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NATURAL RESOURCES CONSERVATION BOARD

Application No. LA19036

MUILWIJK AOPA REVIEW HEARING

P R O C E E D I N G S

Volume 2

April 21, 2021

(Via videoconferencing)

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

3

4 Volume 2

5 April 21, 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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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)	Official Court Reporters
Deanna DiPaolo, CSR(A)	

16

17

18

(PROCEEDINGS COMMENCED AT 9:14 A.M.)

19

THE CHAIR: So welcome this morning, everyone.

20

And, Ms. Gerbrandt, this can be on the record and

21

begin.

22

Does anybody have anything this morning in

23

preliminary matters?

24

MS. VANCE: Yes. Mr. Chair, this is

25

Fiona Vance. I was just doing some rejigging so my

09:14

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Examined by Mr. Metheral

1 Internet is less unstable.

2 THE CHAIR: Yeah.

3 MS. VANCE: We have a response to the
4 undertaking that you asked yesterday afternoon. The
5 undertaking -- I just saw the transcript, was to advise
6 if there's any reference or guidance in the approval
7 policy for approval officers as to when professional
8 engineers should be on site during construction.

9 And the response is there is not.

10 THE CHAIR: Okay, thank you. Thank you for
11 that.

12 Okay. And hearing no other preliminary matters,
13 we can start with Mr. Muilwijk's direct evidence, but
14 we would have the witnesses sworn in. So,
15 Ms. Gerbrandt.

16

17 C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH (For Arie
18 and Willemina Muilwijk), sworn/affirmed

19 THE CHAIR: So, Mr. Metheral, the floor is
20 yours.

21 MR. METHERAL EXAMINES THE PANEL:

22 A. MR. METHERAL: Very good. I appreciate the
23 opportunity to present.

24 I would pull up my first presentations. And just
25 to clarify for the Board, I was retained by

09:15

09:17

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Examined by Mr. Metheral

1 Mr. Muilwijk to help him through the NRCB process based
2 on my experience with Alberta Agriculture, and I hope
3 to present some of the extension work that I did in the
4 past.

5 So if we can pull up Exhibit -- I guess part 1
6 from the --

7 UNIDENTIFIED SPEAKER: Exhibit 1?

8 MR. METHERAL: No, it would be Exhibit...

9 THE CHAIR: If you have the exhibit number,
10 that would be great.

09:18

11 MR. METHERAL: Yeah, the presentation Number 1.

12 THE CHAIR: Ms. Taylor, are you --

13 MR. METHERAL: Number 99.

14 THE CHAIR: Ms. Taylor, are you online? Is it
15 Ms. Taylor this morning?

16 MS. TAYLOR: Yes, it is, good morning. I just
17 needed the exhibit number. I'm pulling it up now.

18 THE CHAIR: Okay, thank you. And, sorry, I
19 should have said good morning earlier, my mistake. So
20 nice to have you.

09:18

21 MS. TAYLOR: Thank you.

22 THE CHAIR: All right.

23 A. MR. METHERAL: All right. So without direct
24 control of the slideshow, I'll just ask the file
25 manager to help me go through this, and I'll just say

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1 "next" to advance the slides.

2 Okay. So I received my ag engineering degree at
3 the University of Saskatchewan, and I started my career
4 in 2004, working for Associated Engineering.

5 I spent three years in the city doing some
6 concrete work with underground storage and at the
7 Calgary International Airport building some of the
8 large concrete aprons for airplane taxiing and parking.

9 I then moved to some field consulting and
10 remediation work in oil and gas and then eventually on
11 to Alberta Agriculture. I spent 13 years with those
12 folks until December of 2019, and now I'm working on my
13 own as an independent.

09:19

14 Next. My experience is, though, in Alberta
15 Agriculture allowed me to watch the growth of roller
16 compacted concrete in our feedlot industry. We've seen
17 extensive adoption. I would estimate between a third
18 and maybe 50 percent of our feedlots in southern
19 Alberta are installing roller compacted concrete in
20 their feedlots. This quick picture here illustrates
21 some work done around 2007, and at this time, we're
22 really seeing a ramp-up in efficiency and idea-making.

09:20

23 This is work from -- and these photos and material
24 is accredited to Alberta Agriculture and my time there
25 and some of the presentations that I did for the

1 public.

2 So we can see in the bottom row here seven pens
3 that were constructed in five days and the extent of
4 construction. On the right-hand side, the pens are
5 more at a completion stage, where they're being watered
6 and cured. And then in the middle two pens, they're
7 being kind of watered and perhaps preparation for some
8 straw. And then we move into the next couple of pens,
9 illustrating construction yet to be done.

10 Next. So a little bit of background and history.
11 We know that producers were looking at this to improve
12 animal welfare, so there is some discussions around
13 that and some extensive agriculture reporting. And we
14 know that it's been mostly used as a surface pad to
15 protect the integrity of the floor and more recently
16 used as a liner.

09:21

17 Next. So initial trials with roller compacted
18 concrete started at Ed Stronks around 2002. The
19 concrete that was placed in those pens was actually
20 rototilled in the -- the material was brought in.
21 Sorry, 2012. The product was brought into the pens and
22 rototilled to make what would be a compacted concrete
23 product in the pen.

09:21

24 We saw an evolution of where he then moved to
25 rototilling it -- or sorry, mixing it offsite and

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1 bringing it into the pens.

2 And then with the success of that product, there
3 was encouragement to have commercial products
4 available. We started to see commercial products
5 around 2015 coming from Goldridge Sand & Gravel, which
6 is a Turin colony; Prairie Stone out of Nobleford;
7 Rock Solid, and I even had some requests from
8 Burnco Environmental out of Calgary.

9 Next. We did see some producers attempting this
10 to make roller compacted concrete on their own. I
11 believe Meuniers out of Barrhead have looked at it and
12 I think Nelson Ranches down in Cardston due to their
13 proximity to their own gravel supplies.

14 Next. Okay. We do know that Alberta Agriculture
15 completed a multiyear study. That study was really
16 focused on animal health and welfare, and it did look
17 at some of the performance of RCC, but it really wasn't
18 intended to be used as a study to look at liner, RCC as
19 a liner. But we did -- it was a consideration within
20 Alberta Agriculture about what it would mean to look at
21 RCC as a liner. It was always on our radar.

22 Next. We did become aware of NRCB permitting
23 facilities, and this one started with the Stronks'
24 application. And this actually wasn't an approval,
25 LA17038 wasn't an approval; it was actually denied.

09:22

09:23

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1 But we started to see where -- how permit conditions
2 could look like.

3 Next. The permit was eventually approved after a
4 Board review, and we saw the final LA18063 after the
5 Stronks reapplied. And I believe this went through a
6 Board hearing, this file.

7 Next. And quite quickly that same year, in July,
8 another feedlot -- this is actually a covered feedlot,
9 a barn, in Spring View Colony was approved by the same
10 approval officer.

09:24

11 Next. So if we just look at roller compacted
12 concrete installation, this is a -- will maybe be a
13 fresh build. There's no pens. The product is being
14 placed. And you can see some of the sophistication
15 that was used to install this product, with heavy
16 equipment and survey equipment to give guidance.

17 Next. And I think everyone would agree that in
18 the industry, that animal welfare and performance has
19 been a key issue. So -- and really, the rebuilding and
20 maintenance costs of maintaining a pen floor is
21 something producers were always looking at.

09:25

22 And I would key in on this picture on the right,
23 the deterioration of feedlot pens is a significant
24 issue. So in this case, we're not sure if it's a
25 naturally occurring protective layer below, but if this

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1 were to be a compacted liner, we could see how cattle
2 hoof action would drive manure and water deep into that
3 liner.

4 So if we look at our different layers, the idea
5 that concrete as a liner does have some merit because
6 it is an interesting effect that cattle have on the top
7 surface, and especially if it's a compacted liner. The
8 degradation of a compacted liner is an issue that
9 probably needs review also. Sorry, we should look at
10 compacted clay liner degradation in the future.

09:26

11 Next. What is RCC? So just to confirm, RCC is a
12 blend of conventional concrete materials, including
13 water, cement, sand, aggregate. It's just mixed in
14 different ratios, and it has a much less -- sorry, much
15 less water content.

16 Sorry, next. There is some reference in the
17 industry to flyash concrete, or they're calling it
18 flyash. And just to confirm, flyash is just a
19 component that can be added to the concrete recipe, and
20 it just reduces the requirements for concrete powder.
21 And it still -- we still see the same performance from
22 concrete.

09:26

23 Next. Really some of the design goals, this is a
24 big picture thought. We just want to ensure that the
25 product has sufficient paste volume to coat the

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1 aggregates, that it produce the required mechanical
2 strength and elastic properties, has the workability to
3 achieve the required density, and is really -- this is
4 the most important part -- is durable enough to endure
5 the given environment, durable enough to endure in the
6 given environment. And we get that from the Ready
7 Mixed Association.

8 Next. This is just a quick picture I took quite a
9 few years ago, and it just illustrates the particles,
10 the size of the aggregate that this producer -- or this 09:27
11 installer chose.

12 This product is dry; it's not compacted. Above my
13 hand on the left, we see compacted RCC, and above my
14 hand on the right, we see product that's along the
15 fence-line that's uncompacted. So ideally, we would
16 want to get compaction on all materials, but this just
17 illustrates kind of what it looks like. When it's wet,
18 it looks like wet beach sand.

19 Next. Next. There has been some discussion about
20 clay base preparation, and I think we would all 09:28
21 argue -- or would all agree that base prep is
22 important. There are strategies that producers can
23 implement, including equipment and product that's
24 brought in. There is testing that can be done. And
25 really what we're trying to avoid is the picture on the

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1 right where we see the base is being -- soft spots are
2 being exposed. This -- we can see this soft spot was
3 exposed due to some proof rolling, the trucks were
4 causing punch-out.

5 So we would probably try to avoid those sort of
6 worst-case scenarios with the base that breaks through.

7 And next. When we start looking at RCC
8 installation, it can be placed in the pens using heavy
9 equipment. It's spread out with dozers or brought in
10 with loaders and spread out with skid steers and then
11 compacted with vibratory rollers.

12 Next. There are considerations around bunks and
13 aprons, water bowls and fence-lines and other
14 extrusions like lighting and dust control, meaning like
15 sprinkler units. So we would have consideration for
16 existing infrastructure, and also for perhaps for new
17 construction. New construction needs to consider water
18 lines that come in and whatnot, power.

19 Next. We know that there is heavy emphasis on
20 proper placement in curing and managing along
21 fence-lines and concrete joints and water bowls and
22 through the swale and area.

23 Next. We can do testing. On the bottom left is a
24 Schmidt hammer, and we can do things like pull cores.
25 This is just a -- I wish I had put on a couple of more

09:29

09:30

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1 pictures of cores. This is a picture of a concrete
2 sample that was taken years ago. It's about -- this
3 sample is about 11 inches, and I don't think they're
4 pouring concrete, RCC, in this fashion or to this depth
5 any longer.

6 Next. And we are looking at product failure. So
7 I'll elaborate on this a little bit. But we do kind of
8 have some -- there are some things we should keep our
9 eyes open for.

10 Next. Sorry, just to illustrate, there's a large
11 circle. And then the other one is a joint and the
12 manure packing that occurs.

13 Next. So that would conclude my presentation on
14 what we're seeing in the industry from about 2012 to
15 today.

16 Thank you, file manager. If we could jump to
17 part 3, 101. Okay, sorry, the reason I have three
18 slides is I struggled sending them to the Board, but I
19 think this will be fine.

20 If we -- okay, next, file manager. Thank you.
21 We'll just start.

22 Okay. I'll elaborate on some of these large
23 holes. This is a photo of some concrete RCC failure
24 that occurred in about six months after installation.
25 The producer claims that it was probably related to the

09:31

09:31

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1 installation that morning, and this hole developed
2 quite quickly. And it was a large hole that they
3 simply excavated out, cleaned up, and poured in
4 traditional concrete around to act as a bit of a plug
5 for this.

6 So we do know what failure looks like and how
7 large or how these appear.

8 Next. We do know that the joints where concrete,
9 traditional concrete, perhaps at a bunk apron, and RCC
10 might meet might not be an ideal straight joint.

09:32

11 In this photo, the product has been brought up and
12 around where there was some bunk failure; the bunk had
13 been replaced. So the product was simply pushed into
14 that bunk area and brought up overtop and allowed --
15 and then compacted and allowed to set.

16 So it does allow for the product to fill in areas
17 that are missing.

18 Next. This picture is a bit scary to see at first
19 glance. And, if you recall, I sent it to a producer in
20 2012, Ed Stronks started this roller compacted concrete
21 works. This is a picture of his very first site, and
22 we see concrete bunk on the right, roller compacted
23 concrete on the left. And because of this -- because
24 he was just experimenting and really learning about
25 this, we do see the RCC deteriorating a little bit. I

09:33

1 wish I would have dug some of that manure packing out
2 to see what the extent of that deterioration looks
3 like. I would be surprised if it was -- I would say
4 that's about a 10-centimetre gap on the surface, but I
5 would be surprised if it was 10 centimetres all the way
6 to the bottom. I think it's more of a rounding effect,
7 but I can't conclude that at this time.

8 And we would want to ensure that we don't really
9 see big cracks forming at our joints. But this does
10 illustrate the packing that can occur.

09:34

11 John mentioned that when his producer installed
12 the product at this site in this picture, he actually
13 rototilled the product in the pen using a very large
14 rototiller, and getting that product in place and
15 having a good mix was a challenge. And we've seen
16 evolution far beyond what Mr. Stronks did on his first
17 try.

18 So worst-case, first try, we're seeing a little
19 bit of product deterioration, but in general, this
20 product is still 99.9 percent there.

09:35

21 So next slide. Okay. This is just some other
22 photos I've taken over time. We see that on the right
23 photo, right side of that photo, RCC being brought up
24 to a bunk. We can see the nice joint that can form.
25 In fact, there's a little bit of a pop-out there in the

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1 bottom, and that's the concrete that deteriorated or
2 broke out, but still that would be still a pretty tight
3 joint; I don't know if that would be a millimetre wide.

4 On the left side, just down the bunk, we did --
5 there is evidence of RCC failure, and that hole is
6 developing. So we would want to look at something like
7 this, have a repair schedule in mind where we would cut
8 out the concrete, remove the manure, perhaps repair the
9 base a little bit, and have a solution to fill that,
10 fill that type of hole because this doesn't meet the
11 needs -- wouldn't probably meet our regulation
12 requirements or fit really the concept we're proposing.

13 Next. This is some very -- more recent photos of
14 a -- of Goldridge installing their product. What's
15 important in this picture for consideration is that
16 this is a cold joint, and a cold joint just means that
17 there's been product laid down, there is an edge to
18 that product, and it's drawing out as the other stuff
19 is placing.

20 So for the installer here, as they bring material
21 up, it's important to have a nice, clean edge, bring
22 some product over that edge, and then compact it, but
23 keeping in mind that the product on the right side of
24 that photo is -- you know, it can be hours ahead of the
25 other stuff in terms of placement and curing. So we

09:36

09:37

1 just want to be aware of that cold joint.

2 Next. This is a cold joint, and we can see the
3 effects of the drying, but a nice, tight joint
4 nonetheless.

5 Next. As I said, on new builds, we see
6 infrastructure coming up through the RCC, so it would
7 be important to get everything in place and then have
8 machinery that we can get up to and close to those
9 extrusions without damaging the extrusion and yet
10 getting good compaction of the material.

09:38

11 Next. I did include a picture of some cracking
12 that I've seen. This is very hard to tell, but perhaps
13 in the reflection of the sun there off of the concrete,
14 you can see that crack that kind of is going straight
15 up the photo. And I think it is further illustrated in
16 a little bit at the bottom of the photo. I can't see
17 it from my position. But this crack is a random crack,
18 and it's heading off away from me here.

19 I would suggest that the crack is about a
20 millimetre or two width. So we can see -- at some
21 point we can see cracking.

09:38

22 Next. Further illustrated a crack that's forming
23 about a millimetre, and it's kind of heading up and
24 then jogging to the right.

25 Next. This photo I took is interesting in that we

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1 can see a line that goes from one alleyway into a pen;
2 roller compacted concrete is the base here. And you
3 can see some significant deterioration on the right
4 side of that crack versus the left side of the crack,
5 the water ponding on each side.

6 So this was a -- this is a cold joint, and I can't
7 explain why the -- it deteriorated more on the right,
8 but it has. And the water is kind of evidence to show
9 that it is perhaps ponding around in areas where the
10 material has degraded.

09:40

11 It would be interesting to know how much -- if
12 water was flowing across it and this was holding water,
13 but I never -- at the time I took the picture, I was
14 not considering this. And keep in mind this is a cold
15 joint.

16 Next. So just a quick backup picture a the site.
17 We can make some big, nice slabs with extrusions and
18 with some professional placement.

19 Next. Sorry, that concludes Part 2. Let's go to
20 part 3, 100.

09:41

21 Okay, the next bit of slides here represents the
22 Muilwijk site. So just to confirm, I was out to see
23 Arie after the Board approved the hearings. So I took
24 some photos of his covered feedlot and open feedlot and
25 catch basin. The lines on the -- this photo

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1 illustrates slope and the way the kind of the high
2 point being where the water well is. The high point of
3 the yard is actually maybe closer to the house and
4 water well. Yeah, that's right. And the facilities
5 are on the -- moving down a bit of a higher part.

6 The next photos that I will show you is taken from
7 the yellow star there. So this is a look of -- on the
8 right-hand side is open barn. You can kind of see the
9 slope of the land moving away from the yard, and the
10 feedlot would be -- open feedlot would be on the left
11 side of that photo.

12 Next. So I'll go through a series of photos; the
13 first grouping will be of the barn. I took a photo
14 looking into the barn, and most of the photos are from
15 the back section, the green part of the barn. Arie was
16 able to remove some of the manure, pile it up for me
17 just quickly, and expose a portion of the barn. Yes.
18 And this is the covered pen, the covered barn, the
19 covered feedlot.

20 Next. The next set of photos looks at the open
21 feedlot, and I'm just going to illustrate this is
22 Number 1.

23 Next. 2 and 3, moving down the pens.

24 Next. And then there was a photo taken from the
25 catch basin.

09:42

09:42

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1 Next. And the last photos are from the water well
2 area. And they're positioned -- I'm about where the
3 arrow is looking both towards the covered feedlot and
4 then towards the open feedlot.

5 Next. So looking into the barn, we can see how
6 Arie has set up the pens with the cattle and some
7 manure. Very -- I would agree that inspecting it with
8 cattle and manure, I would agree with Mr. Cumming that
9 this is tough to inspect when it's been covered.

10 Next. But Arie was able to use some equipment to
11 back -- and this would be normal cleanout practices.
12 He cleaned out some of the pens for me that weren't in
13 use. We'll just -- this is just a quick picture.
14 Let's go to the next slide, and I'll explain further.

15 What would be important to illustrate is that
16 there were pens -- all of the pad had extrusions like
17 posts and water holes. The important part here is that
18 when the posts were placed, there was concrete poured
19 around the posts that sealed both the post and the
20 joint with the RCC. It's kind of tough to see where
21 the concrete is. I would illustrate it if I had the
22 mouse, but you can see the different texture and just
23 know that that's concrete that goes around the entirety
24 of the post.

25 Next. Again, this is another post and a water

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1 bowl, and this shows it a little more definition. On
2 the bottom right side of the photo, you can see a bit
3 of the concrete that's raised a little bit higher than
4 the RCC, but it just illustrates that there is a
5 concrete perhaps plug around that to seal that post
6 hole.

7 Next. We do know that there's water bowls
8 replaced, and this illustrates that the water bowls
9 have concrete foundation, and it ties on top of the
10 RCC.

11 Next. This photo illustrates on the back side of
12 the pen, perhaps where we have a little more manure
13 accumulation, the concrete plugs that -- used to fill
14 in this -- these set of post holes.

15 Next. The white speckling isn't anything from
16 scraping or cleaning; that's actually just bird poop
17 from the rafters. So to explain what that is, more --
18 I was just able to -- what Arie did for me was I could
19 walk across this pad looking for what would be larger,
20 1- to 2-millimetre cracking, and I think that's
21 something that you can do with basic cleanout
22 practices.

23 Next. There is evidence of the roller compacted
24 concrete around the barn itself. On each end of the
25 barn there is I'm going to say 1 1/2 to 2 metres of

09:45

09:46

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1 concrete on each end and perhaps a metre of concrete on
2 each side. So you can see the -- without manure or
3 animals, you can see the base of this pad on the
4 external.

5 Next. I would just illustrate here the water
6 runoff flows.

7 Next. And I'll do that with a series of photos
8 looking more now towards the feedlot area.

9 Next. Next. Next. Next.

10 Okay. This is a photo taken from Pen 2, the
11 middle pen, with livestock in it. And it just
12 illustrates the bedding pack, and the manure
13 accumulation would have been -- when were we out there?
14 I would say we were out there mid-March. Anyways, this
15 is kind of a spring -- spring conditions for him.

16 Next. Through general cleanout practices, we
17 were -- I was able to see some of the pen in certain
18 places. In the drier parts of the pen, the equipment
19 doesn't clean off as nice exactly, and it does cause
20 us -- there are challenges with manure sticking to the
21 RCC.

22 So between Arie and I, Arie is at the top, I've
23 stepped off about a 10-by-10-metre square, and I can
24 see probably 40 to 50 percent of the RCC. And when I
25 was looking out there, there were no obvious big cracks

09:47

09:48

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1 or failures.

2 Next. We can get a little bit better cleaning
3 when the RCC is -- or when the manure is a bit wetter.
4 This is in the back swale where there was a snow drift.
5 So when Arie cleaned this up, it did come off the pad a
6 little bit better.

7 So, again, Arie is about 10 by -- in a 10-by-10
8 square away from me. And I could see the floor a
9 little bit better. In this site, in this picture, I
10 didn't see any cracking.

09:49

11 Next. I did examine the posts. These were put
12 into the -- or, sorry, RCC was brought up to the posts
13 and compacted around the posts.

14 Next. And we know RCC was brought up to features
15 like the water bowl. In this case, the product was put
16 in a little bit heavier I understand. And if we were
17 to core here, perhaps we might see 6 to 8 inches or
18 perhaps a little bit more as we get -- have a climb up
19 to this water bowl. And this is a higher traffic area,
20 so a little bit of concrete. RCC in this area isn't a
21 bad thing.

09:50

22 Next. So I examined the joint between the water
23 bowl and the RCC. You can see how the concrete was
24 brought right up to the water bowl, and there's a nice
25 tight joint that's -- probably has a little bit of

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1 manure kind of packed into the top surface there.

2 Next. I also examined the bunks. Along the bunks
3 and where the RCC was brought in, Arie removed some of
4 those material to examine the wood and RCC interface.
5 And, again, there was no cracking along this, and it
6 appears like he got in nice and close to the bunk here
7 with compaction.

8 Next. I also asked Arie to kind of clean up an
9 area in the back swale. So this is about a
10 5-by-5-metre little square he removed by hand. And I
11 picked the back swale because this was where the water
12 would be running.

13 Next. And in this sort of example, it does
14 reflect what the chairman kind of suggested yesterday,
15 picking some random spots and just looking to see what
16 we can find. I wasn't able to see any cracking in this
17 5-by-5-metre square.

18 Next. Just a quick zoom in.

19 Next. There was -- we did run across some
20 evidence of different -- different surface texture. So
21 when we cleaned this up, it became apparent that this
22 wasn't a crack; this was actually a wheel mark from
23 some -- perhaps a bucket blade during install. It just
24 left a very minor ridge in -- a little depression in
25 the concrete, and it's pitted a little bit there.

09:51

09:52

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1 So this isn't a crack, but we do see, you know, a
2 little bit of pitting and popping at the very surface,
3 but not failure. I just -- just to illustrate that we
4 can see -- we can see things, and we can investigate
5 them.

6 Next. Just to confirm, Arie, when they placed
7 this material, the RCC, they did excavate the top of
8 the pens out. That's the burdened material on the
9 right side of the photo and then the RCC was placed on.
10 And the material that they pulled out is actually
11 acting as a barrier right now to keep the water in the
12 pen, and I think Arie's solution is to have the swale
13 direct water through the three pens, out the back, and
14 then towards the catch basin. And I'm standing at the
15 base of Pen 3 in the very corner between the catch
16 basin and the pen.

09:53

17 Next. The next photo is from the star at the back
18 of the catch basin. So here is a quick shot, just to
19 illustrate the feedlot pen in the background and where
20 the proposed catch basin is and the size of it, the
21 approximate size.

09:53

22 Next. A couple of quick photos just to illustrate
23 the material that's in the catch basin area at least
24 and the different layers and perhaps the silty -- silty
25 materials that we might find at surface.

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1 Next. The last series of photos are just a couple
2 from the water well, and it's taken from the position
3 of the star.

4 Next. A quick photo to illustrate the yard. The
5 water well is the brown cap -- or the brown steel
6 feature, and you can see the green grass around it.
7 There's some mounding around the well, and the barn is
8 in the background.

9 Next. Another quick view of the water well in the
10 centre of the picture with the bar -- with the open
11 pens in the back.

12 Next. Next.

13 The next item I have is a quick video.

14 MR. METHERAL: Mr. Chair, in the essence of time,
15 should we play that video or move on? Has everybody on
16 the Panel seen the video?

17 THE CHAIR: Yeah, I don't recall it -- I
18 didn't find it that long.

19 A. MR. METHERAL: Okay, 102 would be a quick little
20 installation video.

21 Just to illustrate some construction practices,
22 this is from 2020 site in central Alberta. You can see
23 the heavy equipment that's being used to push product
24 into place, the GPS guidance that's used. The skid
25 steers that are in the background are kind of rough

09:54

09:55

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1 placing the material, and the Cat blade is actually
2 getting the final grade.

3 In the far, far background, we can see some
4 rollers, large vibratory rollers and smaller units to
5 get around some of the tight corners and get up to
6 those extrusions, water bowls and the power poles.

7 And then, sorry, there is a fella dampening the
8 product because this was a hot summer day.

9 And then just to illustrate, this is a cold joint.
10 On the very far right you can see product being brought
11 up to an existing -- some old material and how the
12 product gets pushed out in front of the construction
13 crew, dumped in front of the construction crew and then
14 placed out in front.

15 That would be it for this.

16 And I would illustrate photos -- the photos that
17 Arie submitted, Exhibit 51. Sorry, file manager,
18 Exhibit 51.

19 THE CHAIR: Just maybe one moment. There we
20 go.

21 A. MR. METHERAL: Okay, I understand these photos to
22 be taken from Mr. Muilwijk's site and submitted to the
23 NRCB as part of his submission. If we could just have
24 a quick run-through of these photos.

25 Arie, correct me if I'm wrong, but this is some

09:56

09:57

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1 photos of the covered pens, the bales of the covered
2 pens.

3 A. MR. MUILWIJK: Yes.

4 A. MR. METHERAL: Next. And just to illustrate some
5 of the equipment and practices that were used as a
6 series of a couple of more photos.

7 Next. The installation of the barn on top with
8 the wooden posts going through and the concrete, you
9 can -- there is evidence of concrete around the posts,
10 base of the posts in these photos.

09:58

11 Next. More construction photos.

12 Next. Next. Some construction photos from inside
13 the pens. Is this Pen 1 or 2?

14 A. MR. MUILWIJK: 1.

15 A. MR. METHERAL: Pen 1. Next.

16 A. MR. MUILWIJK: This would be Pen 3.

17 A. MR. METHERAL: Pen 3, Pen 3 evidence of the
18 equipment and compaction equipment.

19 Next. Some final product pictures. Or no, this
20 is base --

09:59

21 A. MR. MUILWIJK: Base prep.

22 A. MR. METHERAL: This is base, yeah, base prep.

23 Next. Curing with straw.

24 Next. This looks like a base prep.

25 A. MR. LOBBEZOO: And the pictures aren't all in

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1 order; just the way that they were sent in.

2 A. MR. METHERAL: Next. Next. Next. Next. Or is
3 that it? Okay.

4 MR. METHERAL:

5 That would conclude my exhibits, Mr. Chair.

6 I would now move from being a witness to the
7 spokesman role and helping Mr. Lobbezoo through his --
8 or, sorry, actually Mr. Muilwijk through his material.

9 THE CHAIR: Okay, thank you. And thanks for
10 the clarification and the presentation scope,
11 Mr. Metheral.

12 Q. MR. METHERAL: Okay. Thanks, Arie.

13 So I would like to start, for the Board's
14 information, Arie -- or, Mr. Muilwijk, can you tell me
15 your background?

16 A. MR. MUILWIJK: All right. So I bought this place
17 in 2012 and been raising calves on that property since
18 that time.

19 The way that the whole calf process works is I get
20 baby calves into my barn and keep them in the barn for
21 approximately four weeks, five weeks, and then they go
22 into outside hutches. And from the outside hutches,
23 they then go into the weaning shelter which we built.
24 And from the weaning shelter, they go into my corrals,
25 and from there, they get shipped onto a feedlot once

10:00

10:00

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1 they reach 4 or 500 pounds.

2 I kind of started a new way of doing things in
3 20 -- just when I started the permit, so that would be
4 2018/ 2019 I started a different approach of raising
5 animals. So that's when that weaning shelter came into
6 place, and I needed -- yeah, we -- so in prior -- so I
7 should kind of backtrack a bit.

8 Prior to using the weaning shelter, they were in
9 the barn for six to seven weeks, and they went into
10 group pens outside where they still got fed milk. And
11 then they got weaned into a corral once they were --
12 they got weaned, yeah, straight into a corral as soon
13 as they hit weaning -- weaning age. And that was quite
14 hard on the animal health and on the animal welfare, so
15 we thought it's better to keep them in smaller groups
16 and wean them that way.

17 So that's why the weaning shelter came into place,
18 because I can keep them into smaller groups and give
19 them water without having to worry about water freezing
20 without proper water bowls and such.

21 So in 20 -- 2018 was when -- yeah. So Karl
22 Ivarson -- or Mr. Ivarson approached me in 2019, sorry,
23 May of 2019 with a directive order that I had to
24 basically get a permit for my corrals because my --
25 yeah, my corrals were built many years ago without a

10:01

10:02

1 permit. And that was okay.

2 So that same day or the next day I called Adria --
3 or Mrs. Snowdon, and we started on getting -- yeah, the
4 permit figured out.

5 So she came for a site visit with
6 Mr. Joe Sonnenberg, and they then left me with part 1.
7 And while we were there, while they were at the site
8 visit, we talked about catch basin, different ways to
9 deal with the catch basin because earlier Ms. Karen --
10 Ms. Stuart had been at my place a few years prior, and
11 we had talked about a catch basin, possibly getting
12 like a small catch basin behind the corrals and then
13 pumping it from that catch basin into my existing
14 storages.

15 So we talked about that option at the time with
16 Ms. Snowdon, and she wasn't very keen on it. She
17 thought it would be better to have a big catch basin
18 built.

19 We talked about different options, so bringing in
20 clay, packing it down. And I already had heard about
21 RCC from other people. So it kind of was in the back
22 of my mind, like hey, RCC might be the product to go
23 with. It's somewhat cheaper than concrete, but it
24 lasts -- it's just as good of a product.

25 So at the end of the day, she left me with part 1,

10:03

10:04

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1 and we started filling it out. Then I went to her
2 office a week or two later, and we finished filling out
3 part 1 in her office, handed it in, sent it off. Then
4 she left me with Part 2. And Part 2 we filled in in
5 her office as well. Because I was all new to the
6 process, I had no idea what was going on. So
7 everything -- and prior to -- Part 2 of my application
8 was filled out under Ms. Snowdon's guidance. And
9 because I wanted to do RCC as the liner, she actually
10 followed Stronks' file, basically everything that I had 10:04
11 written down in my application, Part 2 came off of
12 Stronks' application as well. So that's where I get
13 the 6 to 7 inches of roller compacted concrete, because
14 that was how it was written in Stronks' file as well.

15 So all this while, as well, I was really itching
16 try to get this shelter built, or to get this permit
17 through as quick and as smooth as possible because
18 before winter I needed a shelter built for these
19 animals.

20 So she was aware that I was kind of itching to get 10:05
21 it built, and she told me several times, "Don't build
22 without a permit." And so I waited.

23 And once Part 2 was sent in, we talked back and
24 forth, and eventually I was given the date verbally,
25 "November 14 the permit should be done, and you should

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1 have the permit."

2 So I was happy as could be because, boy, if we can
3 get this in prior to winter, that would be awesome.

4 So I already had booked the RCC product and
5 whatnot for November 14. Any later in the year, and
6 you're getting -- you're issuing -- you're dealing with
7 issues such as frost, and you can't place RCC when it's
8 cold.

9 So, yeah, November 14 it worked out perfectly with
10 Prairie Stone to install it. It worked out perfect
11 with Sub-Terrain to prep the site. So, yeah, it seemed
12 like everything was coming along nicely.

13 November 14 rolls around and, well, the action is
14 happening, and I still don't have a permit.

15 So I called Adria, or Ms. Snowdon, and she's like,
16 "It will be another two more weeks." She was not aware
17 that I was laying RCC. And I thought at the time it
18 may be better I don't -- I don't have to mention it to
19 her. It could also skew her -- how she thinks about
20 the liner and whatnot. I just thought -- yeah, I never
21 let her know, and maybe I should have, but at the same
22 time I wasn't -- I was, yeah, everything was ready to
23 happen. And I couldn't wait basically any longer. The
24 shelter had to get built before winter. If these
25 animals didn't have a shelter before winter, I couldn't

10:06

10:07

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1 keep them alive. Like I basically had to quit doing my
2 entire -- my entire setup, and nothing could flow
3 properly without that shelter being built. That cycle
4 had to keep going on. Animals are still coming in,
5 animals are going -- that shelter -- yeah, basically
6 had to get built before winter.

7 So I was stuck in a bit of a -- between a rock and
8 a hard place, as you could put it. Because I didn't
9 have a permit, and yet this was my prime opportunity to
10 just place this RCC, get it built, get it in, get it
11 done.

10:07

12 So I -- yeah, I decided I'm going to go ahead,
13 place this RCC. In two weeks I should get this permit
14 anyways.

15 And Adria was very positive -- or Ms. Snowdon was
16 very positive about this permit, that it was going to
17 go through. Like we had really good contact,
18 everything seemed like it was going along smoothly.
19 There was no indication that this was not going to go
20 forward.

10:08

21 So, yeah, having that positive feedback from
22 Ms. Snowdon, I felt quite sure that this permit is
23 going to come.

24 So, then on the other hand -- yeah, I didn't have
25 a permit November 14, but what's two weeks going to

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1 make a difference? RCC is not going to be building
2 yet. Just having placed the RCC doesn't mean that
3 anything is built. There's no animals placed on the
4 RCC. It was just placed, and I had to let it cure for
5 a while anyways. I thought, well, two weeks I should
6 have a permit, and everything will be fine and dandy,
7 and we can just move on along.

8 Two weeks later I call Ms. Snowdon, and she's
9 like, "Yeah, Arie, it's going to be another two more
10 weeks." Well, okay, two more weeks, whatever, I can
11 deal with that.

12 Again, yeah, I was kind of disappointed. I really
13 wanted to get going on it. I waited all the way up
14 till I was given a date by Ms. Snowdon, and -- so,
15 yeah, two more weeks. Well, whatever, okay, I'll wait
16 two more weeks.

17 And then the beginning of December she called me
18 and said, "Arie, I missed a deadline for handing some
19 things in. It had to be in by December 12" or whatever
20 it was for the Christmas break. Because she's like,
21 "I'll have it all ready for you prior to the Christmas
22 break." Okay. Well, and I started building my weaning
23 shelter at the time. Yeah, winter was coming, I had to
24 do what I had to do.

25 So just before the NRCB went on their Christmas

10:09

10:09

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1 break, she called me, and she said, "I'm not going to
2 have it done yet. Let's -- but I will hand the permit
3 to you January 2." I said, "Okay, great."

4 I kept on building, and -- well, the beginning of
5 January rolls around and still no permit. And, like I
6 say, I was very new to the whole process too. I had no
7 idea exactly what was going on, and I was very much
8 relying on Ms. Snowdon to give me input to guide me
9 through this whole process.

10 And then starting of January, it seemed like
11 things kind of changed. It was harder to get ahold of
12 her. She wasn't answering phone calls. We emailed a
13 little bit back and forth. For as good of a phone
14 conversations that we were having prior to
15 January versus after, it seemed like there was a bit of
16 a disconnect. It went from very good talking back and
17 forth to very hard to get ahold of her.

18 And then, yeah, I was kind of -- so everything was
19 built by the beginning of January, everything was done.
20 There's animals inside my shelter, so whatever now,
21 it's just a matter of waiting for the permit, yes or
22 no.

23 It still -- at the time I thought well, it looked
24 like everything was going to go through. I had
25 followed Stronks' file, everything that they did is

10:10

10:11

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1 exactly how I did it. So I thought, you know, what
2 they do to the -- what they do to Stronks is exactly
3 how they're going to make me do it. So everything was
4 followed exactly as to how Stronks' guidelines were set
5 out.

6 Yeah, I couldn't -- after that I couldn't really
7 get ahold of Ms. Snowdon as good anymore. So, yeah,
8 some emailing back and forth, and she felt bad for the
9 time as well. And I mentioned in one of my emails, and
10 I don't know if we have to bring it up, but I told her 10:11
11 as well, "Like you first told me it was going to be
12 November 14, and it's been now several months and I
13 still don't have it." And she replies like yeah -- she
14 felt bad about it. So, yeah, she -- but, yeah, she was
15 also stuck to following her policies or whatever.

16 And in May I get a call from Mr. Cumming that he's
17 taken over the file. And then I also told him, "Well,
18 everything is actually built," and I don't think he was
19 very impressed. However -- yeah, I couldn't backtrack
20 on that anymore. 10:12

21 So then he just -- then he started to kind of ask
22 me, like well, just how and what and when and where.
23 And I kind of explained to him over the phone what I
24 did and why I did it.

25 Anyways, he wanted me to somehow-- he told me then

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1 in -- that my application, it wasn't clearly written
2 how this liner was going to meet the AOPA things.

3 So he asked me either I had to get an engineer to
4 approve it; two, I had to follow the Agdex guidelines,
5 either take this RCC out, put in clay or put concrete
6 overtop or something to follow those Agdex guidelines;
7 three, I can keep going with exactly what I had written
8 down, so Part 1. Part 2, Ms. Snowdon had already
9 deemed it finished or complete earlier on. And -- but
10 if I were to continue with the way it was written, it
11 was going to -- he would give it a no. 10:13

12 So he already had somewhat -- if it kept going the
13 way it was, he was really going to wash it off the
14 table.

15 And my fourth option was to withdraw from the
16 permit. Well, none of those options made sense to me,
17 other than getting this RCC liner approved by an
18 engineer.

19 So I contacted Mr. Lobbezoo, and he was willing to
20 provide the documents necessary to get this material
21 approved, especially because it was already -- it
22 wasn't like I was the first producer to lay RCC. And
23 permit-wise, I was Number 3; install-wise I was
24 Number 2. So it kind of struck me as well like why, if
25 Mr. Cumming was so new to RCC and he wanted me to 10:14

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1 provide all these documents to prove that it met the
2 liner, why was that not done on Stronks' file?

3 So I was Number 2 to lay RCC, and yet all these
4 documents had to come out of my hands when it was
5 already used as a permit liner in Stronks' file.

6 So it was kind of frustrating. Yes, I thought
7 this would be quite easy because I was not Number 1. I
8 could understand if I was the first person to use RCC
9 as a liner, that there would be questions. Well, what
10 is this? Is this going to pass all the guidelines, or
11 whatever. 10:14

12 But the fact that I was Number 3 for permit-wise
13 and Number 2 for installing, I thought this kind of
14 would have been done or that this was already taken
15 care of. But obviously it somehow wasn't.

16 Q. Mr. Muilwijk, just to confirm, did you feel like you
17 had been through a fair NRCB process?

18 A. MR. MUILWIJK: No.

19 Q. Considering the work that had been done at Stronks' and
20 the approval process that you were seeing? 10:15

21 A. MR. MUILWIJK: Definitely not. Especially with
22 the -- and when I was asked to bring forward all these
23 documents from my engineer to show that it met the AOPA
24 regulations, I thought to myself, This should have been
25 done earlier. Why now? Why on the second time? It

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1 just -- for as easy as Stronks' file seemed to have
2 gone, why does it suddenly become so difficult.

3 And I get it, maybe because I laid the RCC prior
4 to the permit, and that's my bad. Like I said before,
5 I was kind of stuck between a rock and a hard place at
6 the time, but...

7 Q. Throughout your process, Mr. Muilwijk, you relied on
8 Mr. Lobbezoo to submit some reports. Do you remember
9 how many reports you submitted or have paid for, how
10 many engineering reports you've paid for?

10:16

11 A. MR. MUILWIJK: I believe we've sent in three
12 reports in all. The first report was towards
13 Mr. Ivarson to show that the RCC was complete. The
14 second report was in October -- or July, and then we
15 had to revise it, and then it got sent again in October
16 and then again a report for the RFR documents.

17 So there's been several documents sent by a
18 professional engineer to show that, look, what is done
19 here has been done good and done proper.

20 Q. So just to confirm, your submissions prior to
21 Mr. Cummings' decision was a response to an enforcement
22 order?

10:17

23 A. MR. MUILWIJK: Yes.

24 Q. And a letter, sorry, a report from Mr. Lobbezoo on
25 October 29th and then an amended version of that report

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1 on November 6th?

2 A. MR. MUILWIJK: Correct.

3 Q. And those were the submissions that were used for
4 Mr. Cumming's decisions?

5 A. MR. MUILWIJK: Yes.

6 Q. Was there any other information that you sent to
7 Mr. Cumming?

8 A. MR. MUILWIJK: So he did ask for -- to change the
9 catch basin size. He asked for a site map for the
10 boreholes. He asked for soil testing -- the soil
11 testing reports. That was all the information that he
12 had asked.

13 Q. He did -- sorry to clarify, he did ask -- or did send
14 you the Agdex concrete documents?

15 A. MR. MUILWIJK: Yes, several times.

16 Q. Several times. And he put some emphasis on that your
17 concrete was to demonstrate the particulars in that
18 document?

19 A. MR. MUILWIJK: Yes, which I was kind of given the
20 option either an engineer had to approve it or I had to
21 follow these Agdex guidelines. But then he -- seemed
22 to me like he had to try to mix the two together, the
23 engineer had to somehow prove that it met those Agdex
24 guidelines. And that's where it threw me off.

25 Q. Does the criteria in the Stronks' file, the Stronks'

10:17

10:18

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1 permit, does it appear to you to reflect the criteria
2 in the Agdex documents?

3 A. MR. MUILWIJK: No.

4 Q. Did Mr. Cummings initiate any sort of correspondence
5 after November 6th with you that he would suggest that
6 he, as an approval officer, had closed your file and
7 deemed your application complete?

8 A. MR. MUILWIJK: Could you say that...

9 Q. Did Mr. Cummings ever indicate to you that he deemed
10 your application complete, meaning he didn't need any
11 more information? 10:19

12 A. MR. MUILWIJK: It seemed to me he had everything
13 he needed, and he definitely didn't ask for any more
14 information.

15 Q. Did he ever -- did Mr. Cummings ever issue a deficiency
16 letter?

17 A. MR. MUILWIJK: No.

18 Q. A deficiency letter would have been an email or a
19 letter that would have said information is missing?

20 A. MR. MUILWIJK: No, nothing. And I did email him 10:19
21 toward the end under your guidance just to ask -- to
22 make sure that we didn't miss any information sending
23 it in. Because on the November 4 in-person meeting, we
24 had -- he had asked me to send a site -- or like the
25 borehole information -- I forget exactly what was all

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1 included in that email -- or in that -- yeah. I wasn't
2 always sure, maybe I'd forgot to send to ask of
3 information.

4 So then I emailed him in January 1, and I asked,
5 "Like is there -- I sent you A, B, C, D. Is there
6 anything else that you might still need or that I
7 missed sending in?" And I emailed it several times
8 because it seemed like I was not getting any -- any
9 real answer. I was just going in a cycle, and we
10 weren't getting anywhere.

10:20

11 MR. METHERAL: File manager, can you bring up
12 Exhibit 64, please.

13 A. MR. MUILWIJK: You can maybe scroll down toward
14 the bottom to my first email.

15 Yeah, at that November 4 meeting, Mr. Cumming had
16 asked me if I could send him the soil testing report, a
17 map indicating where the core samples were taken, and
18 he wanted me to make a few changes on the report for
19 Mr. Lobbezoo.

20 All of this was sent to him. And then -- yeah.
21 In this email, I asked, "Is there anything else that
22 you need? Is there anything that you're waiting for?"
23 And it -- his answer, if you scroll up, it was more of
24 a roundabout way that I couldn't...

10:21

25 MR. METHERAL: To the top of this document,

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1 please, file manager. Okay. File manager, can you
2 bring up Exhibit 65. Okay.

3 Q. Arie, are you familiar with this email here?

4 A. MR. MUILWIJK: Yes.

5 Q. This is from January 4th?

6 A. MR. MUILWIJK: Yeah.

7 MR. METHERAL: If we have a quick look at what
8 this email says -- or going to the bottom of the email
9 first, file manager, please.

10 Q. Arie basically is asking for more information.

10:22

11 Okay, if we roll up. This was a Monday,
12 January 4th. Andy responded with what he re-sent on
13 January 1st. If we scroll up, he responded back:
14 (as read)

15 "Maybe I'm not understanding, but your
16 email does not answer my questions. If
17 you're unsure what I'm asking, please
18 call me. Thanks, Arie."

19 And Andy's response was: (as read)

20 "Hello. I understand you to be asking
21 whether or not I have sufficient
22 information to process your application.
23 Assuming that my understanding is
24 correct, I want to confirm that I have
25 sufficient information to process your

10:23

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1 application and am currently doing so."

2 Are you familiar with that email and response?

3 A. MR. MUILWIJK: Yes.

4 Q. Did you believe you needed to follow up in any further
5 way with Mr. Cumming?

6 A. MR. MUILWIJK: No. I had asked several times,
7 and I thought, yeah, after him resending the first
8 email twice, then receiving this email, I thought it
9 seems like he should have enough information to
10 continue what he's doing, which really shocked me when
11 I then went through his summary and I just -- time
12 after time he was missing information on this, missing
13 information on that, when he had several opportunities
14 to go through it.

10:23

15 And that's one more thing I want to touch on with
16 my story. He took the file over in May, and I kind of
17 explained to him how I did the process with installing
18 RCC. And it seemed like he still -- yesterday he was
19 saying he did not really get any clear information how
20 the bed was prepped, how -- any of that information
21 concerning the installation, nor was I ever asked it by
22 him.

10:24

23 I sent him a bit of an email at one point in time
24 just to indicate roughly how I had done it all, and he
25 never asked for any further information. I was more

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1 than willing to provide any other information
2 concerning the -- how the RCC was installed.

3 And as well, I would like to relate one more
4 little story -- story, a little addition. Mr. Cumming
5 had -- when I -- when he took the file over, it seemed
6 like he was making it very difficult for the RCC. I
7 asked him too about Stronks' file. They seemed to have
8 RCC, and everything went fine, no big deals with the
9 permit. So I asked him like what is the difference --
10 what makes it -- mine so different than Stronks' file. 10:25
11 We were doing exactly the same thing. And he mentioned
12 to me Stronks, they have enough clay. Like they had
13 already had an existing clay liner, so they were just
14 placing RCC on top of the clay. I thought, okay,
15 whatever. And I just thought about that for a while.
16 You know, this doesn't make sense.

17 Then on November 4, when he met me in person on
18 site with Mr. Buscar (phonetic), I asked him again. I
19 said, "You know, you mentioned to me that Mr. Stronks
20 had clay as an underlying liner." So I asked, "Why 10:26
21 would Mr. Stronks put an engineered liner on top of an
22 existing clay liner, why would he go through all that
23 work if he already had an existing clay liner?" That
24 made no sense to me.

25 And then Mr. Cumming kind of went and backtracked

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1 a bit and said it was a very complicated file, and --
2 but it just -- why not be honest with me right off the
3 bat is -- definitely he could have been a little more
4 honest there right at the start and just say, "No,
5 look, this was a new thing."

6 Q. Mr. Muilwijk, I would also ask you to confirm the email
7 from science tech team from November 3rd. I believe
8 that is Exhibit -- sorry, I apologize, I'll find this
9 exhibit first.

10 Mr. Muilwijk, can you talk about the costs that
11 you're experiencing from what would be what you thought
12 was the fall of 2019 where you were expecting an
13 approval and the -- starting at that time, what are the
14 costs that you've seen due to the delays and the
15 changes and the engineering work that you've had?

16 A. MR. MUILWIJK: Well, definitely I've had to
17 provide several documents concerning these -- to show
18 that this RCC is an approved liner. So I -- yeah,
19 Mr. Lobbezoo has sent several documents, which I will
20 have to pay for. Yeah.

21 And then going from basically assuming that this
22 permit was going to go through in a short amount of
23 time to where we are now, in the middle of a hearing,
24 the engineering costs have been in the tens of
25 thousands of dollars. Never mind that all this time,

10:27

10:27

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1 I've been waiting for a permit as well. I haven't been
2 able to populate my facility to its full capacity,
3 which is in the tens of thousands of dollars. I've
4 lost income there because I've only been sitting at
5 half -- instead of running let's say 1600 head, I've
6 only been able to run 500 head the last few months.
7 And that's all due to other issues too concerning my
8 enforcement water and whatnot.

9 And I agree that that had to be put in place, and
10 that's fine. But if this permit had been granted as to
11 when Ms. Snowdon said it would be through, that's a
12 year and a half now since November 14 basically to now
13 where things have been up in the air.

14 I've had workers go through as well. Yeah. It's
15 been a -- it's been quite a -- quite a journey.

16 Q. So there has been added expenses --

17 A. MR. MUILWIJK: Definitely.

18 Q. -- to your operation?

19 MR. METHERAL: Okay, file manager, can you bring
20 up Exhibit 48. I found what I'm looking for here.
21 Yes, this is the one. This is an exhibit from
22 Walter Ceroici and the response from the science tech
23 team. We had a quick discussion with Andy about this
24 yesterday.

25 If we look down at the bottom of this page, I'll

10:28

10:29

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1 let the Board read this document. It's an exhibit --
2 or introducing the Wood report -- that's good --
3 introducing the Wood report from Mr. Lobbezoo. If we
4 scroll up, the correspondence from Mr. Lobbezoo to
5 Arie, and then -- scroll up, up, up. And then from
6 Mr. Cumming, he's asked his science tech team to help
7 him understand the submission. And keep in mind this
8 is the October 29th submission. In this we see that
9 Mr. Cumming describes it as 6 inches to 7 inches of
10 roller compacted concrete to make a durable liner
11 professionally installed.

10:30

12 Now, we're talking about the report that he's just
13 received with all the details about how the liner meets
14 criteria, and in his next sentence, it suggests there's
15 no additional information provided.

16 MS. VANCE: Mr. Chair, it's Fiona Vance. I'm
17 sorry to interrupt, Mr. Metheral, but this email does
18 not have anybody on your panel participating in it
19 except maybe at the bottom where the report was
20 forwarded.

10:31

21 MR. METHERAL: Yeah, I'll get to my point.

22 MS. VANCE: I'm just hoping that you're
23 getting to a question that Mr. Muilwijk can answer.

24 MR. METHERAL: Yeah, I will.

25 MS. VANCE: Thank you.

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1 Q. MR. METHERAL: We'll scroll up to the next
2 correspondence. It's the response from Walter, and it
3 basically asks some questions, provide specific
4 information, resources, and provide a method -- these
5 are the words in red: (as read)

6 "Provide the methodology and the
7 calculations in response to the Woods
8 report."

9 Mr. Muilwijk, did this email ever get forwarded to you
10 from the science tech team?

10:31

11 A. MR. MUILWIJK: No.

12 Q. Did Mr. Cumming direct you verbally that this was a
13 requirement for the -- from the tech team to be
14 answered?

15 A. MR. MUILWIJK: No.

16 Q. Thank you. Arie, do you have any other additions you
17 would like to talk about for your submission today?

18 A. MR. MUILWIJK: No, I don't think so. Just end
19 with an ending statement that all in all, it's been a
20 two-year journey, and it's definitely had some -- yeah,
21 it's been a long journey, and hopefully we can get
22 through this.

10:32

23 Q. Very good. Thank you, Mr. Muilwijk.

24 MR. METHERAL: Mr. Chair, I would move on to
25 Mr. Lobbezoo's exhibits.

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1 THE CHAIR: Yes. Perhaps we could take --
2 well, what would be now 13 minutes. Let's take till
3 10:45 for a short break and then continue at that point
4 with Mr. Lobbezoo. I think it's a reasonable break
5 point here.

6 Thank you very much, and thank you, Mr. Muilwijk.

7 (ADJOURNMENT)

8 THE CHAIR: Okay. So, Mr. Metheral, please
9 continue with Mr. Lobbezoo.

10 MR. METHERAL: Thank you, Mr. Chair.

10:50

11 Q. I would ask Mr. John Lobbezoo to provide his statements
12 here. Can you perhaps start with your education and
13 experiences?

14 A. MR. LOBBEZOO: Sure. So John Lobbezoo here.

15 I grew up in southwestern Ontario, on a farm
16 actually, a small family farm, so that's where my roots
17 would come from, if you will.

18 In 1992 I entered Fanshawe College. I got a
19 diploma in civil engineering technology. My first
20 experience as a materials testing technician, if you
21 will, was in a co-op program in 1994 for the Ministry
22 of Transportation of Ontario.

10:51

23 After graduating I -- from the college, I came to
24 Alberta, and I started in 1996 as a geotechnical
25 technologist for a national company. It was

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1 Jacques Whitford at that time; it's Stantec now.

2 I was responsible in those days for concrete and
3 compaction testing, as well as geotechnical drilling,
4 logging boreholes. Included with that would be
5 environmental assessments, including monitoring well
6 installations and monitoring, and the like.

7 So in those days, it did become apparent that to
8 move forward in that career, you needed to have a
9 degree. So in 1999, I entered Lakehead University. I
10 graduated in Lakehead in 2001.

10:52

11 In Lakehead, given that I was a geotechnical
12 technologist prior, I did focus, where I could, on
13 geotechnical engineering. And at that time we had a
14 new professor that came from the University of
15 Saskatchewan to Thunder Bay, Dr. Si Vanapalli, and he
16 was really interested in unsaturated soil mechanics.
17 This was an emerging sort of subdiscipline, if you
18 will, to geotechnical engineering. It's a subset, I
19 suppose, of saturated soil mechanics that we base this
20 all -- most of our conventional calculations and
21 geotechnical wisdom on.

10:52

22 So with Dr. Vanapalli, I did my degree project for
23 him. And if you would Google my name, along with "soil
24 permeability," you would readily see various articles
25 that I had authored and coauthored, conference

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1 proceedings pertaining to soil permeability,
2 unsaturated soil permeability in particular. And what
3 we were looking at was how do you predict unsaturated
4 soil permeability relative to saturated soil
5 permeability. And I'll talk about that later, but just
6 as a background, I just wanted to get that in there.

7 Okay. So after graduating in 2001, I joined a
8 consulting firm in Thunder Bay. I had no money to
9 leave Thunder Bay, so -- but it was good. I was
10 primarily a geotechnical engineer, but also an
11 environmental -- I did a lot of environmental work.

12 So one of the key things that we did was look at
13 wood waste sites and the landfills and monitoring
14 programs for those and outlining attenuation zones and
15 in essence keeping the regulators happy.

16 So I did that until about 2005, at which time I
17 got transferred through that same company to
18 southwestern Ontario.

19 So in southern Ontario, this was home for me.
20 This was a return to home for me. This was London. I
21 quickly was exposed to the Ontario Ministry of
22 Agriculture, Food, and Rural Affairs; they call that
23 OMAFRA. They had adopted similar regulations to AOPA
24 in 2003, and at that time, the farmers were also
25 struggling with, you know, adopting that and playing by

10:53

10:54

1 these rules.

2 So very quickly I was doing site characterization
3 after site characterization all over southern Ontario.
4 Having a farming background and knowing many of these
5 people, that was a good fit.

6 My wife is from Alberta, so in 2009 we moved home
7 for her, and that's when I joined this office in
8 Lethbridge, Alberta.

9 When I joined here in Lethbridge, I was in the
10 capacity of a senior engineer at that time, and it
11 didn't take very long to sort of be presented with some
12 of the dilemmas that our producers were facing and
13 their challenges with the NRCB. Of course, I got to
14 start with a couple of problem files, and what I found
15 was that we had consultants; sometimes they weren't
16 professional engineers, sometimes they were. They were
17 providing the NRCB with bits and pieces of data so that
18 the approval officer could fill in Part 2 of the form.
19 And they were leaving the approval officers to their
20 own devices, and sometimes with the technical support,
21 maybe often, I don't want to speak too much for them,
22 to make a decision on whether a site met the definition
23 of a hydraulically secure site as far as subsection --
24 or Section 9 subsection (5) of the AOPA goals.

25 And it was very obvious that was a problem. And

10:55

10:56

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1 it was like if you read the AOPA, this just needs to be
2 an engineered opinion; right? Let's lay out the data
3 and provide the engineered opinion.

4 And so I did that, and it took a couple of
5 iterations at first, but I was able to, you know,
6 outline the calculations that they wanted, show what
7 the equivalent depth thicknesses were to compare it
8 directly to the letter of the law, if you will, the
9 AOPA. And I can say in short we developed very quickly
10 a healthy working relationship with AOPA where I could
11 work with the farmers and on their behalf provide an
12 engineered opinion to support their NRCB permit
13 applications.

10:57

14 So I think that's important just to understand how
15 I would approach the view of the RCC being the -- an
16 acceptable liner; right? The AOPA provides the
17 criteria, and they offer the opportunity for the
18 engineer to make his opinion, provide his opinion on
19 whether this meets or not. So this is the mindset that
20 I go into.

10:58

21 So when I write a letter providing that opinion, I
22 expect that that carries weight and satisfies the AOPA
23 requirements.

24 They -- again, there has been back and forth
25 between these previous submissions, and I'm always

1 happy to clarify and provide NRCB with what they want.
2 That's the relationship that I have developed with
3 these approval officers.

4 I need to move this along.

5 Q. So perhaps can you tell us a little bit about your
6 experience with concrete?

7 A. MR. LOBBEZOO: Sure, okay. So when I joined this
8 Lethbridge office, one of the staff members here was a
9 40-year veteran of -- technician. He was -- he had
10 extensive experience in concrete, concrete mix designs,
11 issues relating to concrete, and I had the privilege of
12 working side by side with him for a couple -- for three
13 years, three and a half years; after which,
14 unfortunately, he did pass away.

15 He got me into creating mix designs and, you know,
16 identifying the problems, problems with mixes, problems
17 with placement, different challenges that we have with
18 our aggregates in this area. It was a wealth of
19 expertise that I could start with.

20 In this area, we have, as you may well know,
21 numerous Hutterite colonies, and many of them have
22 their own concrete batch plants. So there is ample
23 opportunity here to provide different mix designs for
24 different materials for so many different providers.

25 When I was in the previous cities, in Thunder Bay

10:59

11:00

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1 or in London, for instance, you only got your concrete
2 from a handful of places, that was it. And Lafarge had
3 all of their own people, Inland had their select
4 crew...

5 THE CHAIR: For some reason -- can anybody
6 hear me? I'm not hearing Mr. Lobbezoo.

7 MR. WIEBE: I can hear you as well. I imagine
8 his connection may have dropped.

9 THE CHAIR: Yeah. So everybody is having the
10 same issue then?

11:01

11 MR. GRAHAM: Yeah.

12 MS. FRIEND: This is Laura. And yeah, it looks
13 like they're frozen on the screen, but I can hear
14 everyone else.

15 THE CHAIR: So we'll just give them a second.
16 Oh, there we go. They may try to sign in again.

17 MR. WIEBE: They did. Yeah, they left and
18 they'll --

19 THE CHAIR: Oh, here we go. All right.

20 Oh, welcome back. Something happened. A little
21 drop in your signal, or...

11:01

22 A. MR. LOBBEZOO: Any idea where we ended?

23 THE CHAIR: Yes. So, Ms. Gerbrandt?

24 THE COURT REPORTER (By reading): You ended:

25 "When I was in the previous cities, in

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1 Thunder Bay or in London, for instance, you
2 only got your concrete from a handful of
3 places, that was it. And Lafarge had all of
4 their own people, Inland had their select
5 crew..."

6 And that's where it ended.

7 THE CHAIR: Thank you.

8 A. MR. LOBBEZOO: Yes, thanks.

9 Okay. So when I came to Alberta with all these
10 small producers, there was credible opportunity to
11 provide, you know, all of these mix design information
12 to all these small producers. So that's been quite an
13 opportunity in the last number of years for me at this
14 office.

11:02

15 Beyond that, as far as concrete experience goes, I
16 am -- our lab here is a member of the CCIL. It's a
17 CCIL-certified laboratory, and I'm the responsible
18 engineer for that laboratory. Our office is a member
19 of Alberta Ready Mix Association, and I am a -- with
20 the Ready Mix Association, I'm a qualified member -- or
21 qualified inspector to inspect batch plants.

11:03

22 So that would be my concrete experience.

23 So in terms of RCC, I just want to discuss the
24 experience that I have on that. Again, I referenced
25 the previous technician that was in this office. That

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1 technician had quite a bit of experience with
2 soil/cement stabilization and doing that on roadways.
3 He had some experience with flyash stabilization in
4 feedlots, particularly for feed alleys and those sorts
5 of things.

6 And then in -- just after 2010, I know Cody said
7 2012 in his presentation, but it was a little bit
8 earlier when Ed Stronks started with his rototilled
9 gravel/cement flyash blend in the first series of pens.

10 So this office was directly engaged with that with
11 the support of this previous technician that worked
12 here.

13 And it wasn't too long after that that I started
14 getting involved with that.

15 In about 2014 -- did I go off again?

16 THE CHAIR: No, you're good here. Does
17 everybody else hear... Okay.

18 A. MR. LOBBEZOO: I had a thing flash on my screen
19 that said "connection unstable."

20 THE CHAIR: That may be what happened before.
21 That usually tells you Zoom is saying that you've got a
22 little bit of a weak connection perhaps, so we'll see
23 how it goes.

24 A. MR. LOBBEZOO: Okay.

25 In 2014 I was approached -- so after Stronks did

11:04

11:04

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1 his initial in-place compaction of RCC, Stronks moved
2 to blending it in an old tub grinder at the edge of the
3 feedlot and bringing that material into his -- into his
4 pens and doing it that way. And this office had some
5 involvement with that as well.

6 My understanding is that that was not a real
7 feasible approach for Mr. Stronks. So then he went to
8 look for a supplier to provide this material for him,
9 and that's when, as I understand, Goldridge Sand &
10 Gravel became involved with that. And the reason why
11 that's important is Goldridge Sand & Gravel initially
12 came to this office, to me in fact, to work with them
13 on various mix designs with materials that they had.

11:05

14 So I supported them in preparing mix designs. We
15 did test batches in this lab. We did compressive
16 strength testing. We did freeze/thaw testing. We
17 cycled cores through freeze/thaw cycles to see how
18 they -- what kind of losses there would be with respect
19 to difference materials that they had been using. And
20 of course I can't disclose all of the particulars of
21 that, because that's proprietary, as far as Goldridge
22 goes.

11:06

23 But, nevertheless, in terms of my experience,
24 that's where my real involvement with RCC began.

25 In about 2015, as you are aware, Alberta

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1 Agriculture did this animal health study; maybe it was
2 2016. All of the cores that were sampled by them came
3 through me, came through this office. I reviewed them
4 all. We trimmed them, we tested them, we ground up
5 samples and sent them to chemical laboratories. I
6 don't know how many cores that came through there.
7 Well over 100 cores that they did they brought here.

8 I continued to support Goldridge, probably through
9 to about 2018, and in the meantime -- or in that time,
10 I started supporting Prairie Stone. And Prairie Stone
11 is a supplier of the Gold -- of the subject, the
12 Muilwijk project.

13 Initially, we were not doing mix designs for them;
14 John Both was doing that. But we were doing the
15 compressive strength testing for Prairie Stone, and we
16 were doing his grain size analysis to support mix
17 designs.

18 And then in the last couple of years, we've done
19 some test batches for Prairie Stone. Prairie Stone,
20 their approach to concrete would be to source materials
21 proximate to the project site and set up their plant
22 there and use that material.

23 So when they would have possibly challenging
24 materials, they would bring them to the office. We
25 would look at them. We would blend them appropriately

11:07

11:08

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1 and run test batches to make sure that we were getting
2 the product that they were looking for.

3 So that would generally summarize my experience
4 with RCC.

5 There is one other item. There is an industrial
6 road near Lethbridge that was proposed for RCC. I did
7 the engineering submission to support that RCC roadway
8 project, potentially also as a test section. That
9 project did get built, and we were involved with
10 inspection and testing on the first half of that
11 roadway. We have not been involved in the last year.

11:09

12 That would -- I think that would summarize my
13 experience.

14 Q. MR. METHERAL: Great. Can you now speak to your
15 experience with RCC installation, Mr. Lobbezoo?

16 A. MR. LOBBEZOO: Okay. So expand on your question.

17 Q. Just talking specifically -- give us some quick
18 examples of the producers you worked with for RCC
19 installation and the Stronks' permit that you guys
20 supported?

11:10

21 A. MR. LOBBEZOO: Okay, yes. Okay. I think where
22 this is leading to is my involvement with the Stronks'
23 project, and I think that's important for this
24 discussion.

25 With the Stronks' project, the way that we would

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1 start a project, the way the producer would start a
2 project is he would contact me. We would talk about,
3 you know, does your site meet natural-occurring
4 protective layer. So when things initially started at
5 Stronks, at least my involvement, was when the driller
6 went to site to drill the boreholes and, you know,
7 prepare permeability test wells to support an
8 application.

9 Basically what happened is the driller phoned me
10 on that project and said, you know, he's not going to
11 be able to set up test wells; it's not going to meet
12 hydraulics protective layer.

13 So my next involvement on that was during the
14 actual installation, I had a discussion with Carina,
15 maybe two discussions with Carina Weisbach, that's
16 Ms. Weisbach, of the NRCB. She was the approval
17 officer, but really limited involvement with the actual
18 Part 2 of the application. We did get involved when
19 the RCC went to construction.

20 So at that time, we had technicians working for
21 Sub-Terrain during the placement to monitor compaction
22 and make sure that they were achieving their densities.
23 And we were referencing, of course, the NRCB permit for
24 that.

25 Q. And to confirm, Mr. Lobbezoo, the concrete supplier

11:11

11:11

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1 was?

2 A. MR. LOBBEZOO: The concrete supplier was
3 Prairie Stone.

4 Q. Prairie Stone Concrete. The installation crew was?

5 A. MR. LOBBEZOO: The installation was done by
6 Sub-Terrain -- was it excavating, Sub-Terrain.

7 Q. And the RCC mix design was?

8 A. MR. LOBBEZOO: I understand that was provided by
9 John Both, but I did not provide that.

10 Q. All right.

11:12

11 A. MR. LOBBEZOO: Where I came in was I was the one
12 that actually signed the substantial completion report.
13 I provided the stamped engineered letter in accordance
14 with the permit conditions on that project.

15 Q. Thank you.

16 A. MR. LOBBEZOO: So that would be my experience.

17 Q. Okay. If we move to your experience at the Muilwijk
18 site?

19 A. MR. LOBBEZOO: Yes.

20 Q. What can you tell me about Arie's site and the work
21 that was completed?

11:13

22 A. MR. LOBBEZOO: Okay. I was first contacted by
23 Arie very early on in his experience with NRCB. I
24 would expect that I was on site shortly after his first
25 contact with Mr. Ivarson where we went to site and

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1 started drilling boreholes and looking at the actual
2 soil to see if there was a near-surface clay layer that
3 we could perhaps test to see if it would meet a natural
4 occurring liner.

5 That was done in conjunction with some drilling
6 that Chilako Drilling did, and the determination at
7 that time was, no, these site soils are not going to
8 meet natural occurring liner. We weren't going to try
9 to argue that the uppermost groundwater resource was
10 going to not be present or whatever and try to -- we
11 weren't going to try to mobilize the underlying till
12 for his permit. We thought that was too much of an
13 uphill battle.

11:14

14 So the next time that I got involved was when they
15 started discussing RCC. I had understood that there
16 was a permit application that was put in place for
17 that, and I had no involvement with that.

18 When I got involved was a phone call with -- from
19 Sub-Terrain Excavating immediately before they were
20 planning or immediately before they came out to do the
21 actual placement. And they in fact asked for me to be
22 on site for that and to monitor the work. And I told
23 them that because they didn't have a permit, I knew
24 that -- I had figured out that they did not have a
25 permit for that work, that it put me in a bit of a

11:14

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1 compromised place. As a professional engineer, for me
2 to be actually on site doing work, it's perhaps not the
3 ethical thing for me to be doing when there's not a
4 permit in place and when I know there's not a permit in
5 place. So I chose not to be on site for that.

6 Nevertheless, I did have a discussion with
7 Sub-Terrain and also with Arie, you know, obviously
8 about the risks with working without a permit, but also
9 I relayed the permit conditions that came with the
10 Stronks' feedlot.

11:16

11 At that time I understand I had recently completed
12 their substantial completion report. I was fully aware
13 of what the NRCB requirements were for RCC having just
14 been through that.

15 So I relayed that information to them. I talked
16 to them about subgrade preparation. I outlined that,
17 you know, once they have their grade achieved, they
18 need to take their compactor and move over it and check
19 the base. And if there was any soft spots, they would
20 need to subexcavate those and reconstruct to make sure
21 that the base was solid moving forward.

11:16

22 I had been on site doing my own shallow boreholes,
23 and I had also reviewed the Chilako Drilling reports,
24 and I generally did not have a concern that the
25 subgrade would be an issue. The subgrade there was

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1 well -- reasonably well drained. The site is -- it's
2 on a bit of a hill, if you will. There is significant
3 relief from the site. The soils are -- are
4 structurally suitable for this sort of activity. I
5 knew that. So I didn't have any concern.

6 Nevertheless, I did discuss the way that the
7 subgrade should be prepared with them at that time.

8 Help me, Cody.

9 Q. Can you also talk about some of the other features
10 about the concrete? The curing for example?

11:17

11 A. MR. LOBBEZOO: Okay, so the curing condition, if
12 you will, that had been placed on the Stronks' was also
13 relayed to the Muilwijks, to Arie Muilwijk and the
14 crew. So I did go over that with them, and they -- I
15 certainly had the understanding that they knew that it
16 needed to be covered with straw, that it needed to be
17 watered.

18 The pictures that I was provided did show that
19 they put a significant layer of straw on that -- on
20 that RCC pad, more than we had seen at the previous
21 installation in fact.

11:18

22 Q. And how about sulphate resistance?

23 A. MR. LOBBEZOO: Okay. That's a little bit of a
24 topic in its own.

25 So sulphate resistance is -- the need for sulphate

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1 resistance in concrete stems to the potential for
2 sulphate attack from the soils. So in the CSA, it's
3 Document A23.1. It's the binder, if you will, that
4 outlines all the CSA requirements for concrete. They
5 provide in Table 1 a long list of the different
6 exposure classifications for concrete.

7 There is a series of A classifications, and they
8 pertain to concrete exposed to manure, manure gases,
9 silage gases, and the likes. With all of those A class
10 concretes, there is no requirement for
11 sulphate-resistant cement. Sulphate-resistant cement
12 specific comes into place where concrete is against
13 soils which contain elevated levels of sulphate, and
14 that would be the S class of concrete.

15 The note in the table also indicates that the
16 concrete can be both an A class and an S class, and
17 that could be considered in this case where concrete is
18 against the soil and the manure. And in that case, it
19 would require sulphate protection.

20 In Alberta -- in southern Alberta here, most of
21 the fine grain soils, the clays and clay tills, contain
22 moderate levels of sulphates, which indicates severe
23 potential for sulphate attack, which, according to the
24 table, indicate that the concrete needs to be certain
25 MPa's to -- and needs to be sulphate-resistant cement.

11:19

11:20

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1 As the soils turn to coarse grain in southern
2 Alberta, particularly your gravels, the sulphates in
3 the soils are negligible. Here in southern Alberta,
4 because so many of the natural fine grain soils do
5 contain elevated sulphates, almost all of the producers
6 are exclusively using type HS concrete,
7 sulphate-resistant cement.

8 Q. In the case of the Muilwijk application --

9 A. In the case --

10 Q. -- do you know if sulphate-resistant cement was used? 11:21

11 A. MR. LOBBEZOO: I understand that Prairie Stone,
12 the supplier, uses sulphate-resistant cement for this
13 very reason, and that would be consistent with most of
14 the plants and operators in this area.

15 Some of the more sophisticated plants are using
16 a -- what -- it's called an HS blend, which is regular
17 cement mixed with flyash and different additives, which
18 they have proved of their own accord that it meets CSA
19 requirements for sulphate-blended cement. That's not
20 the case, as I understand, with Prairie Stone. 11:22

21 Q. And to confirm, at the Muilwijk site, the concrete
22 supplier was Prairie Stone Concrete?

23 A. MR. LOBBEZOO: I've been told that the supplier
24 was Prairie Stone, both by the owner of Prairie Stone
25 himself.

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1 Q. Okay.

2 A. MR. LOBBEZOO: Again, I was not on site to
3 physically see their crew place it.

4 Q. Okay. And the installation crew was Sub-Terrain
5 Excavation?

6 A. MR. LOBBEZOO: Sub-Terrain Excavating, I had a
7 phone conversation with their owner who told me that
8 yes, they were engaged to do it and were doing it. Of
9 course I was not on site to physically see that it was
10 them.

11:23

11 Q. Okay. And the RCC mix design was by Rock Solid
12 Concrete, John Both?

13 A. MR. LOBBEZOO: I have been -- that's what I have
14 been told, yes.

15 Q. Okay.

16 A. MR. LOBBEZOO: And John Both will have to testify
17 to that, of course.

18 Q. Okay. And so those three suppliers, installation crew,
19 and the RCC mix design are the same people that did the
20 Stronks' application or installation?

11:23

21 A. MR. LOBBEZOO: Those are the same three that did
22 the Stronks' installation, yes.

23 Q. Very good, thanks. John, can you talk a little bit
24 about crack control?

25 A. MR. LOBBEZOO: Sure. My favourite.

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1 So there are different ways to look at crack
2 control. In -- when you look at Exhibit Number -- and
3 we don't need to pull Exhibit 77, but when we look at
4 Category A and B, the concrete which are specifically
5 talking about pits, liquid manure storage pits, these
6 are usually smaller pits, and rebar is included to the
7 extent possible, I suppose, to prevent cracking.

8 These are small enough structures in many cases
9 where the shrinkage or whatever or the movement
10 associated with shrinkage can be accommodated within
11 the tensile resistance and compressive strengths
12 properties of the concrete itself. Where they expect
13 cracks in expansion joints or pit-to-floor joints, they
14 are directed to put water stops of one sort or another.

11:24

15 So in small structures, crack control means let's
16 reinforce the structure to the point where we can try
17 to avoid cracking.

18 In larger structures, the forces generated by the
19 shrinking, and perhaps expansion, of the concrete are
20 too much to be accommodated by the addition of the
21 additional tensile strength provided by rebar.

11:25

22 So large slabs, whether they are reinforced or
23 not, are going to crack. And in fact the total
24 summation of crack widths across the entire slab
25 element for very large slabs is probably going to be

1 just as much. The only place where it would be less is
2 along the edges where the tensile resistance of the
3 concrete may be able to mobilize a greater drag force
4 and physically drag the slab further across the
5 subgrade from the edge.

6 Q. Should we use RCC -- should we use saw cuts in RCC to
7 control cracks?

8 A. MR. LOBBEZOO: Yes. So for slabs, when we talk
9 about crack control, what we're saying is we know it's
10 going to crack, so we want it to crack at specific
11 predetermined locations. So in slabs, crack control
12 means we are going out there to physically saw cut and
13 promote cracking in these predetermined locations.

11:26

14 You can imagine that if you talk about crack
15 control in RCC for a pen floor, and we had out there
16 saw cutting at 5- or 6-metre intervals, that would
17 raise the ire of many. But the reality is that is what
18 crack control means when you're talking with large
19 slabs.

20 Q. Okay. So to confirm, solid manure pads that use
21 concrete, traditional plastic concrete, will crack?

11:27

22 A. MR. LOBBEZOO: Yes. And whether they include
23 rebar or not, the total cracking will generally be
24 similar.

25 Q. And crack control is just a way we can control the

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1 manner in which those cracks form?

2 A. MR. LOBBEZOO: That's right.

3 Q. In a solid manure storage pad, those cracks would
4 ultimately fill with manure also?

5 A. MR. LOBBEZOO: Yes.

6 Q. Okay. If we looked at an RCC pad, the cracking would
7 be more at random? Does that make sense?

8 A. MR. LOBBEZOO: It would be -- are you looking to
9 compare cracking between --

10 Q. Versus controlled -- would it be controlled cracking or 11:28
11 more of a random cracking?

12 A. MR. LOBBEZOO: Well, without saw cutting, it
13 would be -- it would be as random as with conventional
14 concrete. If it's conventional concrete that's
15 reinforced, the crack spacing in that conventional
16 concrete, all things being equal, may be further apart
17 than for RCC.

18 However, there are many other considerations that
19 come into this. Specifically, cracking of RCC -- total
20 cracking in RCC is generally substantially less than 11:28
21 conventional concrete. So -- and there are a few
22 reasons for that.

23 When you have conventional plastic concrete and
24 you have all this water and liquid and a less dense
25 concrete matrix, as the water -- as the concrete cures,

1 that initial curing, it shrinks as the water is drawn
2 out of it.

3 In RCC, because the water content is so low and
4 the mix itself is denser, you don't have that
5 shrinkage, that initial shrinkage like you do with
6 conventional concrete. And that is substantial.

7 So when it comes to shrinkage cracking or cracking
8 of RCC, and John Both will speak more to this, but in
9 my opinion and from my experience, it appears that the
10 cracking in RCC is predominantly limited to thermal
11 cracking or thermal response to thermal expansion or
12 contraction of the concrete slab itself.

13 And when we take -- when we assume a temperature
14 differential, we can predict what that cracking may
15 look like under -- under sort of extreme thermal
16 temperature changes.

17 In the case of RCC and a temperature differential
18 of 60 degrees, so minus 30 to plus 30, if you will, I
19 had calculated in the previous reports what that
20 cracking was. And I don't have it off the top of my
21 head. I think I calculated 5 millimetres per 10-metre
22 length.

23 Q. Okay. But ultimately on a solid manure pad, for RCC
24 installation, we would see some cracking and infilling
25 of those cracks with manure?

11:29

11:30

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1 A. MR. LOBBEZOO: Yes. Yes. Obviously if there's
2 manure ovetop of it and the cattle are walking and
3 trodding over it, it will work its way into the cracks
4 eventually.

5 Q. Okay. John, I would like to move on to your reports
6 that you submitted. If we would consider your report
7 from October 29th and October or November 6th, the
8 approval officer asked you to modify your October 29th
9 report. What were the changes that he asked you to
10 make? And how did they arrive to you?

11:31

11 A. MR. LOBBEZOO: So the request came through
12 Mr. Muilwijk, and the feedback that I got through
13 Mr. Muilwijk was that they were very happy with the
14 report that was submitted, that they were looking for
15 specific backup information to the core samples. So
16 they wanted -- when I would say the density of the core
17 was the range that I provided, they wanted to see the
18 individual core densities. They wanted to see the
19 individual thicknesses. That was my understanding
20 through Arie. They wanted those details.

11:32

21 And then in that October 29 report I had -- I had
22 spent some space in the report, if you will, talking
23 about RCC compared to conventional liners, compacted
24 clay liners, reinforced concrete liners, high density
25 polyethylene liners, steel liners, if you will. And

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1 one of the -- one of the arguments that I made was that
2 when a feedlot has a compacted clay liner, there is no
3 mechanism for, you know, NRCB to follow up after pens
4 are cleaned out and the liner is lost and different
5 material is brought in or the liner just completely
6 disappears.

7 So my argument was on that basis, the RCC was
8 much, much better. It was much more robust. We know
9 that it lasts. And, you know, in comparison to all
10 these other liners, RCC was probably one of the most
11 favourable liner approaches.

12 So the feedback that I got was, well, as an
13 engineer, you actually also supported the construction
14 of those liner approaches. So it may not be so helpful
15 for you to be saying something like that into a public
16 record.

17 And I read through the lines saying, okay, well,
18 they're spinning it on me, but the NRCB actually does
19 not want that in the public record. They would rather
20 not because that would not be good for business, if you
21 will.

22 Q. So just to confirm, the modifications were some
23 additions, but also removal of a couple parts of your
24 report?

25 A. MR. LOBBEZOO: Yes.

11:33

11:34

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1 Q. Where you were just asking or bringing to their
2 attention that multiple liner types may have different
3 inspection or repair and maintenance plans?

4 A. MR. LOBBEZOO: Yeah.

5 Q. Okay.

6 A. MR. LOBBEZOO: And the key there really for me
7 was to promote RCC as a favourable alternative to these
8 other -- other liners.

9 Q. Right. You were just promoting RCC. Okay, very good.

10 You've really worked on this idea of the
11 calculations and the methodology being missing from
12 that October 29th report. Do you have the calculations
13 available --

11:35

14 A. MR. LOBBEZOO: Yes.

15 Q. -- that you did? And if they would have been asked
16 for, you could have reproduced them -- or produced
17 them?

18 A. MR. LOBBEZOO: Yes.

19 Q. When we talk about the Wood report from 8 -- this is
20 the submission that you again supported for the Board
21 review. What was your approach there of that report?

11:35

22 A. MR. LOBBEZOO: You're referring to the April 8th?

23 Q. April 8th submission for the Board, you provided some
24 more calculations and some more illustrations. What
25 was the purpose there?

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1 A. MR. LOBBEZOO: In response to the decision where
2 it became apparent that they were looking for the
3 actual calculations, for one, yeah, that was it.

4 Q. Just to better illustrate the calculations?

5 A. MR. LOBBEZOO: Yes.

6 Q. And help us move through this -- the mathematical piece
7 of what the regulations say and how the calculations
8 could be worked out to show how roller compacted
9 concrete can be the liner? Is that accurate?

10 A. MR. LOBBEZOO: Sure. So the approach that I took
11 initially was -- in essence I was looking at the
12 proportion of RCC relative to the proportion of
13 cracking. So in 100 square metres, what was the area
14 of cracking or what could be the area of cracking and
15 what was the area of RCC.

16 Scott -- Mr. Cunningham laid his calculations out
17 yesterday, and my approach -- my initial report was
18 slightly different just in the thought process in that
19 all I was looking for was a proportionate or a
20 composite permeability.

21 Mr. Cunningham stepped through how he got to that
22 level through Darcy's equation. Darcy's equation is an
23 equation which allows you to calculate -- well, it's a
24 relationship between quantity of water, if you will,
25 and the coefficient of permeability and the area. And

11:36

11:37

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1 it includes the -- and Mr. Cunningham talked about the
2 I or the gradient as well.

3 In this case, the AOPA simply talks about the
4 coefficient of permeability, and that's what I was
5 after, along with the area.

6 So our thought process to get to that point was
7 slightly different, but the net result was
8 Mr. Cunningham was doing the -- pretty much the exact
9 calculations that I was.

10 Q. Okay.

11:38

11 MR. METHERAL: File manager, can we pull up the
12 Wood report from April 8th, Exhibit 98, and
13 page number -- page 2, middle of the page. We want to
14 bring this to the Board's attention.

15 Q. Mr. Lobbezoo, you've done a calculation here that --
16 it's the paragraph that says: (as read)

17 "It is noted..."

18 At the end of that, in this calculation, you've kind of
19 suggested that -- and I'll try and phrase this, once the
20 con -- RCC is placed on day one, there are no cracks.

11:39

21 A. MR. LOBBEZOO: Yes.

22 Q. You worked through the calculation considering
23 crack-free RCC permeability liner thickness. You've
24 given us an estimate of 100 times the AOPA
25 requirements. Does that make sense to you?

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1 A. MR. LOBBEZOO: Yes.

2 Q. You're comfortable with those calculations. So on day
3 one no cracks, the RCC will be 100 times the
4 requirements for AOPA. But you've taken that a step
5 further; you were asked to address crack control or
6 cracking. So we see this move towards having open
7 cracks or cracks that are growing and infilling with
8 manure and the glading effect as also a barrier. So
9 your calculations do consider cracking?

10 A. MR. LOBBEZOO: Yes.

11:40

11 Q. And that would be the next part of your submission and
12 kind of the -- similar in both submissions?

13 A. MR. LOBBEZOO: Yes.

14 Q. Can you maybe describe to us the assumption of this
15 glading effect and how a small crack will start to be
16 infilled with organic material?

17 A. MR. LOBBEZOO: All right. So obviously when
18 you're considering cracking and the permeability
19 through cracking -- document manager, I think you can
20 put this down for now -- there are different
21 approaches. And initially I was looking at the
22 permeability of the -- the assumed permeability of the
23 material under the slab, if that material would work up
24 through the crack or somehow get in the crack over the
25 permeability of that and looking at those permeability

11:40

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1 numbers. I thought, no, this would be more of a manure
2 approach and how could we look at that. What is
3 glading? Is it actual manure or is it broken down
4 material?

5 I did defer to this report that Jim Miller and
6 others have done when they explored in southern Alberta
7 permeability through the base of various pens. So I
8 would like to talk about that a little bit.

9 What was happening was that people were observing
10 that underneath a manure pack in sandy or sites that
11 did not meet the AOPA, there was this black layer, this
12 slimy layer, if you will, that the pervading opinion
13 was at that time that this layer was sealing off the
14 soil to prevent groundwater from going down, and that
15 layer, could it, should it be considered as a liner
16 perhaps to meet the regulatory requirements.

11:41

17 So there was testing done on that, and the net
18 result was that it did improve permeability
19 characteristics of the subsurface soils, but not to the
20 point that it could be considered as a liner material
21 in and of itself.

11:42

22 That being said, obviously that research was very
23 important. I looked at glading -- and maybe I can
24 discuss a little bit what glading and what they mean
25 with glading.

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1 So glading would be manure, I suppose, that's
2 being worked down and -- but also breaking down through
3 chemical actions. So anaerobic action or different
4 activities that are happening is pretty much turning
5 this manure into what we have observed as this black
6 slime almost. And that's what the report was after.
7 Like does this black slime, this goop, this whatever
8 you want to call it politely, does it -- you know, what
9 are the permeability characteristics of that.

10 So that study was very important because it
11 actually provides permeability data for broken down,
12 slimy manure, if you will, mixed with sand or silt.

11:43

13 So in the absence of trying to bring manure into
14 my laboratory and do permeability testing on it, this
15 was the approach that I -- that I deferred to. And
16 the -- in my reports, I provide the range of that. The
17 range is provided as 4 times 10 to the minus 5 to 9
18 times 10 to the minus 4. So there is a broad range.

19 When I did the actual calculations, I did end up
20 settling at sort of the midpoint of that range
21 provided.

11:44

22 Q. Okay. So this glading effect and the sealing of the
23 cracks will help to reduce the flow through those
24 cracks. There's some concern that the cattle might
25 deteriorate that self-sealed area, but we're talking

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1 cracks that are no bigger than 15 mils at max, 15
2 millimetres at maximum, and hopefully that wouldn't
3 penetrate that. Is that -- would you agree with that
4 statement?

5 A. MR. LOBBEZOO: Yes. I mean, 15 -- when I
6 initially looked at this, I was -- I kind of took the
7 approach of what's the absolute maximum cracking that
8 you could even ever comprehend, and that's where the
9 20-millimetre-wide crack in both directions came into
10 play in the -- in the -- in the November 6 submission 11:45
11 and the October 29 submission.

12 And to clarify, I know this will come up, so let
13 me address why Mr. Cunningham could not reproduce my
14 numbers. The frank reality is that when I was
15 preparing that, there was many drafts that I was going
16 through. The number was provided in error. I had a
17 range of permeabilities. I was looking at a range of
18 cracks that I was working through, and the permeability
19 that I had used for the crack in that case was about
20 half of what was provided in the report. So that's 11:46
21 where the discrepancy came.

22 And I would just like to talk about that in the
23 context of the importance of engineers dialoguing with
24 other engineers when they run across these problems. I
25 mean, this is laid out in the -- in the ethics document

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1 provided by APEGA for all APEGA members. I have the
2 luxury of working with the past APEGA president in this
3 office and a past member, long-term member of the
4 discipline committee as well.

5 And so this morning I talked to him about, you
6 know, who is exempt from those requirements. And he
7 was very forthright and said, "That applies to all
8 APEGA members that as a courtesy and as an obligation
9 that when we are reviewing others' work, we -- we
10 inform them of that." And certainly that open dialogue 11:47
11 between members can easily resolve these kinds of
12 issues which may arise.

13 So that has been quite a discouragement for me,
14 and I just -- as part of my testimony, I think it's
15 important to enter that into the record.

16 Q. Thanks, John.

17 We'll move on a little bit here to the idea of RCC
18 failure. I showed some pictures that illustrated large
19 holes and then even moving from bigger cracks and
20 deterioration. We're not talking about that. In your 11:47
21 report you would suggest large holes or failures would
22 make -- would not be acceptable?

23 A. MR. LOBBEZOO: That's correct. So large failures
24 would be -- would be a maintenance issue and a -- you
25 know, in accordance with good practice, those areas

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1 **should be appropriately repaired.**

2 Q. Yes, right. Okay. I would ask you about the -- the
3 last part of your report on the composite calculation.

4 A. **MR. LOBBEZOO: Oh, yes.**

5 Q. So further -- I know in our discussions, there was
6 this -- we would like RCC to stand on its own through
7 this Board hearing.

8 A. **MR. LOBBEZOO: Yes.**

9 Q. But a composite calculation was included in your
10 report.

11:48

11 A. **MR. LOBBEZOO: Yes.**

12 Q. And it just suggested the soil below the site could add
13 some additional protection. So the Board could have a
14 look at that. You're comfortable with that
15 calculation?

16 A. **MR. LOBBEZOO: Yeah, I would like to speak to
17 that just a little bit.**

18 I thought it was important to include that in the
19 April 8th submission, just to outline what the soils
20 were, I suppose, and what, if any, effect that they had
21 on it.

11:49

22 So the reality is when you're talking about the
23 soil permeability -- and Mr. Cunningham rightly pointed
24 this out yesterday. We are talking about differences
25 in orders of magnitude. If someone says, "Oh, well

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1 that soil is twice as permeable as that soil," if you
2 understand soil permeability, twice as much as --
3 that's nothing. That's the same. We always talk in
4 almost in orders of magnitude, exponential, right?

5 So the criteria that the AOPA provides, they are
6 looking for, you know, a certain thickness of material
7 that's 1 times 10 to the minus 6 centimetres per
8 second.

9 In the case of the natural occurring soils, we are
10 about an order of magnitude higher permeability than
11 what the AOPA is looking for. 11:50

12 Now, when you reduce that down into what the
13 equivalent thickness is to satisfy the AOPA, I
14 calculated that the equivalent thickness was about 75
15 millimetres, and that 75 millimetres would be relative
16 to the 0.5 millimetres of the liner thickness indicated
17 by the AOPA.

18 Q. Okay. So just to clarify, that added a little more
19 protection at Arie's site?

20 A. MR. LOBBEZOO: That's correct. 11:51

21 Q. Specifically, though, in your opinion, silty soil, the
22 hydraulic conductivity would range between?

23 A. MR. LOBBEZOO: At this site, looking at the logs
24 and the published information, the range would be 1
25 times 10 to the minus 4 centimetres per second to 1

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1 times 10 to the -- 5, minus 5 centimetres per second.

2 Q. Okay. So on that note, for the Board, when we were
3 looking at the ERST, risk screening tool calculations,
4 we did some correcting, we did correct the water -- or
5 we did do some correcting of the distance to the catch
6 basin. There were some proposed corrections for the
7 depth to water table. Would you be of the opinion that
8 coarse material versus medium material textures should
9 also be addressed?

10 A. MR. LOBBEZOO: Yes, I do.

11:51

11 Q. And changing it from a coarse grade to medium would be
12 appropriate for the risk screening?

13 A. MR. LOBBEZOO: It should be -- it should be a
14 medium. And could we -- maybe we should look at
15 Chilako's drilling information on that?

16 MR. METHERAL: Yes. Can we pull up the
17 Chilako --

18 A. MR. LOBBEZOO: Is that Exhibit -- what? 1 or 2,
19 page pdf 8?

20 MR. METHERAL: I'll find it.

11:52

21 MS. VANCE: This is Fiona Vance, I might help.
22 In Exhibit 3, it appears in a number of places. I
23 believe page 33 is one of them.

24 A. MR. LOBBEZOO: Okay, good, thank you.

25 MS. VANCE: Don't ask me why I know these off

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1 by my heart.

2 A. MR. LOBBEZOO: You're the best.

3 THE CHAIR: Thank you, Ms. Vance. Well, we've
4 been at these a few times, so good for you, thank you.

5 MR. METHERAL: Can you zoom in a little bit?

6 Trial manager, thank you. Zoom in a bit.

7 A. MR. LOBBEZOO: Okay, thank you.

8 So if you look at the texture, the way the texture
9 is listed. And, file manager, on the bottom of the
10 page, if you could just scroll down there, just -- oh,
11 it's not on this one. Yeah, keep going, please. Yes.
12 Keep going, keep going. No, keep going. There we go.

13 The L in the legend is key here, loam. So we have
14 L, C, S, GR, SI, F, and VF.

15 So if we scroll back to the top of this table,
16 please. Yes. So when Mr. Cunningham was discussing
17 the soil texture here, he was omitting the L in each
18 case. So -- and this is important, and I'll explain.

19 There are various ways to classify soils. And if
20 you're familiar with the geotechnical world, you'll
21 know that geotechnical engineers have argued and
22 debated forever on how we classify soils.

23 So they came up with a unified system, and that
24 wasn't good enough, so now we call it the modified
25 unified system. And we're not sure if it's the

11:53

11:54

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1 modified-modified unified system, but it certainly is
2 not very unified.

3 In this case, this doesn't meet any of those.
4 This is a -- this is an approach, a texture
5 classification that you would see in documents like
6 Alberta Environment's code of practice for septic field
7 design.

8 In the geotechnical world, we would call this a
9 more agrology-type approach, where you would describe
10 things in terms of loam. And simply what loam is
11 referring to is this -- this blended material.

11:55

12 So when you would say very fine sand on the very
13 top line, sand loam, you're saying that we're very fine
14 sand, but we're on the siltiest side of that sand or
15 we're heading toward the clay side. We're not really
16 sand; we have a fair amount of silt in it.

17 So if you go through all of these things, you see
18 loam on all of them, which pushes it into the siltier
19 material zones.

20 So while Mr. Cunningham said that the remarks are
21 only a bit of a descriptor relative to the actual
22 texture, when you look at, say, that first line, very
23 fine sand loam and then he writes "silty" on it, the
24 person doing the log here is suggesting that this is as
25 far to the edge of what he could call very fine sand

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1 loam, because beyond that, it would be a silt loam,
2 say. But he wasn't comfortable calling it a silt loam,
3 so he carried it as a fine sand but with a descriptor.

4 So when you compare that to the table -- this says
5 page 91 on it.

6 MR. METHERAL: Can we scroll down to -- to see if
7 it's --

8 A. MR. LOBBEZOO: Is it page 91 of this document?

9 MR. METHERAL: The ERSTs.

10 A. MR. LOBBEZOO: Yeah, file manager, Number 91 if
11 it's the same -- oh, beautiful. Thanks.

11:56

12 So when we see silt and silty sand here, we are --
13 we are certainly pushed right to the left side of where
14 it would say silty sand, and we would be more in the
15 silt zone.

16 When I compare the Chilako logs to my other -- my
17 own information, it does put me exactly in the range of
18 where it says 10 to the minus 4 to 10 to the minus 5,
19 right in that range.

20 So it would be my opinion, as a geotechnical
21 engineer, that the soils there would be appropriately
22 classified as medium texture.

11:57

23 And you can take that down now, Mr. Document
24 Manager. Thank you.

25 Q. Thanks, Mr. Lobbezoo. Do you have anything else you'd

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1 like to add on this discussion?

2 A. MR. LOBBEZOO: Okay. There was -- it seems to me
3 that a lot of the submissions that were provided in
4 the -- the attempt was to cast doubt on RCC. And the
5 one thing that stands out more than about anything else
6 is this idea that RCC actually is so pervious that we
7 should use this and people are using this in parking
8 lots to facilitate drainage from the surface down
9 through the concrete matrix and out through the
10 subgrade. And yes, that is a practice in other 11:58
11 jurisdictions, particularly in southern climates where
12 frost heaving and related is not an issue.

13 What I would like to point out is that that can be
14 accommodated by the gradation of the material, where
15 you have coarse aggregate and you have minimal to
16 almost no fines but just enough cement paste to bond
17 the edges of the coarse aggregates together, thereby
18 creating this porous matrix. And what you would see in
19 that matrix, in terms of relative density, is something
20 that's of a much lower density than you would for a 11:59
21 non-porous RCC matrix.

22 So, for instance, the range of density for a
23 porous RCC would be in the range of about 1550
24 kilograms per metre cubed to possibly 1850 kilograms
25 per metre cubed.

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1 In our reports, our density results, we used a
2 target density of 2400 kilograms per cubic metre. That
3 density -- so you can see that the two densities are
4 very different from one to the other. They're not even
5 close.

6 To expand on the density of the concrete, if you
7 look at conventional concrete, the density of
8 conventional concrete ranges from about 2250 kilograms
9 per cubic metre for air-entrained concrete to about
10 2350, maybe 2400 at the high end, for non-air-entrained
11 conventional concrete.

12 In the case of our compacted concrete matrix,
13 yeah, we see design densities in that 2400 range, which
14 is generally at the extreme upper limit or higher than
15 conventional concrete. And the testing results at the
16 Muilwijks' demonstrated that this is the zone that we
17 are in.

18 Also, as far as the target density of 2400, yes, I
19 took that as an assumed density for this RCC mix. This
20 is very typical. So when you would say that something
21 is compacted to 101 percent, that means that in the
22 field, they actually were able to exert more effort
23 than we would in a design situation, than our target
24 design. So that's why you see densities are higher
25 than the target.

12:00

12:01

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1 With more effort, yes, you could even -- you can
2 achieve higher densities. So I just wanted to clarify
3 that that is why we see slightly high densities, higher
4 than 100.

5 Q. Very good. Thank you, Mr. Lobbezoo, for your
6 testimony.

7 THE CHAIR: Mr. Metheral, you just might have
8 to move the mic sort of towards you just so we can hear
9 you.

10 MR. METHERAL: We would like to thank
11 Mr. Lobbezoo for his testimony.

12:02

12 THE CHAIR: Much better. So you and Mr. Both,
13 and that's your last direct, then, with Mr. Both?

14 MR. METHERAL: Yes.

15 THE CHAIR: So how long do you think you'll be
16 with Mr. Both, do you know?

17 MR. METHERAL: My question list is quite a bit
18 shorter.

19 THE CHAIR: Okay.

20 MR. METHERAL: 20 minutes.

12:02

21 THE CHAIR: Okay, perfect. We can do that
22 after break, though, I think. Let's break for 45
23 minutes, so that will be 12:45, come back at 12:45.
24 That's a bit shorter, but if that works for everyone,
25 and we can wrap up after that, because we'll need to

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1 obviously move to questions from field services and
2 Board Panel and staff.

3 Okay, thank you very much. We'll see you at
4 12:45.

5 MR. METHERAL: Thank you.

6 (PROCEEDINGS ADJOURNED AT 12:03 P.M.)

7 _____

8 PROCEEDINGS ADJOURNED TO 12:45 P.M.

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1 Volume 2

2 April 21, 2021

3 P.M. Session

4

5 (PROCEEDINGS RESUMED AT 12:47 P.M.)

6 THE CHAIR: Just a quick prelim. I was asked
7 by a Panel member if we have Mr. Lobbezoo's CV on hand.
8 Has that been submitted already? And if not, can it
9 be?

10 MR. METHERAL: Yes, we can get you a CV. I don't
11 know if it has been submitted yet. Sorry, it hasn't.

12:47

12 THE CHAIR: Okay, thank you. I'm not sure if
13 you have it handy electronically. You could just send
14 it to Ms. Friend and get it in as an exhibit later on,
15 but if it's handy. Okay, thank you.

16 Okay. So Mr. Metheral and Mr. Both.

17

18 C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH (For Arie
19 and Willemina Muilwijk), previously sworn/affirmed

20 MR. METHERAL EXAMINES THE PANEL:

12:48

21 MR. METHERAL: Yes, thanks, Mr. Chair.

22 Q. Mr. Both, are you there?

23 A. MR. BOTH: I'm here, yes.

24 Q. Very good. Thanks for joining us from Athabasca. Is
25 that correct?

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1 A. MR. BOTH: That's correct. My pleasure.

2 Q. If we could start with your education and experience
3 related to roller compacted concrete -- concrete and
4 roller compacted concrete, that would be great?

5 A. MR. BOTH: Sure.

6 My name is John Both. I'm a certified engineering
7 technologist with ASET here registered in Alberta. I
8 began working with concrete in 1984, full time in 1988.

9 In 1992 I moved to the oil and gas industry, and
10 then again back into the -- full-time in the concrete
11 industry in early 2010, where I was the founder of --
12 one of the founders of Rock Solid Concrete Products.

13 I began working with roller compacted concrete in
14 2012 through experimental purposes, developing new
15 technology for the manufacturing of it. And I went on
16 to installation in multiple different applications.

17 In the organization that I lead, I'm involved in
18 the designing and the application of concrete in many
19 different industries, including the agriculture
20 industry.

21 Q. Do you have any experience in the regulatory
22 environment, working with regulators?

23 A. MR. BOTH: I do, working with regulators. I
24 have been involved -- Alberta Agricultural has brought
25 me into a couple of discussions with respect to roller

12:48

12:49

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1 compacted concrete in feedlot applications. I am
2 currently working on a project in Oregon, worked with
3 the regulator there to have a large application as a
4 liner approved. That project will be starting in two
5 weeks; it's 115 acres, where it's roller compacted
6 concrete will be used as a liner. I did the design for
7 that -- for that approval with that regulator. That is
8 both for wet and dry manure storage locations.

9 And I'm also involved in about six other locations
10 in the midwest in the United States working with
11 regulators to get this product approved in those
12 locations as well.

13 Q. Very good. Can we talk about your report now?

14 MR. METHERAL: File manager, that's Number 97.

15 Q. Yes, can you give us a little bit of summary of what
16 you've identified here for the Board?

17 A. MR. BOTH: My intent with this report was to
18 demonstrate the predictability of cracks --
19 shrinkage-related cracks within concrete and to make
20 the statement that roller compacted concrete and
21 regular concrete perform very similarly.

22 My intention was to demonstrate a few of the
23 summary points that as shrinkage cracks get further
24 apart, the distance -- the space of those cracks will
25 be wider, the crack thickness will be wider. The

12:50

12:51

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1 reason is, is because we need to have a total amount of
2 shrinkage -- or there's an assumed total amount of
3 shrinkage within that area of that concrete, as
4 Mr. Lobbezoo has already referred to.

5 I wanted to demonstrate that cracking was due to
6 mass loss, so mass loss due to chemical change taking
7 place within the hydration reaction that's taken place
8 within the concrete and the loss of moisture as the
9 excess moisture is leaving the concrete.

10 And then I wanted to also demonstrate when
11 cracking should be anticipated and how much cracking
12 should be anticipated as its early life versus later in
13 its life and then to correlate that with the strength
14 of concrete. There's a misconception that stronger
15 concrete means less cracking. Stronger concrete
16 doesn't necessarily mean less shrinkage cracking. The
17 stronger the concrete, typically the going through
18 calculations will indicate a larger degree of cracking
19 as you can see on the tables that I presented.

12:52

20 Q. Very good. So can you maybe just point or hint on
21 the -- what would be traditional plastic concrete and
22 the differences between traditional plastic concrete
23 and roller compacted concrete?

12:52

24 A. MR. BOTH: I sure can. As I stated, the
25 shrinkage of concrete is dependent on two factors. All

1 of it is actually considered the paste coefficient.
2 The paste coefficient is made up of the cement, the
3 water. Those -- that coefficient is what determines
4 the amount of shrinkage that we're going to have. The
5 reason is, is because all of the other product that's
6 within the concrete is aggregate. The aggregate is not
7 shrinking; the aggregate remains the same size. It's
8 not decreasing in volume as concrete is going from
9 early age to older age.

10 When we look at typical wet-set normal
11 Portland Cement concrete that we're referring to as
12 "normal concrete," that higher slump concrete, it has a
13 higher paste coefficient. And what that means that it
14 has a higher cement content. Often compared to the
15 product that we're talking about here, we can see
16 40 percent more cement in it, which means that we'll
17 have approximately 40 percent more water in it as well,
18 which would increase the amount of shrinkage by nearly
19 40 percent because those are the components that are
20 going to reduce in volume.

21 Q. Very good. And there's been some discussion about
22 concrete density and perhaps this idea that roller
23 compacted concrete can have higher density than
24 traditional concrete. Can you comment on that?

25 A. MR. BOTH: I sure can. Yeah.

12:53

12:53

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1 So when we're looking at regular concrete, it has
2 as broad of definition as roller compacted concrete
3 does. When we look at typical higher slump concrete,
4 we would make a -- we would make a -- we would be
5 presuming that we're dealing with a constant density.
6 But in fact, very much as was mentioned with what we
7 would call pervious concrete, pervious concrete has
8 been installed with vibratory forces, much like roller
9 compacted concrete, but it can also be installed by
10 increasing the slump of it, increasing the cement and
11 the water content, to the point where it can be
12 screeded into place and vibrated into place as well.

12:54

13 So when we're considering the density of both of
14 these products, it does -- it really depends on the
15 materials that we're using and the performance
16 requirements that are needed.

17 So if we're looking at a regular normal concrete,
18 the density will -- the materials and the way that we
19 design the mix design will determine what the final
20 density is. And the density somewhat will be
21 determined by what the performance requirements are.

12:55

22 That's the same thing for roller compacted
23 concrete. When we know what a performance requirement
24 is, in other words if we're looking for a low
25 permeability, we want to obviously increase the

1 density. We want to decrease the air void structure
2 within that and decrease the pathways in which water
3 can flow. So density becomes important for that same
4 reason in regular concretes than it does in roller
5 compacted concrete.

6 Q. Thank you. Is reinforcing in concrete the solution to
7 crack control?

8 A. MR. BOTH: Reinforcing has two purposes
9 within concrete. If we look at a very typical approach
10 to concrete, if we look at two structures, and I'll
11 just use my hand to demonstrate, if we're looking at,
12 say, a beam that's sitting on two posts on the outside,
13 that beam is sitting on the two posts where my elbows
14 are there, the concrete doesn't have a great flexile or
15 tensile strength. And so when we've got forces in the
16 centre, it wants to split apart.

12:56

17 When we put rebar in the centre of it, the rebar
18 is holding it; when we put a downward force, it goes
19 into tension. Rebar reinforcing is typically used for
20 that purpose, to add structure to the concrete if it's
21 being used as a structural element.

12:56

22 When we use reinforcing within concrete on slab on
23 grade, so where the grade is supporting the concrete,
24 all of the load that's applied to the surface is being
25 transferred through the concrete, down through to the

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1 grade. And if a grade is designed as it should be, the
2 grade is capable of supporting all of that load.

3 The reinforcing, therefore, is installed for crack
4 control, as a portion of crack control. It's designed
5 to increase -- sorry, to decrease the crack frequency,
6 which means it's going to increase the distance between
7 cracks is what it's purposed to do.

8 But a properly designed slab would have the
9 reinforcing stopping at each crack control location.
10 We're still going to have cracking regardless of
11 whether there's reinforcing in it or not. The concrete
12 is still going to lose mass, it's still going to lose
13 volume. As it loses that volume, it's going to shrink;
14 as it shrinks, it's going to want to separate.

15 The idea is to tell it where to crack, not to
16 prevent it from cracking. When we're using reinforcing
17 properly on a slab on grade such as that, we would stop
18 the reinforcing at those crack locations, and we would
19 install dowels. And those dowels would be installed in
20 such a way that it would promote movement at those
21 locations.

22 So when we look at reinforcing on that slab on
23 grade, just to summarize that, it will serve only to --
24 it will serve only to identify or to direct the cracks
25 to certain locations. But reinforcing will not stop --

12:57

12:57

1 well, I shouldn't say will not. It typically will not
2 stop cracking, depending on the size of the slab.

3 So if we have a smaller slab and a slab that's,
4 say, 5 metres by 5 metres, if we put reinforcing in
5 that, that will help to ensure we have no cracking
6 within that small slab because that reinforcing is
7 providing enough tensile strength to allow the outside
8 edges to be drawn together. And so the centre portion
9 will not need to separate.

10 But if we magnify that and we go by a factor of
11 10, or even we go to, say, 30 metres by 30 metres, I'll
12 use that example, if we think that we're going to use
13 reinforcing to allow all of that concrete to be drawn
14 to the centre, we have to realize -- and if you look at
15 one of the tables that I have, it can be assumed that
16 we would have over 30 metres and .00 -- so .5 percent.
17 We would have over 30 metres, we would have 15
18 centimetres of cracking. I'm sorry, 15 millimetres of
19 cracking.

12:58

20 But we have to realize that we've got 340
21 tonnes -- 340 tonnes of concrete sitting on the ground,
22 and it would need to draw in that 340 tonnes of
23 concrete with the frictional load of the ground below
24 it. So it's -- and that would have to happen in its
25 early stages. Concrete begins to shrink right after

12:59

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1 the final set time. So concrete is just becoming
2 rigid, it's losing its plastic characteristics. It's
3 now become rigid, which means that it's no longer
4 plastic. As the concrete is shrinking, it's trying to
5 pull itself together, but this is at its weakest point
6 in time, so it doesn't have the tensile strength to be
7 able to hold itself together.

8 That's where the rebar has the tendency to try and
9 help that, but it can only help it to a certain degree.
10 It will not allow it to be able to pull that full
11 distance of 30 metres, for instance, because the weight
12 sitting on top of that ground, it won't be able to
13 transfer that tensile force, it won't be able to carry
14 that tensile force, unless there's so much rebar in it,
15 and I haven't done the math on it, but I could if you
16 would ask me to, but we would need a lot of rebar, a
17 lot more than what we see in the guidelines from NRCB.

13:00

18 Q. Great. Okay. There's been some uncertainty around the
19 use of a Schmidt hammer and Schmidt hammer testing.
20 Can you maybe comment on your experience with that
21 tool?

13:00

22 A. MR. BOTH: Sure. I have used a
23 Schmidt hammer in many applications. I've used it on
24 normal -- we'll use that term, normal wet set concrete.
25 I've used it in different textures of that concrete

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1 where I've done testing on it, we have our own in-house
2 lab as well. In our lab, we have tested samples of the
3 concrete comparative to the Schmidt hammer, and what my
4 conclusion is time and time again, if the surface is
5 not smooth, we will see a reduction in readings time
6 and time again.

7 When we look at roller compacted concrete, I've
8 used a Schmidt hammer on roller compacted concrete in
9 many applications as well, I've done hundreds and
10 hundreds and hundreds of tests using a Schmidt hammer;
11 we're seeing the same thing. If you are looking at the
12 surface and if you pick a very porous area of that
13 surface, you will find that that will read low. And if
14 you do a core sample of that, you will find that that
15 core sample is actually reading higher than what the
16 Schmidt hammer is showing.

17 Q. Okay. Some of the uncertainty was around calibration
18 and specifically, you know, in a field application.

19 A. MR. BOTH: Sure.

20 Q. Any thoughts there?

21 A. MR. BOTH: Yeah. Calibration is beneficial.
22 Typically a user of the Schmidt hammer will have
23 experience within their geographical region.

24 Often if we're using similar aggregates, we'll be
25 getting similar results. Close -- I mean, a

13:01

13:01

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1 Schmidt hammer is not designed to give us a precision;
2 it's given us a pretty good -- a pretty good idea, a
3 pretty good ballpark of where we're at. The number I
4 typically carry in my mind is a plus or minus
5 10 percent. Usually it's a little bit better than
6 that.

7 But the calibration is important if we want to be
8 very precise. And it can be quite precise.
9 Calibration would mean that we would use the hammer on
10 a known concrete -- on a chunk of concrete that we --
11 that we have already done a compressive test to ensure
12 that it's reading similarly. But my experience has
13 been that the Schmidt hammer -- the recordings on it
14 are quite close again, but plus or minus that
15 10 percent.

13:02

16 Q. Okay. Would a Schmidt hammer, if you were using it in
17 the field, give you low readings on poor concrete,
18 perhaps right beside -- in the case of roller compacted
19 concrete, would it give you lower readings if you found
20 some poor RCC?

13:03

21 A. MR. BOTH: Absolutely, for sure it would give
22 you a low reading.

23 It is -- it's really -- if we look at the
24 principle of it, it's a loaded spring that's pushing a
25 pin into the concrete. And it's the further that that

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1 pin is driven in indicates the strength of that
2 concrete. You would be able to -- if that concrete is
3 weaker, every single time you will see it. Yes.

4 Q. Great, thank you. And we were -- also had some
5 questions about Arie's -- Mr. Muilwijk's site. We were
6 trying to verify if Rock Solid did the RCC mix for the
7 site?

8 A. MR. BOTH: The answer is yes. Yeah, we did
9 the mix on that. I was actually the one who put
10 together the mix design for the project.

13:04

11 Q. Okay. And you're familiar with Prairie Stone Concrete?

12 A. MR. BOTH: Yes.

13 Q. And their installation?

14 A. MR. BOTH: Yes. Sorry.

15 Q. Yes, and their installation crew Sub-Terrain?

16 A. MR. BOTH: Correct. So Prairie Stone
17 Concrete, we supply technical support for Prairie Stone
18 Concrete; we have since their inception. The RCC side
19 of things, we do collaborate with them as a sister
20 company. I have to use that term very loosely. They
21 own all of their own operations; we simply support them
22 because they use similar technology to what we're
23 using. That's why we call them a sister company,
24 because we're using the same technology. We supply all
25 the -- much of the technical support. Wood Engineering

13:04

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1 supplies technical support, and we supply technical
2 support for the applications such as roller compacted
3 concrete and their mix designs.

4 As far as the installation goes, Sub-Terrain had
5 done the installation. We had worked on projects with
6 Sub-Terrain prior to this project. And some of the
7 larger projects that had been done within the province,
8 we were supplying the concrete, and Sub-Terrain was
9 doing the installation. And I was personally on site
10 with Sub-Terrain on those projects.

13:05

11 Q. Right. And you were part of the first -- the Stronks'
12 site where the first RCC pad was approved and
13 installed?

14 A. MR. BOTH: Can you repeat the question,
15 sorry?

16 THE COURT REPORTER: Sorry, this is Donna, the court
17 reporter. Mr. Both, can you please slow down a bit?
18 You're speaking a bit too fast.

19 A. MR. BOTH: My apologies.

20 THE COURT REPORTER: Thank you.

13:05

21 THE CHAIR: Thanks, Ms. Gerbrandt. I should
22 have interjected earlier, sorry, good for you. Thanks,
23 Mr. Both.

24 Q. MR. METHERAL: Yes, just to confirm, Mr. Both,
25 were you part of the roller compacted concrete at

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1 Stronks' feedlot?

2 A. MR. BOTH: Only in the mix design
3 development.

4 Q. Great. Thank you. Finally, is it possible to
5 determine if concrete at Arie's site meets the
6 certain -- meets a certain spec?

7 A. MR. BOTH: It is. The wonderful thing about
8 concrete is the material is very provable. It is the
9 most used man-made material on the planet. It is the
10 best understood man-made material on the planet as
11 well. And that means that there is plenty of empirical
12 testing methods that we can use.

13 Some of the questions that have been raised are in
14 respect to the base performance, how was the base
15 installed and was it correct.

16 One of the things that we can tell with roller
17 compacted concrete is how well that base was prepared.
18 One of the ways that we can know how well that base is
19 prepared, by measuring the density of the concrete.

20 If the base has not been prepared properly, if we
21 try to compact that concrete using rollers and you try
22 and compact that on a soft area, we will not get the
23 density. If the base is not at full density, the
24 surface is not going to be at full density, the
25 concrete is not going to be at full density.

13:06

13:07

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1 So we can understand how the base is performing
2 simply by determining the density of the concrete.

3 We can also measure the strength of the concrete.
4 The strength of concrete can be measured in one way:
5 Using a Schmidt hammer, an impact hammer. That will
6 tell us a fairly good -- give us a fairly good
7 indication of what that concrete strength is. We can
8 take core samples and determine the density and also
9 the comprehensive strength if that is --

10 THE CHAIR: Mr. Both, sorry to interrupt. 13:07

11 You're still a little quick. I just want to check with
12 Ms. Gerbrandt. I mean we've got to cut her a little
13 bit of slack here. It's a tough job.

14 So Ms. Gerbrandt, would you like him to slow down
15 just a little bit more?

16 THE COURT REPORTER: I'm doing okay, but a little
17 slower would help. Yes, thank you.

18 THE CHAIR: Thank you, all right. Thanks,
19 Mr. Both.

20 A. MR. BOTH: And I welcome the correction, so 13:08
21 thank you for that.

22 And so we can take compressive cylinders, we can
23 drill cores, and we can check the compressive
24 capability of that concrete to determine if it meets
25 the expectation.

1 We can also determine if we have had curing
2 practices. If we don't have proper curing practices --
3 and for those that are unfamiliar with curing
4 practices, curing practices are designed to ensure the
5 environment of the concrete is positive and ensures
6 good proper chemical reaction hydration.

7 For example, if the concrete is allowed to dry
8 out, that means that excess moisture is evaporating.
9 If that excess moisture evaporates, there's no more
10 moisture to hydrate, to continue the chemical reaction
11 with the cement drains.

12 So curing will ensure that we've got a -- we have
13 sufficient moisture present for hydration.

14 Curing also ensures proper temperatures. We want
15 to make sure that the temperatures are positive and
16 that we're in a temperature environment where that
17 chemical reaction can continue. The lower the
18 temperature, the slower the reaction with concrete.

19 So curing is ensuring that the environment is
20 there.

21 We can ensure that the curing environment was
22 correct by simply looking at the final product. We're
23 looking for a compressive strength, we're looking for a
24 density. Both of those can be measured from that
25 concrete. The density needs to be drilled and cored in

13:09

13:09

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1 order to determine its density, but compressive
2 strength can be measured with non-destructive testing.

3 If we didn't have proper curing practices, it
4 would be very predictable that we would not be meeting
5 the performance criteria of the project. So if we're
6 meeting the project performance criteria, we should be
7 able to determine through the performance of that
8 product whether we met that project expectation.

9 Q. MR. METHERAL: Thank you. Is there -- do you
10 have a feel for when a poor quality roller compacted
11 concrete would first show itself? Would degrading
12 cause failure?

13:10

13 A. MR. BOTH: Yes, I do. And I wish I -- it
14 would be so much nicer if I could say no to that. But
15 as a concrete producer --

16 Q. Sorry.

17 A. MR. BOTH: What's that, I'm sorry, Cody?

18 MR. METHERAL: File manager, can you close that
19 screen down for us?

20 Q. Go ahead, John.

13:10

21 A. MR. BOTH: Yes. So as far as when we
22 would -- when is it predictable that we would see
23 failures within roller compacted concrete. Being a
24 producer and installer of the product or -- and being
25 responsible for many projects that have occurred across

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1 the province and beyond our borders, it is very
2 predictable when almost 100 percent of the time we're
3 seeing a failure within the first two years. And most
4 times it's within the first year. That failure becomes
5 very visible.

6 So typically those failures are identified by pen
7 riders long before the area is cleaned. They start
8 seeing it as a sunken area or they start seeing it as a
9 dark area when the manure starts to dry because it's
10 holding more moisture.

13:11

11 So it is very predictable to be able to see that.
12 And that is on controlled joints, construction joints,
13 and on -- and open areas. All of those areas become
14 quite visible.

15 Q. Okay. And then after two years, if we were to -- if
16 you were to consider some sort of maintenance
17 inspection piece, would you say an annual, every
18 5 years, 10 years, 30 years? What would be an
19 inspection schedule you would recommend?

20 A. MR. BOTH: Well, I think it should be based
21 on the performance of the liner. So if it's a
22 high-risk liner or a liner that's prone to failure, it
23 should be inspected more frequently. That's an
24 opinion.

13:12

25 If it's a liner that's known to fail more

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1 frequently, then it should be inspected at a higher
2 frequency.

3 If we've inspected the roller compacted concrete
4 at a two-year interval and we're seeing no failure,
5 knowing that the design that's being used -- and I've
6 done the calculations for the design at 6 inches thick
7 or 150 millimetres thick at the specification that we
8 saw at Stronks, given the loads that's on there, that's
9 over 20-year design life on that. And when we say a
10 20-year design life, what we're meaning is the
11 usability of that product exceeds 20 years before
12 typical maintenance practices should begin. It doesn't
13 mean that it's exhausted its life expectancy; that
14 means that that's when we should be predicting that we
15 should start doing maintenance.

13:13

16 So 2 years and then 20 years really, my thoughts
17 on it.

18 Q. Okay, sorry, you brought up a key point. I forgot to
19 ask you about your predictions in your report on
20 cracking.

13:13

21 A. MR. BOTH: Okay. And do you want to define
22 that a little better for me, Cody?

23 Q. Please, and how it perhaps reflects with John's.

24 A. MR. BOTH: Oh, so the predictability of the
25 cracking, when we look at -- back to my report. That's

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1 Item Number 97, and we go to page 3 and 4. Scroll
2 down, please, document manager. Thank you. We can
3 stop there.

4 What we see is calculations for shrinkage,
5 predicted shrinkage over the course of time. We see
6 day 28, it would be calculated for .025 percent
7 shrinkage. We see three different -- starting with the
8 third column, we see 3 metres between cracks. We see a
9 crack width of presumably .41 millimetres, and to the
10 last column, 1.65 millimetres.

13:14

11 That is dependent on the crack spacing. Again, it
12 just proves that the further apart the cracks are, the
13 wider the cracks are. If the cracks are closer
14 together, we would expect that those cracks to be
15 narrower, to be smaller.

16 As we go on to 365 days, we will see a percentage
17 of crack of .037. That's one year. We move to the
18 ten-year, we see that going to .044 percent, and then
19 20 years, .05 percent.

20 Conclusion is the vast majority of cracking occurs
21 in the first year and that when we look at those
22 percentage of crackings, .05 percent would be a 25 MPa.

13:15

23 If we look at the next page, into Table 2, if we
24 were to go to a 40 MPa concrete, we can see those
25 numbers increase from a .05 percent -- and I'm rounding

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1 numbers -- a .05 percent to 20 years at .085 percent.

2 Q. Thank you. John, do you have any additions?

3 A. MR. BOTH: No.

4 Q. Thank you for your testimony, John.

5 A. MR. BOTH: Thank you.

6 MR. METHERAL: Mr. Chair, this would include
7 [verbatim] our submissions for the evidence from the
8 Muilwijks.

9 THE CHAIR: Okay. Well, thank you very much.

10 Thank you, Mr. Both. Thank you, Mr. Metheral.

13:16

11 We can move to questions. However, I was sort
12 of -- I was just reading a text, and Mr. Graham may be
13 disconnected. It may be an issue in the entire town, a
14 cell tower down or something.

15 So, Mr. Graham, are you there? It doesn't appear
16 so.

17 MR. WIEBE: I just received a text message
18 from him, and he can hear the audio clear right now.

19 THE CHAIR: Okay. Perhaps while you're asking
20 questions -- well, field services would be up first,
21 but we need to try to get a text -- sorry, folks, a
22 little bit of admin here. But if Bill or somebody
23 could send Mr. Graham a text and if he has questions
24 he's thinking about, if he can get them in perhaps on a
25 text if that's the only way. But at least he can hear

13:17

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1 what we're saying, so that's helpful.

2 Mr. Kennedy?

3 MR. KENNEDY: Yeah, he appears to be on at the
4 moment.

5 THE CHAIR: Oh, okay. Maybe he can hear me
6 now, then.

7 MR. KENNEDY: I'm just looking at the
8 participants, and he's on. His microphone was open;
9 now it's muted.

10 THE CHAIR: Okay.

13:17

11 MR. KENNEDY: But he doesn't -- we can't see his
12 picture, and I assume that he cannot see the -- you
13 know, doesn't have the screen up in front of him.

14 MR. GRAHAM: Yes, I do. Yes, I don't know
15 what's going on, but it comes and goes.

16 THE CHAIR: Okay. If you do have questions,
17 Mr. Graham, maybe you could -- you know what, you can
18 ask them when we come up. And if you -- if your audio
19 isn't working, maybe just a quick text or something or
20 a phone call and we'll just relate it. It's a bit
21 tricky, but let's just get this completed.

13:18

22 MR. GRAHAM: Okay.

23 THE CHAIR: Okay, thank you.

24 MS. FRIEND: Mr. Chair.

25 THE CHAIR: Yes.

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1 MS. FRIEND: This is Laura, and I have received
2 an email from John Lobbezoo with his one-page CV, if
3 that's sufficient, or he could send a more detailed one
4 in later, or we could add this CV to the record.

5 THE CHAIR: Let's add the CV now, and he could
6 send a more detailed one. If there's no objections, we
7 could add that even after the fact. I don't think it
8 should be that problematic, but at least if we have a
9 one-pager now.

10 Ms. Vance, Mr. Metheral, any objections?

13:18

11 MS. VANCE: I wouldn't mind seeing the
12 one-pager before it's entered as an exhibit, if he
13 could please email that to me as well.

14 THE CHAIR: All right. Send it to Ms. Vance
15 so she can review, please. Thanks.

16 MS. FRIEND: Okay, I'll send that on in case
17 he doesn't have her email.

18 MS. VANCE: Thank you, Laura.

19 THE CHAIR: Okay, Ms. Vance?

20 MS. VANCE: Yes.

13:19

21 **MS. VANCE CROSS-EXAMINES THE PANEL:**

22 Q. So probably, just so that the Panel sort of knows
23 what's coming, I'm planning to ask questions in the
24 order of Mr. Muilwijk, Mr. Metheral, Mr. Lobbezoo, and
25 Mr. Both just because that's the order you -- almost

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1 the order that you presented your evidence in.
2 However, if there is a question that is begging to be
3 answered by somebody else, please go ahead and answer
4 that.

5 So I wonder if I could ask Mr. Muilwijk some
6 questions first.

7 I wonder if we could just start with Exhibit 28.
8 And Exhibit 28 I believe is the Part 2 application
9 that's part of the record. That page is fine.

10 Thank you.

13:20

11 So on this page, about a third of the way down,
12 that's your signature; correct? No, back up. Thanks.

13 **A. MR. MUILWIJK: Yes, correct.**

14 **Q.** And when you -- and you're aware -- okay, I'll just
15 leave it at that. You signed that page. Did you read
16 the text above it in yellow before you signed it?

17 **A. MR. MUILWIJK: I can't read it from here. Could**
18 **you maybe -- yes, I have read that.**

19 **Q.** Okay, we're done with that one. That was dated
20 October 1st, 2019. You'll agree that that's
21 approximately six-ish weeks before the RCC was actually
22 laid at your site; correct?

13:21

23 **A. MR. MUILWIJK: Yes, correct.**

24 **Q.** Thank you. My questioning is maybe not as organized as
25 I would really like, but let's move to Exhibit 3,

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1 please, pdf page 39. Okay. And if you could kindly
2 scroll down a little. Thank you.

3 So I believe on other pages, and we can scroll up
4 if you need to see them, there's pictures of straw laid
5 over parts of the site. So my question relates to the
6 bottom right-hand picture, which appears to be, and
7 obviously correct me if I'm wrong, this is when the
8 covered pen was being constructed; is that right?

9 A. MR. MUILWIJK: Yes, correct.

10 Q. And was there straw laid on the covered pen at the same
11 time as the other parts of the site?

13:22

12 A. MR. MUILWIJK: Yes.

13 Q. And for all the site, was the straw watered down?

14 A. MR. MUILWIJK: Yes.

15 Q. Thank you. Exhibit 4, please, page 713. So this is
16 the RFR. This one I think has got your name on it,
17 Mr. Muilwijk, this part of it. And on this page under
18 heading 11, under "Additional Notes For Consideration,"
19 you've written that: (as read)

20 "Prairie Stone concrete had RCC samples
21 taken off the plant and sent to the lab
22 for compressive strength testing."

09:19

23 And then you said that Mr. Bremer would send the results
24 when they were ready. Do you have those results?

25 A. MR. MUILWIJK: Yes, now I do.

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1 Q. Oh. Would you be willing to provide those to the Board
2 for this hearing?

3 A. MR. MUILWIJK: Yes, I just received them
4 yesterday. If you're willing to know the results,
5 we're willing to send them in.

6 MS. VANCE: Well, I just feel like that might
7 be helpful to resolving some of our questions, and I do
8 not want to extend this hearing. So I ask Mr. Kennedy
9 what the proprietary part of that would be, but I
10 guess --

13:23

11 MR. KENNEDY: If you're asking me if we could
12 get an undertaking from Mr. Muilwijk to provide that
13 information, and if he can provide it while the hearing
14 is still ongoing, that would be most helpful.

15 Q. MS. VANCE: So I think if you could get
16 somebody to email it or email it yourself; you can't
17 obviously while you're testifying.

18 THE CHAIR: It's really not the opportunity.
19 Mr. Both, I will accept a quick question, but this is
20 not really the time. But go ahead real quickly.

13:24

21 A. MR. BOTH: Is it appropriate for me to email
22 those results in?

23 THE CHAIR: I see. Yeah, but, I guess, you
24 know, it's nice to have them at the hearing. But I'll
25 weigh in now.

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1 I mean, none of us have had a chance to review
2 them. So I guess to the extent that we may make some
3 conclusions on those or questions today, but we're sort
4 of got past that as an undertaking. I think the Board
5 is prepared to review them. I think we can figure it
6 out, and we can likely use that in our deliberations.

7 But I guess as you, Ms. Vance, were wanting to see
8 a one-page CV before accepting this exhibit, I'm a
9 little anxious about us now getting into a protracted
10 debate on these results or discussion when none of us
11 have reviewed the results.

12 So you can send them in, but I guess to the extent
13 that they can be used today, I'm not clear on that yet.
14 Thank you.

15 MS. VANCE: Mr. Chair, I take your point, and
16 it's a very good one. I would like nothing more than
17 to ask questions about it, but obviously if
18 Mr. Muilwijk just got it, we can't do that.

19 So I will leave that alone. There may be some
20 other -- well, there might be other undertakings as
21 well, so this might be a bit of a dangerous path.

22 But just to recap --

23 THE CHAIR: We had that -- so we have that. I
24 think do we have that marked? Let's mark that as 1.
25 Let's keep track of it for now.

13:24

13:25

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1 UNDERTAKING - TO PROVIDE THE
2 COMPRESSIVE STRENGTH TEST RESULTS
3 RECEIVED FROM PRAIRIE STONE

4 THE CHAIR: Go ahead, sorry.

5 Q. MS. VANCE: So your evidence is you did not
6 have these -- your under -- did you understand that
7 these RCC samples were taken at the time of
8 installation?

9 A. MR. MUILWIJK: Yes.

10 Q. Okay. And you just got them yesterday?

13:25

11 A. MR. MUILWIJK: Yes. So I had asked -- I had
12 asked Mr. Bremer at the time of the -- basically when I
13 wrote this document is when I had asked him for it, and
14 he was going to work on it.

15 And then I -- when we were going through it all
16 yesterday, I remembered I never received the -- I never
17 received the documents concerning these samples.

18 So then I texted him, and he sent them to me
19 yesterday so...

20 Q. Okay. There's nothing I can do about the timing of
21 that. But you did not provide these samples,
22 obviously, to the approval officer prior to
23 January 2021?

13:26

24 A. MR. MUILWIJK: No.

25 Q. And Exhibit 4, page 6, so that would be the prior page,

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1 under heading 6, this is about base preparation:

2 (as read)

3 "Sub-Terrain Excavating used

4 laser-guided dozers to dig out the

5 corrals to the correct slope and grade."

6 Did you get any documents from Sub-Terrain Excavating to
7 this effect?

8 **A. MR. MUILWIJK: No.**

9 **Q.** Mr. Muilwijk, in your testimony today, you were talking
10 about the number of reports that you felt you had to
11 obtain from Mr. Lobbezoo as an engineer. When you met
12 with Mr. Cumming on November 4th, 2020, at the site
13 visit, did you have an opportunity to discuss the
14 October 29th report?

15 **A. MR. MUILWIJK: Yes, we talked about it.**

16 **Q.** And you'll agree that it was your choice to have
17 Mr. Lobbezoo revise and submit a new report?

18 **A. MR. MUILWIJK: Yes, under Mr. Cumming's effort.**
19 **He basically asked could you -- could you re -- revise**
20 **this document. And it was up to me, but he is the one**
21 **who brought it forward, like "Can you please do this?"**
22 **And I said, "Sure, I will do that."**

23 **Q.** Okay. As recently as -- and we can take this document
24 down. Thank you.

25 As recently as November 17, 2020, didn't you make

13:27

13:27

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1 amendments to your permit application? And we can
2 bring up a document if that would assist.

3 A. MR. MUILWIJK: As of which date, sorry?

4 Q. November 17th of 2020.

5 A. MR. MUILWIJK: The only changes that we made
6 would have been the catch basin size, I believe, and --

7 Q. And perhaps the lagoon between --

8 A. MR. MUILWIJK: Yes. Because on the site visit,
9 they thought it might also I guess be better if we take
10 that out, and it might also be beneficial for the
11 permit as well, just -- I'm adding a catch basin, but
12 if we also get rid of one that we're not using anymore,
13 it might just -- it looks better.

13:28

14 Q. Okay, thank you, those are my questions for you.

15 Mr. Metheral, I have a few for you. You
16 provided -- you provided the Board with I would say
17 four parts of the presentation. So there were sort of
18 three PowerPoints and one video; yes?

19 A. MR. METHERAL: Yes.

20 Q. And confirm for me that the only portion of those
21 presentations that actually contained photographs from
22 the Muilwijk site was Part 2; is that right?

13:29

23 A. MR. METHERAL: We should confirm. The one
24 presentation that is completely Muilwijks' illustrates
25 his yard and barns and corrals.

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1 Q. And just for clarity on the record, is that
2 Exhibit 100, labelled as RCC Part 2 maybe?

3 A. MR. METHERAL: I think it's part 3. Can we have
4 the document manager pull it up?

5 Q. So this is part 3. This is Exhibit 101.

6 A. MR. METHERAL: Sorry, you're right. It would be
7 Part 2 then.

8 Q. Okay. So Part 2 was the only one of all the photos
9 that you showed us in evidence that were actually from
10 the Muilwijk site?

11 A. MR. METHERAL: Yes, Part 2.

12 Q. And where were the rest of the photos from?

13 A. MR. METHERAL: The rest of the photos are from my
14 historic work, both at Alberta Agriculture, and in the
15 past year my work as an independent consultant. I
16 would say the majority of the photos were from old
17 presentations and -- yes, old presentations that I did,
18 which would have been public record.

19 Q. And you were part of Agriculture and Forestry?

20 A. MR. METHERAL: Yes. I was an engineer for
21 Alberta Agriculture and Forestry.

22 Q. So you weren't -- you did not supervise the work that
23 went on on November 14th, 2014, at the Muilwijk site;
24 correct?

25 A. MR. METHERAL: That's correct.

13:30

13:31

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1 Q. You spoke a little bit today about the importance of
2 cold joints when laying RCC. To your knowledge, to
3 your knowledge, were there cold joints when the RCC at
4 the Muilwijk site was installed?

5 A. MR. METHERAL: I wouldn't have any information on
6 that; I wasn't at site.

7 Q. Okay. Could we please --

8 A. MR. METHERAL: What I think -- I understand Arie
9 could answer that question.

10 Q. Okay. Sure, Mr. Muilwijk, were there cold sites -- 13:32
11 cold joints when the RCC at your site was installed?

12 A. MR. MUILWIJK: Negative. To my understanding,
13 cold joints are only used when you have a day of work.
14 Like so you pour on let's say a Monday, and then you
15 don't quite get finished, then on a Tuesday you will
16 start again. And that joint is considered as a cold
17 joint. And at my property, we did everything in a
18 single day.

19 So there was -- it was the process continually, so
20 there was no cold joints at my property. 13:32

21 Q. Thank you very much. Can we move to Exhibit 96,
22 please.

23 So Exhibit 96, I believe, is your written
24 submission, Mr. Metheral. And if we could scroll down
25 to page 2, near the bottom. There we go. And maybe

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1 just like a line or two of the next page. Okay, that's
2 perfect. Thank you.

3 So we've seen this before. I brought this up
4 yesterday. There's a quotation here purportedly from
5 Permit LA10054N. You'll agree with me that that quote
6 is taken from the monitoring statement associated with
7 that permit? I can bring it up if you like.

8 **A. MR. METHERAL:** Yeah, I believe the -- this was
9 the -- an earlier permit that I pulled this statement
10 from, yes, the one prior to --

13:33

11 **Q.** This was Permit LA -- pardon me. This is LA10054N,
12 that's what your submission suggests.

13 **A. MR. METHERAL:** Yes, I believe it is.

14 **Q.** Okay.

15 **MS. VANCE:** Document manager, since we're
16 talking about it, could we please bring up Exhibit 104,
17 which should be the monitoring statement associated
18 with LA10054N.

19 **Q.** And if we just go down a little bit, there's a text
20 underneath the bolded headings, the paragraph there.
21 Is that where you got this quote from?

13:34

22 **A. MR. METHERAL:** I believe so.

23 **Q.** Okay. If we could just scroll up a little bit.

24 You understand that this quote -- pardon me, so
25 this monitoring statement relates to a condition in the

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1 permit relating to the earthen manure storage, not to
2 the catch basin? We can look at the permit --

3 A. MR. METHERAL: Can you repeat that question?

4 Q. You understand that this monitoring statement relates
5 to a condition in that permit that relates to the
6 earthen manure storage, not to the catch basin?

7 A. MR. METHERAL: Yes, that makes sense.

8 Q. Okay. We can pull up the permit if you would like.

9 A. MR. METHERAL: Okay, so let's pull up the permit.

10 Q. Okay. So the permit is in evidence at Exhibit 18. If
11 we could scroll down to Condition 3, please.

13:35

12 So does that confirm that your understanding that
13 the monitoring statement relates to Condition 3, which
14 relates to the earthen manure storage? Sorry, you have
15 to say something.

16 A. MR. METHERAL: Yes.

17 Q. Thank you.

18 A. MR. METHERAL: Yes.

19 MS. VANCE: Okay, thank you, I'm done with
20 these documents.

13:36

21 Q. My last question, Mr. Metheral, when you were
22 presenting your PowerPoint Number 1, you stated that
23 one-third to one-half of feedlots in southern Alberta
24 were putting in RCC. For clarity, they're not putting
25 in RCC as a liner to meet AOPA groundwater protection

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1 requirements; right?

2 A. MR. METHERAL: That's correct.

3 Q. Thank you. Those are my questions for you.

4 I would like to move to Mr. Lobbezoo, please.

5 Mr. Lobbezoo, when were you retained by the

6 Muilwijks on this file?

7 THE CHAIR: Is the mic on?

8 A. MR. LOBBEZOO: It is on. I was thinking.

9 THE CHAIR: I'm sorry.

10 A. MR. LOBBEZOO: I was retained by the Muilwijks

11 well before any RCC took place on this site.

12 Q. MS. VANCE: Okay.

13 A. MR. LOBBEZOO: I think it was in relation to the

14 initial visit by Karl Ivarson, which happened maybe a

15 year before this took place; I can't recall.

16 Q. Okay.

17 A. MR. LOBBEZOO: But it's several years ago.

18 Q. You mentioned, I believe, that when you were first

19 involved with the RCC at the Muilwijks' site, you

20 talked about some boreholes in 2019 in addition to the

21 Chilako boreholes. Did you provide the results from

22 your boreholes to Mr. Muilwijk?

23 A. MR. LOBBEZOO: No, I did not. Oh, did I? He and

24 I -- I used the hand auger, a hand sampler, and he and

25 I went around, and we sampled by hand a couple

13:37

13:38

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1 locations. And we just talked about what we were
2 seeing.

3 I have no records of that. That was just a site
4 visit and a discussion, and it was akin to taking a
5 shovel and digging a couple of holes just to talk about
6 what was there.

7 Q. Okay. So it was that kind of borehole.

8 You also talked about communicating with
9 Prairie Stone and Sub-Terrain Excavating before the
10 installation of the RCC. Did you ever see any reports
11 or documents from them afterwards?

13:39

12 A. MR. LOBBEZOO: No. The only report that I've
13 seen from Prairie Stone is the recent compressive
14 strength report for the product installed at the
15 Muilwijks'.

16 Q. The one that Mr. Muilwijk received yesterday?

17 A. MR. LOBBEZOO: Yes.

18 Q. Thank you.

19 You spoke a little bit about your experience with
20 mix designs. Did you design the mix for the Muilwijk
21 site?

13:39

22 A. MR. LOBBEZOO: I did not.

23 Q. So you can't confirm that the mix for the Muilwijk site
24 was the same as for Goldridge?

25 A. MR. LOBBEZOO: I cannot. In fact I know it's

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1 **not, but...**

2 Q. You will agree with me that there is no standard,
3 quote/unquote, "recipe" for RCC to use as an AOPA liner
4 in Alberta?

5 A. **MR. LOBBEZOO:** You would have to rephrase your
6 question.

7 Q. Would you agree with me --

8 A. **MR. LOBBEZOO:** So there is no standard -- okay.

9 Q. Go ahead.

10 A. **MR. LOBBEZOO:** There is no standard recipe for
11 concrete for any application.

13:40

12 Q. Okay. And that includes RCC.

13 You will agree that what you put into your RCC
14 recipe will have an impact on the hydraulic
15 conductivity of that RCC; correct?

16 A. **MR. LOBBEZOO:** Yes.

17 Q. And it will have an impact on density?

18 A. **MR. LOBBEZOO:** Yes.

19 Q. And on compressive strength?

20 A. **MR. LOBBEZOO:** Yes.

13:41

21 Q. And on durability?

22 A. **MR. LOBBEZOO:** Yes.

23 Q. Thank you. This question is a bit of an oddball
24 question, but I thought I would ask it. What I would
25 commonly call the TAG report, it's Exhibit 81, if the

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1 document manager could just bring it up. Have you read
2 this?

3 A. MR. LOBBEZOO: I have skimmed through it. I have
4 not read it in detail.

5 Q. And for your April 8, 2021, report, which is
6 Exhibit 98, to what extent could this report play into
7 your discussion in the April 8th report?

8 A. MR. LOBBEZOO: None.

9 Q. There's been a lot of discussion over the last day or
10 so about professional -- about opinions from
11 professional engineers. You understand that under
12 AOPA, the opinion that counts under Section 19 is that
13 of the approval officer; is that right? Do you want me
14 to bring up --

15 A. MR. LOBBEZOO: I'm not familiar with the section
16 number and the specific wording of that, but that is my
17 understanding.

18 Q. Okay.

19 A. MR. LOBBEZOO: It is the decision of the approval
20 officer. That is my understanding, yes.

21 Q. Okay. And it's actually the opinion of the approval
22 officer.

23 Now I would like to talk -- thank you for this
24 document. I think we'll bring up Document 3 next,
25 please.

13:42

13:43

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1 So I would like to talk about two of your reports.
2 We sort of have four. There's one dated June 18th,
3 2020, at Exhibit 86; one dated October 29th, 2020, at
4 Exhibit 47; we have a November 6th, 2020, report, which
5 is in this document starting at page 40; and then we
6 have the April 8, 2020, report at Exhibit 98.

7 Now, I only want to talk about the November 6,
8 2020, and April 8, 2021, reports because the
9 November 6, 2020, one is the one the approval officer
10 ended up relying on, and the April 8th, 2021, report is
11 the one that the Board may have to grapple with.

12 So if we'll start with this one, one of the
13 areas -- well, so maybe we could move to page 43,
14 please.

15 So on page 43, there's -- I think it would be fair
16 to say that there's a few assumptions being made in
17 terms of permeability of the glade zone or interface,
18 as well as permeability through RCC mat. Would you
19 agree with that?

20 A. **MR. LOBBEZOO:** **Correct.**

21 Q. Okay. So let's talk about the average calculated
22 permeability through 150-millimetre thick RCC mat.
23 This is the last paragraph on that page, about four to
24 five lines down. Right. And you've identified it as
25 9.0 times 10 to the minus 8 centimetres per second.

13:44

13:45

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1 My question is -- well, my question is where did
2 you get that from?

3 **A. MR. LOBBEZOO:** So I testified to this earlier,
4 because I knew this would be a question.

5 So 9 times 10 to the minus 8 took into account
6 permeability of the RCC mat of 1 times 10 to the minus
7 9 centimetres per second, as indicated. The crack area
8 assumed a permeability of 2.2 times 10 to the minus
9 5 centimetres per second as I recall. I'm going by
10 memory.

13:46

11 As I stated in my earlier testimony, I had
12 numerous iterations of this calculation that I was
13 working through, and I had been also in those
14 iterations using permeability values characteristic of
15 silt, as if those cracks would be silt-filled.

16 So as I testified earlier, the combination of
17 these three values for that crack width was not
18 correct.

19 **Q.** Okay. And I'm not taking any issue with that.
20 Thank you for that testimony. What I want to explore
21 is where a couple of the assumptions came from.

13:47

22 **A. MR. LOBBEZOO:** Sure.

23 **Q.** So in the second line -- first sentence, second line of
24 this paragraph at the bottom of page 43, I believe that
25 you were using typical permeability through RCC at

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1 around 1 times 10 to the minus 9 centimetres per
2 second?

3 **A. MR. LOBBEZOO: Correct.**

4 **Q.** I am guessing that that is related to -- just a minute.
5 Well, I won't guess. Tell me where you got that number
6 from.

7 **A. MR. LOBBEZOO: I did not reference that number**
8 **right there, but that was based on literature review.**

9 **Q.** Okay.

10 **A. MR. LOBBEZOO: So there's a few places in here**
11 **where -- okay, literature review, that's my answer.**

13:48

12 **Q.** Okay. And the -- three lines down in that same
13 paragraph, there's a parenthetical comment about the
14 cracked area having an assumed permeability of 1 times
15 10 to the minus 4 centimetres per second.

16 **A. MR. LOBBEZOO: Yes.**

17 **Q.** So the same question: Where did that come from?

18 **A. MR. LOBBEZOO: So that's described in the**
19 **paragraph above.**

20 **Q.** Okay.

13:48

21 **A. MR. LOBBEZOO: And that is referenced below in**
22 **Footnotes Number 2 and 3.**

23 **Q.** Okay. This is the Miller report that you were speaking
24 about earlier?

25 **A. MR. LOBBEZOO: Yes.**

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1 Q. Let's talk about that report for a moment. This is
2 relating to permeability of the cracks. So I haven't
3 read this paper. Can you tell me what the general
4 scope of that paper was? You covered it a bit this
5 morning, but I would like to hear it again.

6 A. MR. LOBBEZOO: Yes. So to be clear on that, I
7 haven't read that paper again since the time that I
8 wrote this report. So this is however many months ago
9 that is.

10 So the gist of that report -- or the purpose of
11 that report was, as I testified earlier, was to explore
12 whether or not the glade interface between the manure
13 and the soil below for sites that do not meet the AOPA
14 constraints, if you will, to see if that glade layer
15 would improve the soils enough to meet those AOPA
16 constraints.

17 Q. Okay, thank you.

18 A. MR. LOBBEZOO: That was the general purpose of
19 the study.

20 Q. Thank you. In that study, the interface and glade zone
21 was not with RCC on top, between the manure pack and
22 the underlying soils; correct?

23 A. MR. LOBBEZOO: That is correct.

24 Q. This was directly -- it was a soil-based feedlot pen
25 placed directly on those soils?

13:49

13:50

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1 A. MR. LOBBEZOO: Correct.

2 Q. And you would agree with me that in a feedlot with RCC,
3 you are not going to get soils on the underlying --
4 pardon me, hooves on the underlying soils?

5 A. MR. LOBBEZOO: I hope not.

6 Q. Or else that's going to crack.

7 A. MR. LOBBEZOO: Please repeat your question or
8 your comment.

9 Q. Okay. You'll agree that in a feedlot with RCC, you are
10 not going to get the hooves impacting the underlying
11 soils directly? 13:51

12 A. MR. LOBBEZOO: That's correct.

13 Q. In the November 6, 2020, report, which we have up right
14 now, I don't see the same kind of detail and formula as
15 I do in the April 8th, 2021, report.

16 A. MR. LOBBEZOO: Correct.

17 Q. This is, for lack of a better term, this is kind of a
18 show-your-work thing. Is that --

19 A. MR. LOBBEZOO: Yeah.

20 Q. -- an obligation of yours to show your work in your
21 report like this? 13:52

22 A. MR. LOBBEZOO: No.

23 Q. No? Have you shown your work --

24 A. MR. LOBBEZOO: No.

25 Q. -- like that in previous reports?

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1 A. MR. LOBBEZOO: Yes. When requested.

2 Q. Okay. So you weren't requested to do it in this case?

3 A. MR. LOBBEZOO: That's correct.

4 Q. The same exhibit, I think two pages earlier. So
5 page 41, please.

6 All right. Here's a list of things that you
7 talked about. There's a number of points. For
8 instance, point 2, 4, and 5, where you referenced
9 photographs. Which photographs are these?

10 A. MR. LOBBEZOO: These photographs were -- these
11 photographs were submitted by Arie to Andy.

13:53

12 Q. Did you see the photographs?

13 A. MR. LOBBEZOO: Oh, yes.

14 Q. Okay. So these are the same ones that appear elsewhere
15 in the technical document, the 12 photographs that
16 Mr. Muilwijk submitted?

17 A. MR. LOBBEZOO: Yes.

18 Q. Okay. But you did not include them in your report?

19 A. MR. LOBBEZOO: No. And I discussed that with
20 Mr. Muilwijk, and he said I have already submitted
21 those pictures.

13:53

22 So in the interest of time and for not
23 duplicating, I knew that Mr. Cumming's already had
24 them, so I did not include them.

25 Q. Let me just find it. Number 4 talks about photographs

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1 depicting the RCC being compacted using a walk-behind
2 plate compactor. I wonder if you could kindly direct
3 me to which photograph that is.

4 MS. VANCE: And for the document manager, I
5 think we're probably looking at pages 37 through 39, if
6 that would assist. If you could just stop us when we
7 get to the right photograph.

8 A. MR. LOBBEZOO: Okay, they're way too small for me
9 to see from this end. Okay, stop, stop.

10 Q. If Mr. Muilwijk would be better to answer this
11 question, I'm happy to take an answer from him. But I
12 just asked you because you have it in your report.

13 A. MR. MUILWIJK: So, yes, I do have the pictures
14 right here in front of me. Now, there's maybe no exact
15 picture where it shows like a person working with a
16 plate tamper. We are able to see like the big packers
17 and especially on the covered shelter. There was just
18 pipes on -- and you can see that in Picture --

19 Scroll down a little or up, I suppose. Okay,
20 maybe go back down, please.

21 Okay, so you can kind of it see it there right in
22 front of the skidsteer, you'll see like a white post.
23 So around those, they're able to get around those with
24 a big packer as well. I know I was -- because I was
25 present, and I'm willing to testify to that as well,

13:55

13:56

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1 they did go around this with a small packer as well.
2 But we also poured a concrete pad on top of this RCC
3 liner as that's where the water will sit on, and that's
4 like a 4-inch concrete pad that we poured later on on
5 top of the RCC mat.

6 And as well for the corrals, a lot of these
7 pictures I took more out of the sake of just taking a
8 picture of the work than actually using it as a proof
9 document. So had I known this would have been so
10 important, I would have had 100 pictures or more.

13:57

11 But, yes, I know for a fact plate tampers were
12 used around all the fence posts, around all the
13 fence-lines, around all the bunk aprons, plate tampers
14 were used. And then like the big rollers were used for
15 the general area of the pen.

16 Q. Okay, thank you. I'll go back to Mr. Lobbezoo.

17 MS. VANCE: If we could have -- I think it's
18 page 41 back, please.

19 Q. So after listening to Mr. Muilwijk, I have to ask why
20 you wrote Number 4 about the photographs, of the
21 walk-behind plate compactor.

13:58

22 A. MR. LOBBEZOO: I'm certain that I saw a
23 walk-behind plate tamper in one of those pictures.
24 That's why I wrote that.

25 Q. Okay, thank you. And also at Number 5 here you speak

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1 about further photographs depicting a layer of straw.
2 I'm guessing, correct me if I'm wrong, that these would
3 also be the same photos as on page 37 and 38, as
4 provided by Mr. Muilwijk; is that right?

5 **A. MR. LOBBEZOO: These are the pictures of straw in**
6 **the pens, yes.**

7 Q. Okay. Can you tell from these photos how soon the
8 straw was placed after the RCC was laid?

9 **A. MR. LOBBEZOO: No, but --**

10 Q. Can you tell how long the straw was there? And, I'm
11 sorry, if you needed to finish your last response,
12 please do so.

13 **A. MR. LOBBEZOO: I'm happy to just answer the**
14 **question.**

15 Q. Thank you. In your report --

16 Can we go back to page 43, please. Down, please.
17 There we go.

18 So I believe that you said that the permeability
19 for the cracked areas assumed at 1 times 10 to the
20 minus 4 centimetres a second came from the 2008 Miller
21 report; correct? I think that's what you said a few
22 minutes ago.

23 **A. MR. LOBBEZOO: Yes, I did.**

24 Q. All right. Can we bring up Exhibit 98, please. So
25 this is the April 8th, 2021, report.

13:59

14:00

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1 And, just to be clear, I'm asking these questions
2 in an attempt to understand this new evidence. Of
3 course this was not before the approval officer at the
4 time. You understand that?

5 **A. MR. LOBBEZOO: Yes.**

6 **Q.** Thank you. So in this one, I understand that near the
7 end of this paper -- or maybe the focus of this paper
8 is sort of an average in theory. I think Mr. Metheral
9 called it a composite. Just so the Board is clear,
10 this is not what was proposed in the Muilwijks'
11 application; right? This is new?

14:01

12 **A. MR. LOBBEZOO: This is not new. This is what was**
13 **proposed in the Muilwijk application.**

14 **Q.** You understood that he was proposing some kind of
15 multilayered, average hybrid -- I can't remember what
16 the term is. It's a multilayer liner I think is the
17 way it's termed. That's what you feel that the
18 Muilwijks applied for?

19 **A. MR. LOBBEZOO: No. The Muilwijks applied for RCC**
20 **as a liner, and this report supports RCC as a liner.**
21 **And in the discussion near the end of it, I demonstrate**
22 **how the natural soils could add a little bit to it.**
23 **But as you'll see in there, the RCC more than sufficed**
24 **for the -- for the liner on its own accord.**

14:02

25 **Q.** Okay.

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1 **A. MR. LOBBEZOO:** So I'm not necessarily trying to
2 propose a composite, but, for the benefit of the Board,
3 I think it was helpful to show that if we add these few
4 things together that there is a little bit more
5 protection here that could possibly be considered.

6 **Q.** Okay, that clears it up for me.

7 **A. MR. LOBBEZOO:** So I wouldn't call it -- okay.

8 **Q.** Because I felt like it was a new kind of proposal, and
9 so what you're telling me is that it's not a new
10 proposal, it's maybe just additional information?

14:03

11 **A. MR. LOBBEZOO:** Correct.

12 **Q.** Okay. The average permeability of the RCC that you
13 used in your -- I think I'm talking about November --
14 oh, no, I'm not. I'm talking about this one. In this
15 report, those numbers are not actually from the site.
16 Are they also from literature?

17 **A. MR. LOBBEZOO:** The permeability numbers indicated
18 from -- for RCC is from the literature. And in this
19 case I actually referenced the literature.

20 **Q.** Perfect.

14:03

21 **A. MR. LOBBEZOO:** Or one of the -- one of the
22 literature.

23 **Q.** And is that -- maybe we could just move to that. Is
24 that the Portland Cement paper from 2006?

25 **A. MR. LOBBEZOO:** Yes.

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1 Q. Okay, let's go down to that. I think it's at page --
2 maybe the next page. Right. Okay, stop there, please.

3 So this is Footnote 3, Wayne Adaska, roller
4 compacted concrete, published 2006. The article
5 indicates a range of permeability of .15 to 15 times 10
6 to the minus 9 centimetres per second. That's what the
7 footnote says.

8 So I'm thinking that you probably got your
9 theoretical -- or I'll call it a book value for lack of
10 a better term, literature value, from the fastest in
11 the range. Is that fair to say? It might help to just
12 read some of the text up above, where you discuss the
13 range in relation to Footnote 3. There it is.

14 So this is the first --

15 A. MR. LOBBEZOO: Yes.

16 Q. -- paragraph under the heading of "Permeability through
17 RCC," the last couple of lines. Okay.

18 A. MR. LOBBEZOO: Yes.

19 Q. Okay. So that 2006 paper, the data that they used,
20 that that paper used to come up with this range, what
21 was the date of that data?

22 A. MR. LOBBEZOO: The date of the data from the --
23 from the...

24 Q. I can ask it again, if it would help.

25 A. MR. LOBBEZOO: Can you rephrase the question?

14:04

14:05

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1 Q. Sure.

2 A. MR. LOBBEZOO: Yeah.

3 Q. So you told us that this publication by the Portland
4 Cement Association indicates a range for typical
5 permeability values through RCC?

6 A. MR. LOBBEZOO: Yes.

7 Q. And they give a range. And your footnote also talks
8 about it. So my question is --

9 A. MR. LOBBEZOO: Yes.

10 Q. -- in that paper --

14:06

11 A. MR. LOBBEZOO: Yes.

12 Q. -- what is the date of the data that they used to come
13 up with that range?

14 A. MR. LOBBEZOO: It was not provided. It made
15 reference to one other paper, but I'm not -- I cannot
16 recall the date of the paper that it made reference to.
17 But it made reference to this paper as a -- they said
18 something different, but -- so that -- the date was not
19 provided in that paper.

20 Q. Could it be 1999?

14:06

21 A. MR. LOBBEZOO: Oh, sure, yes.

22 Q. Okay. You did read the paper, I presume?

23 A. MR. LOBBEZOO: Yes.

24 Q. Thank you.

25 THE CHAIR: Ms. Vance, maybe I could ask a

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1 quick question.

2 MS. VANCE: Sure.

3 THE CHAIR: At the very beginning of yesterday
4 you indicated that of course the approval officer takes
5 no position on whether the Board upholds or overturns
6 the approval officer decision, and most of your direct
7 and cross would be related to the record of which the
8 approval officer made his decision. This is -- now,
9 most of this that you're asking about is de novo, and I
10 don't believe your approval officer is in a position to
11 make a decision now. 14:07

12 MS. VANCE: No.

13 THE CHAIR: So you've shown a lot of
14 difference, but, in fairness, I think, you know,
15 probably Mr. Kennedy is going to be asking the panel
16 some questions. You're going into some detail. Some
17 of it helpful, to be fair, but I think -- to some
18 degree I think we need to be careful about really, you
19 know, the roles of you as a counsel on the approval
20 officer's side and Mr. Kennedy. And perhaps a quick
21 caucus between you two might be helpful or not, but did
22 you -- how much more did you have? Particularly on the
23 new elements of the submissions made by Mr. Muilwijk's
24 team. 14:07

25 MS. VANCE: And I completely take your point.

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1 I'm just trying to figure out where Mr. Lobbezoo got
2 his -- we can go back to the November 6 paper. I
3 believe there's even less information there. We can go
4 back and talk about the permeability in that paper.
5 That would be more on point.

6 THE CHAIR: Yeah. And like I say, you know, I
7 think we've shown a fair amount of difference. We
8 don't have to cut the razor thin line on where that is,
9 but it just seemed like maybe we're starting to get a
10 bit further over than we needed to be into
11 Mr. Kennedy's role versus yours, but --

14:08

12 MS. VANCE: Okay. Can I ask one question
13 follow-up on this point --

14 THE CHAIR: Yes, please do.

15 MS. VANCE: -- that will hopefully address
16 your concerns.

17 Q. This 2006 paper, is this the same source that you used
18 to come up with the RCC permeability for your
19 assumption in the November 6 report?

20 A. MR. LOBBEZOO: It was one of the references, but
21 I thought it was clear in the publication by the
22 Portland Cement Association, and I thought the Portland
23 Cement Association, given that they are the Portland
24 Cement Association, carried more gravity than maybe
25 some of the others that I was referencing.

14:08

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1 Q. Okay. I'm just trying to find out where your
2 assumptions have come from. So I think I've taken that
3 as far as I can.

4 Do you know what the water/cement ratio is for the
5 RCC at the Muilwijk site?

6 A. MR. LOBBEZOO: I have been told what it was
7 designed to be.

8 Q. Okay. Do you know what the aggregate mix is at that
9 site?

10 A. MR. LOBBEZOO: Yes, I do.

14:09

11 Q. What is the aggregate mix?

12 A. MR. LOBBEZOO: The aggregate was sourced from the
13 White Lake gravel pit, which is proximate to the site,
14 and we provide quality control services to that gravel
15 pit. So I do have -- in our documents we do have data
16 on the materials used at the Muilwijk site.

17 Q. Okay. But you didn't include that here?

18 A. MR. LOBBEZOO: No, I did not.

19 Q. I think I'm just about done. I have maybe just a
20 couple more. Just bear with me.

14:10

21 So cracking. I think that you earlier talked
22 about cracking in large and very large slabs. In your
23 view, are the RCC slabs at the Muilwijk site large or
24 very large?

25 A. MR. LOBBEZOO: Yes.

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Cross-examined by Ms. Vance

1 Q. And is there -- I think you suggested, please correct
2 me if I'm wrong, that there will be the same cracking
3 on a large slab whether there's rebar there or not. Do
4 I have that right?

5 A. MR. LOBBEZOO: As I testified earlier, the sum
6 total of the crack widths would generally be the same,
7 whether there's rebar or not. What I've testified, as
8 has Mr. Both, is that the -- with the more tensile
9 strength you've put into the slab through rebar, the
10 crack spacing increases, as does the crack width. And
11 Mr. Both demonstrated that.

14:11

12 Q. In your November 6th, 2020, report, which is
13 Exhibit 3 --

14 A. MR. LOBBEZOO: Yes.

15 Q. -- one of your assumptions was a 20-millimetre wide
16 crack going in both directions?

17 A. MR. LOBBEZOO: Yes.

18 Q. And then -- so where did you get that assumption from?

19 I think it's just up a little bit. Thank you.

20 A. MR. LOBBEZOO: That was not an assumption of
21 cracks. That was a hypothetical -- that was just a
22 hypothetical what-if scenario.

14:12

23 Q. Okay. And not to wade too far into the new stuff, but
24 I believe that that hypothetical changed to
25 15 millimetres in your April 8, 2020 (sic) report. Can

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Cross-examined by Ms. Vance

1 you just confirm that?

2 **A. MR. LOBBEZOO:** **Yes.**

3 **Q.** Thank you. I think those are my questions for
4 Mr. Lobbezoo. Thank you so much for being patient.

5 **A. MR. LOBBEZOO:** **Thanks.**

6 **Q.** And I just have a few for Mr. Both.

7 Mr. Both, I enjoyed hearing from you. You're
8 obviously passionate about concrete, which I really
9 appreciate.

10 So what I heard you say is that you designed the
11 RCC mix for the Muilwijks; is that right?

14:13

12 **A. MR. BOTH:** **That is correct.**

13 **Q.** Okay. And did you provide -- did you prepare the RCC
14 mix with an eye to AOPA liner specifications?

15 **A. MR. BOTH:** **I did it with an eye to what was**
16 **prescribed for the Stronks' application,**
17 **performance-based criteria.**

18 **Q.** You talked about early life cracking and later life
19 cracking, and I think maybe I understood near the end
20 of your testimony what that means. And I was going to
21 ask what's an early life and later life. Is it fair to
22 just kind of use your tables there to understand that?
23 Okay.

14:14

24 **A. MR. BOTH:** **Yes, ma'am.**

25 **Q.** There's no, like, black and white time or changes from

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Cross-examined by Ms. Vance

1 early to later life?

2 A. MR. BOTH: It's a gradual process, correct.

3 Q. Okay, thank you.

4 Maybe we could bring up Exhibit 97, please, which
5 is Mr. Both's document. Yes, that page actually,
6 thank you, page 4.

7 At the bottom under "Factors Used in
8 Calculations," for concrete strength and age of
9 concrete it says "see graph." Is that a reference to
10 the tables above or is that something else?

14:15

11 A. MR. BOTH: No, that's an error. I apologize.
12 That's a reference to the tables above, as opposed to
13 the graphs above.

14 Q. Okay. I wondered about that, but I wanted to make sure
15 you had a chance to clear that up.

16 A. MR. BOTH: I appreciate that. Thank you.

17 Q. You spoke about concrete being very provable and some
18 imperical testing methods. To your knowledge, did
19 Sub-Terrain Excavating provide testing results for base
20 preparation?

14:15

21 A. MR. BOTH: Not to my knowledge.

22 Q. Okay. I think those are all the questions I had for
23 you. Thank you.

24 Thank you all four of you.

25 A. MR. BOTH: Thank you.

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 THE CHAIR: Thank you, Ms. Vance.

2 We'll move to Mr. Kennedy, and then on to Panel
3 members.

4 **MR. KENNEDY QUESTIONS THE PANEL:**

5 Q. So this is going to jump around a fair bit because
6 Ms. Vance covered a number of my questions.

7 THE CHAIR: I was going to ask if you had any
8 left actually, Mr. Kennedy.

9 MR. KENNEDY: Well, some. And some of them have
10 been partially answered, but perhaps a little more
11 clarity might help. 14:16

12 Q. I think this one is for Mr. Lobbezoo. You know, much
13 reference has been made to the Stronks application and
14 the permit. And, of course, the key permit condition
15 associated with that Stronks application required a
16 stamped and signed report from a professional engineer
17 that was engaged with the design, installation, and
18 initial inspection of that facility. And I want to get
19 an idea. So my questions are going to relate to, you
20 know, what we had and perhaps what we don't have as
21 consequences to things -- how things unfolded in this
22 case. 14:17

23 So with that -- do you understand the background,
24 Mr. Lobbezoo? Just in terms of -- you know, the
25 introduction I gave, so the context in which I'm

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 looking for you to respond?

2 A. MR. LOBBEZOO: I think so.

3 Q. Okay. And the first premise is, how helpful is it to
4 have that professional engineer report during the
5 design, construction, and immediate post-construction
6 inspection?

7 A. MR. LOBBEZOO: Are we referring to the Stronks
8 again or --

9 Q. Well, in general. So, I mean, this is a condition.
10 Much has been made about the similarities to the
11 Stronks' facility.

14:18

12 A. MR. LOBBEZOO: Yeah, yeah, yes.

13 Q. So the role of an engineer, what can you contribute if
14 this is done?

15 A. MR. LOBBEZOO: Yeah. So what can I contribute
16 and what did I contribute? Maybe those two to compare?

17 Q. Yeah. So what --

18 A. MR. LOBBEZOO: So what we can --

19 Q. What's missing? You know, what do we have and what's
20 missing?

14:18

21 A. MR. LOBBEZOO: Okay, good, yes.

22 In the Stronks' permit, one of the conditions was
23 to provide an engineered stamped letter -- and I'm
24 going by memory here -- and it identified a series of
25 bullets that they wanted covered. They wanted me to --

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Questioned by Mr. Kennedy

1 the engineer stamping to specifically speak to half a
2 dozen points or so. So in that case I spoke to those
3 very specific points. It did not include an engineer's
4 review of the mix design, per se.

5 So to answer to your question, one of the things
6 we could contribute is an engineer review of the mix
7 design itself to start with, yes.

8 Q. Okay. So I'm going to stop you there, because I'll
9 take you through the individual bullets.

10 A. MR. LOBBEZOO: Okay.

14:19

11 MR. METHERAL: Could we put the bullets --

12 Q. MR. KENNEDY: I'm sorry?

13 MR. METHERAL: Sorry to interrupt. Can we put it
14 on our screen for review?

15 Q. MR. KENNEDY: Oh, sure. It is Exhibit -- I
16 think it's part of Exhibit 94. I'm just not sure of
17 the -- I'm not sure of the page number because I pulled
18 it out of -- I think I've printed this one off several
19 times and it was the looseleaf part of the document.

20 Yeah, it's the approval document itself rather
21 than the decision summary.

14:20

22 A. MR. LOBBEZOO: That's the spring Point 1 too, by
23 the way.

24 Q. It might be the very first. Let's start at the very --
25 no. Oh, this is it. This is it. And I'm looking at

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 page 3 perhaps of this -- of the approval. There we
2 go. Sorry, I have to get pretty close to the screen to
3 read my text if I do it there.

4 Now, in your last statement, I think you referred
5 to the formula or the recipe for the RCC as being
6 something you would look at as the engineer. Do I have
7 it right that you have never seen the recipe for this
8 application?

9 **A. MR. LOBBEZOO: I have not seen the specific**
10 **recipe for the application. I mean, they're generally**
11 **similar between concrete to concrete, and I was told**
12 **what the water/cement ratio was and what the moisture**
13 **content would be, but I have not seen a written-out**
14 **recipe, no. So your answer is yes.**

14:21

15 **Q. But I think I understood that you said that would be an**
16 **important thing for you to look at if you were doing**
17 **the Stronks' review with your certification.**

18 **A. MR. LOBBEZOO: I think for RCC as a liner, yes.**
19 **The answer is yes. I mean, it would provide a -- there**
20 **would be benefits to the NRCB for that, yes.**

14:22

21 **Q. And would the recipe make a difference in terms of the**
22 **permeability of that RCC?**

23 **A. MR. LOBBEZOO: The RCC that's being designed**
24 **around here would all have similar permeability**
25 **characteristics. So variations in the recipe would not**

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Questioned by Mr. Kennedy

1 necessarily substantially change the permeability
2 character.

3 Q. So maybe I can go back. Rather than to guess as to why
4 you think it would be important to see the recipe, why
5 don't you tell me.

6 A. MR. LOBBEZOO: For a more complete package --
7 okay. If we -- if we look at the use of HDPE liners,
8 for instance, the NRCB usually is interested in shop
9 tickets or some sort of verification that the thickness
10 was what it needed to be and the properties were
11 whatever they needed to be. So maybe that same logic
12 could be applied to RCC. I'm suggesting that. And the
13 provision of a mix design would maybe parallel that a
14 little bit better.

14:23

15 Q. But at least in the Metheral (sic) case, you were able
16 to reach a number of conclusions in your report and
17 affix your stamp without understanding the recipe for
18 the RCC?

19 A. MR. LOBBEZOO: Yes, because I was on site looking
20 at it, doing the Schmidt hammer testing, taking the
21 cores and observing the concrete itself, and it
22 appeared to be an appropriately, properly apportioned
23 dense mix suitable for that. So I was able to get the
24 information from the core itself without review of the
25 recipe.

14:24

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Questioned by Mr. Kennedy

1 Q. And maybe this question is for Mr. Both. Is there a
2 problem in just providing the recipe that was used?

3 A. MR. BOTH: I mean, the easy answer to the
4 question is no, it's not a problem. The industry,
5 however, is a performance -- concrete manufacturing
6 industry is a performance-based industry. So mix
7 designs are proprietary for the producer. We each have
8 our own little way of coming to the same end result,
9 including the materials we use and the proportions that
10 we use.

14:25

11 When we're giving a performance criteria, and the
12 performance criteria is to a certain MPa, then we build
13 the mix design for that certain MPa to ensure that we
14 get there.

15 Is it a difficult thing to provide it? The answer
16 is no. Is it constantly being hidden? Yes.

17 Q. Sorry, I'm just going to ask you to slow down in our
18 answers --

19 A. MR. BOTH: Of course.

20 Q. -- as we really do want to maintain the transcript.

21 But when you refer to this as proprietary, you
22 have no problem providing it to an independent engineer
23 who might be providing oversight at the construction?

24 A. MR. BOTH: I don't have a problem. Our
25 organization does not struggle providing it to an

14:25

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 engineer who is oversight over the facility.

2 Creating that into a public document does change
3 things a little bit for me. So providing it so it
4 becomes a public document, thereby giving to all of my
5 competitors my proprietary mix design does create a
6 little bit of an issue for me.

7 Q. And, again, I would ask you to respond just a little
8 more slowly.

9 A. MR. BOTH: Sorry.

10 Q. And is that why we haven't seen the recipe in this
11 instance?

12 A. MR. LOBBEZOO: In this instance we were never
13 asked for the recipe.

14 Q. If I were to ask now, can it be provided?

15 A. MR. BOTH: Yes.

16 A. MR. LOBBEZOO: Yes.

17 Q. Thank you.

18 UNDERTAKING - TO PROVIDE THE RECIPE FOR
19 THE MIX DESIGN FOR THE RCC

20 Q. MR. KENNEDY: And I don't know whether that will
21 be helpful for the Panel or not, but perhaps if I can
22 have your undertaking to provide that recipe --

23 THE CHAIR: Mr. Kennedy, so just as I'm
24 listening here, so that would be provided in
25 confidence, though, so it won't show up in our public

14:26

14:26

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Questioned by Mr. Kennedy

1 documents, or how --

2 MR. KENNEDY: To be clear, if you undertake to
3 provide it, it's going to go on a public record. So if
4 you are reluctant to do that...

5 THE CHAIR: I just wanted to clarify.

6 A. MR. LOBBEZOO: And this is a very good point, and
7 this is why we have good discussions like this. The
8 mix recipe is owned by Prairie Stone at this point. It
9 was provided by John Both to Prairie Stone. So I have
10 no authority, neither does Arie Muilwijk or John Both,
11 to provide that recipe. We would need their consent
12 for that, and also their consent for it to be public.

13 Q. MR. KENNEDY: Okay.

14 A. MR. LOBBEZOO: And I can see -- the point was
15 very good. This is proprietary, and it would not be
16 unreasonable for Mr. Bremer of Prairie Stone to be very
17 reluctant to make that public.

18 Q. All right. I'll leave it to the Panel. There is the
19 potential to -- we have various methods of doing --
20 bringing in evidence on a confidential basis, and it's
21 confidential to the parties to the proceeding, but I'll
22 leave that to the Panel and I'm going to move on.

23 In effect it raises this question; and,
24 Mr. Lobbezoo, I'm going to ask you to respond to it.
25 If the recipe is proprietary and it's simply a formula

14:27

14:28

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 provided by the contractor who installs the RCC on
2 site, if it is not provided to an engineer doing the
3 oversight, as required in Stronks, what's the risk
4 associated with that? As a professional engineer, is
5 there a risk?

6 **A. MR. LOBBEZOO:** It's probably a complicated answer
7 to that. So I would say if there was performance-based
8 criteria that a reputable concrete supplier was
9 providing concrete to, and he was doing it to that
10 performance-based criteria, the risk would be low. But
11 in the case of Stronks, you don't see performance-based
12 criteria there at all. So they could provide -- they
13 could have provided anything.

14 **Q.** And I don't want to dwell on this, Mr. Lobbezoo, but I
15 do have the -- you were the one that raised the fact
16 that the professional engineer in Stronks would need to
17 see the recipe before affixing his stamp. And perhaps
18 I'll leave it at that because I do want to move through
19 these bullets, and I don't know that we're going to get
20 much traction there.

21 So in terms of the bullets, and I'm now at the
22 first bullet... Now, were the engineer that applied
23 the stamp on Stronks?

24 **A. MR. LOBBEZOO:** I was, yes.

25 **Q.** Okay. So perhaps, and again we're not reviewing

14:29

14:30

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Questioned by Mr. Kennedy

1 Stronks, but what could you do on Stronks with respect
2 to the first bullet that you could not do on this site,
3 on the Metheral (sic) site? So is there anything
4 missing as a consequence of the fact that you weren't
5 involved during the design, application, and
6 construction?

7 **A. MR. LOBBEZOO:** No. The locations are
8 specified --

9 **Q.** Okay.

10 **A. MR. LOBBEZOO:** -- on the site plan, yeah.

14:31

11 **Q.** Okay. And how about the bed for the liner was level
12 and compacted before the RCC is installed?

13 **A. MR. LOBBEZOO:** The evidence that I had for -- so
14 I could speak to both sides.

15 In the case of Stronks, we did -- because there
16 was a lot more subgrade preparation at Stronks, we were
17 on site doing compaction testing and the like. Whereas
18 at Mr. Muilwijk's site, there was really limited, you
19 know, subgrade preparation activity required. So this
20 was a much easier task at the Muilwijks, and there's
21 enough evidence and documentation that I could -- I
22 could satisfy that.

14:32

23 **Q.** And was there a report prepared by the person who
24 prepared the subgrade?

25 **A. MR. LOBBEZOO:** There was not.

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Questioned by Mr. Kennedy

1 Q. Okay. So when you talk about evidence, what evidence
2 are you relying on? And do we have it on the record
3 today?

4 A. MR. LOBBEZOO: We have the photographs. The
5 other evidence that I have specific to Mr. Muilwijk's
6 site is the contractor, Sub-Terrain, is an acquaintance
7 of mine. I discussed with him the procedure for doing
8 this. I know him well. And when I talked about him --
9 to him later about this, you know, he affirmed the
10 activities that were carried on there.

14:33

11 Q. In the third bullet you talk about an even thickness of
12 7 inches when applied and 6 inches when compacted. Is
13 there -- and you've got core samples which you're
14 relying on in the case of Muilwijk. Would that be the
15 entirety of what you would have been relying on in the
16 Stronks application?

17 A. MR. LOBBEZOO: Well, in this case there's
18 really -- the product being placed on the bed with an
19 even thickness of at least 7 inches -- I mean, it
20 actually doesn't matter what the initial placement
21 thickness would be if the end product that's compacted
22 is more than -- sorry, the even thickness of 7 inches.
23 When it's compacted to 6 inches, that's what governs
24 there.

14:33

25 So in the case of Mr. Muilwijk, no, I wasn't on

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 site to see that it was 7 inches thick placed loosely,
2 but we know that it's more than 6 inches. And in
3 actually many cases it's more than 7 inches as well.

4 Q. Do you know that from a report from the installer or
5 simply from the core tests?

6 A. MR. LOBBEZOO: I know that from the core tests.

7 Q. And in terms of, I'm moving on to the fourth bullet,
8 properly compacted around transition zones. What are
9 you relying in this instance on and what would you have
10 relied on in issuing your report on Stronks? Are there
11 differences? 14:34

12 A. MR. LOBBEZOO: Well, when you look at the --
13 okay. At Stronks, we were on site during the
14 compaction of the RCC. So, yes, I have -- I had a
15 technician that was on site to observe what was going
16 on with the compaction around the stock waters.

17 At the Muilwijks', no, I only have evidence at
18 posts and at waterers that the material is well
19 compacted. I can take my Schmidt hammer and apply a
20 test right there. I could do a core right there if I
21 needed to. 14:35

22 Q. And did you get a -- did you get a report or speak
23 directly to the people that performed those functions?

24 A. MR. LOBBEZOO: I spoke directly to the owner of
25 Sub-Terrain Excavating, and in our discussions I

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Questioned by Mr. Kennedy

1 reminded him again about the importance of compacting
2 around these appurtenances.

3 Q. But, to be clear, you didn't have that conversation
4 before it happened at the Muilwijk site?

5 A. MR. LOBBEZOO: I talked to the -- yes, I did.
6 Before? The day or so before I talked specifically
7 with the contractor about this project, and I went over
8 that with him.

9 Q. Okay. And with respect to the straw coverage -- and I
10 think Ms. Vance asked some questions about that, but
11 what I wasn't clear on is how does that relate to an
12 engineer's report? You know, what do you need so that
13 you can put a stamp on a report and say this piece was
14 satisfied?

15 A. MR. LOBBEZOO: So if the RCC was not properly
16 cured, if you will -- and, I mean, there's various
17 situations where the straw and the water become much
18 more important than others. In hot weather the straw
19 and the water is much more important than in, say,
20 cooler, wet weather. So in the case of -- well, in any
21 RCC case, one would be able to look at the surface if
22 it did not properly cure, and you should be able to see
23 spalling or spider cracking on the surface or those
24 sorts of characteristics in the surface of the RCC,
25 which may indicate that it -- that the surface didn't

14:36

14:37

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1 cure properly because it wasn't hydrated the way it
2 should be.

3 So in the case of --

4 Q. No, no, I think that -- sorry, I didn't mean to
5 interrupt. No, I --

6 A. MR. LOBBEZOO: I -- I'm sorry. It's the
7 difficulty with this Zoom call. I would like to just
8 finish, if I may, Mr. Kennedy.

9 Q. Please.

10 A. MR. LOBBEZOO: So in the case of the Stronks'
11 site, myself, after the concrete had been placed, I was
12 on site with a technician to physically go through the
13 slab and to assess the thickness of the slab. So I was
14 able to assess it there.

15 In the case of Mr. Muilwijk's site, yeah, when I
16 got to the site the first time, there was already
17 manure on it. But, nevertheless, we did clear off
18 areas of manure to do the Schmidt hammer testing. In
19 the case of Mr. Muilwijk's test, because there was
20 decent performance with the Schmidt hammer from the
21 surface, that would indicate to me that the surface had
22 cured properly, and I had no concerns at all that there
23 was any improper curing.

24 Q. Okay. I think those may be my questions.

25 No, I have a couple more, and I'm not sure whether

14:38

14:38

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 these are for you, Mr. Lobbezoo, or they might be for
2 Mr. Metheral, they might be for Mr. Both, and it's
3 about crack response. And I'm trying to remember who
4 gave the answer, but I thought I heard that once cracks
5 appear in RCC concrete -- or the liner, is that there
6 is no response to crack control.

7 **THE CHAIR:** Who is going to answer? Just say
8 your name for the court reporter, please.

9 **A. MR. BOTH:** **Is that John?**

10 **THE CHAIR:** I can hardly hear you. Who is
11 speaking? 14:40

12 **A. MR. BOTH:** **John, would you like me to answer**
13 **that, John Lobbezoo?**

14 **A. MR. LOBBEZOO:** **Yes, please.**

15 **A. MR. BOTH:** **John Both here. I can speak to**
16 **that.**

17 **Once -- cracks typically form in all concrete in**
18 **the first 24 hours. They're not visible typically, but**
19 **they form within the first 24 hours. Crack control**
20 **after 24 hours usually has very little impact on**
21 **determining where the concrete is going to crack.** 14:40

22 **Q. MR. KENNEDY:** **May I just stop you. I'm talking**
23 **about remedial response to cracks that you know are**
24 **there. And I think I heard that they are what they are**
25 **and rely on perhaps a glade layer response, and that**

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Questioned by Mr. Kennedy

1 would be the best response possible.

2 A. MR. BOTH: Mr. Lobbezoo should answer that
3 question.

4 A. MR. LOBBEZOO: Okay. Well, you're -- so control
5 of the crack, the glade layer filling it in. Yeah, was
6 there actually a question in there?

7 Q. Yeah. So I just wanted to confirm my understanding, is
8 there is no technical ability to provide an engineered
9 response to cracks once they appear in RCC. Is that
10 correct?

14:41

11 A. MR. LOBBEZOO: Yes, but I would like to expand on
12 that. In the case that the cracks deteriorate and
13 widen and are a problem, those crack sections can be
14 cut out and replaced. So that would be a potential
15 response, engineered response.

16 Q. And you've relied on this glade protection --

17 A. MR. LOBBEZOO: Yes.

18 Q. -- in terms of providing some permeability protection.
19 Can you direct the Board to any studies that would
20 support that assertion? And I'm talking about in these
21 15-millimetre cracks.

14:42

22 A. MR. LOBBEZOO: I cannot.

23 Q. Okay.

24 A. MR. LOBBEZOO: I have not found any studies that
25 people are doing conductivity testing through cracks.

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 So I spent some time considering, well, what would the
2 crack fill up with and what would be the most
3 appropriate response. And the use of the glade
4 material in it and the permeability value that I used I
5 think are quite a conservative approach to it. You
6 have to understand that the number that I used, 1 times
7 10 to the minus 4, that's -- that's a permeability
8 characteristic similar to fine sand. It's not like
9 it's -- it would not take much to achieve that
10 permeability characteristic.

14:43

11 Q. Okay. So I think some of these questions may be for
12 Mr. Muilwijk. Is he available? I just don't see him
13 on the screen.

14 A. **MR. MUILWIJK:** Yes, I am available.

15 Q. Thank you. So, Mr. Muilwijk, a simple question, and
16 not that there's a curative response, but perhaps the
17 explanation might be helpful. You had this
18 construction set up for a specific date. You know, it
19 in effect gave you no break or, you know, even a day's
20 delay would have meant you would start construction
21 early. How far in advance of November 14th did you
22 book the construction?

14:44

23 A. **MR. MUILWIJK:** Well, we had been talking about
24 this construction for a while. I had no idea exactly
25 when this permit was going to be coming. So when I had

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 handed in my Part 2 application to Ms. Snowdon, we've
2 kind of been talking back and forth with Sub-Terrain
3 and Prairie Stone, like, you know, when are we able to
4 roughly get this figured in.

5 So then on a verbal phone call with Ms. Snowdon,
6 when I was given the date of November 14, basically
7 that's the -- I just went off of that date. Even just
8 weather-wise, going later into the year, I could have
9 done November 15 too or November 16. I just wanted to
10 get it done as soon as possible and it just concerned
11 weather and whatnot. 14:45

12 And the time period from when I booked it? Oh,
13 boy. I think it would have been two or three weeks,
14 roughly in there.

15 Q. That's sufficient. Thank you. And I gather at the
16 time you were planning RCC as a liner, you became very
17 familiar with the Stronks approval? Is that -- and the
18 conditions associated with it and those pieces? Is
19 that fair?

20 A. MR. MUILWIJK: Yes, fairly. So, yeah, because 14:46
21 Ms. Snowdon was using the Stronks' file as a guidance
22 for her as well, because she was quite new to
23 everything as well. So she was using the Stronks' file
24 to be a guidance to her in my Part 2 of my permit
25 application.

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Questioned by Mr. Kennedy

1 Q. And it's fair that you might have assumed that you
2 might see very similar conditions imposed on you than
3 what was imposed on Stronks?

4 A. MR. MUILWIJK: Yes, correct.

5 Q. Okay. And there's a provision there. Do you remember
6 reading the provision that says post-construction and
7 before the pens are stocked that the NRCB approval
8 officer would have -- would come out and inspect and
9 approve the facility as built?

10 A. MR. MUILWIJK: Possibly I might have just -- with
11 everything going on at the time, yeah, that I over --
12 overlooked it or whatever. It could have -- it
13 probably was in my mind at the time that an NRCB
14 officer will have to come look at it, but with so much
15 going on and winter and whatnot, it probably got
16 overlooked, overthought, and --

17 Q. I'm wondering why, with all -- and you described in
18 your testimony earlier today all of the communications
19 that you had with Ms. Snowdon and the NRCB. In none of
20 those conversations did you raise the fact that you had
21 constructed the facility, nor did you invite -- you
22 know, thinking that it might be important for an NRCB
23 approval officer to come out and inspect those
24 facilities before animals were put on site. Did that
25 occur to you at any time?

14:47

14:47

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Kennedy

1 A. MR. MUILWIJK: Well, yes -- yes, it did. And
2 Ms. Snowdon had told me I shouldn't be building, and we
3 had brought up as well that there was stuff -- you
4 know, we were working on the catch basin at one point
5 in time, and she herself didn't -- wasn't bothered to
6 come look as well.

7 But I also maybe withheld it from her. I didn't
8 want it to skew any of her -- the decisions on my
9 permit. So I let it be. And I realized I should have
10 informed her, but I never did and that's my bad there.

14:48

11 MR. KENNEDY: I'm just checking my notes. I may
12 be done, Mr. Chair.

13 Q. I'm going to ask one question on fly control, because
14 you've objected to that condition to an approval should
15 you get one. And the question is this: As you are
16 currently operating -- or you have been operating in
17 the past to a point in time where that condition was
18 part of your approval, what kind of fly control did you
19 have in place? What program did you use?

20 A. MR. MUILWIJK: So how and what -- could you
21 explain on my current -- or my fly control prior to
22 this?

14:50

23 Q. Yes. So this is -- you know -- was the original permit
24 was issued by the municipality, and it contained a
25 requirement that you have a fly control program in

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Questioned by Mr. Kennedy

1 place. I'm simply asking what you did in the past to
2 meet that condition.

3 A. MR. MUILWIJK: So that permit was for the hogs.
4 With the hogs being on liquid, being on top of
5 basically a liquid pit, there is basically zero flies
6 in a hog barn. You will always get some flies in like
7 a dry manure area, which with the hogs, and that goes
8 back nine, ten years let's say, with the hogs, we would
9 just throw poison on the floor, and that was -- that
10 was it.

14:50

11 With the calves, however, in my barn I didn't have
12 any flies because of the liquid -- the liquid slurry
13 underneath, like inside the pits, there was no fly
14 breeding going on.

15 The only main areas where I did have flies was on
16 solid manure storage, especially in the hutches, the
17 outside hutches, and there I would -- once a week I
18 would just basically spray a fly poison, and that would
19 control the flies.

20 Yeah, that basically took care of the fly control
21 right there.

14:51

22 Q. Okay. Thank you.

23 MR. KENNEDY: Thank you, panel. Thank you,
24 Board. Those are my questions.

25 THE CHAIR: Thank you, Mr. Kennedy.

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Mr. Graham

1 Mr. Graham? I believe he could hear us, but we
2 may be in that spot where we can't hear him. I see his
3 mute is on, but I believe he's on another line.

4 Mr. Graham, are you there?

5 MR. GRAHAM: Does that work?

6 THE CHAIR: Yes. It does.

7 MR. GRAHAM QUESTIONS THE PANEL:

8 Q. Okay. Most of my queries have been answered, but I
9 have one for John Both, and that's on the
10 Schmidt hammer. Because I think we've heard
11 conflicting ideas on a -- on the use of the
12 Schmidt hammer.

13 So if you could just go through that again. We'd
14 heard before that it couldn't be used on a rough
15 surface. So explain that to me, how you use it versus
16 what we were told before?

17 A. MR. BOTH: Sure. Appreciate that,
18 Mr. Graham.

19 Using a Schmidt hammer on a less than perfectly
20 smooth surface does require a little bit of an eye.
21 You need to be looking for an area that is somewhat
22 flat and smooth, which you will get in RCC. The
23 concern, though, is that because it is not perfectly
24 smooth, it will impact the results, and my experience
25 is it impacts those results downward, not upward.

14:52

14:52

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 Q. So in a positive way?

2 A. MR. BOTH: If we're looking to be
3 conservative, that is correct.

4 Q. Okay.

5 A. MR. BOTH: We will find that the results are
6 coming in lower than they actually would be if we were
7 to core those samples.

8 Q. Okay, thank you.

9 MR. GRAHAM: That's it for me.

10 THE CHAIR: Thank you, Mr. Graham.

11 Ms. Stuart?

12 MS. STUART: Thank you, Mr. Chair.

13 THE CHAIR: Oh, I think Ms. Stuart is frozen.

14 MS. STUART: No, I think I'm here.

15 THE CHAIR: No. Thank you.

16 MS. STUART: Thank you, Mr. Chair.

17 **MS. STUART QUESTIONS THE PANEL:**

18 Q. I have a follow-up question on that Schmidt hammer for
19 Mr. Lobbezoo.

20 Mr. Lobbezoo, correct me if I didn't get this
21 straight. I thought when you mentioned the results of
22 the Schmidt hammer, you said that it could be plus or
23 minus 10 percent. Can you reconcile that with what we
24 just heard from Mr. Both?

25 A. MR. LOBBEZOO: Mr. Both is the one that provided

14:53

14:54

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 the 10 percent range, and he is correct.

2 Schmidt hammer testing is considered a
3 non-destructive testing. It gives you an idea of what
4 the strengths would be. So if you're testing a certain
5 spot, it's very easy to do five, six tests in a very
6 small area and take an average of all those results.
7 And they do vary up and down a little bit, but it's
8 very quick and easy, yes.

9 Q. Okay, thanks very much.

10 Now, similar to Mr. Graham, you've answered a lot
11 of my questions, so forgive me while I just kind of
12 look through my list. I do apologize for what will be
13 musical chairs in your office in the south.

14:54

14 But Mr. Muilwijk, I have a couple of quick
15 questions for you, if I can.

16 A. MR. MUILWIJK: Okay.

17 Q. And do I have your pronunciation right, is it Muilwijk?

18 A. MR. MUILWIJK: Yeah, that's good. It's a
19 struggle for most people.

20 Q. I'm doing my best too.

14:55

21 So I just wanted to confirm. Mr. Lobbezoo had
22 mentioned, I believe, that you had called him -- I'm
23 going to guess that was done November 14th when the RCC
24 was placed by Prairie Stone and asked if he could come
25 on site and that he declined to come on site. Is that

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Questioned by Ms. Stuart

1 correct?

2 A. MR. MUILWIJK: So that was the Sub -- or that was
3 Sub-Terrain Excavating who had called Mr. Lobbezoo to
4 ask if he could come on site. That was not myself.

5 Q. Okay.

6 A. MR. MUILWIJK: I was in contact with him on
7 several things, but I was not the one who asked him to
8 be on site. That was Sub-Terrain.

9 Q. Okay, thank you. Thank you for that clarification.

10 In Exhibit -- I don't think we have to pull it up,
11 unless you would like to, Mr. Muilwijk. But in
12 Exhibit 44 it states that the corrals were -- RCC had
13 been placed, had animals -- and I assume that's the
14 outdoor corrals, had animals in it for several years
15 and was compacted, and a few inches of the existing
16 corral floor were removed to make it level. And,
17 Mr. Muilwijk, in your testimony, you asserted that
18 Mr. Cumming didn't ask you how the bed -- or the pen
19 surface was prepared, so you didn't have an opportunity
20 to describe that.

14:56

14:56

21 Is there anything you would like to describe now
22 about how that surface was prepared?

23 A. MR. MUILWIJK: I'm willing to add onto it. So
24 the reason that I had written -- or I had wroten down
25 in there that the hoof action would have compacted it

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 was having animals in there for seven years, if there
2 had been a low spot or a soft spot, that would have
3 been dug out by those animals' hooves and by rain and
4 whatnot earlier on.

5 There was no holes or anything in the pen prior to
6 this. And with animals being in there all the time,
7 like any hole would have been pounded out, if that's
8 the proper word to use, would have been pounded out
9 earlier.

10 So then to add onto the bed prep, so all they did
11 was -- so my corral -- let's say was at this level
12 here, we needed to add in 6, 7 inches of varsity seed
13 (phonetic).

14:57

14 So all we did was scrape 6, 7 inches of material
15 off of the corral, and we threw that over the fence,
16 and then we laid the RCC on top of that bed.

17 Q. Okay.

18 A. MR. MUILWIJK: And then before we -- so once they
19 scraped out 6 to 7 inches, we went over it with a
20 packer, like a roller or whatever, just to make sure
21 that there was no more low spots and everything was
22 fine.

14:58

23 Q. Okay. Thank you, Mr. Muilwijk.

24 In that exercise, and we've had some discussion of
25 that glade layer that, you know, I think there's pretty

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Questioned by Ms. Stuart

1 general knowledge that that will establish in a feedlot
2 floor pen after a period of time, were you able to
3 observe that layer at the time of installation of the
4 RCC?

5 A. MR. MUILWIJK: Well, we had scraped that -- we
6 had taken that whole glade layer out. That would have
7 been basically at the interface between the manure and
8 the soil. We went down 6 -- we went down 7 inches of
9 dirt, let's say.

10 So we took that glade layer out at this point of
11 time.

12 Q. Okay. Thank you, for that clarification.

13 And a final question for you, Mr. Muilwijk. How
14 long after the RCC placement was made did you add the
15 straw layer as part of the curing process?

16 A. MR. MUILWIJK: The straw would have been added a
17 day to two days later. The same -- like some of it was
18 done the same day, other stuff was done the following
19 day. Just we can only do so much in a day.

20 But yeah, it was done in a day or two after we
21 placed it that that -- we had the straw on the RCC.

22 Q. So when you say some was done that day and some the
23 next day, would there be like part of the pen was done
24 or some of the pen -- you know, all of the pen was done
25 with a thin layer or part was done and then part was

14:58

14:59

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 done later?

2 A. MR. MUILWIJK: So if my memory is correct, Pen 3
3 was done -- on my permit I guess, that's considered the
4 new pen, was done the same night; everything else was
5 done the following day. And then I think we added a
6 little bit to the weaning shelter the day after that
7 just because we had some extra straw sitting there, we
8 added some more, yeah, two days later to the weaning
9 shelter.

10 Q. Added some more to make the existing layer of straw
11 thicker?

15:00

12 A. MR. MUILWIJK: Yes, correct.

13 Q. Okay, thank you. And those are all the questions I
14 have for you, so thank you for your help.

15 Can I ask for musical chairs again? And I guess I
16 should have mixed it around. If Mr. Lobbezoo can come
17 back.

18 Just a clarification, Mr. Lobbezoo. I've got that
19 pronunciation right?

20 A. MR. LOBBEZOO: Exactly right, yes.

15:00

21 Q. Oh, thanks heavens. I know we've had some discussion
22 and probably some outstanding conversations that will
23 happen on the rest of this side, and I appreciate the
24 propriety nature of that. So if this is something that
25 you can't answer, you know, please know that I

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Questioned by Ms. Stuart

1 appreciate that. And don't if you can't.

2 You did -- I believe, and I don't recall who asked
3 the question earlier, but I believe you stated earlier
4 today that when we were talking about
5 sulphate-resistant concrete, that -- I believe you said
6 that suppliers in the area generally all use
7 sulphate-resistant cement I guess would be the better
8 word. Can you confirm that Prairie Stone did use
9 sulphate-resistant cement?

10 **A. MR. LOBBEZOO:** I could confirm by asking him, but
11 I know that that's all he uses, based on all my
12 dealings with him.

13 **Q.** Okay, okay, thank you for that. And I think that's all
14 the questions I have for you, Mr. Lobbezoo. Thank you.

15 And just I think two or three for Mr. Both. And I
16 think I've got that right.

17 **A. MR. BOTH:** Yes, ma'am.

18 **Q.** Okay. Ms. Vance asked a question of you whether there
19 is a standard recipe for any concrete application --
20 or, sorry, asked Mr. Lobbezoo, I think. And he
21 responded that, you know, there isn't a standard recipe
22 for any -- you know, any material on that -- any
23 concrete material on that application.

24 Mr. Both, can I ask you, without disclosing the
25 proprietary recipe discussion that we were -- that we

15:01

15:02

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 talked about, can you comment on the nature of recipe
2 formulation, kind of what factors you consider in the
3 recipe formulation of RCC? And Ms. Vance touched on it
4 a bit with respect to, you know, with an eye of what
5 was prescribed for the Stronks' application. But
6 what -- what performance criteria you have in your mind
7 as outcomes when you are either on your own or together
8 with one of the other formulators establishing these
9 formulations and what outcomes you're -- performance
10 outcomes you're targeting?

15:03

11 A. MR. BOTH: Sure. When creating a mix design,
12 you look at all of the performance criteria. So in
13 those performance criteria, we're concerned with, in
14 case, the compressive strength. We're concerned with
15 the durability. We're concerned with the ultimate
16 density. And you're concerned with the materials that
17 you're going to be using.

18 The reason why there is not a standard mix design
19 from the north side of the province to the south side
20 of the province, even if all of the other criteria are
21 the same is because aggregates will vary. The vast
22 majority of concrete, and even more so on roller
23 compacted concrete, is made up of aggregates, and
24 aggregates will vary depending on its geographic
25 location. And even within a certain pit they will vary

15:03

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 somewhat.

2 So we take into consideration the performance of
3 those aggregates. And when we look at those
4 aggregates, we look at the gradation, as Mr. Lobbezoo
5 has mentioned, we look at the gradation of those. We
6 understand what we need for void fill, which is a
7 requirement of the cement paste content, and we also
8 consider the compactability of that material. Certain
9 materials will require a higher moisture content or
10 water content to compact in comparison to other
11 materials which may require a lower moisture content in
12 order to ensure that we can get the compaction.

15:04

13 So our need to reach that 98 to 100 percent
14 compaction is always a consideration, and that will
15 help to drive the -- for instance, the water that is
16 required.

17 So we started the most important aspects, and we
18 work our way down. So sometimes if we're looking at --
19 looking at strength, that might be the greatest
20 component. And so we build to strength. If we're
21 looking at its freeze/thaw durability, that may cause
22 us to have to build a stronger concrete. Even though
23 the strength might be required to be lower, we might
24 design for a higher strength to ensure that we have
25 better freeze/thaw durability, for example.

15:05

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Stuart

1 So mix design development, it's looking at all of
2 the aspects and narrowing it down using the materials
3 that we have at hand and then proportioning them
4 accordingly.

5 Q. Okay. I appreciate that. Not being an engineer, it's
6 extremely helpful to me.

7 Sort of given that, how do we look at that recipe
8 formulation then to what you look at as an outcome in
9 AOPA in hydraulic conductivity?

10 A. MR. BOTH: I'm sorry, could you just repeat
11 that again for me?

15:06

12 Q. Sorry. So I'm wondering, given those parameters of
13 compressive strength and density percentages and water
14 content for those items that you mentioned, how can you
15 then relate that for me to hydraulic conductivity,
16 which is for us the outcome of AOPA that we need to
17 meet?

18 A. MR. BOTH: Compressive strength and density
19 will give us an indication of permeability.

20 Now, I'm not aware of any studies that will
21 identically -- will ideally correlate those for us, but
22 if we've got a known compressive strength -- and
23 Mr. Lobbezoo would be probably better to answer that --
24 but if we've got a known compressive strength and we
25 have a known density, that would give us a pretty good

15:06

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Questioned by Ms. Stuart

1 indication of what the permeability is.

2 And what I'm stating there is that a lower density
3 and a lower compressive strength would have a lower
4 permeability versus a higher compressive strength, and
5 a higher density would have a lower permeability.

6 Sorry, I hope I stated that correctly.

7 Q. Okay. Thank you for that.

8 I think my last question would be, Mr. Both, given
9 yesterday's testimony from field services, do you have
10 an opinion on what testing would be required of the
11 current RCC placement at Mr. Muilwijk's that would
12 potentially satisfy what we need to satisfy in terms of
13 the AOPA requirements?

15:07

14 A. MR. BOTH: I think when -- regarding all of
15 the testimony that I have heard, the greatest factor
16 involved, and we heard that through Mr. Cunningham
17 yesterday had made that statement through his
18 calculations, is that cracks will contribute the
19 greatest amount of hydraulic conductivity.

20 And so with respect to the Muilwijk facility, it
21 would be inspecting for cracks to see what degree of
22 cracking we have taking place. And in my opinion, if
23 that's a random check, that should be sufficient.

15:08

24 Q. And then the -- just to follow onto that, then the
25 remedy for that cracking?

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Questioned by Ms. Stuart

1 A. MR. BOTH: It may require calculations to
2 ensure that we're within the calculations that had been
3 done by Mr. Lobbezoo. And if the cracking is less than
4 what he has done through his calculations, then no
5 remedy is required in my mind.

6 Q. And if it was more, then the remedy would be what
7 potentially, in terms of a structural correcting of
8 that situation?

9 A. MR. BOTH: Fair. So if we've got a crack
10 that is greater -- and if we just pick a random number
11 of this 15 millimetres that's been thrown out, if we're
12 over that 15 millimetres, for instance, a remedy would
13 be to saw cut on either side of that crack and fill
14 that area in with either wet concrete or roller
15 compacted concrete, depending on what the dimension of
16 that is.

15:09

17 If it's quite a narrow cut, then we would need to
18 fill it in with a traditional (audio glitch) concrete.
19 And if it's larger, then we could fill it in with
20 roller compacted concrete.

15:09

21 Q. Okay. Mr. Both, thank you very much for your answers.

22 MS. STUART: Mr. Chair, that concludes my
23 questions.

24 THE CHAIR: Thank you, Ms. Stuart.

25 Ms. Maharaj?

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Maharaj

1 MS. MAHARAJ: Sorry. The phrase of the century,
2 "I'm on mute."

3 **MS. MAHARAJ QUESTIONS THE PANEL:**

4 Q. I just have a few questions of clarification of
5 Mr. Lobbezoo with respect to your report of November 6,
6 2020, at Exhibit 3, starting on page 40. In this
7 report, you made some general statements with respect
8 to the results of tasks, and my questions are really
9 focused around the quantification of that testing.

10 So, for example, in paragraph 3, Number 3 on
11 page 41 of Exhibit 3, this is the same list of eight
12 items that we had gone to quite a lot. I'll let you
13 find that.

15:10

14 MS. MAHARAJ: Or perhaps, document manager, if
15 you could pop it up. Correct.

16 Q. So in Number 3 you say: (as read)

17 "Based on coring of several locations in
18 the RCC, the thickness of RCC ranged
19 between 155 millimetres and 205
20 millimetres, with an average thickness
21 of 173 millimetres for eight cores..."

15:11

22 And it refers to a figure attached which is at page 45.
23 If we can just slip over there. Perfect.

24 So those little squares in black in each of those
25 areas, could you confirm for me that that is the

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Questioned by Ms. Maharaj

1 location of each of the cores? Because I only count
2 seven. You're on mute, sir.

3 A. MR. LOBBEZOO: When I submitted this figure, I
4 had marked the core locations with Xs, and it looks
5 like on this document that somebody has highlighted it
6 with boxes and that they missed one of the Xs right at
7 the south end of the calf shelter building, right
8 there.

9 So there's four in the calf shelter, and there was
10 four in the RCC pen, the open pen area.

15:12

11 Q. Okay. Why did you choose four cores for the calf
12 shelter building, which is a smaller area than any of
13 the other pens?

14 A. MR. LOBBEZOO: No particular reason. It was --
15 when we did the calf shelter building, we had pushed
16 the animals back. We had free rein for that area, so
17 it was easier.

18 When we cored in the pens, we were sort of shoing
19 the animals away as we cored. So we weren't interested
20 in spending too much extra time in there. So we could
21 have, though, but it was just more convenient to do it
22 in the calf shelter, and that's where we had started.
23 So that's why.

15:13

24 Q. Okay. What kind of equipment did you use to do these
25 cores? You had referred previously to hand augering,

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Maharaj

1 and I'm curious as to whether you can hand auger
2 through concrete or whether you had used something
3 else?

4 A. MR. LOBBEZOO: It's an electric-powered core rig,
5 and it uses a core barrel that's maybe that long, and
6 the diameter was 75 millimetres, if I recall. I
7 can't -- it's on the report. It's either 75 or 100,
8 approximately.

9 Q. Okay.

10 A. MR. LOBBEZOO: And basically it's a
11 diamond-tipped core bit that has water to circulate
12 through it to keep the core. And you just carefully
13 core down and recover the entire sample.

14 Q. Okay. How long does it take to do a core?

15 A. MR. LOBBEZOO: A matter of, say, several minutes.

16 Q. So five minutes-ish?

17 A. MR. LOBBEZOO: Yeah, maybe ten minutes, yeah.

18 Q. So you weren't in the populated pens for an hour to do
19 a single core, for example?

20 A. MR. LOBBEZOO: No.

21 Q. No. Okay. And you mentioned that the diameter of the
22 core is 75 or 100 millimetres. How big are each of the
23 uncovered pens that we're seeing in this diagram?

24 A. MR. LOBBEZOO: They're approximately, as I
25 recall, 30 metres wide by 36 metres deep. So in feet

15:13

15:14

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Maharaj

1 that's 100 feet by 120, I believe, approximately. You
2 were mute to that --

3 Q. Yeah, my screen went blank for just a second.

4 So you mentioned approximately 30 metres by
5 36 metres for each of the RCC pens?

6 A. MR. LOBBEZOO: Yes.

7 Q. Okay. And you took one core from each of the older
8 pens and two cores from what Mr. Muilwijk has referred
9 to as "the new pen"?

10 A. MR. LOBBEZOO: Yes.

11 Q. And that's what we're seeing here. Okay. Why didn't
12 you take any more cores in such a large area,
13 especially in those two uncovered pens?

14 A. MR. LOBBEZOO: I could have, but really there was
15 no specification, if you will, saying you need to core
16 this many per area. I suppose that in my work, we core
17 along roadways quite often, and the core frequency is
18 quite a bit more spaced out than what we would see
19 here.

20 So I wouldn't necessarily say that -- I do take
21 your point that, you know, one may consider that this
22 isn't very many cores. But, at the same time, this --
23 in my opinion, this provided reasonable coverage.

24 The other aspect with it is that this is
25 destructive testing. So every time you core, you do

15:15

15:16

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Maharaj

1 open up a hole that has to be repaired. So there is
2 that consideration as well against, say, overcoring.

3 Q. Okay. You indicated that you obviously were not there
4 when this particular roller compacted concrete was
5 placed. But do you have any information that might
6 help us with respect to the consistency in general
7 terms of this particular product? Does it tend to be
8 very uniform or does it tend to be more variable?

9 A. MR. LOBBEZOO: The product itself coming out of
10 the plant is quite consistent. Where the -- where the 15:17
11 inconsistencies occur is where you have perhaps
12 hypothetically an inconsistent subgrade or there could
13 be inconsistencies with trucks that are staged ready to
14 place it and they all sit there with full loads while
15 everybody goes for lunch. And those sorts of
16 construction --

17 So -- but the product itself as it's produced, I
18 would say it is quite consistent.

19 Q. Okay. So working off of that assumption of
20 consistency, the variables that would potentially 15:18
21 affect a uniformity of application or a placement are
22 the types that you've just described?

23 A. MR. LOBBEZOO: Yes.

24 Q. Is that correct?

25 A. MR. LOBBEZOO: Yes.

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1 Q. Okay. But you yourself in formulating your opinion and
2 deciding how many cores to take were not present during
3 the installation or the placement, so you don't have a
4 particular personal knowledge of the installation,
5 shall we say, consistency or the appropriateness of the
6 installation. Is that fair?

7 A. MR. LOBBEZOO: Not firsthand knowledge, that's
8 fair.

9 Q. Okay. So you're relying on your expertise to say that
10 the number of core samples that were taken should be
11 sufficient given the type of material and what you know
12 of this industry. Is that fair?

13 A. MR. LOBBEZOO: Yes.

14 Q. Sorry, yes, okay. And are these eight cores the sample
15 results that were received yesterday that you've
16 undertaken to provide to the panel?

17 A. MR. LOBBEZOO: In terms of compressive strength?

18 Q. Yes.

19 A. MR. LOBBEZOO: No.

20 Q. No, okay.

21 A. MR. LOBBEZOO: No.

22 Q. That's where I'm confused. What are the results that
23 you referred to that were received yesterday that we
24 are getting --

25 A. MR. LOBBEZOO: Okay.

15:19

15:19

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Maharaj

1 Q. Yeah, and can you clarify?

2 A. MR. LOBBEZOO: So Prairie Stone, as they were the
3 concrete supplier that is, as they were producing the
4 concrete, cast some cylinders during the day that they
5 were producing. So he has plant cylinders, if you
6 will.

7 Q. Okay.

8 A. MR. LOBBEZOO: Or cylinders from the batch
9 plants. Those are the compressive strength test
10 results that Mr. Muilwijk had referred to earlier that
11 were received. 15:20

12 Q. Okay. So then in paragraph 6 of Exhibit 3 at page 41,
13 it says: (as read)

14 "Laboratory density testing was carried
15 out on sore samples recovered from the
16 RCC mat."

17 Is that the testing of the eight cores referred to in
18 Number 3?

19 A. MR. LOBBEZOO: Yes.

20 Q. Yes? 15:20

21 A. MR. LOBBEZOO: I'm in Number 6 --

22 Q. 6. Is that referring to the samples taken out of
23 Number 3?

24 A. MR. LOBBEZOO: Yes.

25 Q. Okay. And you've given us some general results. Do

C. METHERAL, A. MUILWIJK, J. LOBBEZOO, J. BOTH
Questioned by Ms. Maharaj

1 you have the specific results for each of the eight
2 cores? Is that in evidence somewhere and I just missed
3 it?

4 **A. MR. LOBBEZOO: Yes.**

5 **Q. Yes, it is?**

6 **A. MR. LOBBEZOO: Appended to this letter. It's the**
7 **last page of this letter.**

8 **Q. Oh, I see. The ones that have letters on page 46 of**
9 **100?**

10 **A. MR. LOBBEZOO: There they are.**

15:21

11 **Q. There they are, okay. Now, these are signed off by an**
12 **Adam Johnson?**

13 **A. MR. LOBBEZOO: Yes.**

14 **Q. CET, and he's with Wood as well; correct?**

15 **A. MR. LOBBEZOO: He is the lab manager in this**
16 **office, yes.**

17 **Q. Okay. And you mentioned that you were the responsible**
18 **engineer for that lab -- for a lab. Is that the lab**
19 **that did this testing?**

20 **A. MR. LOBBEZOO: That's correct.**

15:21

21 **Q. And did Mr. Johnson work under your supervision or**
22 **control in conducting these tests?**

23 **A. MR. LOBBEZOO: He -- Mr. Johnson is my employee.**
24 **He works under my supervision, yes.**

25 **Q. Okay, thank you.**

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Questioned by Ms. Maharaj

1 Okay, if we could just return to page 41 quickly.
2 I just have a few more questions.

3 Similar to my previous line of question is with
4 respect to paragraph 7, and this is a test that I
5 understand from reading your report that you did, which
6 is great.

7 **A. MR. LOBBEZOO: Yeah.**

8 Q. This is the Schmidt hammer test, and you say here that
9 the results indicate compressive strengths ranging from
10 25 MPa to 40 MPa. How many tests did you do with the
11 Schmidt hammer, and approximately where were those
12 tests conducted?

15:22

13 **A. MR. LOBBEZOO: I generally did those tests in the**
14 **area of the coring, because we were spending time at**
15 **those locations coring.**

16 Q. Okay. Would you have done -- I've never worked a
17 Schmidt hammer, in all honesty, so would you do ten
18 tests in a spot or two or thirty? What are we looking
19 at here to arrive at this range?

20 **A. MR. LOBBEZOO: At each spot I would do I would**
21 **say five.**

15:23

22 Q. Okay.

23 **A. MR. LOBBEZOO: Yeah.**

24 Q. Okay. I'm sorry, I'm getting a small amount of --

25 **A. MR. LOBBEZOO: So Mr. Metheral suggested that he**

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Questioned by Ms. Maharaj

1 had a photo in one of the exhibits of a project that I
2 was on with him that showed me in the background
3 actually doing the Schmidt hammer testing in 2015, I
4 think.

5 Q. Yeah. It's okay. I'm sure you know how to work this
6 piece of equipment. What I was curious about is
7 whether or not the Schmidt hammer testing was conducted
8 around the extrusions for the water bowls or for the
9 poles, or was it in the middle of the placement? And I
10 think what you've said is it was more in the middle of
11 the placement if you were doing it around the coring
12 locations; is that correct?

15:24

13 A. MR. LOBBEZOO: That's correct. I mean, I did not
14 document the locations of the Schmidt hammer testing
15 separately, and I want to underscore that this was not
16 a requirement of, say, the Stronks' permit condition.
17 The compressive strength testing was not in there at
18 all.

19 So I never did this necessarily to, say -- I did
20 this for information only. There was no frequency or
21 intent that I was going to do a thorough Schmidt hammer
22 testing of the entire site.

15:24

23 If I was going to do that, I would have spent more
24 time around edges and posts doing that, I certainly
25 would have. But in this case, I had the Schmidt hammer

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Questioned by Ms. Maharaj

1 with me, and it was merely out of convenience that as
2 my technician was coring, I could just do the Schmidt
3 hammer testing in the immediate vicinity of that.

4 Q. Okay, I appreciate that clarification, but I'm sure you
5 can appreciate that this paragraph doesn't reflect that
6 it was more informal or casual. It does seem to be put
7 forward as an indicator of compressive strength.

8 So should we rely on this as an indication of the
9 compressive strength of the entire placement or not?

10 A. MR. LOBBEZOO: The short answer is yes. This
11 provides a broad overview of what the compressive
12 strength of this material was -- was.

15:25

13 Q. Would it be fair to say that it's more in the nature of
14 a snapshot than an analysis or a comprehensive piece of
15 data?

16 A. MR. LOBBEZOO: Yes.

17 Q. Okay.

18 A. MR. LOBBEZOO: And the reason why I would say
19 that is if you were -- if you were ever looking for
20 more comprehensive data, then I would have done the
21 core -- the testing on physical cores, which is much
22 more accurate; it's very conclusive.

15:26

23 Q. That's good to know. Thank you.

24 My final question for you is with respect to the
25 cracks. So if we could turn to page 43 of Exhibit 3,

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1 at the end of the first full paragraph, the sentence
2 beginning "this is... " Up a little bit, I think.
3 Yeah, if you could just keep scrolling up a smidge.
4 Perfect, thank you.

5 So at the end of the first full paragraph, it
6 says: (as read)

7 "This is generally consistent with
8 Wood's observations of older RCC
9 mats..."

10 And that's referring to the information previous:
11 (as read)

15:27

12 "...though it is noted that after one
13 year, no readily observable cracking was
14 noted in the RCC mats at the subject
15 Muilwijk operation."

16 You've given us information to say that there were
17 certain places where you cleared 5-by-5-metre patches to
18 look for potential cracking. Can you refresh my memory,
19 please, as to how many of those peepholes that you
20 cleared to look for cracking, and just generally
21 speaking, where those peepholes might have been?

15:27

22 **A. MR. LOBBEZOO: So for Arie's, so we're talking**
23 **about the after one year, no readily observable**
24 **cracking was noted; right?**

25 **Q. Yes.**

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Questioned by The Chair

1 A. MR. LOBBEZOO: So when I visited with Arie and we
2 did the core testing, it was -- he had scraped the
3 areas with a loader that we did the core tests at. And
4 those were the areas that I reviewed at that time for
5 cracks.

6 So that's what that would refer to.

7 Q. Okay. So those eight locations where you had done the
8 cores were the same locations where you were looking
9 for cracks?

10 A. MR. LOBBEZOO: Yes.

15:28

11 Q. Okay.

12 MS. MAHARAJ: Those are all my questions.

13 Thank you so much, sir. I appreciate your information.

14 And, Mr. Chair, that's all I have for today.

15 THE CHAIR: Thank you, Ms. -- I have a bit of
16 a freeze. Can people hear me? Sorry, my screen froze
17 a bit. That might be on my end. So thank you,
18 Ms. Maharaj, much appreciated.

19 THE CHAIR QUESTIONS THE PANEL:

20 Q. So I've been doing a lot of crossing off, which is
21 good. A lot of the questions had been handled. I have
22 a couple.

15:29

23 The Schmidt hammer, don't want spent a lot of time
24 there; we spent a lot of time already there. But in
25 connection with the base, because it has come up that

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Questioned by The Chair

1 there is not a lot of information in terms of the
2 stability of the base perhaps. We've seen the
3 photographs, we've heard the description of what has
4 taken place with the base. But I think, Mr. Both, you
5 mentioned that if there is density tests done,
6 Schmidt hammer or otherwise, if there is reasonable
7 densities on those, that would tell you that the base
8 has been prepared reasonably because if it wasn't, you
9 wouldn't be able to compress the concrete enough in
10 order to get those densities, and therefore, the base
11 would be suspect.

15:30

12 Do I have that correct?

13 **A. MR. BOTH:** Yes, sir, you have that correct.
14 **Poor base will indicate poor compressibility. When we**
15 **are at 100 percent compression, we'll get to**
16 **100 percent -- when we're at 100 percent density, we'll**
17 **get to 100 percent of compressive strength. When we're**
18 **at 90 percent of density, we'll drop down below**
19 **80 percent of potential compressive strength. If we**
20 **drop below that 70 percent of density, we'll drop below**
21 **50 percent of compressive strength. That's a function**
22 **of the base. If you're trying to pack on a pillow, you**
23 **just can't do that.**

15:30

24 **Q.** Thank you. That's an analogy that all of us can
25 understand, I think.

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Questioned by The Chair

1 A quick question. This may be for Mr. Lobbezoo,
2 in terms of your experience with ag operations, dealing
3 with permeability and compaction. If it isn't, then --
4 if it isn't a reasonable question to ask, then just
5 tell me.

6 In terms of detecting after the fact, so you know,
7 we're here because, you know, there's water under the
8 bridge. It was built without permit, and now we're
9 trying to determine will this thing stand up, will it
10 meet AOPA. And then we've had lots of questions about,
11 and on an ongoing basis, if it were approved,
12 monitoring crack control or crack remediation.

15:31

13 But in terms of -- I'm just trying to get a feel
14 for, I mean, this project, others, and perhaps for the
15 future. But in terms of detecting a problem now, so
16 we're 18 months later, if there's significant cleaning
17 done on surfaces and we would have some more
18 inspections, perhaps some more testing done, who knows.
19 But I'm hearing that there is a relatively -- and if
20 I'm wrong, please tell me. I understand there's a
21 fairly high degree of confidence that we can put in in
22 terms of the -- the stability and the quality of the
23 RCC, and I'm just wondering about how that might
24 compare to clay liners.

15:32

25 So we deal with clay liners all the time. A clay

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Questioned by The Chair

1 liner is installed on a post-construction inspection.
2 We would go and look at it. But how would we know, I
3 guess, and over time, would it be easier to tell if
4 there is some reason to be concerned with an RCC liner
5 versus our standard clay liners.

6 So, Mr. Lobbezoo, I'll let you -- or Mr. Both, or
7 perhaps both of you, no pun intended.

8 A. MR. BOTH: Do you want to go, Mr. Lobbezoo?

9 A. MR. LOBBEZOO: Yeah. Mr. Lobbezoo here.

10 So the competency of a clay liner after the fact,
11 I mean, you could readily, during an inspection, see
12 that it's potentially being compromised or not by how
13 deep the cattle hooves are punching into it.

15:32

14 In the case of RCC, I mean, if you do get those
15 sorts of local failures, they'll be readily apparent.
16 But I would expect to see much more robust and -- slabs
17 that look similar to when it was constructed for a lot
18 longer than, say, you would with a compacted clay
19 liner.

20 I don't know if that's answering your question.

15:33

21 Q. Yeah, I mean, I guess it is. So if I'm hearing -- if
22 I'm understanding you correctly, if there isn't an
23 issue now but one arises later, it will be obvious. Is
24 that fair?

25 A. MR. LOBBEZOO: Yes.

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Questioned by The Chair

1 Q. If there is some detection, it will require obviously
2 some inspection?

3 A. MR. LOBBEZOO: Yes.

4 Q. And Mr. Muilwijk, just two quick questions for you. I
5 believe you indicated, and I just want to make sure I
6 have this right. I mean, you progressed without a
7 permit, we know that. But I thought you indicated that
8 in your discussions with Ms. Snowden, in fact some
9 preparation of some maybe Part 1 and Part 2 of the
10 technical documents, your discussion with Ms. Snowden,
11 the first approval officer, was that it was going to be
12 the Stronks' process that was going to be used for your
13 facility. Is that true?

14 A. MR. MUILWIJK: Yes, correct.

15 Q. And that was the premise that you continued on. You
16 didn't have a permit. It was those sort of permit
17 conditions that were in the Stronks' file that you've
18 always thought that you needed to meet -- in order to
19 meet the permit that you hoped you were going to get?

20 A. MR. MUILWIJK: Yes, exactly. And that really
21 started to change once Mr. Cumming took my permit over.
22 That's really when everything seemed to -- like the
23 whole policy stuff seemed to change, and -- like, yeah,
24 if that answers your question.

25 Q. Right. I mean, that's a bit of a different issue. At

15:34

15:35

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Questioned by The Chair

1 that point, now we need to figure out if that's the
2 case, and that's what we're doing today.

3 And kind of a related question, though, you had
4 picked out of four options given to you by Mr. Cumming,
5 there were several options: Redo it, rip it out, or
6 put something on top. But of the four options, an
7 immediate permit denial and request for review to this
8 Board was not the option you chose. You indicated you
9 took option -- I may not have this right, 3 I think it
10 was, but it was one of the four options, which was
11 prove that it meets AOPA or show equivalency. Is that
12 true?

15:36

13 **A. MR. MUILWIJK: Yes, correct.**

14 **Q.** Okay. And so when there was a denial, that was the
15 first time you knew it was going to be a denial, when
16 you received the denial, either through phone call or
17 mail or however you received that?

18 **A. MR. MUILWIJK: Yes. Although considering how the**
19 **process was going with Mr. Cumming, I already earlier**
20 **on realized this is definitely we look toward a -- that**
21 **this wasn't going to go through. That's already why I**
22 **had contacted Mr. Metheral in December. I figured I**
23 **needed some help on this whole issue, let's say, and he**
24 **was willing to help me with this.**

15:36

25 **Q.** Okay. And my understanding is that -- and I've been

1 around this place a while, so that understanding comes
2 from some internal knowledge, that if it's going to be
3 a denial and it's based on a disagreement of
4 information required to show that you meet, that there
5 may be an opportunity given to you from the NRCB for a
6 mediation or a facilitation. I'm not aware if that
7 still exists within our -- the organization on the
8 operation side.

9 But were you -- I guess so my direct question to
10 you is were you ever given an opportunity to sort of
11 have a mediated session with other approval officers or
12 with somebody else to have a look at what the
13 requirements were, what you needed to provide?

14 **A. MR. MUILWIJK:** **No.**

15 **THE CHAIR:** Thank you. Those are all my
16 questions. Thank you, panel, and Mr. Kennedy, on
17 behalf of the Board, for those questions.

18 Mr. Metheral, do you have a redirect at this
19 point? You won't have another point. So if you have
20 redirect, this is your opportunity.

21 **MR. METHERAL:** I have said too much already.

22 Thank you, Mr. Chair.

23 **THE CHAIR:** That is on the record, I think,

24 Mr. Metheral. Okay.

25 (PANEL STANDS DOWN)

15:37

15:37

1 THE CHAIR: So field services, Ms. Vance, do
2 you have rebuttal evidence to provide?

3 MS. VANCE: Thank you, Mr. Chair. I've been
4 advised that we do not have rebuttal evidence to
5 provide.

6 And perhaps while I have an opportunity, I would
7 also mention that I received Mr. Lobbezoo's CV, and we
8 have no objection to that being entered as an exhibit.

9 THE CHAIR: Okay, thank you.

10 Now, Ms. Friend, that would be number what? 15:38

11 MS. FRIEND: The next number is 107.

12 THE CHAIR: Okay, so thank you. Thank you,
13 Ms. Vance.

14 **EXHIBIT 107 - CV OF JOHN LOBBEZOO**

15 THE CHAIR: Mr. Metheral or Mr. Muilwijk, I'm
16 not sure who -- well, if you were planning on providing
17 closing argument, and if you are, this is your
18 opportunity. Maybe, I mean, it is 20 to 4, and do you
19 have an idea of how long it is? I mean, if it's not
20 too, too long, I think we just continue, but if it's 15:39
21 lengthy, then we may want a break.

22 THE COURT REPORTER: Mr. Chair, I wouldn't mind a
23 break. We've been going over two or three hours.

24 THE CHAIR: Yeah, it has been. No, let's do
25 that, that's fair. Thank you, Ms. Gerbrandt. Request

1 granted. We don't -- we need the court reporter for
2 the remainder; we better keep her happy.

3 Okay. So let's take ten minutes, if that works.
4 So ten minutes to 4 we'll return. Thank you.

5 (ADJOURNMENT)

6 THE CHAIR: Welcome back, everyone. It is
7 just ten minutes to 4. We did not set time limits as
8 we have done in other hearings, and so we need to be
9 pretty flexible because we didn't do that. But I
10 wouldn't mind getting an indication because if it's
11 three hours, then maybe we do need a limit.

15:52

12 Mr. Metheral -- is he back? Oh, gee, maybe I have
13 to repeat that. Oh, there you are.

14 Mr. Metheral, did you just hear what I was talking
15 about? You did.

16 MR. METHERAL: Yes, I did.

17 THE CHAIR: How long did you think you're
18 going to need?

19 MR. METHERAL: This is for closing arguments?

20 THE CHAIR: Right.

15:52

21 MR. METHERAL: They said I couldn't refer to my
22 five-page document. They made me reduce it down to
23 (audio glitch) bullets.

24 MR. KENNEDY: Just to be clear, that's your
25 group told you you couldn't refer to your five-page

1 document?

2 THE CHAIR: Oh, I was thinking who told him
3 that. Okay. So how long do you think you'll be?

4 MR. METHERAL: I've got five points I would like
5 to make.

6 THE CHAIR: Oh, no, that sounds like it's
7 going to be reasonable. And Ms. Vance?

8 MS. VANCE: It's 20 minutes if I speak really
9 slowly, so...

10 THE CHAIR: Okay. All right. Perfect. So,
11 Mr. Metheral, please proceed.

12 MR. METHERAL: First of all, Mr. Chairman, we
13 would like to thank the Board for allowing the
14 Muilwijks the opportunity to review their file. As
15 indicated in their request for review, they believe
16 there were some unsettled issues. We trust that the
17 testimony and the submissions from Mr. Lobbezoo in his
18 two reports to the NRCB and the testimony from Mr. Both
19 help you in your decision-making.

20 We would ask that the Board consider that
21 John Lobbezoo has established that roller compacted
22 concrete can meet AOPA guidelines, and we hope that his
23 second report further illustrates that this is a -- or
24 we hope that his second report further emphasizes that
25 those requirements are met.

15:53

15:53

1 We also ask the Board to have a quick look at the
2 environmental risk screening tool calculations. We
3 understand that the distance to the catch basin has
4 been adjusted, that we have looked at the depth to the
5 water table for possible adjustments, but we would ask
6 that the Board consider the testimony from Mr. Lobbezoo
7 on soil texture and that the environmental risk
8 screening tool be adjusted accordingly, moving the --
9 or moving the category from coarse material to fine
10 text -- sorry, to medium texture.

15:55

11 We would acknowledge that Mr. Chair's comments
12 yesterday, we think he has addressed -- identified
13 something very key. There does appear to be to us that
14 there is a small policy change that affected
15 Mr. Muilwijk. In his early proceedings with
16 Mrs. Snowdon, the NRCB approval officer was quite
17 helpful and easy to work with, and it seemed like the
18 process for getting his roller compacted concrete liner
19 was going to be easy and efficient.

20 And regardless of the change -- or from the
21 apparent changes in position, with the second approval
22 officer, we understand the position the Board is in in
23 determining how they'll take this changes an NRCB
24 policy. We understand the difficulties of that
25 decision.

15:55

1 We do thank the Board for allowing us the public
2 record, access to the public record. It is -- it was
3 significant, although a huge amount of information to
4 go through, but it does -- it did lead to some very
5 beneficial parts for us.

6 In conclusion, we do appreciate the Board's
7 efforts to address all of the outstanding issues that
8 the Muilwijks have. Thank you.

9 THE CHAIR: Thank you, Mr. Metheral, much
10 appreciated.

15:56

11 Ms. Vance?

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

13 So in this hearing, I've walked a bit of a
14 difficult line, and you certainly identified that,
15 because there is the decision of the approval officer,
16 and then there is a lot of new evidence and new issues
17 that sort of, I would say, fall outside that. So my
18 closing tries to walk a respectful line between those.

19 As for the decision of the approval officer, our
20 position has always been that the decision summary and
21 the technical documents speak for themselves.

15:57

22 Groundwater protection is one of the key things
23 that defines the NRCB as a regulator. And certainly
24 Mr. Metheral provided the Board with information about
25 RCC. Mr. Lobbezoo provided information about RCC, and

1 Mr. Both as well. This has been very interesting, very
2 helpful. Of course some of it is new but nonetheless I
3 believe will be helpful to the Board making an informed
4 decision.

5 I think that characterizing this hearing as a
6 pro-RCC, an anti-RCC hearing would vastly oversimplify
7 the issues and would not do justice to all the
8 different perspectives that have been brought here
9 today.

10 Having listened carefully to all the witnesses, I
11 actually think we're not too far apart. I think
12 there's maybe some divergence on the ultimate opinion
13 about suitability for RCC at this particular site,
14 maybe not even. Maybe it's just a matter of
15 sufficiency of information. But, you know, now we have
16 a bit more information, perhaps fewer assumptions, and
17 more transparent methodologies.

15:58

18 At field services, we certainly don't dispute that
19 RCC is a useful product that has been around for
20 decades. In a confined feeding operation setting, RCC
21 has all sorts of benefits for animal health, economics,
22 runoff. You can see that in the project by
23 Dr. Steve Hendrick, which was commissioned by Alberta
24 Agriculture and Forestry. We haven't really discussed
25 that; it's Exhibit 82. Dr. Hendrick is a veterinary

15:58

1 epidemiologist at the Coaldale Veterinary Clinic, and
2 he and his team study the impact of amended feedlot
3 surface, including RCC, on animal welfare and
4 environmental and economic sustainability. And if I
5 refer to it again, I'll just call it the "AF paper," if
6 that's all right.

7 Now, what we don't know is how any given mat of
8 RCC performs as a liner under AOPA. This is sort of
9 new stuff. It's not standardized. And, frankly, what
10 we know in 2021 may not be the same that we knew in
11 1985 or 2006 or 2018. Mr. Metheral talked about
12 evolving mixes in his presentation today, and I think
13 that's demonstrative.

14 As well, we have the Technical Advisory Group, or
15 "TAG" for short, doing a literature review to
16 investigate the possibility of developing a guideline
17 for using RCC as an AOPA liner. And just a couple of
18 months ago -- well, five perhaps, their conclusion was
19 there is not enough information out there to make a
20 guideline. That's at Exhibit 81.

21 So the way I see it is that now we know better
22 what we don't know.

23 So then how do we process applications at the NRCB
24 that are proposing a liner made out of a material for
25 which we don't have standardized mixes?

15:59

16:00

1 So let's just walk through a hypothetical --
2 somewhat hypothetical situation. You're an approval
3 officer at the NRCB, and today you receive an
4 application for an RCC liner intended to meet AOPA's
5 groundwater protections. The approval officer looks at
6 the application. The applicant brings its case, and
7 the approval officer makes a decision.

8 Now, I think it's important for clarity to
9 understand that the approval officer is not in the role
10 of granting permits. He or she is in the role of
11 processing permits. He or she is also not especially
12 in the role of assisting applicants or writing their
13 application for them. Mr. Muilwijk indicated he felt
14 he was relying on Ms. Snowdon to help him out. And,
15 you know, frankly, this is, I think, what the AF
16 extension specialists used to do before they were
17 discontinued. And I actually don't know how that gap
18 is being filled, but I thought I would make that
19 observation.

20 So as a regulator created by and governed by
21 legislation, the NRCB always starts with that
22 legislation. The standards reg under AOPA has
23 groundwater protection rules. So first forming your
24 storage facility or collection area, you need to have a
25 protective layer or a liner. Section 9(5) is for

16:01

16:01

1 protective layers. I think we all understand that's
2 not what this application is about, but it talks about
3 naturally occurring liners and hydraulic conductivity
4 and thickness.

5 Section 9(6) is for liners. Liners are
6 constructed, and I don't think that's under dispute.
7 But if you're interested, there is a definition of
8 liner within the standards reg. They can be
9 constructed out of natural materials or manufactured
10 materials.

16:02

11 The section mentions concrete, steel, and, quote,
12 "other synthetic or manufactured materials," end quote.
13 And then all these other proposed equivalents are
14 compared against the hydraulic conductive for compacted
15 soil at different thicknesses, depending on what kind
16 of facility it is.

17 So the sort of what I would call predictable
18 layers or liners are made of naturally occurring
19 materials and compacted soils, and for those, we
20 actually have the numbers right there in the section.
21 Anything other than soils-based materials are going to
22 be what I think the approval officers lovingly called
23 "alternative liners." So that includes concrete and
24 steel and synthetics. And in fact the application
25 forms have been developed to have pages dedicated to

16:03

1 those specific alternatives.

2 Concrete is fairly common. You can have your
3 concrete engineered or not. And if your concrete liner
4 is not engineered, the Technical Advisory Group came
5 out with a guideline, which we have seen many times in
6 this hearing, Exhibit 77.

7 So this applies to concrete. And on that
8 Exhibit 77 at page 2, you will see a green outlined box
9 that talks about critical factors. And the way I view
10 this as a lawyer is that it's kind of an evidentiary
11 shortcut proposing to use concrete as a liner when it's
12 not engineered. So you show what you need to for the
13 right category, and likely or not, you're ready to go.
14 TAG I think has done your work for you, if you like.

16:04

15 But for all other kinds of alternative liners such
16 as RCC, there is no technical guideline, so the NRCB
17 needs to take application -- each application anew.

18 So back to you as a hypothetical approval officer.
19 What do you do for something like RCC? Because we are
20 getting these, I think, on a fairly frequent basis.

16:04

21 So you require it to be engineered. Cement mix,
22 the aggregate mix, the compaction method, I think we
23 are all now familiar with the various factors that go
24 into this. You compose a series of conditions. For
25 instance, requiring an engineer to be present or maybe

1 just to supervise during installation and perform tests
2 on site and then a report post-construction. And that
3 is in fact what I believe happened with LA18053B.

4 So now a twist. The RCC has already been
5 installed. So the recipe, we don't really have much
6 information about that. I don't know if it was -- we
7 don't know if it was designed by an engineer. The
8 evidence is that there was no engineer on site to do
9 compaction tests or speak to the compaction and
10 leveling of the bed.

16:05

11 So what do you do? This may happen. So you do
12 your homework. Perhaps you chat with your colleagues.
13 You give the applicant an outline of what kind of
14 information you might want to see. You give the
15 applicant some options, and probably you give the
16 applicant every opportunity to improve and augment
17 their application.

18 So an example of this, I think in the case at
19 hand, is that revision of the Wood report from
20 October 29th to November 6th. There was an
21 opportunity. In fact there was an opportunity from
22 May, "Give us a report." "Okay. Are you happy with
23 this report?" "You can give us another report." You
24 can't tell them what to do or put in their application
25 because that's not what you do as a regulatory

16:06

1 decision-maker.

2 And when I asked Mr. Cumming whether an
3 application that has already installed RCC would ever
4 satisfy AOPA, his answer was "I hope so."

5 And I just wanted to have a quick word that guided
6 AOPA -- pardon me, approval officers. And these
7 principles relate to consistency and fairness. It is
8 reasonable to compare LA18053B and LA19036 and ask why
9 they were different outcomes.

10 So we have two principles, I think, which are
11 consistency and independence. Of course the NRCB
12 strives for consistent decision-making. Consistent
13 decision-making helps all stakeholders, applicants,
14 complainants in a compliance situation, municipalities,
15 neighbours, and of course NRCB staff. It is tricky
16 when every situation is different and every application
17 is different, but this is why the NRCB communicates
18 among its staff, we have meetings, we discuss,
19 sometimes we develop policy if we get to a critical
20 mass of discussion, when we can land on what that
21 policy might be.

16:07

22 And for clarity, there is no policy on RCC because
23 I think maybe there was a misunderstanding about that.

24 Prior similar decisions do provide important
25 context for today's decisions. True inconsistency I

16:08

1 believe is rare, as often there are distinguishing
2 features of one from another, but it is important to
3 know what has come before.

4 And just for clarity on the record, I would point
5 out that LA17038 was a denial. If you're looking for
6 reasons underlying the granting of LA18053B, I suggest
7 you may have to follow it through to LA18053. I think
8 you will find the reasoning related to the RCC in that
9 decision summary.

10 And the LA18031 was quickly superseded by
11 LA18031A, where the applicant changed actually from RCC
12 to what I would call normal concrete. So I just wanted
13 to clarify that up.

16:09

14 The Board decision on Stronks at Board
15 Decision 2019-03 did go to review, as I think
16 Mr. Metheral helpfully pointed you. But when you look
17 at it, you will see that the review was limited to
18 Condition 18, which dealt with the natural catchment
19 area; RCC was not an issue.

20 You know, from my point of view, I'm not sure it
21 takes a deep probe to distinguish LA19036 from
22 LA18053B, just for the fact that in LA18053B, the RCC
23 had not already been laid. And I think we have been
24 over that ground enough that I don't need to expand on
25 that.

16:09

1 So that's consistency. It's an important
2 principle, and I'm sure Mr. Cumming would agree with me
3 on that for the NRCB.

4 The other steering principle is that each approval
5 officer is an independent statutory decision-maker.
6 Now, that may mean -- may seem sort of contrary to what
7 I was just talking about consistency and making sure we
8 make consistent decisions. But actually it's
9 complementary. So for independents, this means an
10 approval officer making a decision in 2018 cannot bind 16:10
11 an approval officer making a decision in 2021. And I
12 provided on Friday a case to Mr. Muilwijk and
13 Mr. Metheral called *Shuttleworth and Ontario*. I'm
14 happy to provide it, but it just stands for the general
15 proposition in law of independence of statutory
16 decision-makers. The citation for that is 2019 ONCA
17 518, and you would be wanting to look at paragraphs 26
18 to 34. That's an Ontario Court of Appeal decision on
19 independence.

20 An approval officer also cannot be forced by 16:11
21 written policy to make a decision one way or another.
22 In my job, I find that those operational policies are
23 so handy to fill in the gaps that are left by what I
24 would call aging legislation. They don't answer every
25 question, and they do allow for independence.

1 In fact, in NRCB operational policies, you will
2 always see a blurb near the beginning about NRCB staff
3 retaining discretion to modify policy when its strict
4 application would be clearly unfair or in other
5 necessary and appropriate circumstances.

6 The approvals policy, which I don't even know if
7 it's in evidence, but it would be page 3, pdf page 8.
8 Almost any policy you look at, I'm happy to provide
9 citations for those.

10 This is known in law as the rule against
11 fettering. And the case I would provide in support of
12 that is called *Stemijon and Canada*, and it is -- its
13 citation is 2011 FCA 299. And you're probably going to
14 look around paragraphs 58 through 61. Again, I did
15 send this case to Mr. Metheral and Mr. Muilwijk on
16 Friday. And that's -- I haven't been able to find that
17 either of those cases have been taken to the
18 Supreme Court, so I think -- anyway, I think that's
19 there.

20 So the NRCB -- if we have to have a position on
21 RCC, it's not that RCC can't be used as a liner under
22 AOPA. I think our position is that in cases where a
23 liner is proposed that is not soils-based, it is up to
24 the applicant to show that the alternative will meet
25 AOPA's protection standards, including for groundwater.

16:12

16:12

1 I think it's important for not only the Board, but
2 also our fellow participants to recognize that the NRCB
3 as a regulator is in a bit of a delicate position.
4 Approval officers and inspectors have jobs to do under
5 the legislation. We have seen a recent influx of
6 applications proposing RCC as a liner. And, frankly,
7 that makes sense given its popularity.

8 At this time RCC does not clearly fit into that
9 non-engineered concrete liner technical guideline, and
10 we are not aware of any standards for RCC in terms of
11 meeting AOPA groundwater protection.

16:14

12 So until we have better information, it is
13 difficult, it is case by case, and unfortunately it has
14 to be.

15 I feel like we probably need further targeted
16 research. It's possible that a certain formula mix
17 installed under certain conditions might be effective
18 as a liner under AOPA.

19 And just to finish off, I thought that I would beg
20 the Board's indulgence to just talk a bit about my
21 hopes coming out of this review. As we've mentioned,
22 the approval officer takes no position on whether the
23 Board should overturn his decision or uphold it. The
24 approval officer did offer some potential conditions to
25 consider if the Board is inclined to overturn.

16:14

1 On a broader scale, of course NRCB field services
2 does not expect the Board to issue that standardized
3 set of RCC guidelines. Presumably they need to come
4 from Agriculture and Forestry and from research. And I
5 just -- I don't think we have that yet.

6 But those are -- those are my submissions, unless
7 the Board has any questions for me.

8 THE CHAIR: Thank you, Ms. Vance. Any
9 questions from the Board? Panel members? Ms. Maharaj?

10 MS. STUART: I have none.

16:15

11 MS. MAHARAJ: Could you just give me again,
12 Ms. Vance, your case with respect to fettering? I got
13 the citation, but not the name.

14 MS. VANCE: I have no idea how to pronounce
15 it. It's spelled *Stemijon*, S-T-E-M-I-J-O-N. I believe
16 it's a tax case, which is why it would be in the
17 Federal Court of Appeal.

18 MS. MAHARAJ: And it's against?

19 MS. VANCE: Canada in some form.

20 MS. MAHARAJ: And Canada?

16:16

21 MS. VANCE: There's a long -- it's probably
22 Revenue -- CRA, something like that. It was a
23 director, I think, under the CRA making decisions in
24 relation to an interpretation bulletin.

25 MS. MAHARAJ: Okay, thanks. That's it.

1 THE CHAIR: Thank you.

2 Mr. Kennedy, do you have anything?

3 MR. KENNEDY: No, I have nothing. Thank you.

4 Thank you, Ms. Vance.

5 THE CHAIR: All right, thank you, Ms. Vance.

6 Mr. Metheral, did you have any reply to that, to
7 Ms. Vance's final argument? I mean -- and I realize
8 there's not a lot of time. I mean, you just heard it
9 now, but...

10 MR. METHERAL: I would defer this opportunity to
11 Mr. Muilwijk.

16:17

12 THE CHAIR: Okay, there you go. Thank you.

13 MR. MUILWIJK: I would just like to take this
14 time to thank the Board as well for giving me the
15 chance to bring this all forward and thank everyone for
16 being part of this, and hoping that we can move
17 forward. Thank you.

18 THE CHAIR: Thank you very much, Mr. Muilwijk.

19 Okay. Well, I think we are now at the close of
20 the hearing. And so just a couple of final remarks.
21 The Panel -- on behalf of the Panel, I would like to
22 thank everyone for your participation. And, you know,
23 no doubt these proceedings are a little intimidating.
24 And in particular, Mr. Muilwijk, Mr. Metheral, I would
25 like to thank you for a job well done in your first

16:17

1 hearing experience, and to your witnesses, Mr. Lobbezoo
2 and Mr. Both.

3 And thank you, field services, a constructive and
4 professional appearance. Ms. Vance, Mr. Cumming, and
5 Mr. Cunningham, the Board appreciates your
6 participation for obvious reasons.

7 And Ms. Kaminski, Ms. Taylor, they have been at
8 this for two full days, document management. They are
9 becoming quicker and quicker. It's almost like it's
10 not a human being behind that, exhibits fly up. So
11 thank you very much. 16:18

12 Ms. Gerbrandt, a long day and a short break that I
13 gave you, so my apologies. I really would like to
14 thank you. And if you could pass my thanks along to
15 Ms. DiPaolo as well. You folks are amazing, and we
16 really appreciate everything you do for transcript
17 production.

18 Clearly we received a lot of information, and it
19 is helpful. The Panel will consider all of it,
20 including the submissions we've got to date, when we're
21 reaching our decision, and we'll provide that decision
22 to all parties in the form of, you know, a written
23 decision report supported by reasons. 16:18

24 The Board has a long-standing performance target,
25 it's not statutory, a performance target for AOPA

1 decisions to meet 30 working days, so six weeks, upon
2 the close of the hearing.

3 We may have a couple of questions. I don't know
4 if that would really hold up our decision. And we also
5 have some information on testing that has just come in,
6 but I would hope that we would make this decision as
7 well, like we have with all of our other decisions, it
8 has been six weeks.

9 So thank you very much, everyone, for your
10 participation. It's been a couple of long days, but
11 you've done great, and the Panel really appreciates the
12 work that you've put into it. And we also appreciate
13 the gravity of the decision that we have for the
14 Muilwijks. So know that we take that responsibility
15 very seriously.

16 Thank you again. Have a good evening, everyone,
17 and the hearing is now closed.

18 (PROCEEDINGS ADJOURNED AT 4:20 P.M.)

19 _____
20 PROCEEDINGS CONCLUDED
21 _____

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16:19

1 Certificate of Transcript

2

3 We, the undersigned, hereby certify that the foregoing
4 pages 274 to 498 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 21, 2021.

10

11

12

_____ "Donna Gerbrandt" _____

13

Donna Gerbrandt, CSR(A)

14

Official Court Reporter

15

16

_____ "Deanna DiPaolo" _____

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Deanna DiPaolo, CSR(A)

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Official Court Reporter

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