

MANITOBA CLEAN ENVIRONMENT COMMISSION

HEARING

VIVIAN SILICA SAND EXTRACTION PROJECT

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Transcript of Proceedings
Held at Brokenhead River
Community Hall
Beausejour, Manitoba
Wednesday, March 15, 2023
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CLEAN ENVIRONMENT COMMISSION

Jay Doering - Chairman

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Ian Gillies - Commissioner

Terry Johnson - Commissioner

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Sander Duncanson - Legal Counsel

RURAL MUNICIPALITY OF SPRINGFIELD

Patrick Therrien - Mayor

MUNICIPAL SILICA SAND ADVISORY COMMITTEE (MSSAC)

Krista Boryskavich - Legal Counsel

MANITOBA ECO-NETWORK and OUR LINE IN THE SAND

Byron Williams

Chris Klassen

Reporter: Arfana Mulla & Nidia Romero

1 WEDNESDAY, MARCH 15, 2023

2 UPON COMMENCING AT 10:48 A.M.

3

4 THE CHAIRMAN: Chair. Good morning,
5 everyone. It's good to see us all here. Apologize for
6 the late start, but we decided to err on the side of
7 caution. Let's try a little time management math here.
8 Mr. Duncanson, I understand you need about an hour to go
9 through -- okay, head nods. The Rural Municipality of
10 Springfield, I understand, would like a little bit of
11 time. Have we -- can we quantify that? Five minutes?
12 Five minutes it is. Thank you. MSSAC, I understand about
13 an hour?

14

15 UNIDENTIFIED SPEAKER: An hour or less.

16

17 THE CHAIRMAN: An hour or less. OLS
18 and MBEN, are we calling it two?

19

20 UNIDENTIFIED SPEAKER: It will be less than
21 two, but yes, certainly (inaudible).

22

23 THE CHAIRMAN: And then finally, the
24 proponent gets to close out. Shall we call it 30 minutes?

25

1 MR. DUNCANSON: Sander Duncanson here,
2 Mr. Chair. That'll entirely depend on what my friends
3 have to say today. I don't have any reply planned right
4 now, but I expect that that estimate will grow over the
5 course of the day.

6
7 THE CHAIRMAN: Thank you very much.
8 So, I'm going to suggest that -- hmm, how do we want to
9 play this -- MSSAC, do you want your presentation split in
10 half? Probably not.

11
12 UNIDENTIFIED SPEAKER: (inaudible).

13
14 THE CHAIRMAN: So, I think that has
15 us -- so, what's the preference here? We're either going
16 for an early lunch or a late lunch. Any preferences in
17 the room? Late lunch. Okay, so, we'll break for lunch
18 after MSSAC. So, Courtney, please note that would take us
19 to about one o'clock for our lunch. What if lunch break
20 were half an hour? Would that pose a problem? Okay, so,
21 lunch is 30 minutes, and then we'll resume and perhaps
22 take a break. But the long and short of it is, it looks
23 like we should finish today unless closing cause Mr.
24 Duncanson to wax and wane at -- for a considerable period
25 of time. So, I don't think I'll say anything more. I'll

1 turn it over to you, Mr. Duncanson, and the floor is
2 yours. Thank you.

3

4 MR. DUNCANSON: Thank you, Mr. Chair.

5 Good morning, Commissioners, CEC staff, and everyone here
6 in the room this morning. For the record, this is Sander
7 Duncanson speaking, and I am pleased to present final
8 argument today on behalf of Sio Silica. We have prepared
9 a PowerPoint presentation which is up on the screen, and I
10 will refer to that throughout my argument. By way of
11 outline for my remarks today, I'm going to start with a
12 few points that I think are important context for the
13 Commission's mandate and its review in relation to the
14 project. I will then focus on certain key issues that
15 were the focus of this hearing, and in our view, those
16 issues are, first, geotechnical matters, second,
17 groundwater, third, waste management, and fourth,
18 cumulative effects. So, in that section of my argument, I
19 will go through each of those four issues in some detail
20 and I will explain how, in our view, the Commission should
21 decide those issues based on the evidence before it. The
22 next section of my argument will focus on certain other
23 ancillary issues that came up during the hearing that we
24 want to address. And then finally, I will provide some
25 very brief concluding remarks.

1
2 So, I'm going to start by providing a few
3 points, by way of context. The first one is that this
4 project proposed by Sio Silica is a Class 2 development
5 which requires the filing of an *Environment Act* proposal,
6 or EAP, and you can see that requirement that's up on the
7 screen. That requirement says that the proposal must be
8 in a form prescribed by the director, and we can see on
9 this next slide what that prescribed EAP form says, and it
10 references there what we've heard referred to in this
11 proceeding as the EAP guidelines. This next slide is the
12 introduction to the EAP guidelines, and you can see here
13 that this is the document developed by the Province of
14 Manitoba that prescribes the information that must be
15 included in EAPs in the province. So, panel, Sio Silica
16 prepared their EAP and submitted it in July of 2021,
17 almost two years ago now. During this hearing, nobody has
18 suggested that the EAP and supporting reports submitted by
19 Sio Silica do not meet the EAP guidelines. It is
20 uncontroverted that they do meet the EAP guidelines, and
21 in fact, they exceeded them in certain respects. For
22 example, as we've heard, Sio's EAP was supported by a
23 numerical hydrogeological model, which is not something
24 required under the EAP guidelines and is something that
25 other recent EAPs have not included, including EAPs that

1 proposed to withdraw much more water than what Sio is
2 proposing as part of this extraction project from the same
3 general area, and that were subsequently approved by the
4 province. Now panel, something to bear in mind here in
5 terms of the level of detail that was included in Sio's
6 EAP and supporting documents, is that when a company like
7 Sio prepares an EAP for a project like this, it does not
8 know whether the project will be referred to a CEC
9 hearing. CEC hearings are entirely discretionary, and
10 those discretionary powers are shown on this slide. So,
11 Sio's EAP should be assessed based on the EAP guidelines
12 and the level of information that the province has
13 required for applications like this. In our submission,
14 it would be unfair to Sio to judge it to a higher standard
15 and hold that it should have conducted more extensive
16 studies as part of its EAP just because it turned out
17 later that the project would be reviewed to a public -- or
18 referred to a public hearing. And as Mr. Wiatzka
19 testified during the hearing on behalf of Arcadis, Sio
20 should not be faulted for following the rules, and that
21 transcript excerpt is shown on the screen.

22

23 The second point I want to make in terms of
24 context is that the CEC is a creature of statute, and it
25 only has the legal authority that the legislature gave to

1 it under the *Environment Act*, and I have the specific
2 sections of the *Environment Act* that are relevant to this
3 review up, on the screen. Those sections of the
4 *Environment Act* require the Commission to follow the terms
5 of reference provided by the Minister, and the scope of
6 the CEC's review is limited to those terms of reference.
7 When we look at the terms of reference that were provided
8 to the CEC by the Minister in this proceeding, those are
9 shown again on the screen, you will see that the
10 Commission has been asked to provide advice and
11 recommendations to the Minister regarding potential
12 environmental and health effects from the project, and
13 this is the project as defined in the EAP submitted by Sio
14 Silica. So, we've heard a number of participants and
15 other parties over the course of this hearing advocate for
16 changes in regional planning and aquifer management.
17 We've heard suggested changes to what is required in the
18 EAP guidelines. We've heard criticisms about the scope of
19 Sio's EAP for its extraction project, and we've heard
20 arguments about the effects of activities that are beyond
21 the scope of the proposed extraction project. But all of
22 those matters are beyond the scope of what the Minister
23 has asked the Commission to review and what the Commission
24 has legal authority to consider as part of its review.
25 Despite what some parties may ask of you, this Commission

1 is required in our submission to focus on the
2 environmental and health effects of the project, as
3 defined in the EAP, when it provides advice and
4 recommendations to the Minister in accordance with its
5 terms of reference.

6
7 The third and final point that I'd like to
8 make in terms of context is that we've heard a lot of
9 different views over the course of this hearing. Some of
10 them have been very emotionally charged. And whenever
11 there's a project that interacts with drinking water,
12 emotions do tend to run high. But the things that are
13 being talked about in this hearing are highly technical
14 and specialized issues. Just like, how we go to a doctor
15 when we're uncertain about something with our health, we
16 should rely on the experts in each area to tell us what
17 the science says about this project's effects. And as I
18 will cover in more detail in a few minutes, just because
19 someone has a degree in geology, that does not make them
20 an expert in geotechnical engineering or geochemistry.
21 And just because someone has worked with experts in the
22 past, that does not mean that they themselves, all of a
23 sudden, become experts that are qualified in that area.
24 Again, just because you've been to the doctor a number of
25 times in your life, or you may have a friend who's a

1 doctor, that does not qualify you as a medical
2 professional qualified to give medical advice. And as
3 Sio's experts explained yesterday, that is really
4 important. Professional experts, like engineers and
5 geoscientists that put their seal or stamp on a technical
6 document, are verifying that they have performed that work
7 to a high standard that protects the public and the
8 environment. There are serious consequences if they
9 breach those duties and sign off on deficient work. Those
10 same duties and consequences do not apply in the same way
11 to academics like Dr. Hollander when they are not actually
12 taking professional responsibility for technical work.
13 And they also don't apply to people who are not qualified
14 as a professional engineer or geoscientist, and that's why
15 we have the *Engineering and Geoscientific Professions Act*
16 *of Manitoba*. Section 57 of that Act prohibits any person
17 who is not registered as a professional engineer or
18 professional geoscientist in the province from either
19 engaging in the practice of professional engineering or
20 professional geosciences in Manitoba, or acting in a
21 manner that would lead other persons to believe that they
22 are, in fact, authorized to act as a professional engineer
23 or professional geoscientist. And you can see, panel, on
24 the next slide how that term "practice of professional
25 geoscience" is defined. It's defined very broadly. Now,

1 I don't want to accuse people of acting unlawfully during
2 the hearing, but part of the reason why so many people
3 appear to be concerned about this project is that certain
4 people in this proceeding have represented themselves as
5 experts in areas that they are not actually experts in,
6 and they have presented opinions as though they are
7 qualified to give those opinions, when they are not. For
8 each issue that's been raised in this hearing, the panel
9 needs to look at all of the evidence before it and have
10 regard to who is providing that evidence. What are their
11 qualifications? Have they previously worked on other
12 projects or applications of this nature? Has the
13 information been subject to testing in the form of cross-
14 examination, or was it simply provided as a written
15 submission, or oral presentation, or a footnote in a slide
16 deck, that Sio had no opportunity to test, such as the
17 work of Dr. Eva Pip that we heard a bit about?
18 Information that Sio had no opportunity to test must be
19 given less weight. All of these questions in our
20 submission must influence the weight that the panel
21 assigns to the evidence when it considers what
22 recommendations to make to the Minister.

23

24 So, I'm going to turn now to the next
25 section of my argument, which is to discuss the key issues

1 that have been raised during this hearing, and I'll start
2 by observing what I mentioned in my opening comments in
3 this hearing a few weeks ago, that this has been a very
4 different hearing than most of the hearings that I've
5 personally been involved with over the course of my
6 career. Typically, when we have a public hearing for a
7 project, we're talking about a wide variety of different
8 types of environmental issues, things like air quality,
9 wildlife, fish, vegetation, impacts on the exercise of
10 Indigenous rights. In this case, none of those issues
11 have been seriously raised by any participants or by the
12 government's Technical Advisory Committee, or TAC. While
13 Sio hired a leading environmental consultant to assess all
14 potential environmental effects of the extraction project,
15 the evidence is clear and uncontroverted that the project
16 will not have material impacts on any of those
17 environmental or socioeconomic components. Instead, we've
18 spent the better part of three weeks now debating
19 essentially four issues, and those are the issues that are
20 shown on the screen, and I'm going to be walking through
21 each of them in turn.

22

23 So, starting with geotechnical matters.
24 For this, Sio employed one of the top geotechnical firms
25 in the entire country, Stantec. From Stantec, you heard

1 from Dr. Arash Eshraghian and Steve Bundrock. Dr.
2 Eshraghian has a Ph.D. in Geotechnical Engineering and 22
3 years of experience leading and managing civil and
4 geotechnical engineering projects, including a variety of
5 different types of mining projects. Mr. Bundrock is a
6 professional geotechnical engineer, also with more than 20
7 years of experience, specifically in geotechnical
8 engineering for mines. Sio also hired Doug McLachlin, who
9 we saw yesterday, to act as a third-party reviewer of
10 Stantec's geotechnical work. Mr. McLachlin leads Ontario
11 -- the Ontario geotechnical practice for AECOM, and he is
12 a senior geotechnical engineer with more than 38 years of
13 experience, including in geotechnical engineering for mine
14 projects. Now, Dr. Eshraghian, Mr. Bundrock, and Mr.
15 McLachlin are only three of the individuals involved in
16 the geotechnical work for this project -- this slide lists
17 some of the others -- and it's clear that between Stantec
18 and AECOM, Sio had a large team of highly specialized
19 experts in things like rock mechanics and other
20 geotechnical matters, who reviewed the project designs to
21 make sure that they were safe and would not cause
22 subsidence on the surface. So, those are some of the
23 people that you've heard from over the last few weeks who
24 are actually qualified to give expert opinions about
25 geotechnical matters. Another was Arcadis, and they're

1 shown at the bottom of this slide. They too included a
2 team of geotechnical experts to review the work that was
3 done by Sio and Stantec, and they verified that this work
4 was done appropriately, and that Sio's project will not
5 cause surface subsidence. And they said this a few times,
6 but this is one excerpt from the transcript last week
7 where they make that very clear. Among other things,
8 Arcadis also agreed with Stantec's conclusions about rock
9 mass strength, and they supported Stantec's use of a very
10 conservative factor of safety of 2.0, and we have that
11 excerpt on the screen as well. Now in terms of this
12 factor of safety, Dr. Eshraghian, during the first week of
13 the hearing, explained that this is a higher factor of
14 safety than what is used in the design of high consequence
15 dams, and we've extracted part of where he talks about
16 that on the screen. But what this means, and this is
17 important, is that this project, from a geotechnical
18 perspective, is being designed to a higher factor of
19 safety than dams that could wipe out entire communities.
20 In other words, Commissioner Gillies, to use the term that
21 you raised yesterday and your questions, this means that
22 Stantec has applied a much higher industry standard in
23 this aspect of their assessment. Now, you've heard some
24 other individuals during the hearing express concerns
25 about geotechnical matters, including Dr. Hollander, Mr.

1 Boutin from Matrix, and Mr. LeNeveu, but panel, none of
2 those individuals are geotechnical specialists, they each
3 agreed to that during cross-examination, and that means
4 that they are not qualified to give expert opinions on
5 geotechnical matters. So, you have to give their opinions
6 on geotechnical matters much less weight than the actual
7 experts. The only other party with geotechnical expertise
8 that provided opinions during the hearing about
9 geotechnical matters was KGS. While we agree that KGS
10 does have experience in some geotechnical matters, they
11 acknowledged during cross-examination that they have very
12 limited expertise in geotechnical matters for mining
13 projects. During the hearing, KGS focused its comments
14 about geotechnical matters largely on one point, which is
15 simply that geology can be variable across Manitoba, and
16 it is possible that the limestone in the project area
17 contains vertical fractures that were not detected during
18 Stantec's geotechnical evaluations. Note that KGS did not
19 provide any evidence that the geology is actually
20 different than what Stantec found through its geotechnical
21 evaluations, only that there is a possibility that there
22 may be variability across the project area. We heard from
23 Mr. McLachlin yesterday why, from his independent
24 perspective, Stantec's assessment was appropriate, given
25 the knowledge of the geology in the project area. He

1 explained that vertical jointing was considered in
2 Stantec's work and that additional data will be collected
3 prior to, and during, project operations that will confirm
4 the suitability of Stantec's assessment. So, even if
5 there is variability in the geology, Sio and Stantec will
6 detect that and factor it into the operations to ensure
7 that the geotechnical criteria set out in Table 9 of
8 Stantec's report are met. Panel, the balance of the
9 evidence on geotechnical matters that was presented in
10 this hearing is clear that if those criteria in Table 9 of
11 Stantec's report are followed, the thick limestone layer
12 above the void space will provide sufficient support, and
13 there will not be subsidence issues at surface.

14

15 So, turning to the next issue of
16 groundwater there were many different issues related to
17 groundwater that came up during the hearing, but they can
18 largely be grouped into two categories. There were
19 concerns raised about groundwater quantity and flow, to
20 make sure that the project does not affect the sustainable
21 levels of groundwater in the carbonate and sandstone
22 aquifers, and concerns were also raised in relation to
23 groundwater quality, particularly related to potential
24 quality impacts if the shale layer between the two
25 aquifers collapses and the two aquifers intermix, but

1 also, in terms of whether the materials in the shale will
2 cause any impacts to water quality if it collapses into
3 the sandstone aquifer, or if the project will result in
4 oxygen entering the aquifers, that could negatively affect
5 their chemistry. Now again, panel, these are highly
6 specialized and technical issues. For groundwater levels
7 and flow, that's a discipline known as hydrogeology, and
8 for groundwater quality issues, that's a discipline known
9 as geochemistry. Like with geotechnical matters, Sio
10 hired some of the top experts in the country to make sure
11 that this project does not cause any negative impacts to
12 groundwater. For hydrogeology specifically, the technical
13 team was led by Ryan Mills and Dr. Miln Harvey from AECOM.
14 Mr. Mills is a senior hydrogeologist with 21 years of
15 experience working in the field, including extensive
16 experience for mining projects. Dr. Harvey has a Ph.D. in
17 civil engineering focusing on groundwater modelling and
18 has more than 25 years of experience in hydrogeological
19 analysis and modelling, including development of
20 groundwater models for mining projects. As I noted
21 earlier, AECOM developed a numerical model to support the
22 EAP, which is something that other recent EAPs have not
23 included. And Sio also had leading hydrogeology experts
24 in southeast Manitoba review that work in the "Draft
25 Hydrogeological and Geochemistry Report" and comment on

1 it. And that included Dr. Grant Ferguson, who you see
2 listed at the top of the right part of this slide, as well
3 as Jeff Bell from Friesen Drillers, who is not listed on
4 this slide. Those reviews have been filed in their
5 entirety on the record, so you can see for yourself what
6 they said about AECOM's work, but suffice it to say,
7 neither of them identified any major concerns and AECOM
8 incorporated their comments into their final report that
9 supported the EAP. We also heard from a few other
10 hydrogeology experts over the last few weeks. We heard
11 from Mr. Boutin from Matrix, Mr. Mann from KGS, and Dr.
12 Hollander, formerly from the University of Manitoba. Now,
13 it's quite common when you get a bunch of different
14 experts together that you'll see some differences of
15 opinion in terms of how studies should be designed and
16 carried out. Reasonable people can and sometimes do
17 disagree. But Mr. Boutin and Mr. Mann, both of whom
18 conduct work for project applications, they both generally
19 supported AECOM's modelling work. Mr. Boutin expressly
20 agreed that AECOM's model makes sense and was conducted in
21 accordance with industry standards, and you can see the
22 excerpt from the transcript where he said that, on the
23 screen. And Mr. Mann testified that AECOM's model was
24 reasonably calibrated, and he says that in the excerpt
25 that's on this screen. He also said on the next page that

1 the metrics and measures used by AECOM were, quote,
2 "pretty good", end quote. The outlier was Dr. Hollander.
3 Dr. Hollander took issue with certain parts of AECOM's
4 model and claimed that it was unreliable, and with all
5 respect to Dr. Hollander, the evidence does not support
6 that conclusion. AECOM's model used similar methods to
7 model -- to past models of these same aquifers that Dr.
8 Hollander himself used, and the outputs of AECOM's model
9 aligned well with all past studies of the aquifers in this
10 part of the province. The reality, panel, is that
11 groundwater modelling is largely an exercise of
12 professional judgment. We heard Mr. Boutin speaking about
13 that at some length last week. Dr. Hollander's experience
14 with groundwater modelling is largely in academia and
15 government, where the objective of the modelling is
16 different than seeking to understand the impacts of a
17 single project. As Mr. Mills explained yesterday, there
18 is an important distinction between academic research and
19 work to support a project application. So, it's not
20 surprising that Dr. Hollander's professional judgment is
21 different than professionals who develop groundwater
22 models for project applications, but that does not make
23 his opinions right and the other professionals wrong. We
24 need to look at the full balance of evidence about
25 hydrogeology that you have before you in this proceeding.

1 Neither Dr. Hollander, nor any other hydrogeological
2 expert in this hearing, suggested that the project will
3 negatively affect groundwater quantity in the region. The
4 evidence is that the net groundwater withdrawal volumes
5 proposed for this project are very small relative to the
6 size of the aquifers and other groundwater users, and we
7 can see that on the slide here based on the two different
8 scenarios that were presented, and in either case, you
9 will see that this project is very low relative to other
10 existing groundwater users in this area. Further, the
11 pumping test data for the project confirms that while
12 there will be small, localized drawdown in the immediate
13 vicinity of active extraction wells, the groundwater
14 levels will largely recover to their baseline levels
15 within about two days of extraction ceasing. Sio will
16 employ extensive monitoring and mitigation measures to
17 avoid and mitigate any impacts on local water wells, but
18 there is no evidence that there will be any material
19 effects on local water users. Again, much larger
20 withdrawals of groundwater have been approved in recent
21 years in this part of Manitoba without any hydrogeological
22 model to support them. The facts are that Sio hired
23 experts to develop a numerical model for this project, it
24 had that model reviewed by several independent experts in
25 the area, other independent hydrogeologists during this

1 hearing supported the quality of AECOM's model, and the
2 model produced results that align with past studies of the
3 aquifers. And all of that, panel, provides significant
4 comfort in our submission that this proposed project will
5 not cause any negative impact on groundwater levels and
6 all of those types of evidence, again goes beyond the
7 evidence that has been relied on recently in other EAPs.
8 It's also worth noting that the hydrogeology and
9 geochemistry work was also reviewed by experts within the
10 Government of Manitoba as part of the TAC review process,
11 and they also had no concerns with it. The Groundwater
12 Management Section has specific expertise in these areas.
13 They are the branch of government tasked with managing the
14 aquifers, and they did not express any concerns with Sio's
15 work or the project's impacts.

16

17 So, with that, let me turn to groundwater
18 quality or geochemistry, which again, is a different
19 technical discipline than hydrogeology. And here, the
20 only two experts in the field that appeared during the
21 hearing both appeared in support of the application.
22 Those were Dr. Cheibany Ould Elemine from AECOM and Dr.
23 Tom Meuzelaar, an independent third-party reviewer
24 representing Life Cycle Geo. Both of them are Ph.D.
25 geochemists with 20-plus years of experience assessing

1 geochemistry issues for mining projects in Canada and
2 around the world. The groundwater quality issues that
3 were talked about in this hearing, things like acid rock
4 drainage and metal leaching, these are issues that are
5 right in Dr. Ould Elemine and Dr. Meuzelaar's wheelhouse.
6 So, when Dr. Ould Elemine and Dr. Meuzelaar concluded that
7 acid rock drainage and metal leaching will not be an issue
8 in the void spaces because there is insufficient oxygen to
9 create those reactions, the panel should give significant
10 weight, in my submission, to those findings. And we have
11 on this slide just one excerpt of where Dr. Ould Elemine
12 talked about this during the first week, but there are
13 several references you can look at over the course of the
14 transcripts. Dr. Ould Elemine and Dr. Meuzelaar
15 specifically considered each of the concerns that were
16 raised during the hearing about water quality, and they
17 explained why none of them will cause negative impacts to
18 the water quality in the aquifers. Together with other
19 experts from AECOM, they explained that the water and
20 carbonate and sandstone aquifers are already intermixing,
21 the gradients between the aquifers will mean that
22 significant additional intermixing will not occur as a
23 result of this project, even if the shale layer collapses,
24 and even if there were to be additional intermixing, there
25 would be no negative impact to the water quality in the

1 aquifers because both aquifers are fresh, good quality
2 aquifers with similar water quality. As Mr. Mills
3 explained yesterday, where the aquifers are
4 interconnected, they are already functioning as a single
5 aquifer, and he provided a map showing all of those wells
6 that are currently interconnecting the aquifers, and you
7 see that that's happening all over the region. Dr. Ould
8 Elemine and Dr. Meuzelaar explained yesterday that the
9 water quality in the small volumes of water trapped in the
10 shale layer are also fresh and they are also of a similar
11 quality to the surrounding aquifers, so, it will not harm
12 the water quality in the aquifers if that pore water is
13 released during collapse of the shale. And again, they
14 also explained that acid rock drainage and associated
15 metal leaching will not be an issue in the aquifers
16 because the formation will remain saturated throughout
17 operations and there will consequently be very limited
18 oxygen available to create any such reaction. We also had
19 Sio's witnesses explain yesterday why Mr. LeNeveu's theory
20 about contaminants from the ambient air getting into the
21 compressed air and contaminating the aquifers is entirely
22 unsubstantiated, because among other things, Sio is
23 proposing to use the same types of drilling practices that
24 have been employed across Manitoba for decades, and there
25 is no evidence of compressed air from the drilling process

1 negatively impacting groundwater. So, panel, while non-
2 experts expressed non expert views about water quality
3 issues during this hearing, the CEC must rely on the
4 expert evidence before it, and that expert evidence is
5 uncontroverted that this project will not cause any
6 negative impacts to water quality in the aquifers.

7
8 The last point I'd like to respond to on
9 the issue of groundwater is the suggestion during the
10 hearing that this project will increase the vulnerability
11 of the aquifers by creating additional interconnections
12 between them. Sio's experts responded to this fully
13 yesterday, and a portion of that rebuttal is shown up on
14 the screen. They explained that the aquifers are
15 considered to have low vulnerability currently, they are
16 well protected by thick overburden sediments that overlie
17 the carbonate aquifer and prevent contaminants from
18 surface from getting in to the aquifers below, and they
19 explained that the project will have zero effect on the
20 vulnerability of the carbonate aquifer, because that's
21 above the shale layer, and that's where the majority of
22 groundwater users in the region source their water from.
23 There is no evidence that this project will cause any
24 contamination, and Mr. Boutin agreed with that a few times
25 last week. And further, in the unlikely and hypothetical

1 event that contamination from the surface ultimately does
2 reach the carbonate aquifer somehow in the future through
3 reasons unrelated to the project, there is no evidence
4 that this project would have any meaningful impact on how
5 that contamination behaves in the subsurface, because we
6 know that this project is not going to meaningfully change
7 the flow of the groundwater and it's also not going to
8 meaningfully change the intermixing of the groundwater.
9 So, panel, quite simply, there's no evidence that this
10 project will cause any material impact on aquifer
11 vulnerability.

12

13 Turning next to the third key issue that
14 was raised during the hearing, which was not raised nearly
15 as much as geotechnical or groundwater issues, but it was
16 discussed nonetheless, this was the issue of waste
17 management. And the evidence on this issue, I submit, is
18 quite clear and simple. Sio is proposing to capture and
19 contain all wastes that are generated during extraction
20 and to dispose of them at a licenced disposal facility.
21 And we just took one excerpt from the transcripts where
22 Mr. Samoiloff from AECOM was explaining that during his
23 testimony. So, even though the evidence suggests that
24 there is limited potential for any acid rock generation at
25 surface from the waste -- waste rock that's generated by

1 the extraction wells, there is no reasonable risk that
2 waste materials will cause any adverse effects on the
3 surface environment at the project site, particularly with
4 implementation of Sio's proposed waste characterization
5 and management plan. And I should note that Mr. Mann
6 agreed with that conclusion, if Sio stores any waste
7 materials in an engineered containment and disposes of
8 them at a licenced facility, which is what Sio proposes to
9 do, and we've provided that transcript excerpt on the next
10 slide.

11

12 The final key issue that was raised during
13 the hearing was the issue of cumulative effects. This was
14 a topic that came up frequently, but there were many
15 different views as to what a cumulative effects assessment
16 entails and who should be responsible for conducting that
17 work. Again, panel, you should make your recommendations
18 based on the evidence that's before you. The facts are
19 that a cumulative effects assessment is not required for
20 this project. That's what Mr. Samoiloff is saying in the
21 transcript excerpt on this slide. While the CEC has made
22 recommendations to the government about cumulative effects
23 for certain past projects, the facts of those other
24 projects are materially different than the facts of this
25 project. And you heard Sio's witnesses speak to that, but

1 Mr. Boutin also agreed with that during cross-examination,
2 and that's on this transcript excerpt. You should also
3 consider that the terms of reference for those past
4 projects were much different and broader than the terms of
5 reference that apply to this review. And regardless
6 panel, the government has decided not to change the EAP
7 guidelines based on the CEC's past recommendations. Sio
8 followed the applicable requirements, just like other
9 recent EAPs, and again, we submit Sio should not be
10 faulted for following the rules. Further, Mr. Mills from
11 AECOM yesterday confirmed that even if a cumulative
12 effects assessment had been done for the groundwater, that
13 Sio's -- that Sio's proposing to withdraw over a full 24
14 years of operations, which seemed to be the key issue
15 around cumulative effects for certain of the participants,
16 he explained that that would likely have made no
17 difference whatsoever to the outcome of AECOM's
18 assessment. So, while cumulative effects can be an
19 important issue in certain contexts, that does not make it
20 an important issue for this project, and the evidence
21 before you demonstrates that there are no issues with
22 cumulative effects associated with this project.

23

24 So, I'm going to turn now to the next
25 section of my argument, which is the other issues that

1 were raised during the hearing. And of course, here we're
2 not going to canvas everything that was raised over the
3 last three weeks, but we've focused on what we consider to
4 be the -- the most important, or most material issues.
5 The first one is the concept of uncertainty. And panel,
6 as much as everyone would like to know with absolute
7 certainty how a proposed activity will unfold, there are
8 uncertainties in almost everything that we do. That's
9 particularly true for major projects and for less major
10 projects, like this one, that propose to apply existing
11 technologies in new ways. While models are tools that can
12 help us predict the future and potential impacts, no
13 credible expert will ever tell you that they can predict
14 future outcomes without any uncertainty. No model is
15 perfect, and even Dr. Hollander agreed with that. The
16 focus should not be on whether there are uncertainties
17 about a project, because there always are. The focus
18 should be on how to manage those uncertainties, and Sio
19 has done that in a few important ways, including having
20 its consultants adopt very conservative, in some cases
21 worst-case, scenarios to reasonably capture the full range
22 of possible outcomes, by proposing extensive ongoing
23 monitoring and mitigation plans, as well as additional
24 testing post issuance of a licence to gain as much data as
25 reasonably practical, and by continually incorporating

1 this new information into Sio's consultants' models to
2 ensure that actual outcomes fit within the model
3 parameters, or in the unlikely event that they don't,
4 modifying the extraction details to avoid any unintended
5 outcomes. And this is an important concept to understand.
6 Either Sio's experts have correctly predicted how the
7 extraction will impact the environment, in which case, we
8 know there will be no material impacts to the environment
9 based on the evidence, or the monitoring and additional
10 data collection will determine that the project designs
11 need to be tweaked to stay within the parameters assessed
12 in the models, in which case that will happen, and that
13 will happen before any material impacts to the environment
14 occur. That's the purpose of the detailed management
15 plans, including the trigger action response plans, or
16 TARPs, to continually gather information and detect trends
17 before they have the potential to cause adverse effects.
18 On this issue, I should note that Sio has committed to
19 include local governments in the finalization of those
20 detailed monitoring plans and working with them to provide
21 them access to monitoring results, as well, and we also
22 heard the other night that Peguis First Nation will be
23 working with Sio to establish third-party environmental
24 monitoring, and that they support the project. And just
25 as a quick aside, panel, I think that this is the first

1 hearing in my career for a new project where there has
2 been completely no Indigenous opposition to the project.

3
4 Another issue that has come up during the
5 hearing is compliance with regulations. Now, of course,
6 this is a legal issue and not an issue that this panel
7 needs to decide to comply with its terms of reference.
8 But in any event, the regulations that apply to drilling
9 wells in Manitoba require that wells be constructed and
10 sealed in a manner that prevents the interconnection and
11 mixing of groundwater having distinctively different
12 characteristics within the same aquifer or different
13 aquifers. And that's Section 2 of the "Well Standards
14 Regulation" that's shown on the screen. The reason for
15 that requirement, as Sio understands it, and I've provided
16 the IR response where Sio explains this, is that there are
17 parts of the province where saline aquifers have
18 contaminated drinking water aquifers, and that has
19 happened in other parts of Manitoba, not here, but that's
20 why those regulations exist. The evidence before you is
21 that that will not happen in this case. In fact, despite
22 the regulations, there are over 1,000 wells that currently
23 connect the carbonate and sandstone aquifers, and no
24 adverse effects have been detected as a result of that.
25 Sio will construct and seal its wells in accordance with

1 the regulations. To the extent the project results in
2 collapse of the shale layer between the aquifers and
3 causes greater communication between them, the wells
4 themselves will still be constructed and sealed in
5 accordance with the regulations, including surface sealing
6 to protect against surface contamination. And as we've
7 discussed, the water quality in the two aquifers is not of
8 a materially different quality, so, there will be no
9 mixing of groundwater having distinctively different
10 characteristics. For all of those reasons, panel, you can
11 take comfort that Sio will be following the applicable
12 regulations.

13

14 The next issue that has come up that I want
15 to discuss, is the adequacy of the record, and a
16 suggestion by some parties that Sio has not provided
17 sufficient information. As I noted already, Sio followed
18 the province's requirements for an application like this.
19 If you look at the content of Sio's EAP relative to other
20 recent EAPs in the province, as I've already noted, Sio's
21 EAP meets or exceeds what is typically done. The TAC and
22 the public both reviewed the EAP and Sio responded to all
23 comments that were provided. This CEC process allowed
24 parties to request additional information from Sio through
25 two rounds of written IRs, and Sio also responded to all

1 of those questions unless they were beyond the scope of
2 the process. And of course, Sio's experts also came down
3 to Steinbach and responded to a full four days of
4 questioning during the hearing two weeks ago. The reality
5 is that as projects advance through the planning and
6 development process, additional work is always being done
7 and more information does become available overtime.
8 That's why some information has been shared relatively
9 recently that couldn't be shared earlier. But the record
10 demonstrates that Sio provided all required information at
11 the outset of the process, it has reasonably responded to
12 all subsequent requests for further information, and the
13 Commission has more than enough information before it to
14 reasonably assess how this project may affect the
15 environment, which is what the CEC's terms of reference
16 require. While additional data will be gathered after
17 issuance of an EAL, and the details of Sio's monitoring
18 and mitigation plans will also be finalized after the
19 issuance of an EAL to reflect any conditions that are
20 imposed in the licence, the evidence is that this approach
21 is standard and accepted, and that view was shared by the
22 CEC's expert, Mr. Wiatzka. And we provided an excerpt
23 from the transcript where he agreed with that last week.

24

25

Mr. Mann, with KGS, suggested that in his

1 personal opinion, additional work should happen before
2 issuance of an EAL, but Mr. Mann acknowledged that he has
3 no experience developing mitigation or monitoring plans
4 for mine projects. You can see that on this slide. And
5 he also agreed that these types of plans are typically
6 finalized after issuance of a licence. The facts are that
7 Sio has conducted more detailed studies and analysis than
8 other projects at this stage of development. And while
9 Sio will collect additional data after issuance of the
10 EAL, and during operations, the science that underlies
11 Sio's assessment of environmental effects is sound, it has
12 incorporated conservative assumptions, sometimes very
13 conservative assumptions, and Sio's proposed mitigation
14 and monitoring plans will be designed to ensure that the
15 project does not cause any environmental impacts that go
16 beyond what has been assessed. I should note that most of
17 those plans have already been filed in draft form, and
18 they were generally supported by the relevant experts
19 during the hearing.

20

21 So, panel, while there are always areas
22 where additional information will be collected post-
23 approval, that, in no way, means that the CEC lacks
24 sufficient information to assess the project's likely
25 environmental effects.

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I have three final points that I'd like to address this morning. First, my friends representing Our Line in the Sand and the Manitoba Eco-Network provided two literature excerpts that they intend to rely on in their argument today. We don't know exactly what they plan to say about them, but I don't want to save all of my comments for reply because I know that they plan to use these excerpts, and I've attempted to address all of the issues that we foresee the participants raising in their arguments, in my initial argument, so that they have an opportunity to respond to me. So, I do have a few preliminary comments based on our review of these materials, but I may have a few more things to say later in my reply, as well. First, on their face, these two excerpts are excerpts from literature sources on how to conduct environmental assessments. These documents were not submitted as evidence during the hearing and there were no witnesses who spoke to them. That means, in my submission, you cannot give either of these documents any weight. Second, Sio's evidence in its IR responses was that there are many different methodologies that can be employed to assess environmental effects, and the EAP guidelines in Manitoba do not mandate that any particular methodology be used. And you'll see an excerpt from Sio's

1 IR response to that effect on this next slide. So, panel
2 there's no evidence that the methods described in these
3 two literature excerpts are required for assessments in
4 Manitoba, and there's also no evidence about whether these
5 excerpts do, or do not, reflect industry practice for
6 environmental assessments. With respect to the Noble
7 excerpt specifically, it discusses the concept of what are
8 called valued environmental components, or VECs, which are
9 specific areas to focus on in an environmental assessment,
10 recognizing that it is practically not possible to
11 individually assess every type of bug, bunny, every other
12 species, and environmental component, that could be found
13 in the project area and that may interact with the
14 project. Now, I believe my friend, Mr. Williams, may
15 attempt to argue that the Winnipeg Shale layer should have
16 been selected as a VEC for specific assessment in the EAP.
17 We'll know that for sure when we hear from his -- from
18 him, in his argument later today. But if he is planning
19 to argue that, I would observe first that Mr. Williams had
20 a number of environmental assessment practitioners
21 available for questioning over the past few weeks, and he
22 could have asked them if they agreed with that proposition
23 that the shale layer should have been selected as a VEC,
24 but he chose not to ask any of them that question.
25 Further, the Noble excerpt itself describes VEC selection

1 as being a matter of judgment and AECOM's choice of the
2 VECs does not create any legal deficiency in their
3 assessment. And perhaps most importantly, the evidence is
4 that the shale layer was specifically assessed in the
5 assessment, both in terms of its physical properties and
6 how that could affect the environment if the shale was
7 disturbed, and in terms of the shale layer's value for the
8 purposes of groundwater and separation of aquifers. So,
9 if that is what Mr. Williams plans to argue later today, I
10 don't see how treating the Winnipeg Shale layer as a VEC
11 or not makes any difference to the outcome of AECOM's
12 assessment, or the record before the CEC. Now, with
13 respect to the second literature excerpt that my friend
14 circulated, this was an article by Ehrlich and Ross
15 talking about the concept of significance in environmental
16 assessments. Now, this again relates to an issue about
17 methodology for environmental assessments. Again, there
18 are no prescribed methods for that in Manitoba. I will
19 note that some environmental assessment regimes in the
20 country specifically use this term "significance", others
21 do not. For example, under the former Federal
22 Environmental Assessment regime, under the *Canadian*
23 *Environmental Assessment Act* and *Canadian Environmental*
24 *Assessment Act 2012*, those regimes were based on the
25 significance criteria. That under the current *Impact*

1 *Assessment Act* -- we've replaced that previous legislation
2 -- it instead uses concepts of sustainability and the
3 public interest. Again, there are different ways of
4 assessing environmental effects. There is no evidence on
5 the record about whether AECOM did or did not follow the
6 approach in the Ehrlich and Ross paper. If they did
7 follow that approach, there's no evidence that they
8 applied that approach improperly or did not reach valid
9 conclusions in their assessment. And if they did not
10 follow that approach, there similarly is no evidence that
11 that creates any sort of deficiency in AECOM's work. So,
12 I do look forward to my friend's arguments about these
13 literature sources later today, but my view is that
14 neither document has any relevance to the panel's
15 determinations.

16

17 The next issue that I'd like to respond to,
18 and if you're keeping track, this is the second last, it
19 relates to concerns that at some point in time, maybe 100
20 years from now, maybe 1,000 years from now, the seals
21 around the wells that Sio is proposing to drill will fail,
22 and this will create thousands of open holes from the
23 surface down to the aquifers. Now, first of all, panel,
24 recognize this is pure speculation. There is no evidence
25 to actually support those claims. And as I've noted a few

1 times already this morning, you need to ground your
2 recommendations to the Minister based on the evidence
3 that's before you in this hearing. But further, based on
4 the evidence that is before you, we know that, first, Sio
5 is proposing to drill wells that are similar in nature to
6 conventional water wells. We know that there are already
7 many, many thousands of water wells across the province.
8 We know that Sio will employ sound industry practices to
9 drill, seal, and close the wells that meet or exceed the
10 requirements under the drilling regulations and the *Well*
11 *Standards Regulation*. And we also know that the details
12 of Sio's well sealing and monitoring will be contained in
13 its progressive well abandonment plan and its closure
14 plan, which will address, among other things, inspection
15 of the wells post extraction to ensure the long-term
16 integrity of the wells. Based on all of this, I submit
17 there is no evidence that the long-term risks associated
18 with the seals on Sio's wells will be any different than
19 other water wells in Manitoba.

20

21 And the last issue that I plan to discuss
22 this morning relates to the suggestions from several
23 parties over the last few weeks that the project's effects
24 on the subsurface will be irreversible, and that this
25 project is somehow unique because it will affect resources

1 in the vicinity of where people live. With all respect,
2 that's nonsense. While some people may not realize it,
3 there are different types of resource development
4 occurring all around most of us every day in society.
5 Things like gravel quarries, buried pipelines, meat
6 processing plants, all of those types of things are
7 happening all around us, and they all interact with the
8 groundwater and other environmental resources. Mr.
9 Samoiloff yesterday provided some specific examples of
10 mine projects that are right in the vicinity of
11 communities, including several in Manitoba. And I should
12 note, I thought that this was obvious, but any mine
13 project, by definition, will irreversibly change the
14 geology in the subsurface. That's also the reality for
15 many different types of natural resource developments.
16 Accepting this logic that we should not allow a project
17 like this to proceed because it will have irreversible
18 effects on subsurface geology, or because it will interact
19 with environmental resources that we share in society,
20 that would have significant consequences. It would mean
21 that we would effectively freeze our society in place as
22 it exists today and not allow any new industrial
23 developments. That will not allow us to progress as a
24 society. While these types of broader policy issues
25 arguably stray beyond the scope of the CEC's terms of

1 reference in this proceeding, that's effectively what many
2 of the opponents to this project are asking of you. And
3 if you're going to consider those arguments, you should
4 also consider that the purpose of this project is to
5 produce the raw materials for the technologies that our
6 society and our governments are banking on as being the
7 driver for future economic growth and a lower carbon or
8 net zero carbon economy. We need products like this to
9 achieve our society's goals. Without them, we will simply
10 be importing products from other parts of the world,
11 possibly at a greater overall environmental impact, and
12 forgoing all of the economic benefits of developing those
13 products here in Manitoba. That would not be in this
14 province's best interests or the country's.

15

16 So, panel, by way of conclusion, we ask
17 that you ground your recommendations to the Minister in
18 the science. That science shows that this project will be
19 carried out safely and without any negative effects on the
20 environment. The project has been reviewed and supported
21 by a large team of industry experts, many of whom are
22 independent of the consultants that prepared the EAP, and
23 those experts overwhelmingly support the level of work
24 that has been done for a project at this stage, and they
25 have not identified any material environmental effects.

1 You can and you should trust the experts and trust the
2 science. The science supports a positive recommendation
3 for this project and that's what we ask that you provide
4 to the Minister. So, thank you, Commissioners. Thank you
5 as well to the Secretary and all of the CEC staff that
6 have coordinated all of the logistics for this hearing
7 over the last few weeks. We all appreciate everyone's
8 hard work to have this hearing unfold the way that it --
9 that it did. So, with that, panel, that concludes my
10 argument subject to any questions that you may have of me.

11

12 THE CHAIRMAN: Chair, I'm going to
13 need a minute, please.

14

15 THE CHAIRMAN: Chair, thank you very
16 much, Mr. Duncanson. I believe we are done with your
17 evidence at this time. I have the Rural Municipality of
18 Springfield up next in a five-ish minute slot. Remind me,
19 I believe you have been previously sworn in, is that
20 correct? Yeah, so, you remain sworn in, sir.

21

22 MR. THERRIEN: My name is Patrick
23 Therrien. It's P-A-T-R-I-C-K, Therrien is T-H-E-R-R-I-E-
24 N. Thank you, panel, panel for allowing me these closing
25 remarks and I'll keep it to five minutes. I'll read

1 straight from my statement here and I'll start off
2 reiterating my name. My name is Patrick Therrien, Mayor
3 the Rural Municipality of Springfield. Again, thank you
4 for the opportunity to provide closing remarks this
5 morning on behalf of the RM of Springfield. The RM of
6 Springfield received its name due the presence of multiple
7 natural springs found within its borders -- surface water
8 bodies, rivers within the municipality -- within the
9 municipal borders -- sorry, boundaries are not capable of
10 meeting the regional domestic water demands. As such,
11 Springfield relies entirely on local groundwater resources
12 to meet all its domestic, commercial, and industrial water
13 needs, both private and public. The relative abundance of
14 groundwater and the high level of reliance on the
15 resources highlights the importance of the active
16 management and planning strategies within the RM of
17 Springfield. As part of an effort to ensure sustainable
18 and reliable groundwater for the -- for the municipality,
19 the municipality has undertaken several studies over the
20 last decades studying and analyzing the underlying
21 groundwater aquifers, their characteristics, and
22 properties, as well as studies and planning reports as
23 related to the development of Anola, Dugald, Oak Bank, and
24 its supplied water -- water supplies -- or municipal water
25 supplies, sorry. These reports are available publicly on

1 our municipal website.

2

3

4 The intent of my closing remarks are not to
5 provide any new evidence or new information to the panel.
6 However, they are intended to reiterate that the safety of
7 Springfield residents, including our valued water -- our
8 valuable water resources, is of the utmost importance to
9 Council. We have shown that access to sufficient, safe,
10 accessible water for personal and domestic uses is a
11 fundamental right of its -- of citizens that Council has
12 fought to protect, as evidenced by the multitude of the
13 groundwater studies undertaken. The position of the Rural
14 Municipality of Springfield remains the same, that all
15 questions and concerns raised about the mining process and
16 activity of Sio Silica must be addressed completely.
17 Without all concerns being addressed, the Rural
18 Municipality of Springfield will not consider supporting
19 any unproven operations that have the potential to affect
20 the environment, specifically the groundwater resources of
21 southern Manitoba, and their protection. Although the
22 hearings are coming to an end, the real work now begins
23 for the panel members. Being new in Council, I fully
24 understand the responsibility that now rests on your
25 shoulders. Our hope is that whatever decision the panel
makes, all parties will be held accountable for the

1 protection of the aquifer from any contamination. In
2 closing, I would like to sincerely thank the CEC panel
3 members, the CEC Secretary, hearing participants, and
4 presenters, that have come over for the last three weeks
5 to share their thoughts, concerns, and comments on this
6 very important matter signed off by myself. I would also
7 like to thank -- this is off -- that's the end of my
8 statement here, but I'd like to thank our -- our engineer,
9 Mark Prydun, for being here at every minute of the council
10 meetings from the morning until night. And as well as all
11 the councils -- or councillors who have been here, whole
12 and in part. Thank you very much for your time.

13

14 THE CHAIRMAN: Chair, thank you very
15 much. MSSAC.

16

17 MS. BORYSKAVICH: Thank you, Mr. Chair,
18 panel members. My name is Krista Boryskavich and I'm here
19 this morning representing MSSAC. So, at the outset of
20 this hearing, in my opening statement, I provided MSSAC's
21 position with respect to this licence application as it
22 existed at that time, namely, that given the shortcomings
23 in the information provided to date, the applicant had not
24 met its obligation to demonstrate that the project has
25 minimal environmental or health safety risks, or that such

1 risks are adequately addressed through long-term
2 monitoring and response plans. For reasons that I will
3 address throughout my argument, the position of MSSAC has
4 not changed over the course of this hearing. As a result,
5 MSSAC submits that it would be premature to recommend
6 approval of a licence at this time.

7
8 Now, my friend, Mr. Duncanson, has taken
9 the committee through its mandate. I won't repeat much of
10 what he said, but I do want to discuss your mandate for a
11 moment. It has been stated by Mr. Duncanson today that
12 the applicant has met its obligations here by submitting
13 what was required of them under the provincial EAP
14 guidelines. According to the applicant, they've checked
15 off all the boxes. Now, MSSAC has no reason to doubt that
16 the list of documents required to be submitted through the
17 EAP process have, in fact, been submitted. But Mr. Chair,
18 panel members, if all that was required of us today was to
19 ensure that the documents set out in the EAP guidelines
20 were submitted by the applicant, we wouldn't need your
21 expertise and we wouldn't need this hearing. All that
22 we'd need would be a clerk sitting in an office with a
23 checklist and a pen. This panel was given a mandate by
24 the then Minister. Mr. Duncanson went through it. I'm
25 going to quote here from the Minister's letter of November

1 15th, 2021, and this is on Page 2 of the terms of
2 reference attachment, "A mandate to conduct a technical
3 review of the *Environment Act* proposal and the
4 hydrogeology and geochemistry assessment reports and
5 provide advice and recommendations to the Minister
6 regarding potential environmental and health effects of
7 the project." So, this is the panel's legislative rule.
8 And in performing that legislative role, the content of
9 the reports that support the EAP are significant. It is
10 critical that these reports are fulsome enough that the
11 panel is able to adequately consider the environmental and
12 health effects of the project, and whether those risks
13 have been adequately mitigated. But Mr. Chairman, panel
14 members, in performing this rule, you are also public
15 servants. I'd like to remind you of the testimony of
16 Mayor Poirier in this hearing, where he stated that his
17 role is as 'Custodian of the RM of Tache' and that
18 decisions are taken with his successors in mind, what
19 we're going to leave to them. I suggest to you that this
20 panel, when considering recommendations with respect to
21 the environmental and health effects of this project, has
22 a similar role to play as custodian for the ratepayers
23 within these impacted municipalities and the generations
24 to follow.

25

1 So, let's move on now to the meat and
2 potatoes of this panel's mandate and of my argument today,
3 the environmental and health effects of the project.
4 While the majority of my submission will focus on
5 geotechnical issues, the municipalities that make up MSSAC
6 have additional concerns that have not, as yet, been
7 adequately addressed, and I will cover those, as well.
8 We've heard a great deal of testimony over the past couple
9 of weeks, but I would suggest to you that even more
10 significant, however, is what we haven't heard. The CEC
11 experts and the participant experts raised questions and
12 concerns with respect to key issues surrounding modelling
13 and -- and field testing done to date, as well as key
14 assumptions made in the course of that testing. It is
15 MSSAC's submission that these questions and concerns have
16 not been adequately addressed by the applicant throughout
17 the course of this hearing, and as a result, the unknowns
18 associated with those deficiencies impairs the ability of
19 this panel to conduct a comprehensive review of the
20 environmental and health effects of the project and make
21 meaningful recommendations in that regard to the Minister.
22 I'm going to highlight merely some of these deficiencies
23 and the associated unknowns for the panel. So, firstly,
24 as Mr. Mann testified, the geotechnical analyses are
25 missing the evaluation of a failure mode that includes

1 natural vertical jointing of the supporting carbonate
2 bedrock strata. Mr. Mann further testified that it is
3 well known -- well known and pervasive that all carbonate
4 bedrock in Manitoba has some vertical jointing. Aside
5 from not including vertical jointing in the geotechnical
6 models in some of the sketches shown, it is Mr. Mann's
7 testimony that the applicant has not represented it
8 properly. It is not jointing that exhibits a running bond
9 pattern. It is pervasive, with depth across horizontal
10 bedding plane partings as continuous discontinuities, and
11 in places, is often enhanced by karst processes that
12 occurred in geologic history. As Mr. Mann testified, a
13 review of the geologic processes that created disjointing
14 makes this clear. In addition, vertical joint spacing of
15 metres to tens of metres may result in blocks of carbonate
16 rock exposed in the 50-metre roof (ph) span of void spaces
17 that are then potentially subject to collapse by gravity.
18 Now, the applicant has committed to drilling of angled
19 boreholes to resolve this admitted gap in the data and
20 analyses, but that commitment is to occur in the future.
21 We don't have that information before the panel today.
22 So, what is also important is that that data collection
23 program is sufficient to answer this question and that the
24 data collected is applied to check or advise the
25 geotechnical modelling.

1
2 Secondly, throughout the course of the
3 expert presentations, there was much discussion on the 65-
4 degree sand slope and the application of the sand slope
5 geometry in the long term. We heard that vertical to
6 overhanging sand is imaged in the sonar data within the
7 upper portions of test well void spaces. Significant
8 voids of variable geometry were created by single well
9 extraction tests, which are direct indicators of
10 variability in sand formations, segmentation, and cohesion
11 vertically and horizontally. (inaudible) tests, as formed
12 in a well-rounded, uniformed, well packed, consolidated,
13 and confined sand formation of hard silica may re-fuse in
14 situ, even in unconsolidated, uncemented, and flowable
15 silica sand because it is packed and confined in situ.
16 These refusals were interpreted as consistent segmentation
17 of the sand unit, but according to Mr. Mann's testimony,
18 it is unclear if this is, in fact, correct. No other
19 means or methods for sampling and in situ testing of the
20 sand were attempted. As such, it is unclear if the
21 cementation state or cohesion of the sand is consistent
22 from top to bottom of the formation, and whether the
23 interpretation of an effective 65-degree slope geometry is
24 valid in the long term. What is clear, according to Mr.
25 Mann's testimony, is that single well extraction tests can

1 create large and variable void space geometries, which
2 indicate variably cemented and flowable states of the
3 sand. Further to this, we also heard that sonar
4 approaches and imaging void spaces are blind to the lower
5 void space, either due to loose sand slough, turbid
6 waters, or a combination thereof. Mr. Mann testified
7 that, depending on exactly the configuration of the tool
8 and equipment used, the upward looking portion of the scan
9 may also be partially blind to imaging the crown of the
10 void spaces as well. And finally, in the applicant's
11 rebuttal arguments, we heard that a strain weakening model
12 was applied to the sand, resulting in a case where the
13 cohesion is in fact assumed to be zero over time. One
14 could infer then that the sand with zero cohesion, would
15 settle to its angle of repose, or approximately 31 degrees
16 or actually less, in a saturated environment. However,
17 none of the applicant's imagery, presentations, or
18 analyses seem to show this case as part of the assessment.
19 Again, more information that we do not have. It is
20 unclear on how the strain weakening model was applied and
21 it is unclear why nearly all the analysis, graphics and
22 sketches show an assumed 65-degree sand slope. In the
23 Geotechnical Supplemental Information submission, the
24 model graphic clearly indicates a 65-degree sand slope as
25 the extent of long-term failure of wall. This is

1 contradictory to the comment regarding the strain
2 weakening model and long-term zero cohesion we heard in
3 the rebuttal arguments.

4
5 I do want to make a brief comment with
6 respect to groundwater. The applicant presented a
7 detailed groundwater model that was designed to resolve
8 the local scale impacts of the applicant's operations.
9 MSSAC agreed with the conclusions contained in the review
10 of Drs. Woodbury and Hollander, and the additional review
11 by Mr. Boutin of Matrix Solutions, with respect to
12 groundwater modelling. When asked in cross-examination,
13 if by not asking questions, Mr. Mann accepted the
14 applicant's model, the context above was given, along with
15 ongoing concerns, a verification in the modelling process
16 to date. In addition, because the applicant argues that
17 there would be little to no vertical exchange of waters
18 between the aquifer systems, and because to date these
19 inferences have not been clearly calculated other than a
20 semi-quantitative analysis of mixing proportions of
21 aquifer groundwaters, it was requested by MSSAC that the
22 vertical gradients and Fluxus modelled with loss of the
23 shale aquitard be reported from the model, if it is able
24 to resolve this. It is unclear to us whether the
25 applicant has committed to do so.

1
2 And finally, this flexor exchange of
3 groundwater vertically is a critical piece of information
4 to assess the impacts of the project. The applicant
5 states that the vertical gradients are currently small to
6 neutral and that they will equilibrate. With
7 equilibration of vertical gradients, there will be
8 vertical exchanges of groundwater until the gradients
9 become neutral. With these exchanges, with the loss of
10 the shale aquitard due to the applicant's operations, this
11 exchange in the long term is irreversible, and what are
12 now two aquifer systems, will become one. This was
13 highlighted by the CEC's own technical expert with respect
14 to hydrogeological issues, Dr. Hollander, who identified
15 in his presentation three key issues that had not been
16 addressed by the applicant, namely, the fact that there
17 are no observations of the vertical hydraulic properties
18 of the Winnipeg Shale in the proposed mining area, the
19 question of what will happen to the aquitards, aquifers,
20 and the material properties after mining activities, and
21 the question of whether water of poor quality will be
22 drawn into zones that are currently good quality. Dr.
23 Hollander was asked in cross-examination to explain the
24 significance of this missing information and why it is
25 important to have those matters addressed. In his

1 response, he identified three areas of concern. Firstly,
2 that although interconnectivity between the two aquifers
3 currently exists through -- and the number varies
4 depending on which expert you -- you hear from, 500 to
5 1,000 existing wells, the additional changes to
6 groundwater quality brought on by mining operations has
7 not been identified or discussed. Secondly, that the
8 impacts of a collapse of the limestone aquifer on
9 connectivity were not considered. And thirdly, the trace
10 metals were not widely considered and could have an impact
11 on water quality. So, Mr. Chair, panel members, given the
12 significance of the aquifers as a drinking water source
13 for MSSAC members and the ratepayers they represent, based
14 on the deficiencies highlighted in our submission, MSSAC's
15 position with respect to this application, as I stated at
16 the outset, is that it is premature, and we submit that
17 the panel should recommend to the Minister that the
18 licence application be denied at this time. That said,
19 MSSAC understands that we are not the decision maker and
20 that you, as the panel, may take a different view. So,
21 Mr. Chair, panel members, MSSAC submits that should you
22 decide to recommend approval of a licence, and I want to
23 be clear that that is not our first position, but should
24 you choose to go down that path, it is critical that any
25 such approval is given subject to conditions that protect

1 municipalities and their ratepayer from risks associated
2 with the project, and ensure that a robust monitoring
3 system is in place throughout the project's lifespan.

4
5 In this regard, one item that is important
6 to consider is that the licence application before you is
7 for the first four years of a 24-year project. Now the
8 application -- the applicant, in its permitting
9 presentation, provided various reasons for this, including
10 the ability to adapt based on information gathered during
11 that first four year period. In addition, in its response
12 to questions posed by MSSAC, the applicant confirmed that
13 it is its intention to proceed beyond that first four year
14 period by applying for alterations to any existing
15 licence, as opposed to applying for a new licence. And
16 there is significant to -- significance to that for MSSAC
17 members. First, since this licence application was only
18 for the first four years, studies and testing that has
19 taken place to date has only been done in the context of
20 the project area to be developed within that first four-
21 year period. However, as we know, the applicant has
22 mining claims throughout southeastern Manitoba, which
23 could potentially be the subject of any application for
24 alteration over the next 24 years. And for, quite simply,
25 we don't know what we don't know. Environmental and

1 health impacts of this project beyond the first four years
2 have not been considered in the submissions to you in this
3 hearing. Second, an application for alteration is not
4 guaranteed to have a requirement for a new public hearing
5 or public input. So, as the panel, I'm sure is aware, the
6 *Environment Act* allows for minor or major alterations,
7 only the latter of which has the requirement for a public
8 hearing in the event that an objection is made. The
9 determination as to whether an alteration is considered
10 minor or major is made by the provincial government, with
11 no input from impacted stakeholders such as municipal
12 governments. As a result, based on what we know at the
13 moment, this may be MSSAC's one chance over the next 24
14 years to put our concerns forward. Given this, it is
15 MSSAC's submission that should this panel decide to
16 recommend approval of a licence for the first four years
17 of operations, it should be a condition that any
18 subsequent approvals require a new licence application
19 with a public hearing, rather than proceeding by way of
20 alteration.

21

22 Now, I want to move on to discuss long-term
23 monitoring and response. In their permitting
24 presentation, the applicant committed to provide a host of
25 monitoring and management plans. They're listed on one of

1 the slides, I believe it's Slide 29 of the permitting
2 presentation, but for the record, I will provide them
3 here. They've committed to provide a trigger action
4 response plan, waste characterization and management plan,
5 water management plan, progressive well abandonment plan,
6 groundwater monitoring and impact mitigation plan, erosion
7 and sediment control plan, environmental emergency
8 response plan, revegetation monitoring program, heritage
9 resources protection plan, noise mitigation plan, and
10 enclosure plan. MSSAC agrees that those plans are a
11 critical component of any licence approval. Not only is
12 it critical that these plans are -- are prepared and
13 provided, but it's critical that these plans are robust in
14 order to ensure that risks can be adequately anticipated
15 and mitigated on a timely basis. And I want to make
16 comment on certain of -- of the plans that I have just
17 listed, and specifically as stated in Mr. Mann's
18 presentation on behalf of MSSAC, with respect to the
19 trigger action response plan, it's important that it
20 include the means and methods to restabilize the
21 underground void spaces should subsidence or settlements
22 occur that are beyond the allowable threshold, set out the
23 geotechnical analyses. With respect to the groundwater
24 monitoring and mitigation plan, it's MSSAC's position that
25 it is critical that this plan include a third-party well

1 inventory, baseline water quality, and water level data,
2 trigger levels for quality and quantity that reflect
3 ongoing variability, and 24/7, 365 third-party water
4 supply response plan and support, including potable water
5 delivery, well replacements, et cetera, as issues come up.
6 In addition, we would submit that it's critical that this
7 plan include a commitment to long-term post-project
8 monitoring and sampling that is consistent with the scale
9 and breadth of the proposed project. With respect to the
10 progressive well abandonment plan, we submit that it must
11 address possible formation to well casing integrity that
12 may change with loss of strata in the roof of the void
13 spaces. And finally, with respect to the waste
14 characterization and management plan, we submit that this
15 plan must require use of engineered containment and
16 segregation and separate disposal of the shale.

17

18 Now, Mr. Duncanson spoke to Mr. Mann's
19 presentation with respect to timing of these plans. What
20 MSSAC submits to you today is that it's critical that
21 these plans be required from the applicant as a condition
22 of a licence, should you decide to recommend approval, and
23 that the development and approval of these plans must
24 occur prior to the commencement of operations. Further,
25 it is MSSAC's position that stakeholders, such as the

1 municipalities that make up MSSAC, must have an ongoing
2 role to play in the development and approval of these
3 monitoring plans. We appreciate that the applicant
4 committed in their testimony to ensure continued
5 communication with municipalities, and that they committed
6 to provide all monitoring plans to impacted municipalities
7 for their review. However, and Mr. Mann discussed this at
8 length in his testimony, there is a difference between
9 providing something for information and review, and having
10 a stakeholder that is fully engaged in the process. It's
11 critical that the role of stakeholders, such as MSSAC, is
12 not limited nearly to receipt of information, but genuine
13 engagement that allows for a meaningful input and a role
14 in the approval process of these plans. Stakeholders have
15 to understand all of the governing, monitoring, and
16 mitigation plans, have a role in their development, and
17 share a mutual understanding with the applicant in respect
18 to what these plans are and what they need. So, in terms
19 of the recommendation, MSSAC submits that a condition of a
20 licence should be the formation of a stakeholder
21 monitoring committee, similar to that, that was required
22 in the licence approval for the Floodway project, and that
23 MSSAC be appointed to serve on such committee. The
24 reporting structure must include ongoing stakeholder
25 reviews with built-in transparency. And finally, it is

1 critical that this committee be tasked with the long-term
2 commitment to stewardship of the project, to ensure that
3 as best as practicable, and within the realm of monitoring
4 mitigation plans, risk and uncertainty are managed,
5 because as our friend Mr. Duncanson stated in his
6 presentation, risk and uncertainty will exist. So, how
7 best to manage them and how best to protect our
8 environment and groundwater?

9

10 So, before I conclude, Mr. Chair, panel
11 members, I want to highlight one further issue raised by
12 Mayor Poirier in his testimony, namely municipal concerns
13 surrounding the project's potential impact on municipal
14 infrastructure and services. And again, I'm going to
15 bring you back to we don't know what we don't know.
16 Because this is an application for the first four years,
17 we don't know what impacts there may be on municipal
18 services and infrastructure within the initial four-year
19 project area, or down the road. And it is critical that
20 municipal ratepayers not be burdened with additional costs
21 to support this private sector project in the event that
22 there are unforeseen impacts on municipal services and
23 infrastructure. So, as a result, MSSAC submits that a
24 licence condition must be that the applicant be
25 financially responsible for the impacts of the project on

1 municipal services and infrastructure.

2
3 I'm going to conclude by summarizing our
4 recommendations, and I know that it's a lot, I've seen you
5 all writing frantically, we will be including these
6 recommendations in written form in the brief that we'll be
7 providing to the panel. But to summarize for today, in
8 conclusion, MSSAC submits as follows. Firstly, that the
9 applicant has not sufficiently demonstrated that the
10 project has minimal environmental or health safety risks,
11 or that such risks are adequately addressed through long-
12 term monitoring and response plans, and as a result, this
13 panel should recommend that the licence application not be
14 approved at this time. However, should the panel
15 determine that a recommendation approving the licence
16 application is warranted, your recommendations should
17 include the following as conditions of issuing the
18 licence. First, a requirement for future applications to
19 be done by way of new licence applications that include a
20 public hearing process, rather than through the alteration
21 process. A requirement that the plans that are listed
22 above, that have been committed to by the applicant, in
23 terms of monitoring and response, be developed and
24 approved prior to commencement of operations. Specific
25 requirements with respect to the content of the TARP plan,

1 the groundwater mitigation and monitoring plan, the
2 progressive well abandonment plan, and the waste
3 characterization and management plan, as I highlighted
4 previously in my presentation, and I'm not going to repeat
5 it all for you now. A requirement that the stakeholder
6 monitoring committee be established to participate in the
7 development and approval of monitoring plans and long-term
8 monitoring the project, and that MSSAC be appointed to
9 serve as a stakeholder on this committee. And finally, a
10 requirement that the applicant be financially responsible
11 for the impacts of the project on municipal services and
12 infrastructure, and that, if the applicant and the
13 municipality cannot agree on the effects, then the
14 stakeholder monitoring committee be authorized to
15 determine any financial compensation.

16

17 So, thank you very much for your time and
18 attention this morning. Subject to any questions, that
19 concludes my argument.

20

21 THE CHAIRMAN: Thank you very much,
22 Ms. Boryskavich. Commissioner Johnson?

23

24 COMMISSIONER JOHNSON: Excuse me.
25 Commissioner Terry Johnson speaking. I'm intrigued by the

1 idea of a -- an advisory committee. Could you give me
2 some sense of the breadth of that committee and whether
3 it's the intention of this committee to have their hand
4 fully on the tiller, or how many hands will be on the
5 tiller, as to guide this project?

6
7 MS. BORYSKAVICH: So, thank you. Krista
8 Boryskavich. Thank you for that question. The model that
9 we're looking at is something similar to what was done
10 during the flood -- the Floodway project. The licence
11 approval in that instance allowed the applicant in that
12 case to determine the makeup and composition of the
13 committee. So, that's something that could be considered
14 here, as well. What is critical to us is that MSSAC is a
15 member of that committee so that we can have ongoing
16 participation and input with respect to issues that arise
17 on the municipal level, especially, as the project
18 proceeds, and we may be moving into different areas with
19 different -- different considerations. What we're looking
20 for is engagement in the development and the approval of
21 those monitoring and response plans that I had identified
22 previously, and I think -- I'm sorry, you had asked about
23 the -- can you just reiterate?

24

25 COMMISSIONER JOHNSON: The composition of

1 the committee, and then by way of another sub question,
2 if, in fact, at the end of the day there is a butting of
3 heads over an operational issue, you say that there must
4 be a -- some sort of a tribunal crafted that would
5 adjudicate and provide recommendations. How would you
6 envision that working?
7

8 MS. BORYSKAVICH: Thank you. Krista
9 Boryskavich. So, just to be clear, that -- that was
10 limited to one issue -- one issue between the parties, and
11 namely, that's any butting heads over effects on municipal
12 infrastructure and services. It wouldn't be the intention
13 that this committee, or that MSSAC, would be involved in
14 operational issues or the day-to-day operations of the
15 project. Certainly, that -- that would be overreaching.
16 However, in terms of the development and approval of the
17 monitoring plans, this is something that is critical to
18 give municipalities that confidence that, in the event
19 that a critical event occurs, there are adequate measures
20 in place to address that. So, I -- I don't want to leave
21 you with the impression that this is about day-to-day
22 operations in any way, shape or form, that's not what
23 we're looking for.

24

25 COMMISSIONER JOHNSON: Thank you for your

1 answer.

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THE CHAIRMAN: Chair. We're going to
pause for one or two minutes, and I'll come back to you.

THE CHAIRMAN: Chair. Thank you for
your patience. It is 12:38. We are adjourned for lunch.
I believe I had consensus on a 30-minute lunch break, so
we are back at 1:08.

(OFF RECORD: 12:38 P.M.)

(ON RECORD: 01:08 P.M.)

THE CHAIRMAN: Chair. So, we'll
start in one or two minutes. It is 1:07, and 1:08 is
supposed to be the magic commencement time.

THE CHAIRMAN: Chair. Mr. Secretary,
are we good to go, or are we still handing out ---

UNIDENTIFIED SPEAKER: (inaudible).

THE CHAIRMAN: Chair. Mr. Williams,
Mr. Klassen, I believe you're on deck.

1 MR. WILLIAMS: Good afternoon,
2 members of the panel. Byron Williams, obviously appearing
3 on behalf of the Manitoba Eco-Network and Our Line in the
4 Sand, with our -- my colleague Mr. Klassen. And I'll note
5 that members of the Eco-Network and Our Line in the Sand
6 are interspersed throughout the audience and we -- we want
7 to thank them for their diligence and -- and their
8 guidance in this proceeding. As well as to thank the
9 Commission for its efforts in -- in leading a thoughtful
10 and fair deliberative process that provided opportunity
11 for the public to be heard.

12
13 Just for the panel's information, you
14 should have two documents that our clients are supplying
15 is closing argument. One is a handsome legal brief
16 prepared primarily by my learned friend, Mr. Klassen.
17 That you can read at your leisure for your enjoyment and
18 pleasure, perhaps this evening, or you know, early in the
19 morning. That's when I try to read these documents. We
20 will be making brief reference to it in our submissions,
21 but the -- the holistic approach to statutory
22 interpretation our client takes is set out there. More
23 for today is our PowerPoint titled "Irreversible Harm at
24 an Industrial Scale, the Impoverished Project Assessment
25 of Sio Silica". And in essence, that's our closing

1 submission on that one slide and we'll certainly take you
2 through our argument, but our client is deeply concerned
3 about the reality, as well as the risk of irreparable
4 harm, and at an unparalleled intensity -- and we'll get to
5 that, that's what we mean by industrial scale. And our
6 client is also deeply concerned about the project
7 assessment undertaken by Sio Silica, which doesn't answer
8 the hard questions in our client's submission, which
9 doesn't fulfill the spirit and intent of the *Environment*
10 *Act* that we're all here to see cannot be managed away. At
11 Item 9, we will be making the argument that this -- in
12 quality of life, because we hear the birds, we can enjoy
13 the Seine River, we can go cycling on our roads, and we
14 thought there was such an eloquent expression of what our
15 clients have observed and lived in terms of the importance
16 of this region to them. Going to the third quote, Mr.
17 Gawluk has been at this hearing, I think, pretty much
18 every day, and he makes the important principal point, 'I
19 have clean water now, I'd like to keep clean water forever
20 as would everyone else', and he's really getting, in our
21 view, to the heart of this issue. The Muster family was
22 owed in full -- full force, it -- it sounds like, on March
23 11th in Anola, and on the fourth quote, we see one of the
24 Musters making the point, 'If there is any risk regarding
25 our most precious commodity being water, it is no risk

1 that should ever be taken.' And commenting on how they
2 lived in a beautiful forest but now the forest behind
3 them is gone, that they didn't choose to live in and
4 industrial park. And finally, the last quote on that page
5 is -- is 'I don't need your sand, but I do need my water.'
6 And in our clients' respectful submission, a lesson from
7 those community meetings is that Sio Silica has failed to
8 win the confidence of the community.

9

10 Slide five and six focus on the "Southeast
11 Regional Groundwater Management Plan", and this is such a
12 foundational document. And on the first quote on this
13 page, you see that, "Groundwater is the primary source of
14 drinking water and is the region's most essential natural
15 resource." Now, this management plan was developed after
16 an extensive consultation process, exhaustive process,
17 over the course of a number of years. And if you see on
18 the second quote on this page, it was in response to
19 concerns that development pressures on the regime had
20 grown to a point where a -- point where a lot of long-term
21 groundwater management plan was desired and required. And
22 on the third quote, you see the community expressing
23 concern way back in 2010. There's a concern that we may
24 be gradually approaching our sustainable development
25 capacity for these aquifers, and also concerns about the

1 saline -- potential for saline intrusion. And if you
2 direct your mind back to Matrix' evidence, on or about
3 March 8th of 2023, this statement here on Page 5 is where
4 Mr. Boutin, on behalf of Matrix, really developed his
5 insight in terms of what the community's priorities were.
6 "Grappling with the pace of development, grappling with
7 the extraordinary growth this region has experienced,
8 wanting to preserve the quality and quantity, the
9 sustainability of its water." Slide 6, again, has some
10 important citations from that groundwater management plan.
11 In that first quote on the top of that page, you see the
12 community grappling with significant growth, "second
13 highest region of the province in terms of growth and
14 projected to be the second highest region out into the
15 mid-20s and worrying about the long term sustainability of
16 the aquifer." And telling us in its groundwater
17 management plan, that, "The approach to sustainable yield
18 and water use limits needs to be continuous, integrated,
19 and comprehensive." The so-what of this slide and of this
20 discussion is the bottom of Page 6. Sio Silica's
21 assessment of its proposed extraction project totally
22 ignored the Southeast Regional Groundwater Management
23 plan. You won't find a reference to it in the
24 environmental -- in the EAP. You won't find a reference
25 to it in the information responses. You won't have heard

1 a reference to it in the oral evidence of Sio Silica in
2 this hearing -- heavily upon the resource for potable
3 water. And he's saying to them in the second quote on
4 this page, "There's this existing groundwater management
5 plan. They spent years defining what is the area of
6 interest, building trust with the population and
7 stakeholders, and you need to make the effort of
8 considering what was done in the past in order to move
9 forward in the future." But this was not done. Trust,
10 community trust, does not come from advertising campaigns.
11 Spend as much as you want on the free press, and on the
12 radio, and elsewhere. That's not how you build trust.
13 You build trust through respectful listening and
14 thoughtful analysis and paying attention to the
15 community's priorities.

16
17 In the next few slides, we're going to go
18 through statutory and policy guidance that, in our view,
19 the Clean Environment Commission can, and should, take
20 into account in addressing -- in addressing the terms of
21 reference and providing its ultimate report to the
22 Minister. On Slide 8, we talk about, of course, the fact
23 that water is central to the well-being of our natural
24 environment, our families, and our communities. That
25 comes from the Government of Manitoba. It's "Manitoba

1 Water Management Strategy" from November of 2022. The
2 second quotation on this page, which took it from the
3 *Water Protection Act*, you could take it from a number of
4 statutory provisions, but it highlighted how, "An abundant
5 supply of high quality water is essential to sustain all
6 ecological processes, life support systems, and food
7 production, and is paramount -- paramount to the
8 environmental, economic and social well-being of
9 Manitoba." And we'll come back to this quote when we get
10 to the discussion of this shale aquitard as a VEC, much
11 later in this presentation.

12

13 Slide 9, and frankly, we were quite
14 surprised in the proponent's submissions this morning that
15 they didn't cite and walk through the *Mines and Minerals*
16 *Act*. On Slides 9 and 10, we provide some important
17 citations from this Act, which is directly relevant to
18 your considerations. This is indeed a mining project.
19 Section 2-1 of the *Mines and Minerals Act* reminds us that,
20 "Mining activities and the important promotion of these
21 activities must be consistent with the principles of
22 sustainable development." And lest, you're wondering what
23 all the principles of sustainable development is outlined
24 under this statute, those are set out at Section 2, Sub 2,
25 and we've shared them with -- with you. [Section] 2, Sub

1 2, Sub B, so, that's the second last quote on that page
2 reminds us that, "Government and industry, in their
3 respective policies and practice, have to acknowledge
4 their -- their stewardship, obligations and to preserve
5 the environment for the benefit of present and future
6 generations." The last -- the last citation on this Page
7 2, Sub 2C, is really important for this proceeding, and it
8 reminds us that, "The responsibility for sustaining a
9 sound and healthy environment, along with developing a
10 healthy mining industry, is a responsibility that is
11 shared by government, by industry, and with community."
12 So, when the proponent tells you, ignore the Southeast
13 Regional Groundwater Management Plan, not my department,
14 that is directly contradictory to the fundamental
15 principles of sustainable development in this province and
16 is set out in the *Mining Act*.

17

18 Slide 10, we were also surprised by the --
19 the proponent this morning seeming to wonder about the
20 relevance of significance and significant effects when we
21 look at environmental issues under your terms of
22 reference. Section 2, Sub 2, Sub D makes it clear that
23 what we're doing under the Mining Act is, "Being alive for
24 significant adverse effects." Significant is not just a
25 throwaway word. That is a word of resonance and -- and

1 incredible insight. And later on, we'll direct you to my
2 cross-examination of Arcadis at Pages 50 to 53 of that
3 transcript, when we give insight into what significance
4 means as a generally accepted term. The takeaway from the
5 *Mines and Minerals Act*, at the bottom of Slide 10, is that
6 "Sustainable development is a shared responsibility of
7 government, industry and community."
8

9 On Slide 11, we go through the guidance on
10 sustainability from the *Environment Act*, and again, it was
11 surprising to our client that this provision was not
12 brought to your attention by the proponent. Section 1 Sub
13 1 is the heart of the *Environment Act*. It tells us what
14 its intent and purpose is. The purpose of this Act "-- is
15 to maintain an environmental protection management system,
16 which will ensure that the environment is protected and
17 maintained to sustain that high quality of life" that
18 Mayor Poirier was talking about, including social and
19 economic development, for this and future generations.
20 Again, a sustainability objective moving forward. And
21 importantly, at 1 Sub 1 it tells us, "This Act is
22 complementary to and support for existing and future
23 provincial planning and policy mechanisms." It's not to
24 be read in isolation. It's to be read holistically,
25 including holistically, with other planning documents like

1 the "Southeast Regional Ground Groundwater Management
2 Plan". [Section] 1 Sub 1B, "It is to provide for the
3 environmental assessment of projects which are likely to
4 have --", there's that word again, significant effects --
5 "And provides for the recognition and utilization of
6 existing effective review processes that adequately
7 address environmental issues." Our learned friend, on
8 behalf of the municipalities earlier today, highlighted
9 that this is not a checklist exercise, a checkbox
10 exercise, it is a substantive one, and the takeaway from
11 your review of the *Environment Act* is that the statutory
12 mandate is to ensure the environment is protected and
13 maintained. And in -- given that responsibility, it is
14 incumbent upon the Clean Environment Commission to utilize
15 effective review processes that adequately address
16 environmental issues in a manner that complements and
17 supports existing provincial planning mechanisms.
18 "Guidelines are not law" is also an important point. Your
19 overarching responsibility is to fulfilling (sic) the
20 statutory mandate. And before we leave this -- this page,
21 you heard a bit of 'Oh, woe is me' from the proponent this
22 morning. How dare people bring forward issues like
23 cumulative effects assessment, prior Clean Environment
24 Commission guidelines, heaven forbid, the "Southeast
25 Regional Groundwater Management Plan". The proponent, any

1 opponent is obliged and expected to do more than just read
2 the checklist -- just read the guidelines. You have to
3 read that -- those guidelines holistically in accordance
4 with the spirit and intent of the statutory scheme. You
5 can't say we weren't warned. It is a proponent's job, any
6 proponent's job, to understand what the legislation is
7 seeking to do. 'We weren't told' is not satisfactory.

8
9 Slide 12 shares guidance and insight from
10 "Manitoba's Water Management Strategy." Again, this is a
11 crucial document, we certainly -- our clients think it's
12 important that Manitoba brought it forward. They may take
13 some issues with it, but it is an important guiding
14 document -- current as of November of 2022. And again, it
15 reminds us of the importance of the principles of
16 sustainable development. We saw that in the *Mining Act*.
17 We saw that in the preamble or the -- the Section 1 Sub
18 1of the *Environment Act* and again, our Water Management
19 Strategy says that again, it's about, "Meeting the needs
20 of the present without compromising the ability of future
21 generations to meet their own needs." And think back
22 again to the evidence of Matrix, to Mr. Boutin, because
23 that was the balancing act that he was striving to bring
24 to the -- the CEC's attention. It's about today, but it's
25 about those future generations and the significant risk

1 that this project is bringing to -- to future generations,
2 primarily through the -- or at least significantly through
3 the collapse of the shale aquitard and of the creation of
4 preferential pathways through the limestone.
5 Interestingly, the Manitoba water strategy again
6 highlights the importance of cumulative effects when we're
7 thinking about water. What does it talk about? It talks
8 about "Changes to the environment, positive or negative,
9 direct and indirect, long-term and short-term, that are
10 caused by an action in combination with other past,
11 present, and reasonably foreseeable human actions." It
12 tells us that, "Each individual impact may not be
13 significant if taken in isolation but can be significant
14 when considered as a whole." How could one ignore
15 cumulative impacts? Our submission that this document
16 reminds us is, if we needed one after 40 years of learning
17 this, that a sustained -- sustainable approach to
18 development must consider cumulative effects. But of
19 course, the proponent considers cumulative effects to be
20 irrelevant -- irrelevant for the purposes of this
21 assessment.

22

23 At Slide 13, we share guidance, prior
24 guidance, by this expert tribunal about impact assessment.
25 This is the Clean Environment Commission in other hearings

1 -- "Given the purposes of the act, given that we're doing
2 impact assessment, given that we're looking for
3 significant adverse effects." What do we have to address?
4 This is the Clean Environment Commission grappling with
5 its own mandate, and what has it told us repeatedly --
6 exhaustively? "Cumulative effects" -- first bullet, "--
7 are important because significant environmental effects
8 may result not from the direct effects of a particular
9 project, but from the combination of effects of multiple
10 projects over an extended period of time." Secondly on
11 that page, "Environmental impact assessments --", plain
12 old environmental impact assessments, just like this one,
13 "-- consider the impacts of an individual project or
14 activity, but in order to be done well, they must also
15 include an assessment of cumulative effects." Third
16 quote, "The cumulative effects assessment should be the
17 most important section of an environmental assessment
18 report." And finally on the fourth quote, "We have to
19 consider --" going to the underlying portion at the end of
20 that lengthy quote, "-- the distinct possibility that two
21 projects in the same vicinity, one ahead of the other, in
22 sequence, they each have undetectable impacts by
23 themselves, but horrific impacts together." This is the
24 Clean Environment Commission focusing on its statutory
25 mandate, focusing on what impact assessment, what looking

1 for significant effects, is all about. This is the Clean
2 Environment Commission highlighting that if you're going
3 to do an effects assessment, by necessary implication, you
4 have to consider direct effects, as well as cumulative
5 effects, and that those cumulative effects could be the
6 first four years of a mine project and the next 20, it
7 could be other foreseeable effects within the region.

8
9 Before you start looking for the source of
10 the profound words on Slide 14, these are from our legal
11 brief, and we think you should give them the weight they
12 deserve. We also think you should give it a lot of
13 weight, but this when you're looking for -- we're not
14 quoting the Clean Environment Commission on Slide 14, this
15 is our interpretation of your statutory responsibility.
16 "We want to start by recognizing that the Clean
17 Environment Commission holds a specific and important
18 position in the environmental protection and management
19 system created by the *Environment Act*. And we suggest to
20 you, and we -- we argue strenuously, that read in context
21 and harmoniously with the statutory scheme, and the
22 objects and the intent of the legislation, it is incumbent
23 upon the Clean Environment Commission to necessarily look
24 beyond the four corners of the proponents *Environment Act*
25 proposal." And indeed, your experts did that. That is

1 some of the outstanding and best work of Arcadis.

2

3 At Slide 15, we share the terms of
4 reference, and in looking at the terms of reference, it is
5 important to understand that the Minister holds extensive
6 institutional knowledge. And so, the Minister must be
7 understood, when describing potential environmental and
8 health effects, to -- to be cognizant of how those effects
9 have been interpreted by the Clean Environment Commission
10 over the past two decades. In other words, that they
11 include both direct effects and the cumulative effects of
12 this and other projects. The Minister must be assumed to
13 have that insight. And when you look at the terms of
14 reference, we -- we do want to highlight, regarding
15 potential environmental and health effects, it's looking
16 at actual effects and risk. And clearly, the risks
17 flowing from this project are significant.

18

19 In the next few slides, probably the next
20 eight to ten, we are going to be providing important
21 contextual elements that our clients consider the board
22 should, and must, consider in -- considering the terms of
23 reference. Again, to go back to the heart of this case,
24 but also to -- to perhaps state the obvious, the first
25 contextual factor in -- in looking at the terms of

1 reference is to remind ourselves that the importance of
2 water to the area cannot be overstated. Again, we go back
3 to the "Southeast Regional Groundwater Management Plan",
4 saying that water is our most essential natural resource.
5 We're reminded that the carbonate aquifer is the prime
6 groundwater source for southeast Manitoba, and that it is
7 a key source of potable water within the RM of
8 Springfield, and a significant source of groundwater for
9 municipal, industrial, residential, and agricultural uses
10 through a large portion of southeast Manitoba.

11

12 Slide 17 is one of the most important
13 slides that you'll see in our submission. And again, we
14 want to highlight that the provisions cited on this slide
15 were ignored by the proponent in its submissions this
16 morning. These were important prohibitions on the mixing
17 of aquifers as enshrined in Manitoba law. The first two
18 citations here are from regulations enacted by the
19 cabinet, the Lieutenant Governor and Council -- they are
20 law. Section 6-1 is taken from the "Drilling Regulation"
21 under the *Mines Act*, and a -- it provides that, "A
22 licensee shall drill and abandon a borehole in such a
23 manner as to prevent the vertical movement of fluids
24 between permeable water bearing zones penetrated by the
25 borehole." If you're wondering what they mean by

1 permeable water bearing zones, that's set out in the
2 footnote. That means a section of rock that produces
3 water -- aquifers. So, that's Section 6-1. This is a
4 mining project, not even cited by the proponent in its
5 submissions this morning. The proponent did cite an
6 excerpt from the "Well Standards Regulation" this morning,
7 but on the second quote on this page is the provision that
8 they did not cite, from Section 3 Sub 1 of the "Well
9 Standards Regulation", "A person must not construct or
10 seal a well or test hole in a manner that allows the
11 interconnection or mixing of groundwater between the
12 Winnipeg Formation --" that's the sandstone, "-- and an
13 overlying aquifer." "A person must not construct or seal
14 a well or test hole in a manner that allows the
15 interconnection or mixing of groundwater between the
16 Winnipeg Formation and an overlying aquifer." And Section
17 3 Sub 2 of that same regulation, it's cited in the
18 footnote being 23, defines the Winnipeg Formation as, "The
19 shale, sandstone, and sands of the --" God know, I can't
20 say that next word, "-- Winnipeg Formation." These two
21 regulations are law -- one is directly applicable to a
22 mining project such as this, that is Section 6 Sub 1 of
23 the "Drilling regulation". The other, the "Well Standards
24 Regulation" is also of fundamental importance in
25 highlighting the legislative priority, the law that

1 cabinet has set out through its regulation making
2 authority, highlighting the importance of preventing the
3 interconnection or mixing of groundwater between aquifers,
4 including specifically the Winnipeg Formation. That's
5 law. That's not guidelines. And certainly, if you think
6 of the recommendations of Arcadis on -- on March 6th of
7 this hearing, when they talked about this fundamental
8 issue for the -- the process, if you think of the comments
9 of Matrix throughout this hearing, you'll see some of them
10 at the bottom of this page, where Matrix reminds us, "The
11 importance of preserving the hydraulic isolation between
12 aquifers is paramount in a precautionary approach with
13 regard to potential migrations of contaminants in the
14 groundwater." The third critical contextual factor which
15 our clients submit that the board should take into account
16 in considering the terms of reference, is our shared
17 understanding of the importance of aquifers. And on the
18 left-hand side of Slide 7, we've shared Arcadis'
19 understanding that separation of the Red River Carbonate
20 and Winnipeg Sandstone aquifers is necessary to protect
21 the groundwater resource of the region. And also, sharing
22 right from Sio Silica's website, the statement that, "The
23 Red River Shale aquitard, or the Winnipeg Shale, is a
24 protective layer between the Red River Carbonate formation
25 and is a critical divide -- a critical divide between the

1 two freshwater aquifers, the carbonate aquifer and the
2 sandstone aquifer." Dance, as the proponent might do in
3 its closing submissions earlier today, that is our shared
4 understanding of the importance of that aquifer. And on
5 the right-hand side of this slide, we've pulled an excerpt
6 from Matrix's PowerPoint, reminding us that the Winnipeg
7 Shale aquitard acts as a barrier to groundwater flow.
8 Without that barrier, it creates a pathway and increases
9 the vulnerability of both aquifers -- both ways. And it
10 reduces fundamentally our ability to -- our ability to
11 manage these aquifers individually for both quantity and
12 quality. And that is the fundamentally important public
13 policy objective that is recognized in the Matrix
14 evidence.

15

16 Slides 19 to -- to 21 deal with precaution,
17 and they deal with precaution in the unique nature of this
18 application -- deal with precaution, the unique nature of
19 this -- this application because we're in dealing with a
20 technology that has never been tested in mining at this
21 industrial scale. And at -- as everyone's aware, Sio
22 Silica is seeking a patent for this technology and that's
23 the -- the citation from Mr. Bullen, and -- and it's
24 generally understood that it has never been applied at an
25 industrial scale in mining. And think of this technology

1 and -- and what extraction actually involves. Each well
2 will be punched through the till, punched through the
3 carbonate, punched through the shale, and into the
4 sandstone aquifer. Each well raises the potential for
5 multiple preferential pathways, and the -- these wells
6 will be there and will need to protect against these
7 preferential pathways perpetually beyond 100 years. And
8 on the right-hand side of this slide, is just leaving --
9 leave aside the collapse of the shale aquitard, these are
10 the potential preferential pathways that come from a well.
11 And think of Mr. Boutin, who's spent a lot of his life
12 drilling wells, dealing with the risk, the municipal
13 waters from these types of activities, and he shared this
14 with you, he went through this in detail, because pointing
15 out, we're all human -- even when we have the best
16 intentions, there's -- there's risk. And highlighting
17 even in the act of drilling and sealing a well, these six
18 potential preferential pathways.

19

20 If Slide 17 is important, Slide 20 is
21 equally important because this gets to what we're talking
22 about, the industrial scale of this activity -- an
23 unprecedented industrial scale. Think about the regional
24 project area. To our knowledge, there's about 1,600 wells
25 within the regional project area, about 1,500 of which are

1 domestic water wells, which have evolved and been created
2 over 130 years, approximately. In the next four years,
3 Sio Silica intends to introduce 1,200 extraction wells in
4 the -- in the first -- in years one to five of the
5 proposed project. And over the lifetime of the project,
6 it proposes that many thousands more will be introduced
7 over the broader region. As Hollander and Woodbury, et
8 al. indicate, the project ultimately could result in over
9 10,000 wells over 24 years. Within a scant four-year
10 period, they are introducing three-quarters of the number
11 of wells that have been brought into the region over the
12 past 130 years, and intense industrial activity of an --
13 of a scale not seen before in terms of well extractive
14 activities in this region.

15

16 And that is why you'll see it Slide 21,
17 caution and precaution being urged. The first bullet on
18 Slide 21 is from Arcadis. "While pilot testing has
19 occurred, the extraction method has not been proven in a
20 full-scale mining operation. This introduces a degree of
21 uncertainty that justifies adopting a precautionary
22 approach, especially given the need to protect local and
23 regional groundwater sources." More cogently, Dr.
24 Hollander and Woodbury say, "One of the aquifers is to be
25 extensively mined with a new and unproven technology.

1 Hence, it is important to be cautious." And again, Mr.
2 Boutin reminds us that, "A precautionary approach is
3 necessary in this case, given that the sources of these
4 waters will be used by thousands -- thousands of
5 Manitobans for water supply."

6
7 At Slide 22, we share the insights from the
8 Clean Environment Commission, this expert tribunal, when
9 it was considering the Pembina Valley project. And
10 remember what Pembina Valley was about, they were wanting
11 to extract water from Sandilands -- Sandilands, which is
12 right in this region, central to the recharge of the
13 carbonate aquifer. And this is the Clean Environment
14 Commission in 2007 saying, "When you're dealing with
15 important aquifers, when you're dealing with a heavily
16 developed region, generally like this region is, or a
17 significant --" let me try that a different way, "When
18 you're dealing with the region that is under significant
19 pressures, this is -- this is what you have to do." It
20 tells us first of all that, in the Pembina Valley case,
21 they said that, "It shouldn't -- it wouldn't approve the
22 project prior to the development of an integrated
23 understanding of how the aquifer fits with its
24 surroundings, because that's not in line with the
25 *Sustainable Development Act* or sustainable development

1 guidelines." And reminding us that, "Before an individual
2 groundwater projects are authorized, the larger planning
3 and envision -- planning initiatives envisioned by
4 government need to be completed." Those two provisions
5 above -- are about the CEC fulfilling its statutory
6 mandate, not stepping into the role of government, but
7 being aware is it is obliged to do under Section 1, Sub 1
8 Sub A of the of the Act that it has to be mindful of other
9 planning processes. In Pembina Valley, it was saying, "We
10 have to be mindful of these other planning processes.
11 They haven't been done yet. It's premature to authorize
12 these activities." In this case we would say, it would be
13 premature and inappropriate to approve this licence
14 because it has totally ignored the regional groundwater
15 management plan. It has paid no -- no diligence or
16 reference to it. The third bullet on Page 22 is the Clean
17 Environment Commission just telling us how important
18 cumulative impacts assessments is to the region -- and
19 it's talking about Sandilands. And here, when it's
20 talking about cumulative impact assessment, it's not
21 talking about the Pembina Valley pipe itself, it is
22 talking about the importance of doing cumulative impacts
23 assessment for the region. What does it tell us?
24 "Cumulative effects should be considered in future
25 assessments of this and any other development. The

1 ecosystems in the area are currently affected by other
2 developments and activities in the region and
3 consideration of the additive effect of another impact
4 needs to be addressed." And it is our clients'
5 submission, and is offered with the greatest of respect,
6 that Sio Silica has not honoured the guidance of the Clean
7 Environment Commission. It did not consider the regional
8 groundwater plan of this very region or cumulative
9 effects, contrary to the guidance and advice of the Clean
10 Environment Commission.

11

12 In the next six slides -- and still
13 contextual -- with reference to the terms of reference and
14 the contextual underpinning, we talk about credibility.
15 And our -- our learned friend, on behalf of the
16 municipalities, made this argument earlier this morning,
17 but from our clients' perspective, when you're looking at
18 the expert opinion that you do receive in this hearing,
19 you have to look at the approach of the experts. Were
20 they doing as Sio Silica appears to recommend, that check
21 box approach to the guidelines? Or were they digging
22 deeper? And Mr. Boutin, who we think most people in this
23 room would agree, was a compelling and persuasive witness,
24 tells us that, "In the exercise of your professional
25 judgment, it's not a checklist exercise." You have to

1 build trust by developing and making important
2 assumptions, and -- and using those assumptions to answer
3 the critical questions and reminding us again of the
4 importance of paying due reverence to the -- the plans
5 already in the region. And so, the takeaway from this
6 slide, when you're looking at credibility, when you're
7 assessing the evidence in this case, is that impact
8 assessment is not a checklist exercise. It is a
9 substantive process of listening, working with
10 stakeholders, and asking the hard questions.

11

12 Turning to Slide 24, it's definitely not
13 about the minimum. And on Page 24, Mr. Boutin is gently
14 reminding legal counsel for the proponent that you have to
15 go beyond the guidelines. And in this case, we think that
16 Mr. Boutin's advice is so -- so prescient and so important
17 because Sio Silica's defence,, and you heard it earlier
18 this morning, is, 'We checked the boxes.' It appears to
19 be grounded on what it considers to be the bare minimum of
20 the EAP guidelines. And in our clients' view, such an
21 approach does not accord with the spirit and intent of the
22 *Environment Act*. Go back -- I'm not telling you to, but I
23 would recommend you do -- go back to that preamble, the
24 purpose and intent of the *Environment Act*. It's more than
25 about doing the bare minimum. It is protecting and

1 enhancing the environment for this and for future
2 generations.

3
4 Slide 25. In assessing credibility in this
5 hearing, our clients think it's important to highlight
6 that it is not about ignoring the important voices or
7 challenging issues. Again, we highlight the fact that the
8 "Southeast Regional Groundwater Plan" does not appear --
9 is not referenced in the proponent's assessment, nor is
10 there any reference to the CEC reports, directly relevant
11 reports, on Pembina Valley Water as well as the Red River
12 Floodway. And again, just to reiterate the point, the
13 proponent can't come to you and say no one told us, when
14 it didn't undertake the basic due diligence, read the
15 regional water -- groundwater management plans, read prior
16 guidance of the Clean Environment Commission. That
17 information was there and available for them, should they
18 have chosen to undertake the necessary research.

19
20 Slide 26, from our clients' perspective is
21 a really startling slide because it consists of a witness
22 for the -- for the proponent telling us that they
23 considered cumulative effects to be irrelevant to the
24 proceeding. And -- and that they considered the Clean
25 Environment Commission's perspectives on cumulative

1 effects to be not relevant. The third quotation on that
2 page, "We did not consider them relevant to the scope of
3 that particular assessment." Now that particular
4 proponent's witness is self-admittedly no expert on
5 cumulative effects, but from our clients' perspective, it
6 is a stunning repudiation of what has been good
7 environmental assessment practices for -- for decades.
8 And Manitoba is not the backwoods. Manitoba, and our
9 Clean Environment Commission, has been saying for a long
10 time, that if you're going to do good impact assessments,
11 you've got to look at cumulative effects assessment. And
12 that is why you see well-established practitioners,
13 experienced in mining, like Arcadis, experiencing an oil
14 and gas extraction, like Matrix, raising the red flag of
15 warning that this proponent's application does not address
16 cumulative effects. It fails to ask the fundamental
17 questions that, regardless of the province, whether you're
18 a big province like Alberta or BC, or a smaller province
19 like Manitoba, good environmental assessment -- basic
20 environmental assessment that really wants to get at the
21 effects, has to consider cumulative effects.

22

23 You heard some of this, this morning --
24 turning to Slide 27 -- and you will have heard it
25 previously in the hearing, the "not my department" kind of

1 the "Yes, Minister" approach to impact assessment of the
2 proponent. And we just want to highlight on Slide 27, Mr.
3 Boutin -- "Remember that the proponent is telling you we
4 don't need to look at the 'Southeast Water Ground
5 Management Plan.' That's Manitoba's job." Again, on
6 Slide 27, Mr. Boutin is gently correcting the proponent
7 and saying, "You cannot just isolate and provide the
8 responsibilities to one individual proponent. The project
9 itself and the proponent has its own responsibilities
10 through that process, and anybody else that's using water
11 is responsible, to some degree, of best practice and
12 sustainability." And that's why he thinks the integrated
13 water management plan is so relevant and so important.
14 And try as Sio Silica may -- may, to distance itself from
15 that responsibility, we direct its attention back to the
16 *Mines Act*. This is a mine. And what does the *Mines and*
17 *Minerals Act* tell us? "The responsibility for sustaining
18 a sound and healthy environment alongside the development
19 of a sound and healthy mining industry, is the
20 responsibility that is shared by government, and industry,
21 and working with local communities." And if we want to
22 build a healthy province, both economically and
23 environmentally, that responsibility belongs to all of us,
24 including industry, including government, and it is no
25 answer for the industry to say, not my department.

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I think my friends from Sio Silica have a similar Slide to 28 -- our Slide 28, perhaps at Slide 14 of their own -- how do you assess the credibility of an expert? There are some gifted analysts in this hearing. And our clients' advice to you in terms of assessing and weighing the evidence that you reserve -- that you receive is to ask yourself some simple questions. What are the professional qualifications and relevant expertise of that expert? What has been their approach to examining the questions? Have they done that checklist exercise, or have they made a substantive inquiry? What is the quality of their report? How have they performed in the cross-examination? And have they demonstrated independence?

And our clients say, turning to Slide 29, that when you apply those criteria to Matrix, to Mr. Boutin, you will see a witness on whom heavy reliance can be placed. On Slide 29, noting that Mr. Boutin is an accomplished hydrogeological engineer, we note that -- how broad ranging his experience is -- well drilling, as through groundwater impact assessments, including cumulative impact assessments, on behalf of individual proponents, to ground-breaking regional cumulative impact assessments. And because there seems to be some question

1 from the proponent on whether Mr. Boutin actually worked
2 on impact assessments, we just bring to your attention
3 that he's been heavily involved in assessments of
4 baselines, application case, and plan development cases,
5 on impact assessments for a variety of different projects,
6 as well as contributing to some of those important
7 regional groundwater management issues.

8
9 Slide 30, we highlight that Matrix -- their
10 evidence has been relied upon by a great list of clients,
11 municipalities, universities, government, an industry
12 association, and the various industrial partners. Indeed,
13 it is unusual for Matrix to be appearing -- and Mr. Boutin
14 to be appearing on behalf of a community organization, but
15 that would take his testimony and testament to the
16 importance of the issues that Matrix, and he, saw in this
17 particular hearing. And so, when you're assessing the
18 evidence, when you're assessing the credibility of these
19 witnesses, we ask you to recall that Matrix asked the hard
20 question.

21
22 --- evidence and their professionalism is a
23 standard that we would expect from all in impact
24 assessment -- going beyond the bare minimum.

25

1 --- if you reflect upon (inaudible)
2 examination, the evidence of Matrix was outstanding and
3 not materially challenged.

4
5 Mr. Chair, I'm just noticing - -we had
6 talked about finding a moment for a break and I'm just
7 wondering, noting that panel members have been having to
8 sit for a little bit, whether this might be appropriate to
9 take a five-minute break just to stretch our legs?

10
11 THE CHAIRMAN: Chair. Yes, we had
12 discussed a -- a brief at the one-hour mark. I was
13 getting close to interrupting you. So, we're on Slide 31
14 of 89, which has me a little concerned about pace since
15 you have been speaking for 59 minutes.

16
17 MR. WILLIAMS: Mr. Chair, I'm -- I'm
18 not worried yet. In fact, I'm not worried. Usually,
19 we're -- we're pretty good at -- we'll get close to that
20 two-hour time limit. I'm not worried yet.

21
22 THE CHAIRMAN: Chair, thank you very
23 much. Let's take a five-minute stretch break, please.

24
25 (LONG PAUSE)

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THE CHAIRMAN: Chair. Mr. Williams,
Mr. Klassen, please proceed.

MR. WILLIAMS: Thank you. And I'm
glad to see people in the room were doing their
calisthenics and getting their aerobic exercise to the
best of their ability.

We want to turn now to -- to our clients'
concern relating to irreversible harm at an industrial
scale, and we remind you of Matrix' opinion on Slide 31,
that there are two critical irreversible effects that the
project will have on the hydrological system that could
lead to indirect effects in the long term. One is the
degradation of the Winnipeg Shale aquitard, and two is an
increase in the fracture density of the carbonate aquifer.

Slide 32, this is not the heart of our
submission, we simply note there will be a permanent
change in the underground geology of the sandstone, and --
and I don't intend to dwell on that slide.

But I do want to turn focus on Slide 33 for
a moment, which is where we begin the discussion of the

1 collapse of the shale aquitard in locations where project
2 extraction is an -- ongoing. And we start on this page
3 with, actually, the evidence from the proponent, and
4 Stantec reminding us that the Winnipeg Shale is friable in
5 the first -- first quote on this page, being Slide 32 --
6 33, excuse me. And you see Mr. Bundrock again from
7 Stantec telling us that, "From the geotechnical
8 perspective, from the modelling of subsidence, it's
9 actually irrelevant whether or not the shale or the
10 limestone fail because they don't rely upon it in their
11 modelling for stability." And we understand that. But
12 from the bigger picture from our clients' concern, this is
13 a myopic statement because think of what Stantec -- one of
14 its key jobs was, it was to eliminate the potential for
15 connection to occur between the upper and lower aquifers
16 as a result of cap rock subsidence. And this is a -- a
17 challenge and a dilemma in this application that Arcadis
18 was trying to get at, and we're drawing this attention --
19 this is not an Arcadis quote in the bold at the bottom of
20 this page but think of what the proponent is trying to do.
21 It's trying to eliminate connection between the upper and
22 lower aquifers through subsidence. It's trying to
23 eliminate connection between the upper and lower aquifers
24 through its well abandonment, well closure proceedings.
25 But it's actively contemplating -- it's actively

1 engineering interconnection between the two aquifers
2 through the collapse of the shale aquitard, which is an
3 inevitable result of the extraction activities. So, it's
4 addressing its mine to two of the three fundamental
5 elements of avoiding interconnection -- interconnection
6 that is prohibited by law, but it is failing to address
7 the third in any meaningful way. And this is the great
8 big, gaping hole in the analysis of the proponent, that if
9 you draw your mind back to Arcadis, and we'll take you to
10 that slide in a couple seconds, that's what Arcadis was
11 trying to bring to your concern. It got two, it missed
12 the big one.

13

14 Slide 34 is the famous BRU 92-8 side sonar
15 scan, first brought to our attention in a meaningful way
16 by Mr. LeNeveu. And it tells us, of course, four months
17 into the extraction at BRU 92-8, ten metres of shale had
18 collapsed, and seven -- excuse me, ten feet -- I
19 apologize, ten feet of shale and seven feet of limestone
20 had collapsed. And these are not trivial voids that are
21 being created, and at Slide 35 you see up an excerpt from
22 the PowerPoint of Mr. Boutin on behalf of Matrix. He
23 estimated that the volume disturbance per well could be
24 6,735 cubic metre. And he reminded us that the -- at the
25 top, the breadth of the cavity could be three bus-lengths

1 long. And from top to bottom, it could be not quite two
2 bus-lengths long. And that observation by Mr. Boutin was
3 not meaningfully challenged in cross-examination by Matrix
4 -- by the proponent.

5
6 Slide 36, you see Mr. Boutin, far more
7 eloquently than I managed to do, explaining what kind of
8 cavity we're working with here. So, 35 metres is
9 basically three buses long, and in terms of the height of
10 the cavity, it's just short of being two buses high --
11 three buses by two buses. More cogently, Arcadis tells
12 us, "The collapse of the shale has the potential to create
13 numerous -- numerous large-diameter breaches in the shale
14 aquitard in the area."

15
16 At Slide 37, we share -- and Slide 38, we
17 share with the -- with the panel important excerpts from
18 the cross-examination of Arcadis at Pages 58 to 65 of the
19 transcript. They tell us that, "Shale and overlapping cap
20 rock has failed in the extraction -- in the extraction
21 area." And they remind us of a number of important
22 points. First of all, Arcadis reminds us that, "Continued
23 separation of the two aquifers is a fundamental design
24 requirement of the proposed project." Secondly, it
25 reminds us that, "The shale serves as an important

1 aquitard that limits the flow of water between the Red
2 River carbonate limestone aquifer and the sandstone
3 aquifer." It highlights the concern that, "Significant
4 breaches in the shale might create a hydraulic connection
5 between the carbonate and sandstone aquifers." It tells
6 us, "At BRU 92-8, ten feet of shale immediately above the
7 sandstone silica extraction collapsed. At that same
8 extraction site, there's been a collapse of an additional
9 seven feet of overlapping limestone." Under cross-
10 examination, Arcadis concern -- confirmed, on Slide 38,
11 that, "From a geotechnical perspective, the collapse of
12 the shale is irreversible." We don't think Arcadis was
13 "silly", to quote the proponent's legal counsel, for
14 flagging that concern. This is a fundamental concern
15 going to the integrity of the aquifers -- the mandated
16 separation of the aquifers. Arcadis tells us that, "From
17 a geotechnical perspective, the collapse of that seven
18 feet of limestone is irreversible." It tells us -- and
19 this goes to the intensity and scale of this project,
20 that, "The collapse of the shale aquitard witnessed at BRU
21 92-8 could be a feature of all 1,200 extraction wells,
22 conceptually, in years one to five of the project." And
23 it reminds us, Arcadis does, that, "There will be
24 thousands more extraction wells over the 24-year life of
25 the project." And under cross-examination, Arcadis

1 confirmed that there will be a risk of shale collapse
2 associated with each" -- development. This collapse is
3 impossible to remediate.

4
5 Slide 39, and you heard this from my
6 learned friend on behalf of the proponent this morning,
7 seeking to trivialize the magnitude of these collapses and
8 saying -- and you'll see this as an -- a slide coming from
9 Matrix, that "There's already interconnections between the
10 two aquifers because there's many drinking water wells
11 screened across the Red River carbonate and the Winnipeg
12 Sandstone."

13
14 And Slide 39 is one of those key PowerPoint
15 slides in this proceeding. On the bottom, left-hand
16 corner you see Mr. Boutin articulating the -- the size of
17 the -- of the extraction and -- and the interconnection
18 facilitated by a well -- the area being 0.02 square
19 metres. Go to the right-hand side of that slide, and then
20 look at the -- the area encompassing the -- the extraction
21 and collapse of BRU 92-8, 491 square metres.

22
23 And Mr. Boutin is -- at Slide 40 -- is
24 usually a pretty calm witness, but you could see him
25 getting very forceful on this point at Slide 40 and

1 comparing -- contrasting the surface area of a domestic
2 water well being 0.0 square metres, versus a single
3 extraction well, a single silica extraction well, you're
4 creating an area of 491 square metres. And as you'll see
5 in the highlighted portion of this page, he's telling you,
6 if you had 26,000 of those water wells at 0.02 square
7 metres, you'd get about 491, in the order, of square
8 metres. Take all the wells that would go through that
9 aquifer, and you'd get the effect of a single silica
10 extraction well. And then he reminds us, we're not
11 talking about just BRU 92-8, we're talking about hundreds,
12 if not thousands, of wells that are going to have a shale
13 collapse like this. This is an unprecedented, intense,
14 potential impact and risk to the aquitard and to the
15 public policy, the -- the statutory -- the regulatory
16 objective of preventing interconnection. And on the
17 bottom quarter of this page, he's telling you it's
18 proportionate -- risk is proportionate with the number of
19 wells you're -- you're drilling. Each single borehole,
20 you're creating a pathway and you're increasing the risk.

21

22 Slide 41 -- we won't dwell on this, but Mr.
23 Boutin is also making the point on this slide, that when
24 you're talking about just a water well, you can go back
25 and fix that. You can go back to those boreholes and get

1 rid of the inter-aquifer mixing. You can't do that with
2 the extraction voids -- the extraction cavities three bus-
3 lengths long, he estimates that you're creating with this
4 project.

5
6 And what is Slide 42, the inevitable
7 result? Interconnection of the aquifers. The first quote
8 on Slide 42 is from KGS, "Is apparent the shale aquitard
9 will be unsupported and collapse into the top of the sand
10 extraction zone void, resulting in enhanced and multiple
11 direct interconnections." Second quote on this page is
12 from Arcadis, "Collapse of the shale layer and fractured
13 limestone is expected to occur, which will result in
14 interconnection of the Red River carbonate and sandstone
15 aquifer." Going back to our -- KGS and their
16 presentation on the third quote on this page, "The
17 creation of these interconnections is irreversible. There
18 will certainly be an exchange of groundwater between these
19 aquifers." On Page 43, Mr. Boutin points out that this is
20 not an accident. "In the case of the Sio Silica
21 Corporation proposed project, the enhancement of Inter
22 aquifer connectivity is an engineered consequence of
23 several --", he's understating it, "-- hundreds of
24 extraction wells in the project area." At Slide 44 -- Mr.
25 Boutin is well known for his anecdotes. I'm not going to

1 take you through the lengthy anecdote about Gatorade, iced
2 tea and his son, the avid soccer player -- you'll remember
3 that anecdote, but there were two points that come out of
4 that anecdote. He's making the point that, "You're losing
5 the ability to individually --", with interconnection, "--
6 you're losing the ability to individually manage the
7 aquifers for quantity and for quality." You're losing
8 that individual ability. And in our respectful
9 submission, Sio Silica did not contest that assertion in
10 their cross-examination or in their rebuttal.

11

12 Slide 45 is a critical extract from
13 Arcadis, March 6th, Slide 8. These were stark words of
14 warning from Arcadis. "Sio Silica's closure approach is
15 based on techniques that are applied to conventional
16 groundwater wells. In the opinion of Arcadis, these
17 approaches will be insufficient to prevent or mitigate
18 hydraulic connectivity between the Red River carbonate and
19 Winnipeg sandstone aquifers. The closure approaches will
20 not avoid or repair the large breaches in the shale
21 aquitard that Stantec has predicted to form." Similar to
22 our understanding, Arcadis points out that, "Manitoba's
23 regulatory requirements prohibit activities that may
24 result in mixing between aquifers." And it -- and it
25 raises a significant concern whether the project complies

1 with the relevant aquifer protection and well closure
2 requirements. Our clients share this concern. We could
3 not emphasize this concern anymore powerfully. Our
4 cabinet, through those regulations, the "Drilling
5 Regulation", the "Water Well Protection Regulation" has
6 sent out a clear message, connectivity between the
7 aquifers shouldn't be happening. The proponent offers no
8 solution on how to remediate the collapse of the existing
9 aquitard. And our clients have to say there's a missing
10 piece to this -- to this dialogue. The silence of the
11 Mines Branch is notable and stunning. What is the opinion
12 of Mines Branch on this? How can these deliberations
13 proceed without insight from the Mines Branch?

14

15 Slide 46, we talk about the shale aquitard
16 as a valued ecological component. And if you're looking
17 for a foundation for this argument, we direct you back to
18 our cross-examination of Arcadis, and we would direct you
19 to Pages 50 to 65, and in that cross-examination we went
20 through, with Arcadis, its understanding of how we look at
21 significance, its understanding of how we look at valued
22 ecological components, how we select them, and then we
23 looked at the shale aquitard. And we have supplemented
24 that cross-examination with a literature cite from Dr.
25 Noble. Dr. Noble and his -- his well-known work,

1 "Introduction to Environmental Impact Assessment". Dr.
2 Noble is, of course, well known to this Clean Environment
3 Commission, recognized as an expert in proceedings such as
4 the Bipole III Transmission Line, and we do not need
5 permission from our friends, the proponent, to cite a
6 well-known basic text on impact assessment. We shared it
7 with them as a courtesy and let them know we would be
8 making this argument, because while we disagree
9 fundamentally on many of the issues of this proceeding, we
10 felt it was an act of courtesy. What does Dr. Noble tell
11 us? "While it's important to ensure that all potentially
12 affected environmental components are given consideration,
13 attention should focus on valued ecological components
14 most likely to be affected." Arcadis told us the same
15 thing. And he told us that "VEC's are aspects of the
16 environment, physical and human, that people value, and
17 are considered important from scientific or public
18 perspectives, thus warranting detailed consideration in
19 the impact assessment." And our point, just so you know
20 where we're going, is what could be more valuable -- what
21 could be more fundamental for looking at the impact
22 assessment, than the shale aquitard itself? And we are
23 going to be inviting this Commission to identify the shale
24 aquitard as a valued ecological component, and to note the
25 significant adverse direct impact on that aquitard of the

1 extraction activities of the proponent. It is strongly
2 arguable that the Winnipeg Shale aquitard is both likely
3 to be affected by the proposed project and considered
4 important from scientific and public perspectives. At
5 Slide 47, we support this with reference to the -- the
6 principles developed by Noble, but they're also the
7 principles adverted to by Arcadis at Pages 50 to 53 of the
8 transcript. "Ecological importance. The Winnipeg Shale
9 has an important function in the operation of the
10 groundwater system. Societal value. It provides
11 protection to both aquifers, preventing the mixing of
12 distinct groundwaters. Fragility." We've seen the
13 fragility of this aquitard, BRU 92-8. We -- we need say
14 no more. "Importance to legal compliance. Manitoba
15 statutory framework governing the relationship between
16 mining activities and groundwater resources requires that
17 intermixing of aquifers be prevented and economic
18 importance -- the importance of groundwater is well
19 recognized." See the legislative requirements we spoke of
20 earlier.

21
22 Just on Slide 48, we think this slide
23 speaks for itself, but we just want to highlight the
24 bottom bullet. "There are no remediation measures that
25 can be applied to restore the aquitard or the isolation

1 between the aquifers." Slide 49, we just want to direct
2 your attention to the other concern regarding the indirect
3 effects of the proposed project, raised by Matrix and that
4 is, "The increase in fracture density of the Red River
5 Carbonate aquifer." And at Slide 50, we share the helpful
6 graphic by Matrix that identifies the potential
7 preferential pathways that will be exacerbated by this
8 project. And he -- Matrix reminds us, Mr. Boutin, that,
9 "These porous networks are highly heterogeneous, and
10 increase in fracture density could result in increased
11 vertical hydraulic permeability preferential pathways, and
12 that the risk, most importantly for preferential pathways
13 increases with the number of wells drilled."

14

15 At Slide 51, we just -- the blunt quote
16 from Mr. Boutin, Matrix, "The effect of the project is to
17 increase vulnerability for contamination of both aquifers
18 being actively and widely used for potable water supply."

19

20 Slide 52 goes back to that principle of --
21 of precaution, and Mr. Boutin was blunt, "It is unlikely
22 that contaminants will migrate from the ground surface to
23 the Red River under current combined conditions." But he
24 has five big buts. "It is highly --", or "-- it is
25 unlikely that the drilling and abandonment of thousands of

1 wells will be 100 percent compliant, thereby leading to
2 preferential pathways. Sand extraction could result in
3 potential enhanced vertical hydraulic connection between
4 the ground surface and the Red River Carbonate aquifer,
5 and between the Winnipeg Sandstone aquifer. We don't know
6 what we don't know," is the third point. "Future
7 anthropogenic activities are unknown," and he cites the
8 Ontario legacy wells problem and that, "Precaution is
9 important."

10

11 And this is not speculation, when you
12 direct your attention to Slide 53. Remember Mr. Boutin's
13 work right now -- working with all those Ontario
14 municipalities, and he's telling us that, "They are
15 regularly dealing with risk that were unforeseen 50 years
16 ago." He's talking about risk from road salt, risk from
17 chlorides, when the practice has been ongoing for 50
18 years, risk from nitrates. And the point he's making here
19 is that, "These risks are very real, they emerge over
20 time, but that our obligation and impact assessment is to
21 be alive to the risks for today but to the future." And
22 he's drawing on his hard-earned experience in Ontario,
23 where problems that we didn't think existed 50 years ago
24 are now manifesting themselves all over municipal water
25 supplies in Ontario. And if you go back to the previous

1 slide where again, that orphan well problem -- problems we
2 couldn't even imagine 50 years ago. And he's highlighting
3 the fact that with these significant cavities, with the
4 fractures in the carbonate, and with thousands of wells
5 being drilled, you're magnifying the risk materially. And
6 these things happen, and they're living with it in
7 Ontario, as we speak.

8
9 Slide 54, again, he says it more eloquently
10 than I do, "The more boreholes you're doing, higher is the
11 risk."

12
13 We're going to turn to the issues related
14 to the hydrogeological assessment. And we were a little
15 surprised by hearing the proponent this morning suggest
16 that Matrix was endorsing the hydrogeological assessment
17 in its entirety, because you sat through their evidence,
18 you understand the significant concerns they were raising
19 in terms of that assessment. We want to note that in
20 terms of the hydrogeological assessment, there are two
21 very different critiques, one is by Hollander Woodbury,
22 the independent CEC experts, one is by Matrix. Both of
23 these are eminently qualified experts. We're going to
24 focus on and endorse the conclusions and concerns of
25 Matrix. We think they are fundamental to the board's

1 ability to assess the risk of this project.

2

3

4 At Slide 56, we highlight four concerns of
5 Matrix with the high -- the AECOM analysis. First, and
6 perhaps most fundamentally, AECOM failed to undertake the
7 cumulative impact assessment needed to understand whether
8 the project was sustainable. And Matrix suggests that is,
9 "Contrary to the direction and guidance of the 'Southeast
10 Region Groundwater management Plan' and earlier guidance
11 of the CEC." Second, that, "The model domain of the AECOM
12 study excluded important regional areas of overdevelopment
13 and salt intrusion that are key to cumulative effects
14 assessment. Domestic wells outside the regional project
15 area were not considered and foreseeable population,
16 industry, and agricultural growth were not considered."
17 Third, "That there were unresolved concerns regarding the
18 reliability of the recharge rate input to the AECOM model
19 which have not been resolved." And fourth, "Concerns
20 about using the AECOM 2021 numerical model for the
21 simulation of local ground effects."

21

22

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25

At Slide 57, we highlight Matrix' concern
that a cumulative impact assessment was not undertaken.
That was the thrust of much of their evidence. We don't
feel the need to -- to focus on it in further detail.

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At Slide 58, we again, highlight that, "The 'Southeast Regional Ground Management Plan' is such an important starting point for the impact assessment and the concerns about the pressures from development, and the concerns about the pressure of intrusion of groundwater that is saline."

And we note on Slide 59, and this is a source of central dispute between our clients and the proponent -- we don't think you ever hear the proponent deny that cumulative impact assessment is good practice. How could they, given our understanding over the last 40 years? We understand its dispute to be going back to that bare minimum assertion. The proponent boldly claims, "That cumulative impact assessment and the CEC prior findings on cumulative impact assessment are not relevant to this impact assessment," and -- and our clients say, with the greatest of respect, that is an absurd assertion in modern-day Manitoba. It has been an absurd assertion for at least 20 years. It is absurd in light of the spirit and intent of the *Environment Act* and of the *Mines Act*. And it is an absurd -- in light of the advice and recommendations of the Clean Environment Commission, and how the Clean Environment Commission, for the past two

1 decades, really the past quarter of a century, has looked
2 at impact and effects assessment. It is absurd.

3
4 Slide 60. This is not my artwork, I want
5 to assure you of that, but this is the straw that broke
6 the camel's back. And you heard yesterday, and you
7 actually heard today, again, arguments that you might have
8 heard an impact assessment in the 1980s, "Well, we're only
9 doing a small draw from the aquifer. Our incremental
10 effect will be modest." Well, that one straw that's going
11 on to this camel's back looks pretty modest too, but
12 that's the straw that broke the camel's back. An impact
13 assessment in Manitoba has evolved far beyond that. It
14 evolved far beyond that many years ago. We know that when
15 we're trying to look at the -- the impact of a project, we
16 have to look at it in combination with past, ongoing, and
17 reasonably foreseeable projects because one project by
18 itself does not give us the insight into the cumulative
19 effect of that project, given other things that are going
20 on.

21
22 Slide 61 is a well-known slide from the
23 Matrix presentation. In pink or purple, I'm not sure
24 which, you'll see the -- the domain of the groundwater
25 study -- or sorry, the hydrogeological study of the

1 proponent. Importantly, we want to draw your attention to
2 just outside that domain and -- and you'll see that green
3 area, highlighted, and obviously, that was a very
4 significant drawdown from -- from the Steinbach area, and
5 Matrix makes the point that, "It is unfortunate and -- and
6 it makes the hydrogeological assessment vulnerable, in
7 terms of its assessment of regional sustainability, that
8 it excludes this important study area." And just to the
9 left of that green area, you'll see the blue line and the
10 blue star representing the saline -- the extent of the
11 saline intrusion into -- into the region. And again,
12 Matrix is telling you that leaving out the green -- the
13 green area, that area of substantial development, and the
14 blue lines relating to the saline intrusion, raise
15 fundamental concerns about the applicability of the
16 hydrogeological analysis for its important purpose of
17 understanding the sustainability of the region's water
18 supply. Matrix makes this point on Slide 62 far better
19 than I can, but that is that, "The model domain excluded
20 regional areas of overdevelopment and that foreseeable
21 population, industry, and agricultural growth were not
22 considered."

23

24 And on Slide 63, this was an important
25 point put to Matrix in cross-examination. He's telling

1 them, "Your model domain, AECOM and proponent, might be
2 good, for one thing, but if you're trying to get at the
3 answer of whether there's enough water in the system, then
4 it's too small."

5
6 Slide 64 is an important point related to
7 the recharge input assessment. And at Slide 64, we draw
8 to your attention the -- the dissonance between the
9 recharge input from AECOM 2021, 620,000 cubic metres per
10 day, versus what Kennedy and Woodbury found in their 2'05
11 study, which is 164,160 cubic metres per day. Again,
12 different domains, but Matrix is saying, "This is a bright
13 flag of an issue that needs to be resolved. You may have
14 problems with your input into your model." And this quote
15 is well made on Slide 65, the second -- the second quote.
16 "So, I can tell you, I have a recharge rate of 200
17 millimeters per year at this specific area, but if you
18 apply it on a large area like this, suddenly you're total
19 recharge is just out of proportion. So, just by saying
20 that you're using the same recharge rate doesn't mean --
21 doesn't mean that it's right. You need to think about how
22 much error that you're on -- that you're imposing the
23 rate." And on this -- this slide is -- relates to Matrix'
24 point about recharge. And from our clients' perspective,
25 it's important to understand that Matrix was saying, and -

1 - "You may have done many things right within the model,
2 but if you've got the recharge input wrong, it's all out
3 of proportion." The proponent attempted to cross-examine
4 Matrix on this issue. It abandoned that cross-examination
5 after three questions, and we flagged the references from
6 the transcript. And in AECOM's rebuttal evidence
7 yesterday, it barely contested Matrix' assertion. Indeed,
8 AECOM's rebuttal admits that, "Recharge is one of the most
9 difficult parameters to measure." It admits that,
10 "Recharge values were higher than employed in some of the
11 other groundwater models," and it admits that, "Recharge -
12 - that the recharge input value is relevant to the
13 regional scale sustainability assessment." In our
14 clients' respectful view, the powerful submissions of
15 Matrix on this point were barely contested by the
16 proponent.

17

18 At Slide 67 and -- and 68, our clients said
19 -- highlight the concerns identified by Hollander and
20 Woodbury. We won't go through them, except for to say
21 that their intense technical examination of the AECOM
22 model was greatly appreciated by our clients. And we've
23 highlighted on these next two pages important issues
24 raised by the CEC independent witnesses on hydrogeology,
25 which the panel, in our respectful, view should consider.

1
2 Mr. Chair, mindful of the time, where I
3 think we're making good progress, as you will have
4 observed, we're turning to geotechnical issues and we want
5 to be clear that the expert that we brought forward,
6 Matrix, we believe was the preeminent expert in this
7 proceeding on hydrogeological issues. In terms of
8 geotechnical issues, we certainly have listened with
9 interest to the insights from Arcadis, as well as from
10 KGS. And we certainly note the important insight KGS
11 brings, based upon their work in Manitoba, and with a
12 number of relevant projects, including, but not limited
13 to, the Floodway. As our clients understand the KGS
14 concerns, they include the failure of the proponent to
15 undertake a full-scale extraction -- test of an extraction
16 cluster prior to the assessment. And in our clients'
17 views, and in KGS' views, this raises important issues
18 about the reliability of the various geological,
19 geotechnical, and groundwater interpretations made to
20 date. Important baseline information is not available to
21 this Commission because those pilot projects of a full
22 extraction cluster have not been done. KGS also expresses
23 concern with what they consider to be the unnecessary --
24 failure to undertake necessary sensitivity analysis, the
25 failure to more carefully investigate vertical features in

1 the bedrock, and the need for clarity on whether vertical
2 joints are appropriately addressed or accounted for in the
3 geotechnical model.

4
5 At Slide 70, we highlight that we consider
6 Sio Silica's concession that, "It will be prepared to
7 perform expanded tests of clusters and as well as of
8 inclined boreholes to be important," but we know that
9 they're saying that that would take place after a permit
10 is granted. While we appreciate that this concession
11 clearly validates a number of the concerns of KGS and
12 others, the failure to complete this important work prior
13 to the assessment, and the proposal to complete it after
14 licensing, is fundamentally troubling to our client. And
15 it also underscores our clients' concern that Mines Branch
16 has been absolutely silent on this assessment. We don't
17 have a written explanation from Mines Branch on whether or
18 not an exploration licence could have been granted to
19 undertake this necessary baseline exploration. And based
20 upon our clients' understanding of impact assessment and
21 licensing, it is not acceptable to use an environmental
22 licence to obtain baseline data. You have to do that work
23 before the licence.

24

25 On geotechnical issues, our clients see an

1 important gap in the evidence in this hearing and it goes
2 back to the absence of participant funding. The CEC chose
3 to focus on hydrogeological and geotechnical issues, and
4 our clients certainly appreciate the insight of their --
5 their expertise, but there wasn't much in the CEC analysis
6 on geochemical issues. Likewise, our clients, because
7 there was no participant funding, had to focus their
8 scarce resources on the hydrogeological support and were
9 very blessed to obtain the outstanding support of Matrix,
10 but couldn't go into geochemical issues. KGS has not
11 deeply (inaudible) geochemical issues, so there has been
12 no -- apart from the proponent, there has been no
13 independent expert responsible for testing the submissions
14 of the proponent on geochemistry. And we've had no
15 opportunity to hear from a government witness on this
16 point. The result, in our clients' respectful view, is a
17 record on geochemical issues that is sadly incomplete
18 despite the enormous and quite valiant efforts of Mr.
19 LeNeveu. Our clients do note that on the record of this
20 proceeding, going to Slide 73 is the voluminous report of
21 Dr. Pip. Her reputation in her areas of expertise is
22 quite substantial internationally and locally, including
23 in fields of biology and toxicology. And at Slide 74, we
24 note that in our clients' view, it's really unfortunate
25 that the proponent has chosen not to meaningfully address

1 Dr. Pip's important contribution to the dialogue of this
2 proceeding. If environmental assessment is to be done
3 well, we have to grapple with the tough questions, not
4 ignore them and hope they'll be ignored by the CEC. Our
5 clients' viewed the record on geochemical issues to be
6 sadly deficient. Given their limited resources, they make
7 no apology. They had to use their -- their resources
8 where they felt they could get the -- the most utility out
9 of it. But it is leaving substantial, unresolved
10 questions which, in our clients' view, undermine
11 confidence in this -- in the assessment and the process.

12

13 At Slide 75, our clients talk about follow-
14 up and monitoring, and what the proponent calls and I'll
15 put this in quotation marks, "adaptive management". And
16 at a high level, our clients have the following concerns.
17 One, that the thoughtful recommendations of KGS and the
18 municipalities on follow-up and monitoring are likely to
19 be inaccessible to our clients and to the communities they
20 represent. They raise a concern in what they observe to
21 be challenges within the proponent's technical team in
22 understanding core concepts relating to follow-up and
23 monitoring and addressing uncertainty. And they
24 highlight, most importantly, "The follow-up, monitoring,
25 and managing uncertainty are no answer -- no answer in

1 circumstances where significant adverse effects cannot be
2 remediated and there is no plan." And we'll come to the
3 shale collapse in just a second. Again, at Slide 76 and
4 Slide 77, our clients express their appreciation to KGS
5 and the municipalities for noting the immaturity of
6 certain monitoring, mitigation, and management plans, but
7 at Slide 77, they observed that they don't have the
8 resources to meaningfully participate in the manner
9 contemplated by KGS. And they are troubled by what
10 appears to be an assumption by the proponent that it can
11 simply implement its plans and address any issues as they
12 pop up and work its way through uncertainty. This point
13 is well made by Arcadis. And at Slide 10 of Arcadis'
14 submissions on March 6th of 2023, they note that, "The
15 management plans submitted to date lacked detailed
16 information necessary to confirm that operational
17 practices will be capable of identifying and mitigating
18 potential environmental impacts from the project. And
19 that there continues to be uncertainty regarding how the
20 project will be managed to avoid potentially significant
21 impacts." Most importantly, at the bottom of Slide 78,
22 Arcadis makes the point that, "The updated progressive
23 well abandonment plan presents insufficient information
24 regarding how Sio Silica will mitigate large-scale
25 hydraulic connectivity between the two freshwater

1 aquifers."

2

3 Slide 79, Sio Silica, of course, says,
4 "They're preliminary and will develop comprehensive plans
5 following project approval." The second bullet on this
6 page though, is Arcadis saying, "Hold on a minute. That
7 approach might be acceptable when potential project
8 environmental impacts are well understood, i.e.,
9 conventional mining projects. However, in the case of the
10 proposed sand extraction process, there continues to be
11 uncertainties. And as a consequence, detailed management
12 plans would ideally be provided prior to project
13 approval." And we think, from our clients' perspective,
14 that's an important warning from Arcadis.

15

16 At a high level, before we get to our
17 recommendations, Mr. Chair, members of the panel, we want
18 to go away from what's been before you in this assessment,
19 to what's not before you and the challenges, and we're
20 going to raise some significant concerns with the
21 assessment process undertaken to date. We want to be
22 clear that this is not a criticism of the Clean
23 Environment Commission which, in our clients' opinion, has
24 shown leadership in retaining independent experts and
25 running a fair and thoughtful hearing, but our clients are

1 deeply concerned that the magnitude of the environmental
2 impacts relating to the Sio Silica development will be
3 understated, given fundamental flaws, it should say, in
4 the assessment process. And these concerns have been
5 raised by independent experts with extensive experience in
6 extractive industries, including mining, and oil and gas,
7 and the concerns relate to project splitting and the
8 absence of a cumulative impact assessment.

9
10 Slide 81, this is Arcadis, the independent
11 expert retained by the CEC, it concluded that, "The
12 abbreviated temporal scope, substantially smaller spatial
13 scope, and exclusion of critical project components
14 constitute project splitting." And they considered this
15 to be a material deficiency within the project proposal.
16 At Slide 82, Arcadis tells us why, and the most important
17 quote is at the top of that page. It reminds us that,
18 "The mine has an expected life of 24 years, but only four
19 years of mining activity have been assessed in the project
20 proposal." Arcadis gets it. It says, "Breaking projects
21 into phases is a common approach when issuing regulatory
22 authorizations." But look at what it says next, "But it
23 is inappropriate, in the context of environmental
24 assessment, because it has the potential to underestimate
25 the spatial extent, duration, and therefore significance,

1 of project impacts." Our clients cannot underscore that
2 fact anymore -- anymore than Arcadis already does, and we
3 appreciate them bringing it to the attention of the Clean
4 Environment Commission.

5
6 Slide 83 goes back to cumulative impacts
7 analysis, and it highlights that both Matrix and Arcadis
8 are flagging the absence of cumulative impacts assessment
9 as an important deficiency. Again, these are independent
10 experts who are really familiar with extractive
11 industries, who work with the oil and gas industry, with
12 the mining industry, and they're saying, "Hey, where's the
13 important stuff? Where's the cumulative impact
14 assessment?" Matrix says, "The absence of a cumulative
15 impact assessment is an important deficiency." Arcadis
16 says, "It represents a substantive deficiency in the
17 project proposal." Slide 84, I've talked a lot about
18 cumulative impacts assessment -- there is Arcadis at Slide
19 84 reminding us why it's so important, and why it's so
20 important in the mining industry.

21
22 Thanking the panel for its patience, we'll
23 just go through our clients' recommended findings and
24 recommendations to the Clean Environment Commission
25 starting at Slide 85. We recommend that the Clean

1 Environment find that the proposed development will cause
2 irreparable harm to the Winnipeg Shale aquitard and the
3 Red River Carbonate limestone, and create material,
4 irreversible interconnection between the carbonate and
5 sandstone aquifers, and from our clients' perspective that
6 is significant. Our clients will recommend that the CEC
7 find that the Winnipeg Shale aquitard should be designated
8 as a valued ecological component. They recommend the CEC
9 find that the proposed development will have a significant
10 direct effect on the Winnipeg Shale aquitard, which cannot
11 be remediated or mitigated. They recommend that the --
12 relying upon Matrix, that the CEC find that there were
13 substantial and unresolved concerns regarding the
14 reliability of the hydrogeological numerical model for
15 impact assessment, and that's relying upon the conclusions
16 of Matrix -- sorry, the evidence of Matrix. And they
17 recommend that the CEC find, consistent with the advice of
18 Arcadis, that the updated "Progressive Well Abandonment
19 Plan" does not explain how or if large scale hydraulic
20 connectivity between the two freshwater aquifers can be
21 addressed. At Slide 86, our clients recommend that the
22 proposed -- that the proposed Vivian Silica Sand
23 Extraction Project should not be granted a licence. At
24 Slide 87, our clients make recommendations about advice
25 the CEC should give to government, but I want to be clear

1 here, the clients believe very strongly, as we've set out
2 in our legal analysis, that it is incumbent upon the Clean
3 Environment Commission in -- in its examination of effects
4 to look at cumulative impacts effects. But our clients
5 make recommendation, too, on Slide 87, because they want
6 to take away excuses from proponents -- proponents like
7 Silica who don't do, in our clients' respectful view, the
8 necessary homework to look at well-established practice in
9 Manitoba, and well-established guidance from the Clean
10 Environment Commission. And we simply ask the Clean
11 Environment Commission to remind government of its prior
12 recommendations to take away excuses from proponents and
13 to be more express about the well understood reality that
14 in projects like this, cumulative impact assessment is
15 required.

16
17 Slide 88 goes to the unfinished business of
18 our regional groundwater plans and again, we make
19 recommendations that the CEC should recommend that
20 Manitoba revitalize and complete earlier initiatives
21 related to the development of integrated regional
22 watersheds. And we're mindful of the commentary and the
23 questions of Board Member Johnson over the last couple of
24 days about collaborative opportunities. They are
25 important for follow-up and monitoring, but they're just

1 as important, perhaps more important, prior to follow-up
2 and monitoring in the development of the assessment
3 process. And the vision is espoused by the Clean
4 Environment Commission in 2007, espoused by the "Southeast
5 Regional Groundwater Management Plan" in 2010, was that we
6 would build on the good work of the southeast region to
7 look at the sustainability of the aquifers, to look at the
8 quality of the aquifers, and we would do that essential
9 work, mindful of development pressures, mindful of other
10 pressures upon the region, that should be done in front of
11 the assessment and it's no answer, in our clients'
12 respectful view, to miss that essential opportunity and
13 prevent -- and present an assessment that is fundamentally
14 flawed, that doesn't ask the right questions, or enough of
15 the right questions, and denies the Clean Environment
16 Commission and just as importantly, the government and the
17 public, the important information they require to know the
18 full impact of this important project.

19
20 On Slide 89, we go back to the words of one
21 of our clients, "The project, with its risk to the only
22 available freshwater source for the area, should not
23 receive an *Environment Act* licence. The risk is too
24 great." Thank you very much, Mr. Chair, members of the
25 panel. We appreciate the opportunity.

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THE CHAIRMAN: Chair. Thank you very much. How about we stand for five minutes and then the proponent can take us home, so to speak?

MR. DUNCANSON: Mr. Chair, if -- IF I could be so bold as to ask for ten, that would maybe just give us enough time to collect our thoughts.

(LONG PAUSE)

THE CHAIRMAN: Chair. I think we'll resume. Commissioner Gillies has a question for Mr. Williams and Mr. Klassen.

COMMISSIONER GILLIES: Commissioner Gillies, here. Mr. Williams, one of your recommendations on Slide 85 #2, "Winnipeg Shale aquitard should be designated as a valued ecological component." You've provided us with quite a lot of legal background for our consideration. Did you have an idea under what authority that might be designated?

MR. WILLIAMS: Thank -- thank you for that. And in any assessment process, you're making a call

1 on what's important for assessment. So, by designated --
2 let me be clear and that was probably the -- the wrong
3 choice of words and thank you for catching that. I was
4 saying, simply, when you're assessing and giving advice to
5 the government on the impacts of the project, apply those
6 criteria and say that when you're looking at the
7 assessment, you consider it an important ecological
8 component that has to be addressed in -- in the
9 proceeding. I wasn't seeking to give it a designation
10 beyond the purposes of the assessment, so, I wasn't
11 suggesting anything like what we see in the regulations
12 for the prohibition on connectivity, because you don't
13 have that authority. But you do have authority -- your
14 job under Section 1, Sub 1, Sub C of the Act is to look at
15 effective environmental processes, existing ones that
16 address the questions, and -- and in doing that we say it
17 is open to you to say the shale aquitard is an important
18 ecological component for the purposes of our advice to
19 government. That's all I was saying, and I apologize for
20 our imprecision is language.

21

22 COMMISSIONER GILLIES: Gillies, here.

23 Thanks for the answer.

24

25 THE CHAIRMAN: Chair. Mr. Duncanson,

1 over to you please.

2

3 MR. DUNCANSON: Thank you, Mr. Chair.

4 Sander Duncanson speaking. So, I'm going to be relatively
5 brief, everybody will be happy to know. Most of what we
6 heard from the other parties today in their closing
7 arguments were issues that I addressed in my initial
8 argument earlier this morning, so, I'm not going to repeat
9 what I've already said earlier today, I'm just going to
10 respond to certain new things that we heard over the
11 course of the day. I also do not have any points of reply
12 in response to RM of Springfield, so I'm just going to
13 focus specifically on MSSAC and Our Line in the Sand slash
14 Manitoba Eco-Network. And I will go in the order that we
15 heard them, and as you can appreciate, this will largely
16 follow the -- the sequence of the arguments in which we
17 heard them, as well.

18

19 So, the first aspect of the MSSAC argument
20 that I'm going to respond to is the theme of alleged
21 deficiencies that Ms. Boryskavich walked through. The
22 first -- she claimed that the failure mode in Stantec's
23 geotechnical assessment did not address vertical jointing.
24 That's not correct. And we heard yesterday from Mr.
25 McLachlin that vertical jointing was, in fact,

1 specifically considered in the Stantec assessment, and --
2 and how that would be dealt with going forward, as well.
3 So, I wanted to make sure that that was clear. She
4 suggested that the 65-degree slope in the sand was a
5 calculation that only relied on side scan sonar data and
6 nothing else. That's also not correct based on the
7 evidence. That calculation was also based on standard
8 penetration tests, which we heard Sio's witnesses talk
9 about earlier in the hearing, and they explained that
10 those tests showed that the intact sandstone layer did
11 exhibit characteristics of very dense rock, and that, in
12 fact, they explained or showed that the -- the assumptions
13 in the geotechnical assessment were, in fact,
14 conservative. So, again, just wanted to make sure that
15 that was clear.

16

17 Very briefly, Ms. Boryskavich mentioned
18 that Sio relied entirely on single well extraction tests.
19 That is also not true, as you may have heard over the last
20 couple weeks, as Sio also performed two-well tests, so,
21 not just single-well tests. But really, and we heard a
22 little bit about this from Mr. Williams as well, there --
23 there seems to be this impression that the number of wells
24 is what drives the geotechnical assessment, and it's not
25 the number of wells. Mr. Bullen, I think had a nice

1 analogy in the first week, where he held up his coffee cup
2 and he was talking about the number of straws going into
3 that cup. From a geotechnical perspective, it doesn't
4 matter how many straws, it matters how big that void space
5 is, and that's what was assessed. So, whether you're
6 creating that void space with one well or five wells, the
7 geotechnical assessment is essentially the same.

8
9 And the last, alleged, deficiency that Ms.
10 Boryskavich talked about was the strain weakening model in
11 the geotechnical assessment with strength declining to
12 zero, and that was something we heard Mr. McLachlin speak
13 about yesterday. He explained that that will apply to the
14 disturbed sands, not the intact, undisturbed pillar, and
15 that was the basis for the geotechnical assessment. And
16 consistent with my comments earlier, this is a very
17 detailed aspect of geotechnical engineering. I'm not a
18 geotechnical engineer, so I can't really go much further
19 into the details about it, but I'll note that Mr. Mann,
20 who seemed to be struggling with this, he's also not a
21 geotechnical engineer, by his own admission. And so,
22 while Mr. Mann may not yet fully understand the scope of
23 that assessment that was done, that does not make it a
24 deficiency for the purposes of this assessment.

25

1 The next section of Ms. Boryskavich's
2 argument was a series of three pieces of -- of information
3 that she claimed was missing from the record, based on Dr.
4 Hollander's comments. I'm not going to respond to that in
5 detail, because the record speaks for itself. Sio's
6 witnesses explained, in detail, over the course of the
7 hearing, exactly where each of those three sources of
8 information was, in fact, on the record of this
9 proceeding. They have been fully addressed and much of
10 that was discussed, as well, yesterday, so I will leave it
11 at -- leave it at that, but just to make it clear, that
12 that is not, in fact, missing information.

13

14 And then the -- the -- the final portion of
15 Ms. Boryskavich's argument was based on recommended
16 conditions. There was a fair bit of detail in there, and
17 we appreciated Ms. Boryskavich's comment that the details
18 of what they're requesting will be set out in their
19 written comments, and we look forward to reviewing those
20 in detail in writing, and -- and potentially responding
21 with further comments in writing, as well.

22

23 But just a few responses to some of the
24 things that we heard. One of the requests from MSSAC is
25 that this Commission should recommend that any future

1 extraction phases be subject to a new application
2 requirement, then public hearing. First comment in
3 response to that, panel, is that is effectively a matter
4 of government policy and regulations. And for the reasons
5 I set out this morning, my submission is, that goes beyond
6 the scope of the terms of reference that you've been asked
7 to carry out. It is not part of your mandate to prescribe
8 how future applications should be submitted to the
9 government or reviewed by the government. And as a matter
10 of law, my submission is that would also amount to an
11 improper fettering of discretion. And what that means,
12 some of you may be familiar with that term, but there's a
13 well established principle in the law that a decision
14 maker, let alone a recommending body like this panel,
15 cannot predetermine how a future exercise of discretion
16 will be exercised in relation to a yet-to-be-submitted
17 application. And there's a few legal authorities to
18 support that -- we can provide that in our written
19 comments next week. But the point, is it is unlawful for
20 this panel to fetter Manitoba's discretion in how it
21 decides to deal with future applications.

22

23 With respect to certain comments that MSSAC
24 had with Sio's draft management and monitoring plans, much
25 of what was recommended struck us as we heard it, as -- as

1 being things that are already in the draft plans. So, I
2 don't think much of that was -- would be concerning for
3 us. But of course, we're going to have to see exactly
4 what MSSAC is proposing in their written comments and --
5 and we'll advise if there are any specific things we take
6 issue with.

7
8 But there were a couple points that -- that
9 we do disagree with. One was a suggestion that the TARP
10 should include remediation for void spaces if subsidence
11 occurs in the future. And that's something we have not
12 heard about over the course of this hearing. We don't
13 have any evidence about whether or not that suggestion
14 would even be possible, and it would be, in my submission,
15 an error of law for conditions to be included in a licence
16 that are incapable of being satisfied. And again, going
17 back to one of the themes in my argument this morning,
18 this panel needs to ground its recommendations to the
19 Minister based on the evidence that's before it. The
20 evidence that's before it demonstrates that subsidence on
21 surface will not occur as a result of this project, and
22 the various monitoring and mitigation plans that have been
23 proposed are intended to ensure that. So, there's no need
24 to prescribe any details for remediation of -- of void
25 spaces if subsidence occurs, as part of a licence.

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With respect to the suggestion that the licence itself should require finalization of these various monitoring and mitigation plans, and that those plans should be finalized prior to commencement of operations, that is entirely consistent with what Sio expects and -- and had contemplated all the way along. So, that is not of concern to us.

With respect to the suggestion that a -- some form of stakeholder monitoring committee may be a good way of facilitating some of the exchange of dialogue that was discussed during the hearing, conceptually, Sio is supportive of that. Of course, we're going to have to see, again, the details that are -- are being proposed, but conceptually that's -- that's something that we're supportive of. The one aspect of that -- that we do take issue with is this suggestion that this panel should recommend that Sio be held financially responsible for any impacts on municipal infrastructure, and that this committee that's created would be the part -- the body that would resolve any disputes around how that -- those impacts are assessed and any compensation calculated. And the -- the issues there, panel, I mean, first of all, the evidence is that Sio will be -- will be paying millions of

1 dollars to the local municipality in the form of taxes,
2 that those taxes are, you know, intended to cover
3 proportional impacts on municipal services and
4 infrastructures. Sio will have a development agreement
5 with the local municipality as part of its processing
6 facility, not as part of the extraction project -- it's
7 not required for the extraction project. So, some of
8 these issues would be dealt with as part of the
9 development agreement for the processing facility, but
10 that's out of scope for this process. In my submission,
11 effectively changing the municipal tax regime, which is, I
12 think, what would -- MSSAC's recommendation would
13 effectively amount to, is again, outside of this panel's
14 legal authority. And so, conceptually, we do have
15 concerns with any conditions or recommendations related to
16 financial compensation to the municipality. But again, we
17 will review what MSSAC is specifically proposing in their
18 written comments and we will provide likely additional
19 comments in writing after that. So, those were my -- my
20 comments in reply to MSSAC.

21

22 And I'll turn now to Our Line in the Sand,
23 slash, the Manitoba Eco-Network, and my friend, Mr.
24 Williams. There was, of course, quite a lot discussed by
25 Mr. Williams over the course of the day, today. I am not

1 going to be responding to every single point. Not
2 surprisingly, I don't agree with everything that Mr.
3 Williams said, in fact, quite a lot of it I don't agree
4 with, but I'm not going to be responding point-by-point to
5 absolutely everything.

6
7 The first point that I will respond to is
8 he talked quite a lot about the -- the "Southeast Regional
9 Groundwater Management Plan", the SRGMP, and he claimed
10 that that was not considered by Sio or AECOM. And he also
11 claimed that that was something that was not referenced at
12 all during the oral testimony from Sio's witnesses. Now,
13 first of all, Mr. Williams never asked Sio's witnesses if
14 the SRGMP was considered in their assessment. So, we
15 don't actually know whether or not what Mr. Williams said
16 today is true, but regardless, I will note that the panel
17 yesterday did specifically reference the SRGMP during
18 their rebuttal testimony as part of their discussion of
19 the sustainability of the aquifer, and who is responsible
20 for managing the aquifers. And also, as is evident on the
21 face of the document, that document is now more than ten
22 years old -- I believe it's a 2010 document, and AECOM's
23 evidence was that it relied on the most current
24 information about aquifer management to inform its review.
25 And so the fact that this document, as it -- is as old as

1 it is, and that there have been subsequent government
2 publications that have come out since, is likely why you
3 didn't see more references to it in their assessment. But
4 again, they weren't given an opportunity to provide actual
5 evidence on that point.

6
7 Mr. Williams claimed that I did not cite
8 the *Mines and Minerals Act* this morning in my argument,
9 and that he was quite surprised that I didn't do that,
10 when this is a mining project. But of course, while it is
11 true that this is a mining project, this is a review under
12 the *Environment Act*, not the *Mines and Minerals Act*. The
13 evidence I submit demonstrates that this project is
14 consistent with the principle of sustainable development,
15 and it will not have any significant adverse environmental
16 effects. Those were the sections from the *Mines and*
17 *Minerals Act* that Mr. Williams pointed to. But we do
18 disagree that the *Mines and Minerals Act* governs this
19 review. Based on the comments I made this morning, I
20 submit it's quite clear that this review is governed by
21 the terms of reference which was -- which were submitted
22 to the CEC under the *Environment Act*.

23

24 Mr. Williams suggested that it is the
25 proponent's job to go beyond the EAP guidelines and think

1 about the purpose of the legislative regime, and consider
2 things like cumulative effects. With all respect, panel,
3 I don't think it's reasonable to expect every proponent to
4 read Mr. Williams' mind to predict how he would interpret
5 the legislative intent as it applies to their project.
6 This approach is entirely impractical. Parties need to
7 know what is required of them when they are preparing an
8 EAP. Other parties like the CEC and the interested
9 participants, they also need to know what the rules of the
10 road are for an application. If every application is
11 evaluated on an ad hoc, project-specific basis, no one
12 will ever know, with any degree of confidence, what is
13 required, or not. My submission is that is entirely
14 contrary to the wording of the Act, which requires EAPs to
15 be prepared based on the requirements in the EAP
16 guidelines. And on that point, Mr. Williams suggested
17 that guidelines are not law. And I do agree that that is
18 a correct statement in general terms of law, but
19 compliance with the EAP guidelines under the *Environment*
20 *Act* is mandated in the *Environment Act* itself. So, as I
21 referenced earlier -- pardon me -- and its regulations,
22 and I explained that earlier. Those were the excerpts
23 that I provided on my slides this morning. So, I disagree
24 that compliance with the guidelines is not required at
25 law. In fact, that is what is legally required for EAPs.

1
2 We heard a lot from Mr. Williams about
3 cumulative effects assessment and his view that any good
4 environmental assessment must include a cumulative effects
5 assessment. He relied extensively on Matrix and Arcadis
6 to support that view, and he suggested that 'Anyone who
7 says cumulative effects assessment is not good practice in
8 environmental assessment is making an absurd statement.'
9 Now, panel, that is just another way of saying that you
10 need to change the EAP guidelines, or more correctly,
11 Manitoba needs to change the EAP guidelines, because in
12 Mr. Williams' view, no project should be approved unless
13 it's supported by a cumulative effects assessment. As I
14 said this morning, that goes well beyond the scope of this
15 hearing and it ignores the fact that other recent EAPs
16 for groundwater withdrawals in this part of Manitoba have
17 been approved without any cumulative effects assessment.
18 And with respect to Mr. Williams' reliance on Arcadis and
19 Matrix around cumulative effects assessment, and what
20 should be required in EAPs, both Arcadis and Matrix
21 acknowledged they have never prepared an EAP in Manitoba,
22 and they only had general familiarity with the EAP
23 guidelines. So, in my submission, their views about what
24 should be done in an EAP in Manitoba should be given very
25 minimal weight.

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The next related point from my friend was that cumulative effects -- a cumulative effects assessment not only must be done, but it must consider individual groundwater withdrawals in combination with other withdrawals. And he took that from the -- from various government policy documents related to aquifer management.

Now, I responded to this issue of cumulative effects a fair bit this morning. I'm not going to repeat those points again. But one point I did not mention this morning is that when AECOM assessed impacts on groundwater quantity and flow, they did look at other groundwater users. So, it's incorrect to suggest that AECOM only considered the project withdrawal in isolation from other users in the region. And again, Mr. Williams' comments ignore the effects of -- that -- that the effects of Sio's project will be transient, not cumulative, and Mr. Mills explained that in his testimony yesterday.

We heard a fair bit from Mr. Williams about various different regulations in the province, and based on his selective reading of certain provisions of the regulations claims that Sio will be contravening the regulations. And again, this was something I anticipated

1 I would hear from my friend, and I largely already
2 responded to it. Again, this is not something that needs
3 to be decided by this panel as part of this process, but I
4 will make a few other points. While there is some
5 variation in the wording between the various different
6 regulations, and Mr. Williams set out a few different
7 sections of regulations, my submission is the proper
8 interpretation of what those regulations mean and what
9 they require is that they all need to be read
10 harmoniously. They all need to be read together to try to
11 figure out what is the overall intent here. And you
12 shouldn't have materially different obligations in
13 different regulations that are essentially intended to
14 deal with the same issue.

15

16 Our view is that, when read harmoniously,
17 the prohibition against mixing aquifers is with respect to
18 mixing aquifers with distinctively different qualities,
19 and I explained why that was the case earlier in my
20 remarks this morning, and why that does not apply here.

21

22 And my only other point in respect of the
23 regulations is Mr. Williams claimed that the "Drilling
24 Regulation" under the *Mines and Minerals Act* is, I think
25 his words were, 'directly applicable to the project

1 because it's a mining project.' And panel, we don't need
2 to pull it up, but if you actually look at that regulation
3 that Mr. Williams was citing, that regulation -- that
4 provision he was talking about applies to boreholes. And
5 if you look at the definition of boreholes under the
6 regulation, it -- that would not encompass the types of
7 wells that are being contemplated here. That talks about
8 wells for the purpose of exploring for minerals or
9 gathering scientific information, and that is not what the
10 extraction wells will be doing. So, our submission is,
11 contrary to what my friend would suggest, that section of
12 the regulations is not directly applicable to the project,
13 and again, you can take comfort Sio will follow the rules
14 and comply with all applicable regulations.

15

16 Mr. Williams specifically mentioned the
17 CEC's report for the Pembina Valley Project. I talked, in
18 general terms in my comments this morning, about past CEC
19 reports, and that encompassed the Pembina Valley Report,
20 but two specific points in reply in addition to what I
21 said this morning. I kind of mentioned in passing, but
22 just want to emphasize it in my comments this morning,
23 each terms of reference for each CEC review are different.
24 And if you're looking specifically at the comments that
25 were made in the Pembina Valley Report, it is worth going

1 back and looking what the terms of reference were for the
2 CEC in that process, which, in my submission, were
3 materially broader than the terms of reference in this
4 proceeding. And second, I hope that this is now well
5 understood by everyone, but just to make it clear, the
6 Pembina Valley Project was a materially different project
7 than what Sio is proposing. That project involved very
8 large withdrawals of water, exports of water outside of
9 the area through a pipeline that was more than 100
10 kilometres in length. It was not supported by any
11 groundwater modelling work -- Mr. Samoiloff explained that
12 in the first week of the hearing. So, in my submission,
13 those are totally different circumstances than what we're
14 talking about in this hearing, and the findings for the
15 Pembina Valley Project have no bearing on your
16 recommendations here.

17

18 Briefly, we heard a lot from Mr. Williams
19 about the credibility of his witness, Mr. Boutin from
20 Matrix. Mr. Williams attempted to suggest, I think, that
21 Mr. Boutin's -- Mr. Boutin was the -- the more credible
22 witness of any witness in this -- this hearing, in part
23 because he was subjected to the longest cross-examination
24 of the hearing. And I -- I couldn't help myself, I felt I
25 had to observe that the length of my cross-examination of

1 Mr. Boutin was influenced to a large degree by the fact it
2 often took Mr. Boutin a very long time to provide clear
3 answers to my questions. But regardless, you will not be
4 surprised to hear that we firmly dispute the suggestion
5 that Mr. Boutin was a more credible witness than Sio's,
6 when many of Mr. Boutin's opinions went beyond his core
7 area of expertise, and as I noted already, he has limited,
8 to no, past experience in Manitoba.

9

10 Around Slide 39 of Mr. Williams' argument
11 this afternoon, he suggested, essentially, size matters,
12 because the area of shale collapse caused by Sio's
13 proposed extraction would be much larger than the area of
14 a water well that interconnects the two aquifers, and so,
15 there would be a much bigger impact in terms of
16 intermixing caused by this project relative to
17 interconnecting water wells. But that's not supported by
18 the evidence. The evidence is that when you're connecting
19 aquifers with limited difference in hydraulic head, each
20 interconnection provides an opportunity for intermixing,
21 and there is essentially no difference whether you're
22 talking about a single interconnecting water well, or a
23 much larger area where shale has collapsed, in a void
24 space. So, to suggest that the area of shale collapse
25 will create more interconnection of the aquifers, as

1 compared with interconnecting water wells, is not
2 supported by the evidence.

3
4 Mr. Williams cited Arcadis' observation
5 that Sio was proposing to abandon its wells based on
6 standard practice for groundwater wells. That's also not
7 correct. Sio's proposed abandonment procedures were filed
8 in its draft "Progressive Well Abandonment Plan", which
9 went beyond basic water well sealing practices. And by
10 now, we've all heard a lot about that --I won't go into
11 anymore detail about the details of Sio's proposed well
12 sealing practices, but they do go beyond what is the basic
13 practices for groundwater wells in the area. And I will
14 also note that Sio's draft plan was filed after Arcadis
15 conducted its review of the well sealing practices in this
16 hearing.

17
18 Mr. Williams elaborated on his argument
19 about the shale layer being treated as a VEC, which I
20 already responded to this morning, and again, I will not
21 repeat what I've already said. But the one point I will
22 add, in addition to what I said earlier, that is in
23 response to Mr. Williams' specific suggestion that there
24 needs to be thresholds around how much shale can be
25 impacted in the region. That was one of the things that

1 he said flows from this designation or treatment of the
2 shale as a VEC. But again, there's no evidence to support
3 that type of recommendation or approach. Based on the
4 evidence, there is no difference, in terms of groundwater
5 quantity or quality, if there is a single void that causes
6 shale collapse and intermixing of the aquifers, or 100
7 points of interconnection, or more than 100 points of
8 interconnection. So, there's no evidence to support that
9 aspect of Mr. Williams' argument that there needs to be
10 some sort of a threshold set.

11

12 On Slide 61 of his argument, Mr. Williams
13 argued that the AECOM modelling boundaries were inadequate
14 for the purpose of assessing the sustainability of the
15 aquifers. And he relied on his witness, Mr. Boutin, for
16 this, when Mr. Boutin said that the 'Model boundaries were
17 appropriate for assessing the effects of a specific
18 project, but not large enough to assess sustainability of
19 regional groundwater supply.' And of course, that
20 entirely misses the point, panel, because what AECOM was
21 looking to do was assess the effects of a specific
22 project, and not the sustainability of regional
23 groundwater supply. That goes beyond the objective of
24 their model, that goes beyond the scope of this
25 application, and we heard Sio's witnesses speak to that at

1 some length yesterday. And just a few other points on
2 this issue of groundwater model domain or boundaries,
3 there have been a lot of different groundwater models
4 referenced during this hearing. A lot of them have been
5 displayed on maps. You can see, in comparing those maps,
6 that each one of these models has used different
7 boundaries or domains. If you look at the -- the model
8 that Dr. Hollander, himself, co-prepared in 2018, the
9 boundaries for that model were much smaller even than what
10 AECOM used for this project, and that was shown on a map
11 in the rebuttal testimony yesterday. So, the evidence is
12 that the model boundaries for each model need to be based
13 on professional judgment, having regard to the objective
14 of the model. And we submit that the evidence
15 demonstrates that AECOM's approach to modelling was
16 appropriate given the purpose and objective of its model
17 for this project.

18

19 I just have a few final points of reply.
20 Next, Mr. Williams raised the issue of recharge in the
21 groundwater model as a key deficiency, and he claimed that
22 I abandoned my cross-examination of Mr. Boutin on this
23 issue, and he also claimed that AECOM did not meaningfully
24 respond to this issue yesterday. And I was on the fence
25 as to whether I would address this issue at all in my

1 reply, but the suggestion that I abandoned my cross-
2 examination was too tempting not to respond to. To be
3 clear, I did not abandon my cross-examination of Mr.
4 Boutin. We were not clear on what Mr. Boutin was saying
5 about recharge, and we asked some questions to gain
6 clarity around that, which was the purpose of our
7 questions. And AECOM specifically responded to that issue
8 yesterday. And as you'll recall, one of the things that
9 AECOM explained yesterday, and Mr. -- Mr. Williams noted
10 this in his comments is, recharge is something that is
11 very difficult to estimate in any model. This is not
12 unique to AECOM's model, this is something that is -- is
13 for every groundwater model. And they explained that they
14 selected their recharge values based on specific research
15 into recharge in the Sandilands area, and we submit that
16 that was an appropriate approach.

17

18 Very briefly, Mr. Williams, in his
19 comments, noted that it was unfortunate that Sio never
20 responded to Dr. Pip. Just to be clear, for everyone, Sio
21 actually did respond to the comments that Dr. Pip
22 submitted as part of the public review process, and those
23 were largely -- substantively the same as the comments
24 that were submitted as part of this hearing process, and
25 Sio did respond to those. Just wanted to make sure that

1 that was clear.

2

3

4 Near the end of his presentation, Mr.
5 Williams relied heavily on Arcadis to support various
6 different statements in the original Arcadis report, but
7 they were primarily on issues that were unrelated to the
8 scope of Arcadis' review, which we discussed with Mr.
9 Wiatzka last week, and he confirmed that that was focused
10 on geotechnical matters. As I explained in my comments
11 earlier this morning, my submission is that this panel
12 should give limited weight to the views of experts, even
13 its own experts on -- on matters that go beyond their area
14 of expertise, and their focus of review in this
15 proceeding.

15

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 And finally, we heard at the very end of
Mr. Williams' comments, some recommendations that his
clients are asking that this panel make to the government,
and in my submission, those types of recommendations would
go beyond the scope of the CEC's terms of reference for
this project for the reasons that I explained already
earlier.

 So, that concludes my reply submissions,
panel, subject to any questions that you may have.

1
2 THE CHAIRMAN: Chair. Thank you very
3 much. I just have 20 to 30 minutes of closing remarks.
4 Just kidding, just kidding. I would like to conclude with
5 some thank-yous before we adjourn. I'll start with Kathy
6 Johnson, and more recently, Peter Crocker and Courtney
7 Harmer for organizing these meetings. My fellow
8 Commissioners, Laurie, Ian, and Terry, for their counsel
9 and support. Bill Bowles, who wasn't here today, and
10 Kelly Dixon, for their legal advice. Thanks, of course,
11 to the Mennonite Heritage Village, the Anola Community
12 Club, and the Brokenhead Community Centre, for hosting us.
13 Further, to the participants, for their countless hours of
14 work to ensure that this proposal was considered from many
15 perspectives. Thank you on behalf of the panel.
16 Different dozens of members of the public who took time to
17 share their thoughts, both written and orally, and
18 certainly, we got a clear sense of what an emotionally
19 charged issue this is for some. To the proponents and the
20 CEC's consultants for their professional expertise and
21 opinions that, of course, have driven the discussion, many
22 thanks.

23

24 In my opening remarks on Monday, February
25 27th, I noted we have a lot to accomplish in the next

1 three weeks. I will need your cooperation to think --
2 keep things moving in a timely manner. You have certainly
3 done that. Thank you, and it was done in a very
4 respectful manner, of which I'm very appreciative.

5
6 Bob, I haven't forgotten you sitting back
7 there. You have -- you now have the not-so-enviable task
8 of synthesizing what we've heard, along with the
9 perspectives of Laurie, Ian, Terry, and me, in turning it
10 into a report. Thank you for the work that I know you
11 will do.

12
13 We have 90 days from the close of the
14 record on March 24th to submit a report to the Minister.
15 I'm sure we're going to do that right, Bob? Bob's busy
16 typing.

17
18 It's been an interesting 12 days. It has
19 been a pleasure and a privilege to have served as your
20 Chair. Is there anything anyone else would like to ask --
21 add to the record before I close it -- the oral record?

22
23 Mr. Secretary, anything I need to -- Mr.
24 Williams?

25

1 UNIDENTIFIED SPEAKER: Sorry, I don't have
2 (inaudible).

3
4 MR. DUNCANSON: Yes, Mr. Chair, Sander
5 Duncanson speaking. I appreciate Mr. Williams' prompt.
6 We had had some informal discussions, just between
7 counsel, in terms of the process for written supplemental
8 submissions. We appreciate that Mr. Williams has -- has
9 provided his -- his factum, or brief, already today. Yes,
10 we would request three working days following any
11 participants' written submissions, to give us an
12 opportunity to provide comments in writing and reply, if
13 that's acceptable to the panel.

14
15 THE CHAIRMAN: Chair. There don't
16 seem -- there doesn't seem to be any concerns with that,
17 so that's fine.

18
19 Any other closing questions or comments?
20 We are adjourned. Thank you all very much.

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25

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March 15, 2023