number 77, the Agdex 096-93. That gives some
14 information on sulphate protection. I do not have any
15 of that information with respect to the RCC that was
16 installed at the site.

17 How cracking of the concrete will be controlled is
18 the next bullet, and I don't have any information on
19 that with the -- the application.

20 The how joints -- the last bullet of the five is
21 how joints, posts, and other protrusions through the
22 liner will be sealed. The only information that we
23 have on that is that they are -- they used a hand
24 pecker around where they had posts and other
25 protrusions, but there wasn't any information in the

17:15

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 application to specify how that would be achieved.

2 Q. Thank you, Mr. Cunningham, just a follow-up on that.
3 And, you know, I may have this incorrect. I thought
4 Exhibit 44 stated that posts were poured in place with
5 concrete; is that not correct?

6 A. MR. CUMMING: Let me pull up 44.

7 THE CHAIR: We're on 44, aren't we?

8 A. MR. CUMMING: Oh, sorry. Then go further -- if
9 you could go further up, please, document manager, and
10 if you could make it a bit smaller, that would be
11 great.

12 This is essentially, from what I understand, if
13 you can scroll to the top of this page, it appears to
14 be something that comes out of the decision, and I
15 can't see the decision number there, but it's LA180
16 something rather. So it would not be this particular
17 site that it was referenced to.

18 That -- that was the information that was provided
19 to me. Is that what you were referring to?

20 Q. MS. STUART: You know, I'm just going to
21 double-check, if you can give me one moment. So I'm
22 looking at, if we can go and -- because of the way
23 that -- that screenshot works in the document, I
24 appreciate it's difficult to see, but I think now I can
25 find it.

17:16

17:17

A. CUMMING, S. CUNNINGHAM

Questioned by Ms. Stuart

1 So document manager, I think -- can you scroll
2 below this photo that you see. And the very top of
3 that next page with the concentrated text, if you can
4 enlarge that. And so above that list, it'd be right
5 there. And I'm going to just make this bigger so I
6 can -- I can see it. Kind of halfway down this email
7 in the middle, it says: (as read)

8 "Any posts that came through the RCC
9 liner were poured in place with
10 concrete."

17:18

11 **A. MR. CUMMING:** **So that would be the only**
12 **information that we have.**

13 **Q.** Okay. Thank you, Mr. Cumming.

14 And I'm wondering, in addition, then, to that list
15 of -- of items that you've identified, are there any
16 other outstanding questions other than those listed
17 that -- you know, in addition to the ones that
18 Ms. Maharaj identified that would be outstanding to
19 determine whether the RCC satisfies AOPA?

20 **A. MR. CUMMING:** **I think it's been covered off by**
21 **my responses to questions from all of the other panel**
22 **members, legal counsel, and in my testimony already.**

17:19

23 **Q.** Okay, thank you. That's all I have, thanks very much.

24 Thanks, Mr. Chair.

25 **THE CHAIR:** Okay, thank you. Just the spot I

A. CUMMING, S. CUNNINGHAM**Questioned by The Chair**

1 want to be, after a long day, the last guy between you
2 and getting supper and heads fed, and the kids, but I
3 do have a few questions, and I guess I would really
4 indulge, Mr. Cunningham and Mr. Cumming, short answers.

5 If I feel the Panel, we need more detail, I'll ask
6 you. So short and snappy, if we could.

7 **THE CHAIR QUESTIONS THE PANEL:**

8 Q. There's been a lot, and included in your decision
9 summary, Mr. Cumming, you indicate that it would have
10 been -- it would have been a benefit if a professional
11 engineer was on site when the RCC was laid. And
12 because he wasn't or she wasn't, you don't have
13 information from a P.Eng. Is that routine for the
14 NRCB, do we typically require P.Eng. on site for
15 construction of liners, whether they're clay or RCC?

17:20

16 A. MR. CUMMING: It depends on the liner that's
17 being proposed. In this instance, if -- and all of the
18 discussion that's happened with respect to that
19 concrete liner, it is my perspective that the roller
20 compacted concrete should have been designed by a
21 professional engineer. And in order to verify that the
22 design was carried out and done in accordance with the
23 specifications, they should be on site to do that
24 evaluation.

17:20

25 Q. So for clay liners, we don't require that?

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 **A. MR. CUMMING:** It depends; sometimes we do. It
2 depends on what is proposed as a compacted soil liner.
3 We can have the engineer, design engineer who's
4 designed the liner out on site doing testing to ensure
5 that the liner meets the specifications that they have
6 put forward.

7 **Q.** So we can have that, but that is -- is that it, was
8 that an approval policy? We don't need to look now,
9 but that could even be an undertaking. But in our
10 approval policy, do we have anything to direct approval 17:21
11 officers in terms of the sort of minimum requirements
12 that -- or their requirements they would be looking for
13 for asking for professional engineers to be present
14 during construction?

15 **A. MR. CUMMING:** I'm not sure if it's on the
16 approval officers. It's the end of a long day, so
17 please forgive me.

18 **Q.** That's fine.

19 **A. MR. CUMMING:** The direction is the approval
20 officers have the discretion to ensure that the permit 17:21
21 that they are approving can get constructed the way
22 that it's been approved. And there is guidance to --
23 to suggest that they can have the inspections carried
24 out by the appropriate professional.

25 **Q.** I understand. So I mean they've got discretion to do

A. CUMMING, S. CUNNINGHAM**Questioned by The Chair**

1 it. I guess my question is really do they do it, and
2 is there some baseline -- it doesn't sound like there
3 is.

4 Stronks, the other two RCC liners were
5 professional engineers. Were there conditions on those
6 permits for professional engineers to be present during
7 construction?

8 **A. MR. CUMMING:** I wasn't the author of those; I
9 didn't go into great detail about them.

10 Of the two liners that you referred to, that
11 Mr. Metheral referred to, only one has been
12 constructed. The other one was actually amended, and a
13 regular concrete liner was put in its place.

14 **Q.** Okay. I don't believe it was, and I think you were
15 reviewing this, Stronks. So I was just wondering if
16 that may have come up under your review in terms of
17 providing that guidance to the approval officer?

18 **A. MR. CUMMING:** Again, Mr. Chairman, if I can, and
19 this is what was covered by Mrs. Vance in the testimony
20 that I gave earlier on. The guidance that I would
21 provide as the director of field services to an
22 approval officer in the decision is information that
23 they can take to assist them with their decision. They
24 are not obliged to incorporate that in their
25 decision-making process.

17:22

17:23

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 So they still hold control over the decision that
2 they issue under their signature.

3 Q. I understand. So we can, you know, I could I guess add
4 that as an undertaking. I'm just sort of curious about
5 the approval policy because my understanding is that
6 approval officers are asked to follow policy, and when
7 they don't, provide reasons which is a reasonable push
8 forward I would expect.

9 MS. VANCE: Mr. Chair, this is Fiona Vance.
10 If you would like that as an undertaking, perhaps we
11 can just have it spelled out really clearly so we can
12 do our job.

17:24

13 THE CHAIR: Yeah, so the undertaking, if there
14 is any reference in the approval policy for or any
15 guidance provided for approval officers as to when
16 professional engineers should be on site during
17 construction.

18 MS. VANCE: Thank you.

19 **UNDERTAKING - TO ADVISE IF THERE IS ANY**
20 **REFERENCE OR GUIDANCE IN THE APPROVAL**
21 **POLICY FOR APPROVAL OFFICERS AS TO WHEN**
22 **PROFESSIONAL ENGINEERS SHOULD BE ON**
23 **SITE DURING CONSTRUCTION**

17:24

24 THE CHAIR: Sorry, I know I'm asking questions
25 fairly quickly and moving on. I hope this doesn't come

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 across as being rude. I'm just trying to get through
2 the day and then let our folks go home, and we'll
3 reconvene tomorrow. And also, being last, of course,
4 my well-organized questions, I'm all over the place
5 because a lot of them have been answered, which is
6 great, but it makes my job a little bit slower.

7 Yeah, so there's -- on your conditions, if the
8 Board were to overturn your decision, Mr. Cumming, you
9 suggested, you recommend that any inspections be
10 carried out by a professional engineer once again. But 17:25
11 after the liner has been thoroughly clean with a signed
12 report listing our observations and findings provided
13 to the NRCB.

14 I guess my question there was, you know,
15 thoroughly clean for the entire surfaces of all RCC
16 facilities at this operation; you know, depending what
17 that cleaning looks like could be extensive.

18 In your view, is random, you know, and again, back
19 to some other experience, crop insurance, you throw
20 hoops, do your counts; there's other ways to find out I 17:25
21 guess what damages might be. Do you view a sampling so
22 that as an alternative, and depending on what that
23 sampling turns up, more extensive cleaning and
24 inspections might be warranted, or do you view the only
25 way path forward perhaps, you know, with your condition

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 is all surfaces at the facility that have RCC be
2 thoroughly cleaned and inspected?

3 A. MR. CUMMING: Mr. Chairman, that's an
4 interesting question. And the challenge with this
5 particular application is that the liner was
6 constructed prior to permit being issued and put into
7 use.

8 Typically, as you will note in the decisions that
9 we issue, we have a requirement that the site
10 inspection take place prior to any livestock being
11 placed on a -- in a -- in a pen in a livestock facility
12 or manure on a manure storage facility.

13 The -- there are obviously times when that is not
14 able to be done so that the approval officers do the
15 best that they can to do that. Each situation is
16 slightly different.

17 So in this situation, as my testimony has been and
18 as my decision summary states, there has been a
19 significant lack of information in my opinion to show
20 that the requirements of AOPA for groundwater
21 protection can be met.

22 So if the Board were to choose to say that in
23 their opinion, in your opinion, the -- the RCC, which
24 has been placed there, can meet those, then certainly
25 that's within -- within your power. And you could then

17:26

17:27

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 decide what level of inspection you would deem
2 appropriate for that.

3 It's -- it's with -- you have experience, as
4 you've shared about doing random things. Random is
5 always -- can lead you down a path where --

6 THE CHAIR: Sorry, yeah.

7 A. MR. CUMMING: -- you miss different things,
8 so...

9 Q. Mr. Cumming, I should have been a little bit more
10 clear.

17:28

11 Perhaps if it is overturned, the first inspection
12 ought to be the whole thing. You know, I guess that's
13 a decision that, you know, we don't even have to make
14 yet because we don't know where we're going in terms of
15 the permit.

16 But your condition says "ongoing monitoring
17 inspections." So sorry, I really meant over time,
18 let's say this was overturned, we get inspections done.
19 But this says "ongoing," so I guess I was envisioning
20 every year sort of a pressure washer cleaning of all
21 the facility, just wondering then perhaps after the
22 initial inspection, random, some sort of random
23 inspections would be sufficient?

17:28

24 A. MR. CUMMING: My apologies for misinterpreting
25 your question.

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 Q. Well, I probably wasn't clear enough.

2 A. MR. CUMMING: So the ongoing inspections that I
3 would recommend are because we don't have sufficient
4 information on the performance of the RCC.

5 So I believe in situations like that, a
6 coordination between the operator and whoever was going
7 to do the inspections so that the facilities could be
8 appropriately cleaned so that you could identify if
9 there was damage and what the extent of that damage
10 might be and then provide a report on that.

17:29

11 Q. Okay, thank you.

12 And I was trying to handle on this cracking; we
13 talked about that quite a bit. Mr. Kennedy addressed
14 it and will likely be addressing it tomorrow. But in
15 my mind, I just wanted to get some clarity around this.
16 So I'd like to do this quickly, and it's sort of online
17 of going through some numbers that similar to
18 Ms. Maharaj but in a different sort of context.

19 The Wood report, and if you've read that, you'd be
20 familiar that the estimated -- the estimates they used
21 for the permeability for cracking was based on -- well,
22 it turned out to be a 10-metre-by-10-metre area would
23 have .15 metres squared of cracking, and that's their
24 assertion; I'm not asking you to agree with that or
25 not. But under that assertion, on 100 metre by 100

17:29

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 metre, I think that works out to 15 metres of --
2 squared metres of total area that would be cracked, and
3 if we had, say, 400-by-100 metre surfaces, I didn't go
4 and add them up precisely, but there's a number of
5 facilities, most of them are either that, about that or
6 less, that would work out to if we had four of those
7 facilities, according to my calculations, 60 square
8 metres of cracks, and that's approximately 8 by 8, or
9 if you go into feet, 645 square feet.

10 So -- and I believe I've got those numbers right.
11 Do they sound right to you? I know I've kind of thrown
12 that out there in a hurry, but .15 square metres for a
13 10-by-10 square area?

17:31

14 MS. VANCE: Mr. Chair, it's Fiona Vance. I
15 just want to make sure that we're all talking about the
16 same Wood report. I wonder if you could just be more
17 specific.

18 THE CHAIR: Yeah, it's Exhibit 98.

19 MS. VANCE: So it is the April 8th.

20 THE CHAIR: Yes.

17:31

21 MS. VANCE: 2021 one, okay, thank you.

22 THE CHAIR: Yes, thank you. I should have
23 mentioned that at the start. Thank you, Ms. Vance.

24 Q. So we multiply that by 100 because 10 by 10 square
25 metres to get up to 100 by 100, multiply it by 100, so

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 that's 15 square metres per 100 by 100 metres square.
2 And if we had four of those relatively 100-by-100-metre
3 pens, that would be 60 square metres, 8 by 8. And if
4 you converted that to feet, it's about 645 square feet,
5 and I thought okay, so how big is this?

6 And it would be, you know, if we think about pen
7 sizes for even a registration-size facility or that
8 would be just under registration, in other words not
9 requiring any permit, that works out to, you know,
10 you're just under 149 finishers at 200 square feet per
11 animal; you'd need about 29,000 square feet.

17:32

12 And so that's almost 45 times larger, that one
13 pen, than the total amount of cracking as of today, if
14 that's -- if the Wood report has it right.

15 And so if those numbers are -- we can -- I can
16 have you check those, and if I'm wrong, we can correct
17 that perhaps tomorrow. But if I have that right, does
18 that number seem about right, in terms of total
19 cracking, 645 square feet? And in relative size to
20 just a small pen, it's, you know, it's quite small, so
21 is that something that we should be concerned about,
22 and is that something that I mean over time, if they
23 keep expanding or if we have more cracking, then
24 obviously they get bigger. But what weight should that
25 be given perhaps in terms of the average?

17:33

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 And I'm wondering if perhaps Mr. Cunningham could
2 answer this as well, as you went through some of the
3 calculations. But was it a weighted average based on
4 that small amount of total area of cracking to the
5 average permeability that you calculated and the Wood
6 calculations?

7 **A. MR. CUMMING:** I will try to be brief.

8 **Q.** And it took a while to get through that, I understand.
9 But it's been an important issue, so I'd like to get a
10 handle of how big of a deal it is in terms of risk.

17:33

11 **A. MR. CUMMING:** So the simple answer to your
12 question of can you scale the 10-metre-by-10-metre area
13 and the amount of cracking within that 10 metre by 10
14 metre to larger areas and more calc -- absolutely, that
15 would be absolutely fine and fair.

16 Subject to checking the calculations you verbally
17 said, they sound about -- about right as to what they
18 would be for those -- those differing areas.

19 The -- how big is that area relative to another
20 feedlot, how important is it. I think that really
21 shows up in that I was able to show it in my analysis,
22 so in -- don't bring up this document, document
23 manager, but it's in Exhibit 3, pdf 100.

17:34

24 So this is -- so this is using the numbers from
25 November of 2020, but I went line by line as I changed

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 or as I did the calculations to show that as you go
2 through that, it's the -- the area of the cracks and
3 the hydraulic conductivity of the cracks that govern
4 the total seepage and leakage through the entire --
5 through the overall.

6 If you change the pieces of the hydraulic
7 conductivity of the uncracked of the RCC or the area,
8 it doesn't really change that -- the overall outcome at
9 all; it's all about the cracked area, like the
10 percentage of cracks, and about the hydraulic
11 conductivities through there.

17:35

12 So then that ties in with -- generally with the
13 concrete guideline which we've talked a lot about the
14 details of it, but there are parts of what are in the
15 concrete guideline for regular plastic concrete are how
16 are you going to control cracks, which is often by
17 rebar, and another method that's listed in there is
18 using expansion joints. Neither one of those have been
19 proposed, nor been any information that they've been
20 installed here at this site.

17:35

21 Q. So if we're talking about an area that is -- you've
22 agreed with me the numbers sound about right, about
23 1/45th of one pen, so 645 square feet, which is only
24 would support two, three animals, so we're talking
25 about a very small area. If that is left just, you

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 know, and in terms of permits or operations don't need
2 a permit, they're small, they have two, three animals
3 on a small area, that would be creating a potential
4 risk to the environment under -- or is it because the
5 cracks are gathering potential nutrients and effluent
6 from the entire surface of these pens, and that
7 provides a conduit down; is that the issue?

8 A. MR. CUNNINGHAM: It's -- the question is more about
9 permitting it as a liner than the risk to the
10 environment. So the permitting of liner is -- as much
11 to do with the two things specified in there are the
12 thickness and the hydraulic conductivity.

17:36

13 And so the -- the -- to change the area of cracks
14 to get it minimized to the point where it's similar to
15 the flow that would be through the uncracked RCC
16 takes -- it's gotta be changed by orders of magnitude.
17 So not by a factor of 10, but by a factor of 100 or
18 more less cracking than has been what's been proposed
19 by Woods in their April 8th memo or their report.

20 Q. So in other words, what matters is that the entire
21 liner can demonstrate 10 to the minus 7, not that the
22 entire liner, but for 600 square feet out of some big
23 gigantic number, say, is much more permeable, that's of
24 no matter?

17:37

25 A. MR. CUMMING: That's -- the permeability

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 difference is between what Wood has used for the
2 uncracked and cracked is five orders of magnitude, so
3 that's a factor of 100,000.

4 Q. And typically the concrete's used for liquid manure
5 storage typically, I mean not always, but if you're
6 going to a traditional concrete reinforced expensive
7 high value, and is that potentially the basis of that
8 or it doesn't really matter? It's does the entire
9 liner meet or not is really the question, whether it's
10 solid or liquid?

17:38

11 A. MR. CUNNINGHAM: And that's how we -- in the
12 guideline for concrete and in any designs, we would
13 expect it would be under Category A with plastic
14 concrete. We would expect that the explanation of
15 their -- how they're going to control cracks with some
16 rebar or something else and/or expansion joints or
17 other methods that may not be as typically used but may
18 be perfectly appropriate.

19 Q. Right. And this -- this next question came up I think
20 with Mr. Metheral's questioning, but -- and it relates
21 back to the -- the water wells used for assessment and
22 ERST changes that say if you become aware, and I'm not
23 sure if it matters how, of potential of shallower
24 groundwater resource, then you need to use that one,
25 not the one that is in use currently on the site. So I

17:38

A. CUMMING, S. CUNNINGHAM**Questioned by The Chair**

1 believe that's what you've done. So it was a shallow
2 well, but it hasn't been used for many, many years.

3 And the reason I mean this is a bit intriguing
4 because this is something that it's a connection that
5 we had the exact situation on the farm that I grew up
6 on. And I never really thought about its connectivity
7 to neighbouring parcels or quarter sections.

8 How confident are you that in the shallow aquifers
9 with a moderate variability that you see, even in the
10 boreholes, there's a lot of discussion about borehole
11 variability and which one to use, how confident are you
12 that that groundwater that is on the Muilwijk property
13 is actually connected, the shallow groundwater we're
14 talking about, is actually connected to those other
15 users? In other words, if there was contamination
16 there, would it get to them anyway?

17:39

17 **A. MR. CUMMING:** How connected is it? Is it --
18 there's a lot of unknowns about that.

19 If -- to go beyond the screening level into an
20 assessment level, that would be the time to try to find
21 that out and do some testing and some current water
22 qualities and some actual multiple installed monitoring
23 wells with water level elevations to determine what's
24 the direction flow.

17:40

25 A look at the topography map showed that you don't

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 have to go very far west of Mr. Muilwijk's place, and
2 the elevation rises substantially and quickly. And
3 so -- and we're not very far from the Oldman River,
4 there's a couple of the regional things that may be at
5 play, as well.

6 So it's difficult to say with certainty based on
7 the information, but it's directly connected. But also
8 there's enough information there, including at least
9 one of those properties, they have no record of a water
10 well ever being drilled.

17:40

11 And so while they may -- and if they got to the
12 '80s without having drilled one, they may not have
13 drilled a subsequent one and may still be using that
14 same one.

15 So with the reasonable -- reasonably conservative
16 nature, making reasonably conservative assumptions in
17 the risk screening tool felt it was appropriate with
18 the information that we had had at this point in time.

19 A. MR. CUMMING: If I could just add a little bit
20 of information to that, and this is just based on
21 observations at the site, is that there are a number of
22 gravel pits, relatively shallow gravel pits in the area
23 close to where the CFOs is located, one of which is
24 just a little bit west -- sorry, correct -- it's a
25 little bit east of the proposed catch basin. And there

17:41

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 are several others further east from there too.

2 Q. So the gradient from the -- well, you don't know where
3 the well is, you don't know what the litho of the well
4 734 is, and you don't know where it was located. But
5 let's assume it was located -- well, obviously it was
6 somewhere on the quarter section. Would the gradient
7 flows to -- which well's that? There are wells being
8 used that are downgraded from this -- this facility?

9 A. MR. CUMMING: The other wells that I saw in --
10 in -- are to the south, so on the quarter section to
11 the south and then the next quarter section south of
12 that. So that was the three quarter sections that I
13 found wells that matched -- matched close enough to say
14 this looks like it could be the same thing.

17:42

15 A. MR. CUMMING: And that is in the direction of
16 the Oldman River from the confined feeding operation.
17 So it would tend to be more downslope from the
18 operation than upslope across.

19 Q. And you don't have to get this up, but we've spent a
20 fair amount of time on Exhibit 94 and others, but 94 I
21 think had the most detail sort of guidelines for the
22 RCC; it was in another permit. They sort of look like
23 our guideline, I mean the way they're written out
24 there.

17:42

25 And Mr. Cumming, when you were initially

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 processing this application or when Ms. Snowdon was,
2 did you have any communication, did Ms. Snowdon ever
3 come to you and say, "What do I do with this RCC?" You
4 know, she was relative a new member of the NRCB, but
5 were there any conversations between you and her in
6 terms of the approach that ought to be taken at that
7 time at least?

8 **A. MR. CUMMING:** Yes, there were conversations that
9 I had with her, and I understand that she would likely
10 have had conversations with other approval officers as
11 well. And we had had several meetings with all of our
12 approval officers together prior to that to essentially
13 provide direction to everybody to make sure that
14 everyone that's having a consistent approach and that
15 that approach would be for the applicant to show how
16 they could meet the AOPA requirements.

17:43

17 **Q.** So do I have it clear, then, you had really dropped
18 that guideline that you had, then, in terms of install
19 at 7 inches and uniform depth, that was dropped. And
20 what you went to in different model which was had the
21 operator demonstrate that they could meet AOPA, so our
22 guidelines were no longer in use then when --

17:44

23 **A. MR. CUMMING:** There was no guideline which you
24 relate to which said it has to be whatever thickness
25 and stuff like that, we did not have a guideline to

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 that effect.

2 What we had was an example where an approval
3 officer had done research and processed an application
4 that proposed roller compacted concrete, and that was
5 the conclusion that they came to with that and how they
6 believed that it best be addressed.

7 Q. I'm sorry, I called it a guideline, and you were right,
8 it was not. It was sort of a guide that was given in
9 the -- there was guidance given in the approval on how
10 to do it. So that is essentially no longer in force,
11 and it was not -- not really at play with Ms. Snowdon
12 or with you; it was always going to be sort of a
13 process where the approval would be granted if the
14 operator could come and demonstrate equivalency because
15 you presumably -- is it fair to say you presumably
16 didn't have confidence in the conditions or the
17 guidance given in the previous two RCC approvals?

17:44

18 A. MR. CUMMING: We had gone to Agriculture and
19 Forestry. We had taken the information through the
20 PEG (phonetic) and said that this is a trend that we're
21 starting to see in the confined feeding industry,
22 especially the feedlot industry, and we're starting to
23 get requests about used -- utilizing roller compacted
24 concrete as a liner or a pen amendment on top of an
25 existing liner in the feeding industry for various

17:45

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 reasons. And that information is included in some of
2 the research projects that are included in the evidence
3 that's before you.

4 Based on that, and there was some information a
5 little earlier, and I can't remember who gave it, but
6 it was about the potential of -- when the original
7 concrete guideline 096--93 was developed about having
8 some sort of a standard mix for -- for roller compacted
9 concrete, and at that point in time, there wasn't
10 enough information to -- to do that.

17:46

11 And through the technical advisory group, again,
12 we approached this over the last couple of years, and
13 the result of that investigation is the report which
14 was made public, I think it was earlier in March of
15 this year, and -- which is part of this.

16 And as previously mentioned, that report says that
17 there is there isn't enough information to generate a
18 guideline, but there's also enough information to say
19 that RCC can't be used as a liner.

20 Q. Right, okay. Thank you. I have two quick final
21 questions, and I'm sure I missed something, and I'm
22 sure you won't mind if I missed something, but RCC --
23 well, RCC or some other medium, and I think I just want
24 to be clear about this. I think I got the answer
25 right, but I'm not 100 percent sure.

17:47

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 You can use a combination of liners to meet AOPA.
2 So if someone proved to us or to you or to an approval
3 officer that concrete or a RCC or a layer of compacted
4 clay came to 10 to the minus 4, but then there was
5 certain materials naturally occurring underlying
6 materials in addition to that, and it all added up to
7 meet the Reg, that would be sufficient? Is that an
8 option?

9 A. MR. CUMMING: Mr. Chairman, it was one of the
10 documents that Mrs. Vance had this morning, and I can't
11 remember if it was entered as an exhibit or not; I
12 don't think it was.

17:48

13 Q. I think we did not. I think that's right. That may be
14 useful to enter, actually.

15 A. MR. CUMMING: This is Agdex 096-61, which
16 says -- the title of it is determining equivalent
17 protective layers and constructed liners. I think that
18 this is the document to which you're referring.

19 And if I can just read the purpose statement on
20 here. The purpose statement says: (as read)

17:48

21 "To provide a consistent method for
22 calculating the hydraulic conductivity
23 of naturally occurring protective layers
24 and constructed earthen liners in order
25 to determine if a liner is equivalent or

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 greater to -- greater than the
2 requirements set out in the *Agricultural*
3 *Operation Practices Act.*"

4 So it's specific about earthen liners.

5 Q. Okay. But does that mean one or the other? Does a
6 compacted liner meet AOPA, and -- or does a naturally
7 occurring setting meet AOPA? Can you have some of one
8 and some of another to meet AOPA, is really my
9 question. Is that possible?

10 A. MR. CUMMING: I'll let Mr. Cunningham respond to
11 this. He did so earlier today as well.

12 Q. And I ask -- I think you know where I'm going. I mean,
13 that might be what we are we have here. I don't know,
14 but I would like to have you -- in terms of -- is that
15 even possible? Is that a possibility?

16 A. MR. CUNNINGHAM: So this equivalency guideline is
17 written -- well, it talks -- it directly talks about
18 naturally occurring protective layers and compacted
19 soil liners as its intended purpose and provides
20 examples as to how you could use a thinner, for
21 example, of a compacted soil liner or a thinner or
22 thicker protective layer. Or if you've got a single
23 material, how that might equate to the Regulations.

24 It also provides methodology of how you would do
25 that if you've got multiple, multiple layers that you

17:49

17:49

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 want to -- that potentially will work. And they could
2 be both -- both, like, two protective layers, for
3 example; there's a possibility. But it's also possible
4 you can use it for a protective layer that has
5 compacted soil on top it. It doesn't get into Andy's
6 read of the purpose statement or what it's for is
7 absolutely correct.

8 But part of what the guideline does is it
9 introduces a methodology in a guideline, and it could
10 be -- could it be used for other types of products like 17:50
11 concrete or others? Potentially. If the case was made
12 by somebody designing -- providing a design, then it
13 should be used for that.

14 My advice to any approval officer would be to
15 listen to the case that's made in the application as
16 part of an engineering report. Here's what the
17 guidelines says. And if the design engineer provides
18 here's how it could be done and used in this manner,
19 whether it's within conjunction with something else or
20 not, that that's within -- as long as it's something 17:51
21 you can measure permeability on, then you can --
22 there's -- the action they can make the argument that
23 this guideline would have brought.

24 Q. Okay. Well, thank you.

25 THE CHAIR: Ms. Vance, you used that in

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 your -- in your direct as sort of an aid to direct, I
2 guess. If there's no objections, I wouldn't mind
3 having that entered as an exhibit. I think we've
4 spoken to it enough that it's worthy of getting in the
5 exhibit?

6 MS. VANCE: If the Board wants to do that,
7 that's fine. I would just be clear that it is not our
8 evidence, for whatever that matters.

9 THE CHAIR: I'm not sure, but it works for me.
10 If you want to make that clear, that's fine.

17:51

11 So, Ms. Friend, what number will that be?

12 MS. FRIEND: That will be Number 105.

13 THE CHAIR: Okay. Thank you.

14 **EXHIBIT 105 - AGDEX 096-61**

15 THE CHAIR: I thought I had another question
16 here, but I can't seem -- oh, and I think this is my
17 final question, so -- and thank you for everyone's
18 patience.

19 So -- and this was a follow-up to my earlier
20 question of Mr. Cumming, so, sorry, I should have asked
21 it then.

17:52

22 Q. So in your opinion, Mr. Muilwijk was aware sort of from
23 the get-go that it may not be that the previous permit
24 conditions as a guide for what would be suitable to
25 meet requirements for the NRCB. He was basically told,

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 You need to prove to us the equivalency of the liner or
2 RCC as a liner that would meet AOPA. Is that fair? Is
3 that your understanding?

4 **A. MR. CUMMING:** And I apologize, I see I've gone
5 really, really dark.

6 So when I read the CFO database input that was
7 provided by Adria Snowdon, that is my assumption from
8 one of the inputs. And we had it up on the screen, I
9 think it was September of 2019, thereabouts. You can
10 see where she has detailed that he's proposing RCC and
11 everything else, and there's some -- there's mention of
12 risk, and it would -- there's no guarantee that any
13 permit would be issued based on what was being done.

17:53

14 That is my interpretation of that based on my
15 understanding and my recollection of what took place at
16 the time.

17 **Q.** Okay. But when you took it over, it was clearly your
18 intent that it would be -- even before you discovered
19 when it was revealed to you that it was already
20 constructed, it was your view that Mr. Muilwijk would
21 need to demonstrate equivalency, as opposed to using
22 those permit conditions that we've been talking about
23 quite a bit?

17:54

24 **A. MR. CUMMING:** I contacted him, and I believe
25 this is in the -- I can't remember if it's the May 22nd

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 or May 25th email that I sent to him, and it was very
2 specific about his application only providing very
3 limited information, and that's more detailed in the
4 decision summary, and me seeking information from him
5 to show, demonstrate how the AOPA groundwater
6 protection requirements can be met by what he's
7 proposing.

8 Q. Right. But that was when? May what, sorry?

9 A. MR. CUMMING: I believe it was May 22nd or
10 May 25th. I think it's included in the Exhibit 44, if
11 I'm not --

17:55

12 Q. But wasn't the didn't he already by then -- maybe I
13 have my dates wrong. When did you find out? When did
14 he contact you? Mr. Muilwijk, sorry, and say, I've
15 already placed this stuff. I thought it was early May,
16 was it not?

17 A. MR. CUMMING: It's right around the same time
18 that you can -- you can see that. The database
19 reflects the exact dates; I don't have them right in
20 front of me at this point.

17:55

21 Q. And so I guess really my question was before you knew
22 that the RCC was already placed, was it your intention
23 that -- and you were thinking that the permit
24 conditions that have been used by NRCB in the past were
25 is not what you were going to go with. It was really

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 having Mr. Muilwijk demonstrate that he could meet the
2 requirements of RCC.

3 And then you found out, well, he already built it,
4 and you continued on with that mindset. Is that a
5 fair --

6 A. MR. CUMMING: So you're referring to permit
7 requirements. I hadn't even at that point in time even
8 come to whether or not I was going to issue a permit or
9 not. So permit requirements wouldn't -- wouldn't be
10 part of my thought process at that point in time.

17:56

11 Taking the application on, I would be reviewing
12 the application to determine whether or not there was
13 enough information there for me to process the
14 application and move forward with it. I quickly
15 determined that there wasn't sufficient information to
16 show how the groundwater protection requirements under
17 AOPA were going to be demonstrated to be met for the
18 roller compacted concrete being proposed. And I
19 communicated that with Mr. Muilwijk and gave him the
20 different options. I think the different options are
21 in that May 25th email.

17:56

22 And then he chose the option to provide additional
23 information.

24 THE CHAIR: Okay, thank you. Those are my
25 questions.

A. CUMMING, S. CUNNINGHAM

Questioned by The Chair

1 Now, we have redirect. Now, Ms. Vance, it might
2 be somewhat unusual, but maybe not crazy if we did that
3 tomorrow morning, but depending on how much time you
4 needed, depending on whether Ms. DiPaolo would quit on
5 us or Ms. Kaminski.

6 MS. VANCE: And I am ultimately at your
7 direction. I have -- as the time has marched on, I
8 have crossed a few questions off; I'll be honest.

9 THE CHAIR: Okay.

10 MS. VANCE: I do have three, and the reason I
11 would beg to be allowed to ask them right now is that
12 if I do not ask them now and we wait until tomorrow, I
13 cannot speak to my witnesses overnight, which -- which
14 it is what it is, but I might require a break tomorrow
15 that I might not otherwise require.

16 So I'm in your hands.

17 THE CHAIR: Ms. DiPaolo? How long do you
18 think -- sorry, go ahead.

19 THE COURT REPORTER: Do you think maybe 10, 15 minutes?
20 Would that cover your questions?

21 MS. VANCE: Absolutely.

22 THE COURT REPORTER: Okay.

23 THE CHAIR: Oh, okay. Let's do it.

24 MS. VANCE: And I do appreciate this, but it
25 would make things a bit awkward overnight if I couldn't

17:57

17:58

A. CUMMING, S. CUNNINGHAM

Re-examined by Ms. Vance

1 talk to my witnesses.

2 THE CHAIR: Ms. Friend will be sending flowers
3 to our document managers and our court reporters, or
4 chocolates or something. Okay.

5 **MS. VANCE RE-EXAMINES THE PANEL:**

6 Q. Okay. Question Number 1, and I think either
7 Mr. Cumming or Mr. Cunningham can answer this question.
8 Exhibit 77, of which we've talked, this is the Agdex
9 096-93 non-engineered liners; we all know which one
10 that is. Are professional engineers among the intended
11 audience for that? 17:58

12 And we can bring it up, if that would help.

13 A. MR. CUMMING: I can read very quickly:
14 (as read)

15 "The audiences, operators, consultants,
16 and contractors constructing concrete
17 liners for manure collection and storage
18 areas at confined feeding operations."

19 Professional engineers, in my opinion, would be
20 considered to be consultants. 17:58

21 Q. Okay. Second question, this is for -- probably for
22 Mr. Cunningham. Mr. Metheral had brought up
23 Exhibit 22, which is a September 17th, 2019, email that
24 had been forwarded and may be forwarded again, but
25 originally it was from Chilako Drilling.

A. CUMMING, S. CUNNINGHAM

Re-examined by Ms. Vance

1 And I wonder if document manager could quickly
2 bring up Exhibit 27. Exhibit 27 you will see is -- the
3 first page of it is an October 1, 2019, email. And
4 below that, it appears that somebody, I'm guess --
5 Mr. Muilwijk had forwarded another message from Chilako
6 dated at the end of August 2019. And if we could just
7 maybe scan to the next page.

8 And, Mr. Cunningham, perhaps you could just
9 confirm that this is the same printout that we've been
10 looking at all along?

18:00

11 **A. MR. CUNNINGHAM:** It looks like it to me, I believe
12 the date on it is the same, August 9th, 2019.

13 **Q.** Okay. Thank you.

14 And my last question, I suppose, could be for
15 whoever wants to answer this. There's some question
16 about wells on other quarters, which is part of what
17 you did in your 1.6 kilometre exploration, if you like.

18 If wells were on other quarters that was land
19 owned by people other than the Muilwijks, how easy
20 would it be to go and check those to see if they are in
21 use?

18:00

22 **A. MR. CUNNINGHAM:** So as -- maybe I can answer that
23 from a risk screening tool perspective. The risk
24 screening tool is laid out that we don't access sites
25 other than the ones of the operator of where the actual

A. CUMMING, S. CUNNINGHAM

Re-examined by Ms. Vance

1 operation is.

2 There can be -- there are definitely Albertans
3 that are very protective of their private property,
4 including where their water wells are, and they are --
5 and even more so when it's someone from the government
6 asking.

7 So part of -- all of those things played into that
8 we would rely on the Alberta -- the water well
9 information database and for looking at what is
10 happening in surrounding -- in surrounding quarter
11 sections.

18:01

12 MS. VANCE: And those are my questions.

13 THE CHAIR: Thank you, Ms. Vance, and thanks
14 for having those ready.

15 And thank you, panel. And, as well, to the
16 Muilwijks and Mr. Metheral, thank you for your
17 contributions today. Mr. Lobbezoo. We'll see you
18 tomorrow morning, but I don't know if we had concluded
19 on a time or if that was sent out.

20 Ms. Friend, was the starting time the same in --
21 and if so, was it -- and if not, we need to find a time
22 that works for everyone tomorrow.

18:01

23 MS. FRIEND: Mr. Chair, the Zoom invite starts
24 at 8:30, so you know, we could start at 9, give the
25 people half an hour to --

A. CUMMING, S. CUNNINGHAM

Re-examined by Ms. Vance

1 THE CHAIR: 9:00 is perfect. Any objections
2 to 9:00 start tomorrow morning? The only objection
3 we'll have is if it's a 9:00 p.m. finish, I think. So
4 9:00 tomorrow morning.

5 Ms. DiPaolo, are you going to be with us tomorrow
6 morning, then?

7 THE COURT REPORTER: I think so.

8 THE CHAIR: Okay. We promise -- well, I
9 should be careful with that. We will try our best to
10 be finished much earlier tomorrow.

18:02

11 So thank you, Ms. Kaminski, Ms. Taylor, as well,
12 and Ms. DiPaolo. We really do appreciate you folks
13 sticking around and assisting the whole process. It
14 was -- you know, we got through the day for field
15 services, and it's an appropriate time to conclude.
16 And I wish everyone a good night, and we'll see you
17 tomorrow morning.

18 But if the Panel -- I'll just give you a quick
19 invite afterwards so we can let Mr. Wiebe go home.
20 Mr. Graham?

18:03

21 MR. GRAHAM: Another invite will be sent out?

22 THE CHAIR: Yeah. I'll -- we can send a text
23 just to arrange that, but just hang on after we end the
24 call before --

25 MR. KENNEDY: I think -- I just want to be

A. CUMMING, S. CUNNINGHAM

Re-examined by Ms. Vance

1 clear, the hearing invite, I think, has already gone
2 out, so that was for both days. Peter's going to send
3 an invite to the Panel, so you people can --

4 THE CHAIR: I'm sorry. It's just the Panel.
5 We just have to --

6 MR. GRAHAM: It was for two days?

7 MR. KENNEDY: I believe so.

8 MR. GRAHAM: Okay.

9 MS. FRIEND: Yes, that is correct.

10 MR. WIEBE: Yes, I did send it out for two
11 day. Sorry, Laura. Yes.

12 THE CHAIR: If not, we'll get you another one,
13 Mr. Graham.

14 MR. GRAHAM: Yeah. And it's easier if I go
15 through my own email. For whatever reason, I'm not
16 sure, I always -- it always struggles when I go through
17 NRCB.

18 THE CHAIR: Okay.

19 MR. GRAHAM: I don't know why. I haven't
20 figured that out yet.

21 THE CHAIR: All right. Yeah, we'll let
22 everybody get on their way for the night. Thank you
23 very much. Oh, sorry, Mr. Cumming, are you just
24 waving, or do you have something to --

25 MR. CUMMING: No. I just have one question,

18:03

18:04

1 Mr. Chairman, thank you. And that is whether or not
2 Mr. Cunningham and myself are now completed, and we can
3 stand down from the panel and we can then speak with
4 our counsel?

5 THE CHAIR: You are.

6 MR. CUMMING: Thank you very much, sir.

7 THE CHAIR: Yeah, you bet. Take care.

8 (PANEL STANDS DOWN)

9 MR. WIEBE: Mr. Graham.

10 MR. GRAHAM: Yes.

18:04

11 MR. WIEBE: If you want to email me through
12 your email account that you like to use, I can send you
13 the Zoom invite, and then tomorrow morning, you can
14 just click on the link in there. Does that work?

15 MR. GRAHAM: Yeah. I'll get that to you
16 tonight. You bet.

17 MR. WIEBE: Okay. Do you have my email, or
18 does Ms. Friend want to provide that to him?

19 THE CHAIR: So, Ms. DiPaolo -- just excuse me
20 one sec. We're off the record, Ms. DiPaolo. You're
21 good.

18:05

22 (PROCEEDINGS ADJOURNED AT 6:05 P.M.)

23

24 PROCEEDINGS ADJOURNED TO 9:30 A.M., APRIL 21, 2021

25

1 Certificate of Transcript

2

3 We, the undersigned, hereby certify that the foregoing
4 pages 1 to 271 are a complete and accurate transcript of
5 the proceedings taken down by us in shorthand and
6 transcribed from our shorthand notes to the best of our
7 skill and ability.

8 Dated at the City of Calgary, Province of Alberta, on
9 April 20, 2021.

10

"Donna Gerbrandt"

11

Donna Gerbrandt, CSR(A)

12

Official Court Reporter

13

14

"Deanna DiPaolo"

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Deanna DiPaolo, CSR(A)

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Official Court Reporter

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