NATURAL RESOURCES CONSERVATION BOARD

Application No. 1701

SPRINGBANK OFF-STREAM RESERVOIR PROJECT

P R O C E E D I N G S

Volume 10

April 6, 2021

(Via videoconferencing)

Natural Resources Conservation Board Proceedings taken virtually in Calgary and Edmonton, Alberta.

Volume 10

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(PROCEEDINGS COMMENCED AT 8:00 A.M.)

THE CHAIR: Good morning, everyone. Welcome back to the hearing for Springbank 1701. 08:00

I certainly hope that everyone had an enjoyable and, hopefully, relaxing Easter long weekend. We had some great weather in Edmonton. I know folks are spread around the province and perhaps even outside, but from what I understand, the weather was decent and we certainly hope that everyone had a nice weekend.

We do have a schedule for today. We had agreed on some times, as you recall last week, but Ms. Friend will be sending out a schedule for today just so that you can get an idea on timing. 08:01

It looks like with the 45-minute lunch, we'll finish around 5:30. So, you know, I think that works well and does provide everyone with the time that we had agreed on last week.

Welcome, Ms. Vespa, this morning. And I

understand we'll have Ms. Gerbrandt in the afternoon. As Ms. Vespa was talking about this morning, it's -- with final argument, it's a lot to get down, so they are going to split shifts for today.

And, again, I would ask that, you know, we're cognizant of the fact that we've got a court reporter getting all of this down, so in terms of your speed of delivery and that, we'd appreciate being cognizant of the fact that Ms. Vespa is doing her best to keep up and get all of this down, so... 08:01

Now, we do have a few preliminary matters for this morning. And I think primarily from Alberta Transportation, there are -- or were some outstanding undertakings which I believe have been cleared up and filed, but we need to get those on the record and numbered with some exhibits.

So let's start off with that. I'm hoping we get any prelim matters done by 8:15, but let's start off with the undertakings.

Mr. Kruhlak? 08:02

MR. KRUHLAK: Yes, Mr. Chairman, I can address that.

We submitted responses to Undertakings 34, 44, and 46 through 59 on Saturday, April 3, which was submitted to the Board and distributed to all parties. If we

could have that marked, please.

THE CHAIR: Ms. Friend.

MS. FRIEND: Yes, that will be Exhibit Number 407.

EXHIBIT 407 - AT RESPONSES TO UNDERTAKINGS 34, 44, AND 46 THROUGH 59

MR. KRUHLAK: And, Mr. Chairman, I just have two other matters to speak to.

We also submitted on April 4th some brief revisions to the transcripts from the second week of the hearing, and if we could have that marked as well, please. 08:03

THE CHAIR: Yes. And were those sent to other counsel?

MR. KRUHLAK: They were.

THE CHAIR: Any objections?

Hearing none. Okay.

MS. FRIEND: And this is Laura. Sorry, that will be Number 408.

EXHIBIT 408 - MARCH 29 TO APRIL 1 AT TRANSCRIPT CORRECTIONS 08:03

MR. KRUHLAK: Thank you, Ms. Friend.

Then, lastly, sir, we have just submitted to Ms. Friend -- it just went out a few moments ago, as we were still making some revisions -- the text of our

final argument, which also has attached our references to the evidence, which, as Mr. Fitch and I present the oral argument, we will not make reference to exhibit numbers or page numbers. But, perhaps that might be marked, and that might be of assistance to Ms. Vespa in capturing our comments as we go through it.

THE CHAIR: Indeed.

Ms. Vespa, does that work for you? Great.

Thank you very much, Mr. Kruhlak.

MR. KENNEDY: If we assign Exhibit 409 to that. 08:04

THE CHAIR: 409. Thank you, Mr. Kennedy.

MS. FRIEND: Thank you.

EXHIBIT 409 - FINAL ARGUMENT OF ALBERTA TRANSPORTATION

THE CHAIR: And a quick question for all counsels. We do have, I think, Ms. Cundliffe on this morning for document management. We didn't really expect that there would be documents that you might -- you may want up or exhibits, but it's no problem if you do. I just want to check with folks. 08:04

Was there any intent on bringing up documents, whether they're perhaps printed copy of final argument or other documents for this morning?

And Alberta Transportation -- Mr. Kruhlak, you folks will be up first, but were you intending on

having any documents up?

MR. KRUHLAK: No, sir, we aren't.

THE CHAIR: Okay. Thank you.

MR. SECORD: And Richard Secord here. We weren't intending to pull up any documents, but like Mr. Kruhlak, once we hear his argument, we will be providing Ms. Friend with an outline of our speaking notes.

So it may be -- there might be something that I might want out of that document, perhaps, but other than that, I don't expect to need the document managers, or won't be keeping them very busy. 08:05

THE CHAIR: Thank you. Mr. Cusano?

Ms. Senek?

MR. CUSANO: Good morning, sir. Our approach will be similar to Mr. Secord and Mr. Kruhlak. We will not need any documents. We will also provide a copy of argument to the court reporters. And during the course of argument, we will not be referring to exhibit numbers. 08:06

THE CHAIR: Okay. Thank you.

Ms. Senek, would it be similar for the City of Calgary?

MS. SENEK: Similar for the City of Calgary, yes. Thank you.

THE CHAIR: Thank you. We can deal with this afternoon's later on, but thank you very much.

I just wanted to give a heads-up to document managers so they can probably attend to some other stuff that they have got on the go as well.

So, thanks, Ms. Cundliffe. It sounds like you are, for the most part, going to be off the hook this morning, but thank you for your participation in the hearing, and all the work that you've done over the last couple of weeks. 08:06

So any other preliminary matters from other parties?

MR. CUSANO: Yes, sir. Thank you very much.

Sir, we have three minor transcript corrections that Mr. Bruni will circulate to all counsel this morning. And at some point later today, I will ask that they be marked as an exhibit, but at this point not all counsel have seen them. I sent them very early to Mr. Secord and Mr. Kruhlak this morning, but, of course, that needs a wider distribution. 08:07

THE CHAIR: Okay. Well, thank you. We can deal with that perhaps either after lunch or quickly after a break in the afternoon.

MR. CUSANO: Thank you, sir.

THE CHAIR: Thank you. Any other matters?

Hearing none. I think we can get started then. And Alberta Transportation is first up with 150 minutes. So that would take us to -- what is that, 10 -- well, just 10:45, I think, but we're starting a bit earlier than the 8:15 start, but I can give you a bit of a heads-up as we get closer, Mr. Kruhlak. We've got a little ways to go before then.

So, Mr. Kruhlak, Mr. Fitch, Mr. Barbero, the floor is yours.

Thank you. 08:08

MR. KRUHLAK: I'm sure Mr. Secord wouldn't object if I remained on mute for the entire morning.

Mr. Chairman, Panel members, Panel staff, we're pleased to present to you today our final argument on behalf of Alberta Transportation with respect to the Springbank Off-Stream Reservoir Project, which I'll refer to as SR1.

As I briefly indicated, Mr. Fitch and I will share this presentation, and I will start.

And I thought it might be useful just to make some 08:08 introductory comments to provide some context and then briefly discuss the framework of the Board's review for this project.

Our presentation will then review the issues identified by the Board under the various topic

sessions.

I'd like to situate these oral remarks within the context of the very large record that exists in these proceedings; in particular, the positions of all parties, including Alberta Transportation, that have already been set out in writing in several documents, which form part of the record and have been marked as exhibits.

In the case of Alberta Transportation, we filed the comprehensive reply submission to the written 08:09
submissions of the interveners who oppose the project. Alberta Transportation's reply submissions consist of three main documents: the Exhibit 325, the actual reply; the Appendix A through I of that reply, which is Exhibit 327, which responds to various components of the SCLG's evidence and experts; and, lastly, Appendices J through M, which is Exhibit 324, which responds to various aspects of the evidence of the Stoney Nakoda Nations.

When the Board is considering this, we would 08:10
advise that our oral submissions that we're making this morning are really supplemental to the written submissions in the reply, and we will simply be intending this morning to take into account the testimony and evidence that the Board has heard over

the last two weeks.

Other materials Alberta Transportation ask the Board to consider as part of our submissions are the various opening statements that were made by Mr. Hebert and other members of our witness panels. There were openings for each of the five main topic sessions, which all were exhibited. And the opening statement for Topic 5 also included Exhibit 392, the PowerPoint presentation.

These opening statements summarize Alberta Transportation's position on the topics found by this Board to be relevant for its public interest determination, and we'd encourage the Board to review them during its deliberations in addition to our reply submissions and these closing argument remarks. 08:10

In this presentation, we respectfully submit that the evidence clearly supports the conclusion that there is a serious need for this project to be built as soon as possible, that this project is in the public interest for the people of Alberta, and that the potential impacts of this project have been identified, and Alberta Transportation is committed to implement numerous mitigation measures such that, with few exceptions, the project will not cause significant adverse environmental effects. 08:11

As I've noted prior to addressing the various topics discussed during the hearing, we'd like to make several high-level contextual-type submissions.

First, despite this project being advanced by the department of the government of Alberta, it's clear that SR1 has been subjected to a rigorous review by the respective regulators, Indigenous groups and stakeholders.

Mr. Chairman, over the course of the last three years, since the EIA was filed, numerous information requests were asked by your Board, other regulators, all of which Alberta Transportation responded to. 08:12

Further, we've just completed an almost two-week hearing in which all aspects of this project have been subjected to scrutiny and the interveners have been given the opportunity to advocate their positions directly to the Board.

Secondly is the issue of alternative projects. This point was addressed at the pre-hearing, and the Board provided the parties with the following direction on this issue in its pre-hearing decision: (as read) 08:12

"It acknowledges that the various parties are advocates for Elbow River Basin flood control alternatives to SR1. In particular, McLean Creek has received

significant attention by stakeholders and the applicant. The Board's mandate is limited to determining whether the reviewable project, in this case, SR1, is in the public interest. While a general understanding of the relative merits associated with project alternatives may contribute some contextual relevance to a determination of the public interest decision on SR1, the NRCB focus must be on the social, economic, and environmental effects associated with the reviewable project." 08:13

The Board went on to say that: (as read)

"It would entertain submissions on how the proponent's considerations of alternatives is relevant to a public interest determination of SR1. However, the Board does not find merit in the expenditure of significant time and resources assessing projects that are not a reviewable project and under the NRCBA." 08:13

Now, despite that direction, an alternative project, MC1, was referred to numerous times by certain

interveners, in particular the SCLG. We reiterate that there is only one project under review, only one project that is being advanced, and only one project that has been subjected to the regulatory scrutiny which I've just referred to, and that project is SR1.

It's for that reason that Alberta Transportation did not engage in debate during the hearing in response to comments or the conjecture about MC1, for which there is no fulsome record of review before this Board; which would include a hearing from parties who might be opposed to constructing the in-stream dam on the Elbow River in a popular recreation area in Kananaskis country. 08:14

That said, in his opening statement on the first day of the hearing, Mr. Hebert, the project's executive director and Alberta Transportation's lead witness, identified the attributes of SR1 which led to its selection, including: it is an off-stream dam and less sensitive than an in-stream dam to the impacts from sediment and debris; it will capture more floodwaters due to the location further downstream; it's closer to operation, response teams, and access roads; it has less environmental impact; it has less impact on the Elbow River; it's less vulnerable to damage during extreme weather, including catastrophic failure during 08:15

construction; it has less impact on social and recreational values and it has less impact on commercial and tourism values; it has a positive economic impact; and it is many years closer to being built and functioning than any alternative project.

This project has received expressed support from the City of Calgary, Erlton Community Association, the Calgary Rivers Communities Action Group, Flood Free Calgary, which, as you may have heard, includes members such as Calgary Economic Development, Calgary Chamber of Commerce, and the Calgary Stampede, among others. In addition, a number of Indigenous groups in Rocky View County, who raised initial concerns about SR1, did not maintain any objections to this project advancing. 08:16

Now, in reviewing the framework for review, we note that the NRCB is conducting the review of this project pursuant to its jurisdiction under the NRCBA. The purpose of the Act is to provide an impartial process to review projects that will or may effect the natural resources of Alberta in order to determine whether, in the Board's opinion, the projects are in the public interest having regard to the social and economic effects of the projects and the effect of the projects on the environment. 08:16

In previous decisions the Board has confirmed that

it does not have a fixed formula to determining whether a reviewable project is in the public interest. In its recent Cougar Creek decision the Board noted that: (as read)

> "There is no fixed objective test. To make the determination the Board balances the economic, environmental, and social interests in the context and time period for which they arise. In the Board's view for a project to be in the public interest, the Board must be convinced that the identified project benefits the region and the province and is consistent with any applicable *Alberta Land Stewardship Act*, regional plan, without generating unacceptable economic, social, or environmental impacts."

08:17

Clearly SR1 is a reviewable project under the Act because it is a water management project as defined. And Alberta Transportation was required to prepare an environmental impact assessment under the *Environmental Protection Enhancement Act*.

08:17

On February 5th, 2015, Alberta Environment and Parks, AEP, issued final terms of reference for the EIA.

And those terms of reference were comprehensive and included diverse issues such as dam safety, air quality, hydrogeology, hydrology, surface water quality, vegetation, water, wildlife, and biodiversity, terrain soils, historic resources, traditional ecological knowledge, public health and safety, socioeconomic impacts, mitigation measures, and residual effects.

As the Board is aware, the EIA was submitted on November 7, 2017, with the revised EIA submitted in March of 2018. As I've already noted, extensive information requests were then submitted by Alberta Transportation to AEP and the Impact Assessment Agency of Canada, IAAC, and to this Board. 08:18

I'd like to just briefly speak to some of the other approvals required for this project. The project will require provincial approvals under the *Water Act* and the *Public Lands Act*. Alberta Transportation has been working with AEP's *Water Act* approvals team since 2019 on SR1. It requires the following approvals under the *Water Act*: Approval to conduct project activities that affect the aquatic environment; it requires a temporary diversion licence; it requires approval to disturb wetlands under the Alberta Wetlands Policy; and it requires the acceptance by AEP's director of dam safety of the dam design, consequence rating and emergency 08:19

management plan to ensure the project is designed, constructed, operated, and maintained safely.

Alberta has regular discussions with the *Water Act* approvals team to confirm appropriate project design and environmental effects. Information is being provided, including submitting the *Water Act* application in July 2020; the Wetlands Impact Assessment Report in August of 2020, and a Preliminary Design Report and associated appendices in December of 2020.

Mr. Chairman, with regard to the *Public Lands Act*, approvals are needed to support the construction and overall operation of the reservoir by permitting the temporary and permanent work that will take place within the Elbow river and three tributaries located within the off-stream reservoir area and along the outlet channel. 08:20

Finally, as you're aware, IAAC has also conducted an environmental assessment of the project under the *Canadian Environmental Assessment Act*. As noted by Mr. Hebert in his opening statement, IAAC has released a draft report, which indicates the taking into account the implementation of key mitigation and follow-up program measures. The project is not likely to cause significant adverse effects. 08:21

The public review period for the IAAC draft report ended April 1st, 2021, and the report is now being

finalized. And we understand that when that is done it will be forwarded to the federal minister for decision under CEAA 2012.

In addition, Alberta Transportation has been working with Fisheries and Oceans Canada, DFO, since 2019. Alberta Transportation is applying for an authorization under the federal *Fisheries Act* for undertakings or activities that may result in harmful alteration, disruption, or destruction of fish habitat or the death of fish. 08:22

Alberta Transportation is also applying for authorization under the federal *Species At Risk Act* for potential effects to bull trout.

Alberta Transportation understands that under section 74 of the *Species At Risk Act* activities resulting in prohibited effects on listed aquatic species at risk such as bull trout can be authorized under the other federal legislation, including the *Fisheries Act*. Our further understanding is that if SR1 receives authorization from DFO, the issued 08:22 *Fisheries Act* authorization will also serve as a species at risk permit.

Alberta Transportation has had, and continues to have, ongoing and regular discussions with DFO to understand the potential fish offsetting requirements

for SR1.

Next, sir, I'd like to turn to project need and justification.

In the aftermath of the devastating flood of 2013 of the Elbow River, the government of Alberta made flood mitigation on the Elbow River a matter of the highest priority. The proposed project is the government's direct response to the 2013 flood, which resulted in the loss of human life and significant economic and personal costs to members of the public, corporations, 08:23
municipalities, and the province itself. As Mr. Hebert said in his opening statement at the commencement of the hearing: (as read)

> "The sole purpose of SR1 is to deliver the important public benefit of flood mitigation on the Elbow River. In tandem with the recent upgrades to the Glenmore Reservoir, SR1 will operate to reduce overland flooding below the reservoir to levels that will not result 08:23
> in damage to property."

With regard to the need for the project, at the hearing we heard evidence from Mr. Hebert, the City of Calgary, CRCAG, and FFC regarding the extensive social, environmental, and economic costs and impacts caused by

the 2013 flood; identified the five fatalities, the over $5 billion in damages, the displacement of 88,000 Calgarians, damage to approximately 14,500 homes, flooding of 4,000 businesses, and Calgary's downtown core being left inaccessible for days due to power outages, damaged access routes, and public safety risks due to pooled water on roadways and pathways.

As stated by Mr. Hebert, the 2013 flood was a terrible event that will always be remembered by those that had to live through it. 08:24

Mr. Chairman, the need for this project is beyond question. It has now been almost eight years since the 2013 flood. It's predicted that a flood of some magnitude is expected on the Elbow River every eight to ten years. The project is needed, and it is needed now.

The next aspect to address is the social and economic project costs and benefits.

The project will provide considerable social and economic benefits by substantially reducing the flood hazard on the Elbow River in the City of Calgary and 08:25 other downstream communities. The project will reduce the effects of extreme future flood events on infrastructure, properties, and the people in the City of Calgary and downstream communities.

As stated in Table 17.6 of the EIA, it is estimated

that $1.5 billion is at risk due to future flooding on the Elbow River of the same magnitude as the 2013 flood without flood protection. Put that another way, SR1 will result in flood damage avoidance benefits for a design flood on the Elbow River of almost 1.5 billion.

The resulting economic effects of a disaster of this magnitude are far-reaching and have implications for all Albertans. And by mitigating the risk of future costly expenses related to flood damages and recovery, this project will benefit all Albertans. 08:26

David Sol of IBI explained the process by which damages were divided between the Elbow and Bow River.

As Mr. Sol said, an object-based model calculated damages for each individual building and they were then able to delineate whether the damage to a building was from the Elbow or the Bow River. It's based on that analysis the flooding risk from the Elbow River system alone was calculated at 1.5 billion.

As I've stated, without SR1, there will be severe impacts from unmitigated flooding. And the City of 08:27 Calgary's evidence was clear, the City is unable to mitigate a 2013-sized flood event on the Bow River on its own.

This project will also result in a number of short-term and long-term positive economic impacts to

Rocky View County, Springbank, and Indigenous groups, including employment and business opportunities during project construction, and the economic benefits of flood protection, both directly to Springbank and Rocky View County and indirectly due to the reduced flood risk to the City of Calgary.

The economic benefits for the project are detailed in Exhibits 38 and 56, the employment and economy volumes of the EIA.

Additionally, during a flood event, the project will either avoid or greatly reduce the generalized economic costs that would be borne by all Alberta taxpayers, such as government expenditures on flood cleanup. 08:27

Further, while SR1 does not provide a direct storage component for water, we heard evidence that it does improve water security on the Elbow River.

In oral evidence, Mr. Wood explained that, currently, the Glenmore Reservoir is operated in the spring for a certain degree of flood control through the drawing down of the reservoir in preparation for the flood season. However, if no floodwater arrives, this could result in water deficits later in the year. Therefore, by reducing the flood risk on the Elbow River, the Glenmore Reservoir is able to operate 08:28

more effectively as a water supply facility. This is another benefit of SR1.

And, as I've said, in any event, the application before the Board is for flood -- for a flood mitigation project to avoid the critical need -- and to address the critical need for flood mitigation on the Elbow River. It's not an application for a drought management project.

As was noted in the evidence of Mr. Frigo for the City of Calgary, the Elbow River watershed would not warrant an investment in a drought management project. 08:29

In response to the repeated submissions of the SCLG and others that alternatives, such as MC1, would provide greater benefits than SR1, Alberta Transportation reiterates that the wisdom of selecting SR1 over other alternatives is not the issue before the Board. Regardless, Alberta Transportation submits that the evidence supports SR1, is best suited to provide timely, reliable, and effective flood mitigation on the Elbow River. 08:29

I'll address the project costs in a moment, but with respect to social costs, the costs of the project and the local community after construction, I just want to say, the impacts associated with this project are temporary, and would occur periodically, some only every

100 years.

As indicated in Alberta Transportation's filed materials and confirmed by Dave Brescia in oral evidence, he said: (as read)

> "Over the last 100 years of record, the project would only have operated ten times, and almost every single one of those flood events would have been at the small size of flood, in the sort of a 1 in 10-year size of flood."

08:30

In most years, SR1 will not be in use, and the land in the reservoir, which will be Crown land, will be available for use by First Nations and the public.

This is not a project where there will be impacts such as a facility generating emissions and effluent experienced by the local community 24 hours a day, seven days a week. Instead after construction is completed, there will be limited and mitigative impacts during the infrequent flood operations.

Alberta Transportation reiterates that if SR1 is 08:31 not approved, there will continue to be serious impacts from unmitigated flooding on local and downstream residents and businesses with the accompanying health and safety risks, public and private expense, and personal and social effects. The status quo is not

acceptable.

Now with respect to project costs, we heard in Mr. Hebert's opening statement that the current budget for SR1 in the government of Alberta's capital plan is $432 million. Alberta Transportation submits that SR1 is a sound investment of public resources, a necessary and critical infrastructure. This is demonstrated by the substantial positive benefits that SR1 will provide through the mitigation of impacts of future flooding on the Elbow River, on public safety, infrastructure on the 08:31
lives and livelihood of downstream residents and property owners.

It's also demonstrated by the fact that SR1 will result, in the case of another 2013-type flood, in avoided damages of $1.5 billion.

As noted by Mr. Hebert, the cost estimates for SR1 are being closely monitored to ensure this flood mitigation project can be delivered in a timely and effective manner. Final costs will be based on final design and a competitive construction tender, completion 08:32
of land acquisition, and any conditions set by the regulators.

Alberta Transportation submits that there is little value in comparing the current estimated costs of SR1 to the early estimates of other projects which were never

advanced to the same degree of engineering, design and stakeholder consultation and engagement. The increases in cost for SR1 aren't that unusual based on having been several design changes made as the project progressed with additional fieldwork, engineering, and design work itself. This is a normal evolution of an infrastructure project as detailed design provides additional certainty and understanding of the project construction conditions.

For example, in the three and a half years between March 31st, 2017, the Interim Design Report, and the September 25th, 2020, Preliminary Design Report, there were notable changes to the project which caused changes to the project's costs estimates, including the inclusion of the debris deflection barrier, the relocation of the low-level outlet and the addition of riprap to the diversion channel. 08:33

With regard to land acquisition costs, Alberta Transportation prepared the land acquisition program. And, as noted, landowners for whom Alberta Transportation must acquire land are entitled to be fully and fairly compensated, as per the *Expropriation Act*. They're entitled to hire appraisers, legal counsel, all at Alberta Transportation's expense, and are entitled to compensation based on the fair market 08:33

value of their lands that includes disturbance, damages, and damages for injurious affection.

The evidence is that since negotiations with SR1 landowners began, Alberta Transportation has obtained a substantial number of appraisals, as have landowners. And through this process, Alberta Transportation has gained a better understanding of the anticipated land acquisition costs, which have increased from the initial estimates.

These changes to the project costs reflect that 08:34
Alberta Transportation has been responsive to the concerns raised, and has been and remains prepared to address them in the project plans.

Mr. Chairman, the benefits associated with SR1 are indisputable. It will have a substantial effect on reducing not only the real economic costs but the emotional toll that has affected downstream residents and businesses. As such, Alberta Transportation submits that the benefits of SR1 clearly and substantially outweigh the costs. 08:35

Next, I'd like to address the alternatives considered.

Section 7.1 of the terms of reference in the EIA require Alberta Transportation to describe the project alternatives considered for flood mitigation. With

respect to that, Alberta Transportation went to considerable lengths to consider alternatives, including carrying out a scoping level assessment and benefit cost analysis of an in-stream project on the Elbow River at the confluence of McLean Creek.

The outcome of Alberta Transportation's alternative assessments was that SR1 was selected.

It is submitted that the decision to select SR1 over other alternatives was justified much for the reasons as summarized by Mr. Hebert, which I referred to. 08:36

Further, as I stated in my introductory remarks, Alberta Transportation submits that the selection has been made, and the government's decision to select SR1 over other alternatives is not a matter before the Board. And, as the Board has noted earlier, its mandate is limited to determining whether the reviewable project, in this case, SR1 is in the public interest.

Again, notwithstanding the Board's clear direction, many interveners have spent much of their time and their testimony arguing the benefits of MC1 as compared to SR1. They argue MC1 could provide a suite of other benefits such as recreation, drought management, and a water source for firefighting. 08:36

Indeed, noting in particular, Ms. Hunter's

submissions were almost entirely aimed at arguing that MC1 should have been selected over SR1, and that it was flawed decision-making which resulted in SR1 being selected as she reviewed a detailed timeline.

However, as previously noted, the Board is being asked to review SR1 to determine if it is in the public interest, not whether MC1 ought to have been chosen. It would be impossible to compare the two projects at this point, given the extensive assessments and work done on SR1 since it was selected. 08:37

Alberta Transportation submits that the argument that MC1 could provide a suite of other benefits, such as I described, is simply wrong. Similar to SR1, MC1 was not developed with the goal of achieving these multiple objectives of recreation, drought management, or water source for firefighting; the conceptual plan for MC1 actually just focused on flood management. The purpose of both SR1 and MC1 is for flood mitigation, not for generating a revenue or increasing recreational opportunities. As an in-stream dam, MC1 was designed to 08:38 have a small pond for sediment management, not a large reservoir for recreation or water management purposes.

Consequently, Mr. Chairman, this is not an argument that MC1 would have been better than SR1; it's an argument that some other project, which was never

designed, would be better.

Further, Alberta Transportation submits it's important to remember that SR1 makes up only one component of a larger flood mitigation plan for the Bow River Basin. Other components include the upgrade of Glenmore Reservoir berms within the City of Calgary, berms at Bragg Creek and Redwood Meadows, and a potential new flood control structure on the Bow River.

Ultimately, all of these projects will work together to provide significantly enhanced flood 08:39
protection to communities in the Bow River Basin. Moreover, many of these other projects fall within municipal or First Nations' jurisdiction, not provincial, and Alberta Transportation is not their proponent.

Most of those other components are already complete and are not part of this project and not before the NRCB for approval. Again, it's only SR1. And with regard to the new flood control project that was discussed on the Bow, it will be reviewed and assessed in other processes 08:39
as required.

As required, in the terms of reference for the EIA, Alberta Transportation has described in great details the alternatives considered for flood mitigation on the Elbow River. It cannot be seriously argued that Alberta

Transportation did not go to great lengths to assess alternatives and give them serious consideration.

Alberta Transportation accepts that the Board's public interest mandates requires it to consider whether alternatives to the project were adequately assessed and, Mr. Chairman, we submit that they were.

Next, I'd like to speak to the Crown engagement with the public. Alberta Transportation submits that its engagement with the public on SR1 was appropriate and meets the expectations concerning public consultation. Through its engagement program Alberta Transportation explained the social, economic, and environmental effects of the project to potentially affected persons, such as landowners from whom Alberta Transportation must acquire land and members of the larger Springbank community. It made extensive and sincere efforts to resolve the concerns that have been expressed by stakeholders. 08:40

Beginning in 2014, Alberta Transportation engaged directly with affected landowners, adjacent landowners, and special interest groups, elected officials, and the public to provide project information, including the design and the regulatory process, answer questions and obtain feedback. 08:40

This information was presented through a variety of

sources from open houses, meetings, emails, drop-offs, phone calls, and newsletters. The engagement with members of the SCLG is detailed in Alberta Transportation's reply submissions that I referred to, turning at paragraph 40 and in the consultation chronology. I won't repeat all of that evidence now, but I just want to bring to the Board's attention a couple of points.

As members of the SCLG complained, the landowners were not consulted early enough. We have heard evidence 08:41
that as early as July 18, 2014, representatives of AT, Alberta Transportation, and Alberta Environment met with a number of local landowners, including several who are now members of the SCLG, or interveners.

At this meeting the landowners were advised SR1 had been selected for detailed engineering and design and confirmed also that both MC1 and the Calgary tunnel options were moving forward for continued study. With regard to MC1, that included advancement of the
conceptual design and scoping level, assessment, and 08:42
benefit cost analysis.

On March 3rd, 2015, representatives of Alberta Transportation and Environment again met with local landowners, including several members of the SCLG. The purpose of that meeting was to provide an update on the

project and the continued review of others. Alberta Transportation advised that the next step involved carrying out the EIA, and later that month it held two open houses, and also provided a community group, "Don't Dam Springbank," a group in opposition, with a table near the entrance of each of those open houses.

In May of 2016, two more open houses were held, and on October 26, 2016, Alberta Transportation representatives met with Mrs. Robinson for a walking tour of her property, and she provided the history of her ranch and pointed out archeological sites. 08:43

In 2017 and '18 there were six more open houses, and as well as a technical briefing for landowners on the federal environmental impact assessment that was held in November of 2017 at the McDougall Centre.

Towards the end of 2018, senior Alberta, Transportation representatives met with several persons who are now members of the SCLG, including Dr. Klepacki, Karen Massey, Karin Hunter, and Mary Robinson. A total of four project updates were issued to stakeholders since the summer of 2019, each at which invited anyone with questions or comments about the project to contact Alberta Transportation. And as of the date of the Board's pre-hearing conference, a total of 12 open houses and two community information sessions were held 08:43

at locations in or near the local community.

We heard in Mr. Hebert's opening statement that he had personally spoken to numerous landowners in the project area and, whenever requested, has met with them to better understand their concerns.

And as stated by Mr. Hebert: (as read)

"Alberta Transportation will continue to engage with stakeholders after the approval of the project if it is granted by this Board." 08:44

As I discussed in more detail a moment ago, during 2019 and 2020 Mr. Hebert was in regular contact with Ms. Hunter in her capacity as the president of the Springbank Community Association by email and phone to provide project updates and respond.

Mr. Chairman, it's submitted that the mere fact that some stakeholders have unresolved concerns does not mean that Alberta Transportation's engagement and consultation on the project was not adequate. It engaged with local stakeholders, including members of 08:45 the SCLG, in good faith. Unfortunately, it's just sometimes not possible to resolve all conflicts. Alberta Transportation carefully reviewed the landowners' statements as part of the SCLG's evidence; and many of those statements have complaints about

Alberta Transportation's engagement with stakeholders who are now members of the SCLG. As a result, Alberta Transportation prepared a chronology of engagement with members of the SCLG, and it was included in the reply submissions.

I think it's noteworthy, in our submission, that none of the members of the SCLG who testified at the hearing took any serious exception to the accuracy of that chronology. Alberta Transportation submits the Board may rely on it as providing an accurate picture of engagement that occurred with SCLG members. 08:46

One SCLG member who did comment on the chronology was Ms. Hunter, who testified that entries which detailed numerous email communications with Mr. Hebert, I think Ms. Hunter commented that she did not consider emails to be consultation. In fact, in several of those emails Mr. Hebert offered to meet with Ms. Hunter as president of the Springbank Community Association. In cross-examination she was asked whether in her view testimony that emails do not constitute consultation, she considers the proponent offering to meet -- I'm sorry, I should just correct that. 08:46

In view of her testimony that emails do not constitute consultation, she considers the proponent offering to meet to be consultation. In response to

that question, she acknowledged Mr. Hebert's various offers to meet with her, and stated that she appreciated his willingness to reach out and that Mr. Hebert's intent was good.

Ms. Hunter acknowledged that she did not take up Mr. Hebert's offers to meet. And when she was questioned about this, she explained: (as read)

> "I just think there's been -- there's been a case of misguided expectations, potentially on both sides, and honestly, our philosophy and now I'm going to just speak as my Springbank Community Association role. Our priority has always been hit those regulatory deadlines. It has not been engage with Alberta Transportation because fundamentally we don't agree this is the right project. And so for us to spend time one on one with Matthew Hebert and even the project team to understand, what's the point." 08:47 08:47

Clearly, Ms. Hunter's position on SR1 and that of the SCLG was fixed and no amount of consultation or engagement by Alberta Transportation could have changed anything. Ms. Hunter's testimony that hitting the

regulatory deadlines was her priority, and as she explains in her presentations, both written and oral, are in the nature of advocacy and argument, but not evidence.

Mr. Chairman, it's sometimes said that consultation is a two-way street. A proponent such as Alberta Transportation is required to provide interested parties with both information about its proposed project and opportunities to ask questions and express concerns. If it received questions and answers about a project, it's obliged to respond to them in good faith. Alberta Transportation fulfilled those obligations, but a proponent cannot force someone to like a project and it cannot force someone to engage with them. 08:48

That said, Mr. Chairman, as you know, Alberta Transportation is committed to appointing a community liaison, a representative from Alberta Transportation during construction and from AEP during operations, who will serve as that point of ongoing contact with stakeholders. The community liaison will primarily communicate through the local representation for Indigenous groups, community associations, local businesses, government administration, and local government officials. Any complaints received during project construction will be directed by the community 08:49

liaison to the construction contractor.

Next I'd like to address Crown consultation land use.

In this part of our argument I'll begin by discussing Alberta's consultation with Indigenous people's generally and then speak to some of the specific issues with respect to the Stoney Nakoda Nations. I'll also comment on potential project impacts on historical resources and summarize some of the commitments made by Alberta Transportation. 08:50

Alberta Transportation has taken its obligation to consult with and, where necessary, accommodate First Nations very seriously and has engaged with Indigenous communities. Alberta Transportation's Indigenous engagement program for the SR1 project reflects its efforts to conduct a meaningful and responsive engagement program based on respected transparency. The program designed by Alberta Transportation followed federal and provincial guidelines, took direction from Alberta government's Aboriginal Consultation Office, 08:50 ACO, and IAAC, and strove to respect each Indigenous groups' specific protocols.

And, as you've heard, Mr. Hebert was directed to consult with five Treaty 7 First Nations by the ACO and another -- and engage with another eight Indigenous

groups identified by IAAC.

Alberta Transportation recognizes the NRCB must also satisfy itself as to the adequacy of consultation and accommodation based on all of the evidence before it. In this regard, Alberta Transportation submits that it has undertaken a fulsome consultation effort, which was fully documented in the record of consultation, submitted as Exhibits 153 and 320, as part of Alberta Transportation's application before this Board.

Its consultation started early with the Treaty 7 First Nations in August of 2014, as directed by the ACO. Alberta Transportation requires a positive consultation adequacy decision from the ACO prior to issuance of *Water Act* or *Public Lands Act* approvals for the project, and to support the EIA completeness decision by Alberta Environment and Parks. 08:51

ACO monitors Alberta Transportation's Treaty 7 consultation activities and receives bimonthly consultation updates for review and comment.

Once Alberta Transportation informs the ACO that it is closing consultation on the project and submits an adequacy consultation request, the ACO will conduct a consultation adequacy assessment to confirm that the fulfillment of the delegated procedural aspects of consultation have been carried out in accordance with 08:52

Alberta's policies and guidelines. The ACO's consultation adequacy decision will include any recommendations it has and is made available to the AEP directors responsible for those applications to inform their decision-making. Alberta Transportation is required to close consultation as a prerequisite to issuing those *Water Act* and *Public Lands Act* approvals.

Based on the March 3rd, 2021, letter from the ACO to the NRCB, it's our understanding that the ACO does not provide a recommendation or advice to the NRCB. The ACO has no formal role in the NRCB processes, including regarding any consultation that the NRCB may engage with a First Nation. 08:53

However, the ACO and Alberta ministries may rely on the NRCB process, including, but not limited to, the decision report to satisfy any duty to consult that may be owed by the Crown regarding potential adverse impacts to the exercise of rights to which section 35 of the *Constitution Act* pertains and of traditional uses, as defined in Alberta's First Nation consultation policy and guidelines. 08:53

Alberta Transportation submits that through the engagement process and follow-up, it has been able to successfully respond to many of the concerns raised by Indigenous groups and believes this is reflected in the

fact that only one First Nation has chosen to intervene in the hearings before this Board.

Alberta Transportation has described the process it undertook of receiving traditional land use studies from each Indigenous group, it prepared written responses to the comments and concerns, it identified potential mitigation to avoid or reduce those effects, and offered to meet Indigenous groups and obtain their feedback.

In response to that feedback that was received, Alberta Transportation then made a number of significant 08:54
modifications to the project, such as the fish passage measures, the fish rescue program, improved wildlife passage, and the addition of the debris deflector.

And as you've heard, one of the most significant changes to the project in response to First Nation concerns was the development of the Updated Draft Guiding Principles and Direction for Future Land Use.

This document provides guidance for the future land uses of the project for AEP as a future operator, and it will be responsible for developing the final land use 08:55
plan once and if the project is approved and proceeded with.

The project is predominantly situated on private land that has been used for ranching and agriculture since the late 1800s.

Alberta Transportation submits the project may enhance opportunities for First Nations to exercise Treaty rights and traditional land uses compared to the existing conditions where access is contingent on the consent of the landowner.

The project creates a novel situation where it acquires private land, converts it to Crown land to allow for future First Nation use and use by other stakeholders. This includes the practice of Treaty rights and traditional uses among a number of secondary uses to the actual flood mitigation activities. 08:55

The Draft Guiding Principles calls for the additional engagement to ensure all interested parties have an opportunity to express any concerns or interests they have in its finalization, which would occur after all project approvals are obtained.

It is the intention that the final land use plan will be developed with meaningful consideration of input received by First Nations and other users.

The government of Alberta is interested in using an iterative and collaborative approach in the development of the land use plan. It anticipates that land use issues pertaining to First Nations can be reasonably addressed through the First Nations Land Use Advisory Committee that has been proposed. 08:56

In addition, you've also heard that Alberta Transportation has committed to meaningful Indigenous participation in the construction of SR1, if it is approved, through training, employment and contracting opportunities.

Alberta Transportation developed a Draft Indigenous Participation Plan and shared it with Indigenous groups since November of 2019. And since that time, it's advanced the draft and met with Indigenous groups hosting business readiness workshops, and has obtained 08:57
information on businesses and contractors from those First Nations that could participate in construction opportunities.

It may be useful in the Board's consideration of the adequacy of consultation to consider some of the comments of Dr. Buchanan who has extensive experience in this issue and commented that: (as read)

> "The record demonstrated that Alberta Transportation conducted robust and meaningful consultation as he reviewed 08:57
> the thousands of entries of meetings, workshops, site visits, correspondence, funding for traditional use studies and ongoing updates."

Relevant project information was shared in a timely

manner and in an accessible format. Alberta Transportation met with Indigenous groups in an earnest effort to obtain their perspectives on the project, its effects, and their specific concerns and recommendations for mitigation.

Dr. Buchanan also noted that: (as read)

"Alberta Transportation took an exceptional step, ensuring the draft traditional land and resource use effects assessment with Indigenous groups prior to filing the EIA in March of 2018, and offering to hold workshops with Indigenous groups to obtain their input on proposed mitigation measures and discuss how project specific concerns have been addressed in the EIA."

08:58

Alberta Transportation submits that all of these efforts reflect meaningful attempts to ensure that there has been adequate consultation and engagement.

08:58

And further, as you've heard from Mr. Hebert, those commitments do not end with this hearing, as there will be continued engagement proposed going forward.

Now, I'd like to speak to some of the concerns raised by the Stoney Nakoda Nations in these

proceedings.

Alberta Transportation has closely reviewed the written submissions and evidence provided by the SNN. It notes that the SNN did not take any issue with the consultation record as it pertained to them. And extracts from that -- from the record of consultation were included in Appendix J to Alberta Transportation's reply submissions, Appendix J at Exhibit 324. In fact, much of the cross-examination of Alberta Transportation appeared to focus on the potential flood mitigations on the Bow River rather than any issues with respect to the consultation logs. 08:59

Alberta Transportation notes that the EIA reasonably identified Treaty rights and traditional uses in the project development area, including those of the SNN.

Alberta Transportation provided numerous opportunities for the SNN to share input, perspectives on potential effects of their Treaty rights and traditional uses, including providing funding to conduct a traditional uses study; providing the draft TLRU assessment; and subsequently holding two workshops with the SNN to obtain their perspectives on assessment methodology and proposed mitigation; project-specific concerns and how the project may affect the exercise of 09:00

Section 35 rights.

And Alberta Transportation provided correspondence specifically requesting feedback on the exercise of Treaty rights and traditional uses.

Alberta Transportation notes that the submissions of the SNN to this Board demonstrates that it understands that the NRCB and IAAC review processes are intended to fulfill the provincial and federal Crown's duty to consult.

The March 3rd, 2021 letter from the ACO to the NRCB 09:00
states that: (as read)

"Alberta may rely on the consultation that occurred in the NRCB processes to assist in meeting any duty to consult owed by Alberta.

Further, the SNN have had considerable opportunities for participation in consultation. As noted, they've received participant funding to participate in the NRCB hearings and 09:01
have provided several witnesses to provide oral Indigenous knowledge testimony.

Alberta Transportation submits that the information about traditional use by the

SNN provided in their interim traditional land use assessment report serves to confirm that the assumptions made in the EIA about the nature and extent of the SNN's traditional use of the -- in the PDA."

Now, Alberta Transportation was concerned to hear the comments by the elders of their experiences during the site visits which were conducted in October and November of 2016. They indicated they were not given unrestricted access to the lands nor could they attend on their own, as they indicated is often the case in these types of assessments. 09:01

Alberta Transportation notes it was recognized that the circumstances surrounding those visits was unique. They involved private land rather than the more typical situation of elders conducting visits on Crown land, as access agreements are required from private landowners that can include restrictions on times and locations.

It's truly unfortunate that the SNN did not bring their concerns to the attention of Alberta Transportation sooner rather than on the eve of this hearing, as Alberta Transportation would have sought to address them earlier. However, Alberta Transportation stated it's committed to follow up with representatives 09:02

of the SNN to facilitate further site visits that can take place in the most open and respectful manner as possible.

Alberta Transportation noted and welcomed the expression of interest from the SNN that they would seek to complete their final traditional use assessment and that elders, such as Henry Holloway, would be interested in attending the site visits.

Bill Snow, the consultation manager for the SNN, noted that the interim cultural assessment, or traditional use assessment, that was prepared by the SNN included some 13 recommendations that focused mainly on mitigations for archaeology, wildlife, and cultural monitoring. 09:03

Alberta Transportation has responded to each one of those items in its reply document. It welcomes the receipt of SNN's final traditional use assessment and is prepared to provide additional support to the SNN to complete that report, including facilitating additional site visits, sharing project information and proposed mitigation measures and the provision of additional funding if required. 09:03

Alberta Transportation notes that there are still funds remaining from the budget approved by Alberta Transportation for the original visits and the TLU

report since 2016. However, should additional funding be required, Alberta Transportation welcomes the submission of a budget for review, and it would then propose meetings with the SNN to plan and complete all aspects of the work by the end of the summer of 2021.

Alberta Transportation further committed that, upon receipt of the final TLUA, it would review that report and provide its written response, and that response would consider the concerns and potential project effects identified by the SNN, noting whether those potential effects have been assessed in the EIA and identifying proposed mitigations to serve to reduce or avoid those effects. 09:04

Alberta Transportation further committed to meeting the SNN to receive feedback on the written response and incorporate that feedback.

Alberta Transportation has also committed to arranging site visits with the SNN and representatives of Alberta Culture, Multiculturalism, and Status of Women to review the specific cultural and traditional sites identified by the SNN to gain input into the nature and importance of how those sites -- the importance of those sites and how they might be impacted by the project and identify them from the SNN perspective to ensure appropriate measures to record, 09:05

mitigate and commemorate those sites take place.

Alberta Transportation noted the SNN were invited to observe archeological mitigation work undertaken last year and will invite the SNN to observe future archeological mitigation work that will be undertaken this summer. It notes the comments and observations of Dr. Berry, the SNN's witness on archaeology, and confirms with Dr. Berry that the Historic Resource Impact Assessment has not been completed. Alberta Transportation explained that this is typical for a project at this stage of the regulatory process and in fact reflects the procedures under the *Historical Resources Act*. Additional fieldwork as required by Alberta Culture and Alberta Transportation intends to complete this work in 2021. And as required by the Alberta *Historical Resources Act*, Alberta Transportation will obtain all necessary approvals from Alberta Culture prior to construction. 09:05

In response to Dr. Berry's comments that the EIA was not inclusive of SNN's perspectives and protocols on land management, Alberta Transportation notes that it is required to conduct work pursuant to the guidance and requirements by Alberta Culture. The mitigation measures and definition of significance provided by Alberta Transportation is in compliance with the 09:06

regulatory requirements of the *Historical Resources Act*.

In response to Dr. Berry's statement that unlawful destruction of cultural heritage is viewed as a crime against humanity in the international courts, Alberta Transportation notes that its work conducted on the site was in accordance with its permit conditions and that it reported its findings to Alberta Culture in accordance with *Historical Resources Act*.

With respect to the submissions by Ms. Vanderjagt with respect to the SNN's submission to the NRCB, Exhibit 288, it's obliged to note that this report appears to be prepared without consideration of the information on the record of consultation and the specific concerns and response table. 09:07

Further, Ms. Vanderjagt appeared to rely on other reports, such as the NOVA Gas Transmission Ltd. reports, which were prepared by others and addressed project concerns in the Grande Prairie and Edson areas.

Ms. Vanderjagt acknowledged that the maps tendered with the submission to the NRCB in this exhibit pertaining to hunting and vegetation did not appear to be supported by site-specific information and were extracted from other projects. 09:07

Accordingly, Alberta Transportation submits that the report is of limited value to the NRCB for its

review.

With respect to historical resources, Alberta Transportation completed a Historical Resources Impact Assessment for the project and no burials have been identified in the PDA. Should burials be found in the future, Alberta Transportation will follow the provincial regulations in responding to them and is prepared to contact and inform the SNN of the potential to affect grave sites and archeological sites.

As noted, the SNN were invited to observe the archeological work that took place in the fall of 2020. And, as it has indicated, Alberta Transportation welcomes a proposal from the SNN to participate in any Historical Resources Impact Assessment to be conducted. 09:08

Alberta Transportation set out a number of its commitments to the SNN in its opening statement which it believes largely addressed those recommendations identified by Mr. Snow. These are set out in Alberta Transportation's reply document and its opening statement. 09:09

Alberta Transportation also responded to other requests, and in particular a letter to the Louis Bull Tribe. And in it Alberta Transportation recognized Louis Bull Tribe's request for post construction site visits and confirmed its commitment to provide

opportunities to conduct site visits for the project area during construction and another opportunity post-construction to observe the proposed mitigation measures and provide feedback.

These invitations will be extended to all First Nations that would have an interest in doing so.

Alberta Transportation also committed to provide opportunities for Indigenous elders to conduct site field visits prior to construction to identify priority areas for the harvest of traditional plants, as well to 09:10
allow for harvesting of medicinal and culturally significant traditional needs plants prior to clearing.

Alberta Transportation has also committed to continuing to provide the Louis Bull Tribe and other engaged Indigenous groups with opportunities to provide impact -- input on mitigation plans for the project, including the draft vegetation and wetlands mitigation and monitoring plan.

Alberta Transportation will welcome further input and feedback from First Nations, including 09:10
recommendations on specific seed mix for the draft vegetation plans.

Alberta Transportation's committed to have the First Nations land use advisory committee meet on a regular basis to ensure the continued inclusion of the

participating First Nations and the land use planning for the project area. It is anticipated that the format, structure, and mandate for this advisory committee will be defined in a formal terms of reference and be developed with participating First Nations.

As we referred to in the Topic 5 discussion, Alberta Transportation also notes that there has been extensive discussions with the SNN on the issue of wildlife passage. Alberta Transportation has been alert to this concern and shared with the SNN over a number of 09:11
occasions that wildlife movement is improved over the PDA, with the removal of the extensive barbed wire fencing and the fence around the perimeter of the project will be wildlife friendly. Further, the enhancement of the underpass under Highway 22 should facilitate uninterrupted wildlife movement.

Alberta Transportation has encouraged First Nations to be involved in reviewing the draft monitoring and mitigation plans and the results of those plans, including providing the draft monitoring plans, offering 09:11
funding to review the plans, and hosting group meetings to discuss them. It welcomes continued input. And these draft plans at this time include, as I said, wildlife mitigation and monitoring, groundwater monitoring, surface water monitoring plan, vegetation

and wetlands mitigation monitoring and revegetation plan, the fish rescue and fish health monitoring and mitigation programs, as well as the air quality and management program.

I want to briefly speak also to some of the concerns expressed by non-Indigenous interveners with respect to the future land uses for the project development area.

The SCLG and Mr. Wagner also commented on future land use and, in particular, the updated draft guiding 09:12
principles and directions for future land use. Questions were raised about hunting and firearms use, access parking, the continued use of the project area for grazing. The main concern appeared to be expressed that remained uncertainty and the lack of clarity about future land uses.

Mr. Chairman, Alberta Transportation emphasizes that the draft guiding principles are just that: they're draft, they're not final. And as the document states:
(as read) 09:13

"If the project is approved and the land is acquired by the Crown, Alberta Environment and Parks will continue to engage First Nations and stakeholders in the development of the final land use

plan based on those principles."

This was reiterated by Mr. Hebert during the hearing.

The questions and concerns raised by interveners about future land use can and will be addressed through the engagement that will be carried out by Alberta Transportation and by AEP. To be clear, however, there will be no unfetterred or illegal hunting on the project area, as suggested by any intervener.

Thank you, Mr. Chairman, those are my comments in argument. Next I'll hand this off to my friend, Mr. Fitch. 09:14

THE CHAIR: Thank you, Mr. Kruhlak.

MR. FITCH: Thank you, Mr. Kruhlak, and good morning, Mr. Chair and Panel members.

I'm going to be delivering the balance of the argument for Alberta Transportation. So that the topics I'll be addressing are Topic Session 3, design safety and risk; Topic Session 4, water; and Topic Session 5, air and terrestrial.

So to begin with, design safety and risk. I'll make a few introductory comments and then address the various subtopics, being essentially description of the project, the operating plan. And I'm going to specifically address the issue of flooding downstream of SR1, but upstream of the Glenmore Reservoir as that, 09:14

as you will recall, became quite an issue during the hearing. And I will also address dam safety and risk assessment, public safety, and then, finally, briefly climate change.

So to begin, Mr. Chair, as I am sure you know by now, SR1 is an off-stream reservoir that is designed to mitigate floods on the Elbow River. As an off-stream reservoir, it takes advantage of local topography. Namely the low, broad Unnamed Creek valley that runs roughly parallel to the Elbow River near Highway 22. 09:15

This means that the Elbow River will not be permanently dammed and its flow will not be altered unless SR1 needs to operate. This, in our submission, reduces or eliminates all the significant adverse environmental effects associated with an in-stream dam.

Because it is off-stream, SR1 can be operated such that it is not subjected to all the flow that occurs on the Elbow River, and this provides a very important feature of risk management in the operation of the project. 09:16

As you also know, Mr. Chair, SR1 will not operate every year. It will only operate when flows in the Elbow River exceed 160 cubic metres per second and if weather forecasts warrant.

Based on historic records, SR1 would likely

operate only once every eight to ten years. When SR1 does need to operate, the operator, AEP, will divert excess floodwater from the Elbow River into the off-stream reservoir. This will be done incrementally by raising the gates of the service spillway and opening the gates of the diversion inlet. The water will flow down the diversion channel into the reservoir, where it will be impounded until it can be released back into the river when conditions allow.

As noted by Mr. Menninger, the design of SR1 is, in our submission, an elegant solution to the problem of providing flood mitigation on the Elbow River. 09:17

As is well documented, Mr. Chair, in the EIA and the many SIR responses, SR1 will consist of three basic components: firstly, the diversion structure; secondly, the diversion channel; and, thirdly, the dam and reservoir. And within these three basic components are a number of subcomponents.

So just beginning with the diversion structure, it will consist of the service spillway, the diversion inlet, the debris deflection barrier, the floodplain berm, and the auxiliary spillway. The service spillway is a double-gated structure located in the Elbow River channel. When in operation, the gates of the service spillway will be incrementally raised to control the 09:17

water surface elevations in the river and ultimately the amount of flow that goes into the diversion channel.

The service spillway will work in conjunction with the diversion inlet, also a double-gated structure, that will be constructed on riverbank left. When in operation, the gates of the diversion inlet will be raised, allowing water directed by the service spillway to enter the diversion channel.

The debris deflection barrier will be located in 09:18
the river channel in front of the diversion inlet to, as its name suggests, help block debris from entering the diversion channel and promote debris passage downstream.

The floodplain berm will be located adjacent to the right bank of the river in the floodway. The floodplain berm will act to constrain the Elbow River and direct flow to the service spillway and diversion inlet.

And finally with respect to the diversion 09:19
structure, the auxiliary spillway is a safety feature built into the end of the floodplain berm adjacent to the service spillway. Should water elevations in front of the service spillway and diversion inlet get too high, some of the water will flow over the auxiliary

spillway to prevent water circumventing the diversion structure.

So those are the basic elements of the diversion structure.

With respect to the diversion channel, it will convey floodwaters from the diversion inlet to the reservoir.

The diversion channel is designed to carry a maximum flow rate of 600 cubic metres per second, and this flow rate includes a safety margin of 25 percent over 480 metres cubed per second, which is the flow rate actually required to meet the design goal of reducing flows below the Glenmore Reservoir to under 160 cubic metres per second during a design flood. 09:20

At a point approximately 1300 metres from where the diversion channel enters the reservoir, the emergency spillway will be located on the east side of the diversion channel. As its name suggests, the emergency spillway would not be used during normal operations. It would only operate when the reservoir is full and the diversion inlet gates fail to close. It would allow water to flow out of the reservoir and back toward the Elbow River to provide a margin of safety at the dam. 09:20

So, finally, then, the dam and the reservoir, as

you know, Mr. Chair, the SR1 storage dam is an earthen structure approximately 30 metres tall at its highest point and approximately 3.3 kilometres in length. For most of its length, the dam will be considerably smaller than 30 metres in height.

The dam will impound floodwater in the reservoir which is designed with active storage volume of approximately 77.8 million cubic metres.

The storage volume includes a 10 percent margin of safety over the 70 million cubic metres of storage that is required to achieve the project's design goal. 09:21

The floodwater that is stored in the reservoir will be released through the low-level outlet works at the bottom of the dam. And from there, it will run along the course of the Unnamed Creek and back to the Elbow River.

The maximum flow rate to the low-level outlet is 27 cubic metres per second. In a design flood, the low-level outlet will be able to drain the reservoir in approximately 40 days. 09:22

With respect to the operating plan for SR1, this is also clearly documented in the EIA and it bears repeating that SR1 will not operate in most years. This is what is referred to in the EIA as dry operation. Dry operation of SR1 will consist mainly of

routine maintenance.

Flood operations will begin when flow rates in the river reach 160 cubic metres per second. The basic operating plan is that flow through the service spillway will be maintained at 160 metres cubed per second while flow rates in the river are between 160 and 760 metres cubed per second with the excess flow up to 600 metres cubed per second directed through the diversion inlet.

When in-flows in the river exceed 760 cubic metres per second, SR1 will be operated such that the excess flow will be allowed to continue downstream through the service spillway by lowering the gates so as to maintain a constant diversion rate into the reservoir of 600 metres cubed per second until the reservoir is full. 09:23

Alberta Transportation reiterates and emphasizes, Mr. Chair, that the operating plan for SR1 is simple and straightforward. And by controlling the amount of floodwater that enters the reservoir, the risk associated with dam operations is reduced considerably. 09:23

I now want to address this issue of flooding downstream of SR1 but upstream of the Glenmore Reservoir.

Mr. Chair, it is well documented in the EIA that

the design basis for SR1 is the reduction of flow rates below the Glenmore Reservoir to 160 cubic metres per second. This will afford protection to properties below the reservoir based on the City of Calgary's information that damage from overland flooding occurs at flow rates of approximately 170 cubic metres per second.

During the hearing, the SCLG referred at length to the flood protection provided by SR1 for properties downstream of the diversion, but upstream of the Glenmore Reservoir. The assertion made is that SR1 provides "Unequal flood protection because there will be residual flooding upstream of Glenmore Reservoir." 09:24

Mr. Chair, Alberta Transportation strongly rejects this assertion.

The design flood for SR1 is 1240 cubic metres per second. In a design flood, SR1 would operate to divert up to 600 metres cubed per second, as we know, meaning that 640 cubic metres per second of flow would remain in the Elbow River. There is general agreement that flow rate of 640 cubic metres per second on the river is roughly equivalent to a 1 in 50-year flood. 09:25

As stated by Mr. Hebert, Mr. Wood and Mr. Menninger several times, Alberta Transportation's position is that SR1 will provide a substantial

reduction of flood risk to all downstream properties, whether above or below the Glenmore Reservoir.

Now, Mr. Dowsett, one of the witnesses for the SCLG, prepared a report which advances the argument that SR1 does not provide equal protection to properties upstream of the Glenmore Reservoir.

In Alberta Transportation's submission, very little, if any, weight should be given to Mr. Dowsett's evidence. First, he was a member of the SCLG, then he was not; first he submitted a PowerPoint presentation, then it was withdrawn. And while Mr. Dowsett had a long and successful career in the field of hazard and risk assessment, it all related to pipelines and wells and oil and gas facilities. And, as he acknowledged, Mr. Dowsett has no background in dam safety or in assessing the hazards of overland flooding. 09:26

Nevertheless, Alberta Transportation accepts that Mr. Dowsett's evidence was well intentioned, and we will briefly address that evidence now.

In my cross-examination of Mr. Dowsett, I referred to the Land Use Bylaw of Rocky View County, which I provided to the Board and Mr. Secord as an aid to cross-examination. Now, that aid to cross was not entered into evidence but the Land Use Bylaw is obviously a legal authority, and I'm going to refer to 09:26

it now.

So -- and we've provided in the written version of our remarks, Mr. Chair, the actual reference to the -- where you can find the Land Use Bylaw online.

So Part 5 of the Land Use Bylaw for Rocky View County sets out general regulations that are applicable to all development within the county.

Within Part 5 is a subsection titled "Parcels and Setbacks" and within that subsection, Sections 195 to 203 deal with development within a flood -- sorry, 09:27
within flood hazard areas and flood fringe areas.

Part 8 of the Land Use Bylaw sets out relevant definitions, and I'm going to refer to three right now. Firstly, flood hazard area is defined as: (as read)

> "The area of land bordering a watercourse or water body that would be affected by a design flood and includes the flood fringe, floodway, and may include areas of overland flow, as determined by the Province of Alberta." 09:28

And, Mr. Chair, it is a matter of record that Alberta has determined that the flood hazard area is the 1 in 100-year area.

So returning to the definitions in the Rocky View County Land Use Bylaw, the next one I'm going to refer

to is the definition of floodway, which is defined to mean: (as read)

> "The portion of the flood hazard area where the flows are deepest, fastest, and most destructive, as determined by the Province of Alberta. The floodway typically involves the main channel of a watercourse and a portion of the adjacent overbank area."

And then, finally, the last definition I'll refer the Board to is for flood fringe, which is defined to mean: (as read) 09:29

> "The portion of the flood hazard area outside of the floodway, as determined by the Province of Alberta. Water in the flood fringe is generally shallower and flows slower than in the floodway."

So, Mr. Chair, with those three definitions in mind, Alberta Transportation would now like to direct you to the following key -- what we say are the following key sections in the Land Use Bylaw. 09:29

Firstly, Section 195 provides that all development in a flood hazard area is discretionary, which, of course, means there are no permitted uses.

Secondly, Section 196 provides that no development

is allowed in a floodway, except for maintenance and repairs of existing or grandfathered development.

Section 200 provides additional development restrictions specifically to properties along the Elbow River, including that no development shall take place in the floodway.

And then, finally, sections 201 to 203 deal with the flood fringe area, and they provide that development in the flood fringe may be approved if, in effect, a property is floodproofed. 09:30

So, for example, the bylaw says that the first floor of all buildings must be located at or above the 1 in 100-year flood level plus half a metre of freeboard.

Now, Mr. Chair, we submit that these provisions in the Land Use bylaw are important because what they show us is that SR1 will limit residual flooding upstream of the Glenmore Reservoir to those areas where, according to the County's own land use bylaw, development is not supposed to occur, or if there is existing development, it's supposed to be floodproofed. 09:31

To be clear, Mr. Chairman, Alberta Transportation acknowledges and confirms that the design basis for SR1 was to ensure that flow rates below Glenmore Reservoir do not exceed 170 cubic metres per second.

That said, Alberta Transportation strongly also

submits that by reducing downstream flows during any major flood by up to 600 metres cubed per second, SR1 does provide a substantial reduction of flood risk above Glenmore Reservoir. Mr. Chairman, if SR1 were on the landscape in 2013, it could have cut flows through that reach of the river by nearly half.

Turning now to dam safety and risk management.

As noted by Mr. Hebert, the design of SR1 to protect public safety is of highest priority to Alberta Transportation. 09:32

The SR1 storage dam has been designated as an extreme consequence facility, and while this sounds ominous, in fact what it means is that the dam must be designed to the highest level of safety because of its location and proximity to local population centres.

The designer of record for SR1 is Mr. John Menninger of Stantec. Mr. Menninger was supported by a team of licensed professional engineers with expertise in geotechnical, hydrotechnical and structural engineering when he was preparing the design 09:32 of SR1.

The design of SR1 was also subjected to an experienced independent review Board that has been retained by Alberta Transportation to provide an independent set of eyes on the design.

And, finally, the design of SR1 will ultimately have to be approved by AEP's director of dam safety.

Mr. Chair, the Board heard extensively from Mr. Menninger during Topic Session 3 and also in Topic Session 1. Alberta Transportation submits that Mr. Menninger was a highly credible witness and the Board can have a high degree of confidence in his evidence, and by extension, in the design of SR1.

Mr. Menninger was cross-examined for several hours by very able counsel, Mr. Secord, on the issues of 09:33
design and risk, and Alberta Transportation submits that Mr. Menninger's evidence was clear and entirely unimpeached by that cross-examination.

Now, Mr. Secord's cross-examination was largely based on evidence and input from the engineering consultant retained by the SCLG, Austin Engineering. Austin prepared a report which was filed in this proceeding as Exhibit 256.

Importantly, Austin does not say in its report, and did not say in its testimony at the hearing, that SR1 09:34
has been designed such that it cannot operate safely. Instead, all Austin did was provide some recommendations, 24 recommendations, to improve safety.

As part of Alberta Transportation's reply submissions, Stantec provided a detailed response to

Austin's report and each of those 24 recommendations.

Now, before discussing this part of the evidence, Alberta Transportation notes that it does not take issue with the qualifications of the two witnesses from Austin, Mr. Austin himself, and Ms. Keyes; however, we do note that their experience is primarily in B.C., not Alberta, and in the case of Mr. Austin, all his experience is in B.C., and he has never gone through the dam-permitting process in Alberta.

Mr. Austin also fairly acknowledged that the first time he reviewed the Alberta Dam and Canal Safety Directive in detail was when he prepared his report for the SCLG. 09:35

Now, one thing that Mr. Austin did confirm is that he knows that in Alberta it is the director of dam safety and AEP who is responsible ultimately for dam safety, not this Board. Alberta Transportation submits, therefore, that to the extent this Board believes that any of Austin's recommendations may have merit, your job is to bring those recommendations to the attention of the director of dam safety in your report, and then the director can consider what, if anything, he or she wants to do about them. 09:35

Now, when Mr. Austin and Ms. Keyes testified, they fairly acknowledged that many of Stantec's responses to

their report adequately addressed the concerns and recommendations that they had made. The Panel will recall hearing Mr. Austin list off all of the recommendations which he considered had been appropriately addressed by Stantec in its response.

That led me to ask him which concerns and issues actually still remained in dispute, and Mr. Austin said that he thought there were two areas where we are still in a little bit of disagreement here. And those two areas, Mr. Chair, are design of the emergency spillway and the potential for second low-level outlet. So I will now address those two concerns. 09:36

So first regarding the design of the emergency spillway. Ms. Keyes addressed the concern -- or, sorry, expressed the concern that the maximum discharge capacity of the emergency spillway, which is 360 metres cubed per second, is less than the maximum in-flow rate into the reservoir of 600 metres cubed per second.

In the Austin report, Ms. Keyes asserted that this does not meet the requirements of the Canadian Dam Association Dam Safety Guidelines, which she characterized as requiring that the spillway of the dam must be able to discharge the in-stream design flood, or IDF, while maintaining minimum freeboard. 09:37

In fact, as pointed out by Stantec in its response

to the Austin report, what the Dam Safety Guidelines actually require is that the spillway of a dam must be able to discharge the IDF while maintaining the minimum freeboard, taking into account the routing effect of the reservoir. And as noted by Stantec in its response, that's exactly what it did.

Specifically Stantec stated: (as read)

"The design of the SR1 emergency spillway meets these criteria without relying on closure of the diversion inlet gates. There is no requirement to pass the design flow or peak flow into a reservoir without consideration of routing effects of the reservoir."

09:38

And Stantec concluded: (as read)

"As presented, the emergency spillway and reservoir can safely pass the probable maximum flood without relying on the diversion inlet gates closing and while maintaining adequate freeboard. This meets the CDA design guidelines and industry standard of practice."

09:38

. Now, notwithstanding this response, in her testimony Ms. Keyes stated that she was still concerned about the design of the emergency spillway because, in her view,

the routing analysis should begin with the IDF entering the reservoir when it is already full, whereas Stantec's routing analysis did not do that.

With all due respect to Ms. Keyes, her position does not make sense, and the evidence of Mr. Menninger on this point should be preferred.

The scenario that Ms. Keyes posits is the following. Firstly, you have a full reservoir, which, as we know, is a condition that has a recurrence interval of approximately once every 200 years. 09:39

Secondly, a probable maximum flood would occur right after the 1 in 200-year flood. Thirdly, there would be an error in operation such that the gates were open to the channel, notwithstanding that the reservoir is already full, which, of course, is against the operating plan. And then, finally, there would be a failure of the gates to close without intervention for over three days, which is the amount of time it would take the probable maximum flood to take place.

Mr. Chair, it is one thing to be conservative, it 09:40 is another to be unrealistic. And, with respect, Ms. Keyes' position is entirely unrealistic. And in fact Mr. Austin acknowledged this. He stated, yeah, I agree that the loss of diversion control is a low possibility, and I agree that this is an off-stream

reservoir and that you could defend the potential for it to be empty.

Mr. Chair, Alberta Transportation is very confident that its routing analysis for the design of the emergency spillway is appropriately conservative. We also note that both the Austin report and Stantec's response to it have been forwarded by Alberta Transportation to the AEP dam safety office.

Mr. Chairman, the Board can rest assured, in our submission, that the director of dam safety will not 09:41
allow the project to proceed unless he or she is satisfied that the design of the emergency spillway is appropriate; and we are confident he or she will make that finding.

With regard to the low-level outlet, Austin also advocated for a second low-level outlet on the dam to provide additional drainage capacity in the event of the need for what it described as "Rapid dewatering of the reservoir in response to a dam safety incident." Stantec reviewed this recommendation and responded to it 09:41
in its technical memorandum that was filed as part of Alberta Transportation's reply submission.

As noted by Stantec, the low-level outlet design capacity was selected based on industry standards for evacuation times for a reservoir, and Austin provided no

basis for an increased capacity.

In his testimony, Mr. Austin stated that he accepted that response, but noted that a second outlet structure would result in a significant reduction of risk, and he still recommended that at least consideration be given to a second outlet during final design.

And in his cross-examination of Mr. Menninger, Mr. Secord suggested that without a second outlet Alberta Transportation did not have any "contingencies," was the word he used, to deal with the need for a rapid dewatering of the reservoir in the event of a dam safety incident. 09:42

Mr. Menninger responded by reiterating that the design of the low-level outlet was based on industry standards and guidelines, which take into account the risk of a dam safety incident.

He further stated that Stantec selected the highest rating to use the most conservative value, and that included looking at downstream consequences. 09:43

Also, Mr. Menninger testified that the most likely dam safety incidents that might occur at SR1 would be mitigated by other interventions, not rapid dewatering of the reservoir.

When Mr. Secord asked what dam safeties might

require rapid dewatering, Mr. Menninger responded that he could not offer any hypothetical scenario where such a response would be required.

Mr. Chairman, Alberta Transportation submits that the SCLG, through the evidence of its consultant Austin Engineering, have adduced no compelling evidence that a second low-level outlet is reasonably required to address dam safety.

The evidence of Stantec and Mr. Menninger should be preferred on this point. And, again, this is a matter that falls within the purview of the director of dam safety. 09:43

Beyond these two issues I've just addressed, design of the emergency spillway and the low-level outlet, no intervener or expert retained by an intervener advanced any evidence that the design of SR1 is anything other than safe and robust. While Ms. Hunter suggested that SR1 somehow constitutes a radical innovation in dam engineering, this claim is not supported by the SCLG's own expert, Austin Engineering, nor is it supported by any other evidence. 09:44

Turning now to public safety and emergency response.

Alberta Transportation submits that the evidence is clear that the operator of the project, AEP, will be

required under Alberta's dam safety rules to have a robust and effective emergency management plan for SR1. The only intervener to question this was the SCLG in the reports of Austin Engineering and Mr. Dowsett.

Returning to Austin, they made four recommendations dealing with preparation of a safety management plan, that was recommendation 21; preparation of emergency plans and response, recommendation 22; dam break inundation mapping, that was recommendation 23; and operation, maintenance, and surveillance documentation, and that was their recommendation 24. 09:45

Stantec responded to these recommendations in its technical memo, and in his testimony Mr. Austin stated that Austin Engineering accepted those responses.

So, in our submission, whatever Austin said in its report about emergency response was adequately dealt with, as acknowledged by Mr. Austin.

Further, we note that while Austin has considerable experience in dam safety, and several of their recommendations were fine, detailed review of dam commissioning, operations and maintenance manuals, emergency response, and safety management, again, are all within the scope of dam safety review under of the *Water Act* and the Alberta Dam and Canal Safety Directive. 09:46

While obviously important considerations, they in fact are not within the scope of review in front of this Board.

With regard to Mr. Dowsett, section 3 of his report dealt with emergency management. That section is found on pages 11 and 12 of his report. You may recall, Mr. Chair, that at the top of page 11 Mr. Dowsett stated that he had reviewed the 2003 AEP guideline for emergency preparedness for flood emergencies, and he expressed the opinion that given the size of the project and its proximity to Springbank, he found it a little light. That's the way he described it. He then suggested that the guideline might not constitute best practice for emergency response. 09:46

Stantec again responded to this assertion in their technical memorandum, in which they noted that the 2003 AEP guideline had been superseded by the 2018 Alberta Dam and Canal Safety Directive.

And the Panel will recall that in his testimony Mr. Dowsett stated that he had, since reading Stantec's memo, reviewed the 2018 safety directive and determined that it is "Comprehensive and does represent best practice." 09:47

He then stated that, as a result, pages 11 and 12 of his report were redundant and didn't accurately

represent his testimony. In other words, Mr. Dowsett withdrew his concern about emergency planning.

Accordingly, Mr. Chair, Alberta Transportation submits that no intervener has presented evidence which challenges that the emergency planning regime for this project will be anything less than best practice; and at least one participant, Mr. Dowsett, now agrees that in fact it is best practice.

So, in terms of what that process is, as is explained in Exhibit 327, the Alberta Dam and Canal Safety Directive, which has the legal force of a regulation made under the *Water Act* and the water ministerial regulation, stipulates that SR1 will require an emergency management plan. An emergency management plan is comprised of an emergency preparedness plan, an emergency response plan, and a flood action plan. All of these documents have not yet been prepared for SR1. They are -- the responsibility to prepare such documents is that of the operator, AEP, and the timing of preparation does not occur until construction procurement is complete and the project is closer to the commissioning phase. 09:48 09:49

This is because the plans require information on equipment models, construction records, and other details of the facility that are just not known at this

time.

AEP will begin preparation of the emergency management plan following regulatory approval of SR1 and in parallel with the construction process.

Finally, Mr. Chair, the Dam and Canal Safety Directive includes review of these plans by the director as part of the *Water Act* approval process, and the components of the plan are required to be reviewed periodically thereafter. And for high consequence dams, such as SR1, they must be reviewed more often than lower consequence dams, and this will be every five years. 09:49

In summary, Mr. Chairman, SR1 will have an emergency management plan appropriate to its classification as an extreme consequence facility, and there is no evidence in the record to suggest otherwise.

Finally, with respect to sensitivity of project design to climate change.

Some witnesses, you will recall, Mr. Chair, for the SCLG argued that the design of SR1 does not take into account climate change. The suggestion being that in future floods -- that in the future floods will be larger and, therefore, SR1 may be undersized. Alberta Transportation rejects this submission and submits that the design of SR1 recognizes the potential for climate change to impact the size and frequency of future 09:50

floods.

In this regard we note the following: First, notwithstanding that the Alberta standard for flood risk is the 1 in 100-year flood, the project was increased in scale from 1 in 100 to the 2013 design flood, which is slightly more than 1 in 200 years. And this was done at the outset of the planning process in recognition of the fact that the 2013 flood is now the flood of record on the Elbow River.

The SCLG suggested that the design of SR1 should have included consideration of three large historic floods on the Bow River, but the evidence about flooding on the Bow is anecdotal, and there is no such evidence that the Elbow River flooded to the same extent in those three years. 09:51

SR1 has been designed to the flood of record and whether there was major flooding on the Elbow River during the pre-record period is speculation and does not constitute information that would be suitable for use as a design basis for a civil engineering project like this. 09:51

As for the statistical frequency of the 2013 event, a recent flood hazard report done by Golder Associates for AEP did, we acknowledge, incorporate these historic events into their flood frequency estimates, but the

incorporation of this information did not result in any substantive change to the estimate of the 1 in 200-year flood magnitude. The 2013 event is still estimated to have a return period of approximately 1 in 200 years.

The 2013 flood was a massive flood event. The design of SR1, nevertheless, meets that design basis and also incorporates a factor of safety in both the diversion rate of 25 percent and reservoir volume of 10 percent, above what is needed to achieve the 2013 flood design basis. 09:52

These factors of safety help mitigate the risk of larger floods in the future, and indeed a climate change assessment was prepared by Alberta Transportation in response to requests made by the federal regulators. And that assessment used climate change affected IDF curves under what's called "RCP 8.5," which is the so-called "business as usual" scenario. In other words, it predicts likely outcomes if society does not make concerted efforts to cut greenhouse gas emissions. That assessment confirmed that projections of climate change 09:53 impacts up until 2050 resulted in a 12 percent increase in the 200-year flood, which is well within the 25 percent factor of safety added to SR1.

Finally, Mr. Chair, Alberta Transportation notes that the benefits of SR1 for flood damage reduction are

based on, of course, current flood risk and, therefore, if floods do become more frequent, the benefits of SR1 will also increase.

Turning now to Topic Session 6 and water.

Mr. Chairman, you will recall Mr. Brescia testifying about the comprehensive consideration given by Alberta Transportation to all aspects of project-related water concerns. These considerations commence with preparation of the EIA and carry forward through extensive SIRs and the rest of the regulatory process. And you will also recall Mr. Brescia concluding that this is work that continues. 09:54

As this proceeding has amply demonstrated, the environmental assessment process is complex and involved. It addresses both project related and cumulative environmental effects and follows a standardized framework for each valued component.

As you will also recall, the evidence of Mr. Hebert was that Alberta Transportation's environmental assessment included engagement with stakeholders and Indigenous groups. Indeed such engagement was key to the development of many of the mitigation and monitoring plans that have been prepared for the project. 09:55

I will now address in turn each of the key water issues associated with the project. And, Mr. Chair, as

you know, these are: hydrology, surface water quality, fish and fish habitat, and hydrogeology.

Alberta Transportation submits that the work carried out by our subject matter experts in each of these key areas has resulted in a full and careful consideration of the project's expected impacts. These impacts are in the final analysis well understood, for the most part temporary, and will be mitigated and monitored for.

So starting with hydrology, Mr. Chair, you will recall that Dr. David Luzi spoke to the issues of hydrology, including the movement of water at the surface, water quantity, geomorphology, and sediment transport. Dr. Luzi also commented on the issue of climate change. 09:56

In our submission, Mr. Chair, the evidence in this proceeding is that the project will have no impact to the hydrological regime when the project is not in operation, and that the flow rate and flow volume in the Elbow River will not be significantly impacted by the project during dry operations. 09:56

During flood operations, there will be reduced flow rates and volumes downstream. There will also be changes to suspended sediment transport with sediment being removed from the river, transported to the

reservoir and deposited. Given these changes in flow associated with operations, there will also be some minor changes to the Elbow River channel between the outlet and the Glenmore Reservoir over the long term.

As I have already noted, Mr. Chair, the SCLG spent some time cross-examining on the issue of climate change, and I've addressed some of that in Topic Session 3. I'll just now briefly address some of the other points that were specifically referred to during Topic Session 4. 09:57

Firstly, you will recall that Alberta Transportation's witnesses pointed to research, current research, which calls into question the generalizations made by the SCLG's expert, Dr. Fennell, on the implications of climate change on the project.

Alberta Transportation's witnesses also disputed the value of using so-called paleo records in the form of tree rings as a predicted measure of future peak flows.

While noting that tree ring data is interesting, 09:58 Dr. Luzi testified that such data is not relevant to estimating peak flow events as it does not allow for sufficiently accurate extrapolation and application to perspective floods.

Additionally, the validity of the use of such paleo

information is uncertain given future climate change scenarios.

I've already briefly touched on the argument about the historic floods. I'll just add to that, that simply applying flood events on one river, the Bow to the Elbow -- to another river, the Elbow, is a highly uncertain exercise. And, moreover, the records that do exist call into question whether this method is valid. One need only look at the 1932 flood event on the Elbow River, which did not register as a flood event on the Bow River. 09:59

What the SCLG and Dr. Klepacki failed to appreciate is that to take this approach introduces still more uncertainty and removes precision from the data and detailed engineering work that's required for a project like SR1.

The SCLG also suggested that changes in climate will result in greater occurrences of severe weather conditions manifested in alternating periods of drought and record floods. 09:59

Again, Dr. Luzi was unequivocal in his view that such assertions cannot be made with any certainty and, moreover, that the research he has looked at actually suggest the opposite, that peak floods associated with climate change are not expected to increase to levels

beyond the design flood at Calgary or along the project portions of the Elbow River.

As was also noted by Dr. Luzi, the impacts of climate change on future events is just not fully understood.

Current research, which Dr. Klepacki and Dr. Fennell did not seem to be aware of, suggests that, in the project area, climate change will not result in increased flood events or extreme variability. Simply put, the SCLG's arguments on climate change and its 10:00
implications for the project are speculative. There is no credible evidence supporting the assertion that SR1 has been underdesigned. Structures like SR1 cannot be designed on the basis of uncertain and anecdotal data.

With respect to surface water quality, Alberta Transportation undertook an assessment of the project's impacts to various water parameters including temperature, oxygen and total suspended sediment, or TSS. Alberta Transportation's uncontroverted evidence is that changes to water quality, if realized, are 10:00
manageable and will be monitored for.

With regard to TSS specifically, Alberta Transportation notes that the project -- or, sorry, the project operation would only occur when TSS is already high, owing to the presence of an ongoing flood event.

The project would not change or alter this basic fact. Nevertheless, to help mitigate any concerns about TSS concentrations, Alberta Transportation intends to release water back into the river as early as practically possible.

Alberta Transportation's hydrology witness, Mr. Darrell Jobson was asked about the risk associated with the nutrient loads in waters released from the reservoir, potentially giving rise to algal blooms.

In response, he explained the reasons why an algal bloom is not expected to occur. And these include the fact that such events typically only occur in permanent in-stream dams and structures which hold water for far greater periods of time than SR1 ever will. 10:01

Finally on the issue of water quality, Calalta Waterworks Ltd. raised a concern with respect to potential impacts to its water intake system as a result of SR1 releasing water from the reservoir after a major flood event. Yet, under cross-examination, Mr. Williams frankly acknowledged that he has no evidence to support this concern. Further, he acknowledged that Calalta's system was not impacted by the 2013 flood because it is well set back from the river. 10:02

Accordingly, Alberta Transportation submits that there is no need for the Board to address this issue

further based on the planned release scenarios from SR1 after a flood. Nevertheless, Alberta Transportation reiterates that it remains prepared to discuss this concern with Calalta.

Calalta also raised a concern, you will recall, with respect to possible financial impacts under its franchise agreement as a result of the portion of the project overlapping with this franchise area. Yet, Mr. Williams acknowledged that, despite being in operation for approximately 40 years, Calalta has not served any lands in the vicinity of the SR1 project area, which is in the west part of Calalta's franchise area. Rather, Calalta's customers are at the far east end of the franchise area. 10:03

Further, Calalta provided no evidence which supports that it is probable there would be future development within the SR1 project area at any time within the term of the franchise agreement.

And, finally, there are numerous provisions in the franchise agreement itself, which may give recourse to Calalta if future impacts arise. 10:03

Therefore, given this uncertainty, and the lack of evidence supporting the claim, Alberta Transportation submits it would not be appropriate for the panel to impose, on an approval, any conditions related to

Calalta's water franchise. Again, however, Alberta Transportation does remain open to discussing this issue further with Mr. Williams and Calalta.

Turning now to aquatics and fish, Mr. Chair.

As an off-stream dam and reservoir, SR1 will have less impact on fish and fish habitat than a traditional in-stream dam. This is one of the many environmental benefits of the project.

Alberta Transportation undertook a substantial amount of work to understand and assess potential 10:04
project impacts on fish and aquatic ecology. The results of this work are contained in the EIA and many SIR responses.

Specifically, Alberta Transportation would refer the Board to Exhibit 47, which is Volume 3(b) of the EIA on aquatic ecology; Exhibit 93, which is the Round 1 provincial SIRs on water; Exhibits 138, 140, and 141 through 149, which are the responses to the Round 2 provincial SIRs; and Exhibit 157, which is Alberta Transportation's response to the Round 3 SIR from AEP. 10:05

In the Round 2 provincial SIR responses alone, one can find many reports comprehensively dealing with the fish issue. These include fish passage scenarios for all fish species and life stages of the Elbow River fish community; a fish habitat suitability index analysis;

modelling of habitat change through the use of a bedload model; draft fish rescue and fish health monitoring and mitigation programs; spawning suitability assessments and REDD surveys from Elbow Falls to Discovery Ridge; and Elbow River habitat mapping from Redwood Meadows to Discovery Ridge.

Then there is Exhibit 157, which is the December 2020 -- or which includes the December 2020 fish population assessment.

Mr. Chairman, a significant finding of that fish population assessment was confirmation that the vast majority of bull trout, a species at risk, in the Elbow River are located upstream of SR1. 10:06

Bull trout were predominantly caught 20 kilometres upstream of SR1 between the confluence of McLean Creek and Elbow Falls. This can be clearly seen in Exhibit 327 at PDF page 69, a figure that was included with Alberta Transportation's reply submissions.

If you look at that figure, Mr. Chair, what you'll see is that it shows that in the 2020 population survey, there were no bull trout captured downstream of SR1, there were two bull trout captured adjacent to the reservoir, and over 180 were captured upstream of SR1 and, of note, over 150 of these were captured between Elbow Falls and McLean Creek where the MC1 project would 10:07

be located.

Now, the SCLG retained Mr. Allan Locke, a respected fisheries biologist who worked with AEP for many years, to conduct a technical review of the scientific and technical data assumptions and methods used by the proponent in their environmental assessment to evaluate impacts to fish and fish habitat.

In his report, Mr. Locke made several complimentary comments about the work done by Alberta Transportation. He noted that the level of effort conducted by the 10:08
proponent adequately addresses much of the inherent uncertainty in understanding the impact to fish and fish habitat.

He noted that his review determined that the proponent describes in sufficient detail the methods and analysis undertaken to assess impacts to fish and fish habitat.

He noted that the level of effort conducted for this project adequately addresses much of the inherent uncertainty in the field of aquatic ecology and that the 10:08
work appropriately acknowledges the uncertainty typical for these types of studies.

He noted that, overall, the EIA report and the SIR responses are thorough and address required fish, fish habitat and aquatic ecosystem technical data collection

and analysis.

With regard to the -- with regard to fish passage at the diversion structure, he noted that the proposed structures are effective at providing passage for fish and, in fact, are far superior to a classic fishway.

And, finally, with regard to the draft fish rescue plan, Mr. Locke characterized it as a reasonable plan outline containing good steps moving towards a final plan.

Notwithstanding all these many favourable comments, 10:09
Mr. Locke did make a couple of recommendations for further analysis and investigation in terms of alternative designs to further reduce project impacts to fish and fish habitat.

On behalf of Alberta Transportation, Stantec reviewed Mr. Locke's report and his recommendations and prepared a technical memo in response. Mr. Locke reviewed Stantec's response and testified: (as read)

"The response to my report by the proponent is well taken and I appreciate 10:10
the clarification."

So, Mr. Chair, much has occurred with Austin Engineering on the issue of design, safety and risk. By the time we got to the hearing, there was actually very little left in dispute between Alberta Transportation and SCLG on

fish.

At the hearing, Mr. Locke testified that his two outstanding concerns were, one, that Alberta Transportation should demonstrate that everything that can be done is done to keep fish from becoming entrained. And, second, that the impact on fish of the release of water for the reservoir back into the Elbow River should be further studied.

Now, Mr. Chairman, Alberta Transportation shares Mr. Locke's concern that everything that can reasonably be done to prevent fish entrainment should be done. And, as stated in our reply submission, means to prevent entrainment will be identified through discussions with DFO. 10:11

As well, Alberta Transportation is open to considering other suggestions, such as Mr. Locke's, that a sound device be installed to deter fish from entering the diversion channel.

With regard to the impact on fish of the release of water from the reservoir back into the river, Alberta Transportation appreciates Mr. Locke's comments about the use of environmental flow science to determine impacts on the river of different flow rates from the reservoir. However, as Mr. Locke acknowledged in cross-examination, his criterion of no more than a 10:11

10 percent increase in the instantaneous flow in the Elbow River is a late release scenario. In fact, it is a very late release scenario.

Mr. Locke agreed that he would not be surprised if it resulted in water being retained in a reservoir until December, assuming a flood occurs during the spring flood season. He also acknowledged the DFO is strongly in favour of an early release scenario.

So Alberta Transportation submits that while Mr. Locke's suggestion related to release scenarios was well intentioned the early release and late release scenarios provided by Alberta Transportation are appropriate bookends for an assessment. And, further, it seems clear that the early release scenario is strongly favored for DFO -- or, sorry, by DFO. 10:12

In sum, Mr. Chair, there actually is very little disagreement between the experts on fish. The evidence is clear that Alberta Transportation's assessment of fish and fish habitat and potential project effects on fish and fish habitat was robust. And, further, that assessment demonstrates that the project, with appropriate mitigations and offsetting in place, as will be determined by DFO, will not result in significant adverse effects to fish and fish habitat, including bull trout. 10:13

Lastly on water I will discuss hydrogeology.

Mr. Chair, it is no understatement to say that the SCLG focused the bulk of their cross-examination in Topic 4 on the issue of hydrogeology.

Alberta Transportation submits, however, that the evidence of our lead witness on hydrogeology, Mr. Dan Yoshisaka, was not impeached, notwithstanding Mr. Secord's sustained cross-examination. And Mr. Yoshisaka's evidence should be preferred over that of Dr. Fennell, who on multiple occasions stepped into the role of an advocate against the project and into several areas in which he did not have expertise. All this in support of his argument that an alternative to SR1, namely MC1, which he did not even assess, was better. 10:14

The hydrogeological portion of the EIA involved examining the potential changes to groundwater quality and quantity that may be associated with the project. Through the use of an extensive borehole drilling and well testing program data was obtained and a numerical model created to predict the implications of both dry and flood operations and other factors on groundwater levels, flow regime, and water quality. The models showed that any effects on groundwater would be rare, reversible -- sorry, reversible upon release of water 10:14

from the reservoir and would not extend beyond the project development area, or PDA, at any magnitude that would be material.

Briefly, in addition to the SCLG, the Stoney Nakoda Nation also sought to raise the issue of hydrogeology by way of a short memo from their consultant PGL and through the direct evidence of Ms. Leslie Beckmann. But on cross-examination Ms. Beckmann readily acknowledged that she was not technically competent to opine on the issue of hydrogeology and, moreover, Stoney Nakoda Nation have not raised any issue with or countered the comprehensive response that Alberta Transportation provided in its reply submission to each and every concern raised by Stoney. 10:15

So, then, returning to Dr. Fennell. Cross-examination revealed that he and, as a result, his counsel for SCLG had been operating under a misunderstanding as to the location of certain hydrogeologic units. Mr. Secord therefore asked questions in cross-examination that turned out not to have proper factual foundation. 10:16

In particular, Mr. Secord's line of questioning on what was later shown to be erroneously perceived discrepancies between the observed local geology and its representation within Stantec's model was based on this

misunderstanding. It was shown that Dr. Fennell's argument that the model was changing over time with assignment of lower hydraulic conductivity values was not accurate and that the model in fact did use conservative assumptions.

Dr. Fennell's report and testimony can be contrasted with the extensive work done by Stantec under the direction of Mr. Yoshisaka to obtain a clear and comprehensive understanding of the sub-surface.

As noted in evidence, Stantec reviewed 2,000 borehole records and drilled an additional 1450 boreholes at the site. This massive data was then used in its modelling. 10:17

One thing the SCLG argued was that there was a presence of surficial sands in the project development area. Mr. Chair, Mr. Yoshisaka dispelled this notion by noting repeatedly that in fact his model did account for sand.

The SCLG's attempt to discredit the accuracy of Stantec's model vis-à-vis surficial sand was based on a region-wide and outdated academic paper. The paper was clearly at odds with the reality of the project site, as demonstrated by the drilling program. 10:18

Further, the very text on which Dr. Fennell relied to support his theory of the presence of surficial sand

in fact indicates that the sand is located below the glacial till.

In short, Dr. Fennell relied on a paper from the 1980s and disputed the results of in-depth and detailed drilling program results undertaken by Stantec.

Dr. Fennell also raised the issue of model bias, which refers to the presence of differences between modelled and observed values. Mr. Yoshisaka disputed this claim, and effectively testified that Stantec's model does not display any systemic bias. He pointed to 10:19
the table in his report that plotted the so-called residuals, and the absence of residuals far above or below the zero line serves to establish the absence of systemic bias. And this was further evidenced by the table and line showing what was called perfect fit in Exhibit 110, Figure 4-14, which again confirmed the observed models -- sorry, the observed values and the modelled values closely tracked.

Mr. Yoshisaka's evidence was supported by that of Mr. Dan Back, who provided comment on issues of the 10:19
geotechnical performance of the soil formations at the site. Mr. Back noted, as did Mr. Yoshisaka, that two separate models were prepared: one for impacts to groundwater and one for geotechnical purposes. This is an important distinction as it appeared, based on

evidence given under cross-examination, that Dr. Fennell confused these two models. It was also established in cross-examination that Dr. Fennell is not a geotechnical engineer, a point that he readily admitted.

During his cross-examination, Mr. Secord sought to raise concerns regarding the presence of swelling clays, suggesting that there would be impact to these clays in periods of prolonged drought.

In response, Mr. Back noted that he and his team undertook a number of sophisticated laboratory tests 10:20
under various conditions to determine how these impacted clays would perform under load.

Mr. Back testified that upon reaching a solid understanding of the way in which the clays would respond under multiple conditions, his team was able to compute and understand at what point shear slip might occur. This information was then used in the design process.

In short, once the point at which a shear slip could occur was determined, factors of safety were 10:21
applied and a design established which, in the words of Mr. Back, "Will make sure that we never get close to that value."

There was also some discussion, Mr. Chair, about seepage of water from the reservoir. And Alberta

Transportation's position remains that seepage will be in the approximate amount of 426 cubic metres per day. This is based on an assessment of the K value, or conductivity factor, assigned to the underlying layers.

Dr. Fennell's counter-narrative that seepage would be in the range of 100,000 metres cubed per day is not credible. First, as Mr. Yoshisaka described, a sensitivity was applied to the model which assumed that the permeability of some of the units making up the underlying hydraulic conductive conditions was greater than -- sorry, was greater than measured value by a factor of 1,000. 10:22

The results, while indicating some further propagation, show that even with this factor of safety, propagation would be limited to the local assessment area.

Second, Dr. Fennell's back-of-the-envelope math was predicated on the geometric mean of the clay and tills which underlie the reservoir. As was demonstrated on cross-examination, it appears Dr. Fennell was confused as to the location of these materials relative to the location of the reservoir and, therefore, his rough calculations are highly suspect. 10:22

Lastly, the SCLG suggested that there was a risk of groundwater contamination associated with floodwater

migration to the sub-surface. In response, Mr. Yoshisaka noted that the groundwater flow model also assessed the potential for migration of contaminants. In assessing the areas that might be impacted, the model used conservative assumptions. For example, it assumed contaminants would move as fast as groundwater, when this is generally not the case. Contaminants typically move slower than groundwater. Consequently, the modelling done does tend to overestimate the rate at which contaminants migrate to the sub-surface. 10:23

Further, even with this overestimation of modelling -- sorry, even with this overestimation, the modelling predicted that any contaminant would not extend beyond the project area in a material way, in part owing to the relatively short period of time during which water and, therefore, flow to sub-surface would be held in the reservoir.

The flow would be reversed once the water is drained, generally in a matter of weeks.

And, further, Alberta Transportation has committed 10:24 to monitoring area water wells.

Mr. Secord cross-examined on the location of some of his clients' water wells, specifically Ms. Robinson and Mr. Brian Copithorne, but modelling of the groundwater regime has allowed Alberta Transportation to

gain a sound understanding of the flow regime, water levels, distribution of wells, and the presence of springs. This means that we have a good understanding of the pathways and effects and have been able to create a program to monitor those effects.

As Mr. Yoshisaka concluded: (as read)

"Should the monitoring suggest that there's changes afoot that we need to apply further mitigation to, then we'll be able to react in kind and put those measures in place."

10:24

Alberta Transportation has provided a draft groundwater monitoring plan to evaluate potential impacts during construction, dry operations, flood operations, and post-flood operations, and this is described in Exhibit 111. The draft groundwater monitoring plan includes both quantity and quality monitoring and will follow a three-tiered approach. Tier 1 monitoring wells will be located adjacent to project infrastructure, like the dam, the diversion inlet, and the diversion channel; 10:25 Tier 2 monitoring wells will be located within or very near the wetted perimeter of the reservoir; and Tier 3 monitoring wells will be situated between the project and potential receptors, such as local landowners. And these will provide early detection of potential effects

on groundwater that may be propagating outward from the local assessment area.

The groundwater monitoring plan, finally, also includes a groundwater response plan, which describes the actions that would be taken should monitoring results suggest the project-related effects on groundwater or quality are actually occurring. Alberta Transportation is confident this monitoring plan and the proposed response actions will appropriately manage groundwater quality and quantity related to the project. 10:26

In summary, Mr. Chair, Alberta Transportation's subject matter experts responsible for hydrogeology, hydrology, surface water quality, and aquatic ecology have each considered in great detail the project's impacts and are confident that those impacts are well understood, temporary, and can be monitored.

Finally, Mr. Chair, the last section that we can be a little shorter on is air quality, human health, and terrestrial.

Mr. Chair, as with water, Alberta Transportation's 10:26 assessments of air quality, human health, vegetation, and impacts to wildlife and biodiversity were conducted using accepted environmental assessment processes to address both project-related and cumulative environmental effects, and they followed a standardized

framework for each valued component.

Alberta Transportation is confident that the work undertaken has resulted in a complete and detailed assessment of these issues. Moreover, Alberta Transportation has made commitments in various areas to ensure that potential concerns or impacts are monitored for and mitigated.

Beginning with air and human health, Mr. Chairman, concerns have been expressed, we know, by interveners regarding the potential for fugitive dust emissions from 10:27
sediment deposited in the reservoir following flood operations. Alberta Transportation understands these concerns, but believes it is important to place them in proper context.

The fact is, following the completion of construction, SR1 will only operate infrequently. And further, the duration of fugitive dust emissions after flood operations will be short.

And, finally, as testified by Mr. Hebert in his opening statement on this topic, Alberta Transportation 10:28
will act quickly and proactively to implement proven mitigation measures for dust control.

So, in short, what we're dealing with, Mr. Chair, are low frequency events, short duration events, and events that will be mitigated.

Suggestions that the project will create dust storms and blast zones are frankly hyperbole and are not supported by the evidence.

You will recall that Alberta Transportation's expert on air quality, Mr. Reid Person, provided an opening statement and PowerPoint presentation which set out the fundamental principles underlying the assessment of air quality.

In that presentation, Mr. Person also called into question some of the assumptions and the approach taken by Dr. Brian Zelt on behalf of the SCLG. 10:29

As discussed in Alberta Transportation's reply submission, we acknowledge that our modelling shows the potential for exceedances at receptors outside the PDA. However, the mere existence of potential predicted exceedances is not the end of the story.

As was discussed during Mr. Person's evidence, consideration must be had for model uncertainty, model conservatism and for the predicted area frequency, location, and adapted mitigations in order to place these potential exceedances in their proper context. 10:29

Alberta Transportation has done that, Mr. Chair. The SCLG and its expert Dr. Zelt, on the other hand, have not.

While experts may disagree on the finer points of a

model, they must also take care to be reasonable in their conclusions and in the presentation of those conclusions. Dr. Zelt, we submit, was neither. Instead, he chose, in essence, to add layer upon layer of the most conservative assumptions such that his predictions are simply not representative of anticipated events, and only serve to needlessly alarm.

For example, Dr. Zelt presents an alarmist view of the potential for a dust storm-like event predicated on the basis of there being absolutely no mitigations applied at SR1. But, Mr. Chairman, there will be no unmitigated events and, to the contrary, all events will be mitigated. The sediment management plan is that mitigation will begin immediately after reservoir drainage. Alberta Transportation, on behalf of the operator, AEP, has committed to this. 10:30

Other differences in the approach taken by Alberta Transportation and Dr. Zelt are seen in the comparison chart at Slide 10 of Mr. Person's PowerPoint. It sets out in stark terms the implications of Dr. Zelt using non-guideline assumptions in his model, with the result of overpredictions at times in the range of 600 percent that we submit are inappropriate and completely devoid of reality. 10:31

Dr. Zelt ignored hydrological model estimates of

sediment area and composition provided by Alberta Transportation in its materials. Instead, despite readily admitting that he has no expertise in the area of sediment, he adopted his own unconventional sediment assumptions on the basis of a paper that he found online.

Dr. Zelt was also cavalier in his evidence on the use and effectiveness of tackifiers, a strong and proven dust mitigation tool.

When asked by Panel member Ceroici, Alberta Transportation lead vegetation ecologist Mr. De Carlo testified that tackifier efficacy was in the range of 3 to 18 months post application subject to environmental factors and that reapplication was an option. 10:32

Dr. Zelt, by contrast, who has no expertise in the area disagreed with Mr. De Carlo on the strength of a phone call that he said he had with a local supplier. Neither the particulars of the call nor any analysis or actual consideration of the issue was included in Dr. Zelt's report. Moreover, Dr. Zelt acknowledged under cross-examination that he was not familiar with the discussion in the EIA pertaining to tackifier application on the basis of a weight-per-hectare formula depending upon the environmental conditions present. 10:32

Perhaps had Dr. Zelt actually read that material,

he would not have had to resort to making a phone call to a supplier to learn about tackifiers.

In short, Mr. Chair, the evidence of Alberta Transportation must be favoured over that of Dr. Zelt.

We also note that no party other than Alberta Transportation led evidence regarding implications to human health associated with fugitive dust. And you will recall, Mr. Chair, that Ms. Noble of Stantec spoke to this issue.

Ms. Noble holds a master's of engineering degree with specific training in toxicology and has lengthy experience in conducting human health risk assessments. Her conclusions, which were based, in part, on the modelling done by Mr. Person, were that in certain circumstances, the potential for exceedance of air quality standards existed. 10:33

However, Ms. Noble also explained that an exceedance of an air quality standard or objective, in and of itself, does not necessarily give rise to a human health concern. 10:34

Again, any model exceedance would be a rare event occurring infrequently and would be short in duration. And, as we know, the operation of the project is itself an infrequent occurrence, and so, too, are the meteorological events and conditions that could give

rise to air quality exceedances.

Further, with the application of proven and effective dust control methods, air quality exceedances in the modelling can be proactively and effectively mitigated.

Mr. Chairman, you will recall that in her questions to Alberta Transportation's Topic 5 panel, Mr. Vance noted -- or, sorry, Ms. Vance asked whether individuals in the vicinity of the project would know they were being exposed to PM 2.5. 10:35

In response, Mr. Person testified that the air quality assessment done for the project was a fugitive dust as a whole. Consequently, one would expect that any PM 2.5 would be entrained with other larger particles. These larger particles would be noticeable and, therefore, act as an indication of the possible presence of PM 2.5. And, further, proposed monitoring will be located between the project and any nearby residence such that dust levels of concern would be detected prior to reaching the nearest residences. 10:35

So, Mr. Chair, what we are left with here is a set of considerations, duration, frequency, and adaptive mitigations that, when added to a robust mitigation and monitoring plan, led Ms. Noble and, we submit, should lead this Board, to a position of confidence the

potential effects to human health from dust emissions will not be significant.

Moving to terrain and soils, Dr. Whitson of Stantec testified at the hearing with respect to the implications of the project and, specifically, sedimentation on soil.

Dr. Whitson's uncontroverted evidence was that while the project will have impacts to existing soil conditions, these impacts will not result in the sterilization of the soils' productive capabilities. 10:36

Dr. Whitson also commented in his testimony on the change in textural distribution that was identified in the revised sediment modelling. And you will recall that the revised sediment modelling indicated a greater presence of silt and clay particles and less sand than had been originally modelled.

Silt and clay particles, from a soil's perspective, have high water storage capacity -- higher water storage capacity than sand, which Dr. Whitson characterized as a good news story. 10:37

With respect to vegetation, Alberta Transportation's lead vegetation ecologist Mr. De Carlo gave evidence regarding the expected revegetation of the site post flood, and the efforts that can be undertaken to ensure, assist or facilitate revegetation. And he

also addressed the issue of weeds, a concern that was raised by the SCLG.

As is set out in Alberta Transportation's reply submission and, as was discussed by Mr. Hebert in his opening remarks, Alberta Transportation has made a number of commitments regarding weed management and associated activities, including a commitment to development of a comprehensive weed management plan. This will include the use of preemptive measures and the plan will include input from experienced ecologists. 10:37

Now, SCLG retained a weed expert, Dr. Osko, and, in our submission, it is clear from Dr. Osko's direct evidence that he was somewhat confused as to the nature of the project's operations. For example, when he was asked by Ms. Vance about his recommendation to implement a filtration system on the low-level outlet to filter out weed seeds and whether he was aware of a system that would both remove weed seeds and allow fish to pass, he acknowledged he could not think of any such system.

Now, Mr. Chair, as you know, SR1 is a dry dam, 10:38 meaning that it does not have operations outside of flood events. So Dr. Osko's suggestion that during dry operation you could have such a filter doesn't make any sense, with all due respect. In fact, it's not feasible at all. There are various technical and design matters

that impact the ability to place a filtration system at this location, and in the context of a drawdown post flood, as Ms. Vance clearly understood, it is important that entrained fish be able to exit the reservoir unobstructed, and a weed seed filtration system would make that impossible.

Finally, Mr. Chair, I know I've got, I think, five minutes left before 9:45. I suspect I'll be about ten minutes, if that is acceptable, and then we can break?

THE CHAIR: Yes, please proceed, Mr. Fitch. 10:39

MR. FITCH: Thank you.

So quickly regarding wildlife and biodiversity, Alberta Transportation's expert, Mr. Eliot Terry, addressed questions on the issue of habitat loss in the project area.

As he stated in his evidence, operation of the project is not expected to have significant impacts in terms of habitat loss, and this conclusion is unchanged even with the new sediment calculations and modelling.

Now, the Stoney Nakoda Nations raised the issue of 10:40 an overpass for elk, and Mr. Kruhlak addressed it briefly, and Alberta Transportation provided a response by way of an undertaking, but we wish to emphasize the following: Alberta Transportation reviewed this issue with Stoney Nakoda Nations a number of times in

meetings at which Mr. Eliot attended and made presentations. And as stated by Mr. Eliot in those presentations, such a structure is just not necessary in light of the fact that the project will allow animals to transit through the project area and cross Highway 22.

And to address this concern, the project design was modified to better facilitate wildlife movement, including designing the span dimensions to have a 10-metre height and 24-metre width -- and this is on the bridge over Highway 22 -- to allow easy movement under by animals including elk. And also the design was modified by including vegetation on the bottom of the diversion channel by covering the riprap with soil to make it easier for animals to traverse. 10:40

Now, Mr. Wallis, on behalf of the SCLG, gave evidence on biodiversity issues, and, in our submission, provided what was, I think, a fairly unique perspective in the context of the hearing with respect to his concern for impacts on grasslands and wetlands. 10:41

He highlighted the concerns associated with developments in environmentally sensitive areas, which he acknowledged encompasses most of the land west of Calgary and south of Highway 1. He also acknowledged that residential development, commercial development,

as well as projects, such as SR1, all impact the landscape.

Further, Mr. Wallis testified about the consequence of undertaking flood mitigation projects. He testified about the ecological benefits of flooding to the ecosystem, in particular to riparian areas which rely on periodic high water in order to flourish.

In effect, Mr. Wallis argued against flood mitigation because of its environmental impacts. And while Alberta Transportation understand these concerns, 10:42
we submit the need for flood mitigation is too important and some environmental impacts must be accepted in order to achieve this critical objective.

We also reiterate that the selection of an off-stream structure like SR1 will result in fewer of the environmental impacts on the Elbow River which Mr. Wallis is concerned about than an in-stream dam would.

In conclusion, Mr. Chair, and Board members, Alberta Transportation submits that it has demonstrated 10:43
through its environmental impact assessment, it's comprehensive responses to supplemental information requests, and all the evidence prepared for and given at the public hearing, that approval of the Springbank Off-Stream Reservoir Project is in the public interest

having regard to its social, economic, and environmental effects.

Therefore, we respectfully request that the Board recommend that the Lieutenant Governor in Council issue an approval of the project, subject, of course, to appropriate conditions.

With respect to what those conditions might be, Alberta Transportation notes that it has made numerous commitments through the course of the Board's review of the project, and we acknowledge that it may be 10:43
appropriate for the Board to make the fulfillment of some of those commitments conditions of project approval.

We'd just like now to highlight a few of what we consider to be our key commitments. And those include the development of a land use plan for the project, as well as seven environmental monitoring plans, plus a commitment to the development of an additional seven plans prior to construction. These plans will be developed, considering input from federal and 10:44
provincial regulators, as well as Indigenous groups and other stakeholders.

Alberta Transportation is committed to regular and transparent communications with directly impacted and adjacent landowners and residents of the Springbank

community. This includes numerous commitments that have been made to work with adjacent landowners on topics of concerns such as land use, air quality, impacts on water wells, shelterbelts, traffic, historical resources, and project operations, among others.

To facilitate communication, Alberta Transportation will appoint a community liaison, which would be a representative from Alberta Transportation during construction and a representative of AEP during operations, and this person will serve as a point of contact with stakeholders, who can primarily communicate through the community liaison and through local representation for Indigenous groups, community associations, local businesses, and local government officials. 10:45

Finally, Mr. Chair, Alberta Transportation has committed to continue working with Stoney Nakoda Nations to ensure that it can continue to participate, not only in the monitoring and identification of areas of cultural significance, but also as a participant in the construction of the project as part of the broader Indigenous participation plan. 10:45

Mr. Chair, before I conclude I would be remiss, if I did not on behalf of Alberta Transportation, thank

the Board, Board staff, the court reporters, the technical support staff for their extraordinary efforts in presenting a remarkably smooth and efficient virtual hearing.

More importantly, the hearing was well run, fair, and conducted in an appropriately civil tone. And for that we would like also to thank the other participants, including in particular our friends Mr. Secord and Ms. Okoye, Mr. Rae and Ms. Louden, Mr. Cusano and Mr. Bruni, Mr. Mercer and Ms. Senek and Ms. Munkittrick, and last, but not least, Mr. Kennedy and Ms. Vance. 10:46

Mr. Chair, that concludes the closing remarks of Alberta Transportation. Thank you very much.

THE CHAIR: Thank you, Mr. Fitch, and also Mr. Kruhlak. I appreciate those comments. I know the staff will as well. So thank you very much for those.

Let's return back -- it is time for our break, and let's return back at 11:05. And that will be with Mr. Cusano. 10:47

MR. CUSANO: Thank you, sir.

THE CHAIR: Thank you, and see you soon.

(ADJOURNMENT)

THE CHAIR: Mr. Cusano, it will be you delivering the argument?

MR. CUSANO: Yes, sir.
THE CHAIR: Okay.
MR. CUSANO: Yeah.
THE CHAIR: Okay. Well, I think we can start then. Calgary River Communities Action Group represented by Mr. Cusano. We've got probably to just about quarter to 12, so please proceed.
MR. CUSANO: We should be well within that time frame, sir. Thank you very much.

Good morning, Mr. Chair and Board members. 11:05

As you know, we are counsel to the Calgary River Communities Action Group, or the Action Group, and Flood Free Calgary, or FFC.

Our clients wish to thank the Board for the opportunity to participate in this critical hearing as it relates to flood mitigation for the City of Calgary, and to share the views and experiences of its members. We hope that these views and experiences will be of assistance to the Board in its public interest enquiry.

As noted earlier this morning, we will provide the 11:05 court reporter with a copy of this argument, which will contain the evidentiary references and headings for transcript purposes.

Mr. Chair, the Action Group and FFC are participating in this hearing on behalf of thousands of

individuals and businesses in Calgary that support SR1.

Our clients have participated in this proceeding to be the voice of the affected and those who stand to be protected by SR1. As Ms. Leeds Binder stated in her opening statement: (as read)

> "We're here to tell you what it is like to endure what was then Canada's worst natural disaster so that you can appreciate the future devastation that can be avoided by SR1."

11:06

The Action Group and FFC support the application of Alberta Transportation and urge the Board to find that SR1 is in the public interest and to issue the appropriate approvals.

Our argument today, sir, will be directed, in the main, to Topic 1 issues and will address the need for and viability of SR1; and the social, economic and environmental benefits of the project.

Sir, as we reviewed the evidence and considered the Board's public interest mandate, we found the Board's 11:07 2018 decision approving the construction and operation of a debris flood retention structure on Cougar Creek in Canmore, Alberta, to be instructive. The Board's principal conclusions from that decision, to which we will refer this morning, remain unaffected by the Board

's decision addendum issued in 2019 in relation to a proposed updated design.

We want to briefly outline why the Board's analysis in Cougar Creek is helpful before we move into a more in-depth analysis of the relevant issues related to the Board's public interest inquiry here.

THE CHAIR: Mr. Cusano --

MR. CUSANO: Yes, sir.

THE CHAIR: I am so sorry to interrupt. I notice the court reporter I think is perhaps 11:07
experiencing the odd glitch in voice. Is that right, Ms. Vespa? Because I am. Sometimes it might be Edmonton. And it's only a word or two.

So, therefore, if you're going to be submitting your remarks, and then we could have a peek of that, perhaps have a quick review of the transcripts, we could proceed.

It's not a lot, but I did notice a couple of times Ms. Vespa is kind of reaching in as well just to get the broken up word. 11:08

Ms. Vespa, would that work, then? It doesn't seem to be very extended, so...

COURT REPORTER: Yes. I think I will be able to figure it out if I receive the document.

THE CHAIR: Okay, thank you.

And, Mr. Cusano, you know, it's not that it's a lot so don't worry about it, you're coming through very clearly. Just the odd time there's a little bit of a garble and we lose maybe one or two words. So I just wanted to check that with the court reporter, so...

Thanks a lot. Please proceed. And if it's anything more extended, I'll let you know.

MR. CUSANO: Please do, sir. Thank you very much.

I don't seem to have any issues on my end here, but, as mentioned, feel free to interrupt if it's getting worse, sir. 11:09

THE CHAIR: Okay.

MR. CUSANO: So, then, sir, returning to my initial discussion of the decision in Cougar Creek, in Cougar Creek, the Board first considered whether the project was justifiable in terms of need and viability. The Board was convinced there that the project was justified because the proposed high debris retention structure, spillway and diversion tunnel was needed, and would work as intended, to mitigate future debris floods of similar or greater magnitude to the 2013 flood. The Board referred to the risk to human life, financial losses from damage to buildings and contents, and economic losses from the disruption of major 11:09

transportation routes as important considerations in assessing need.

The circumstances under consideration in Cougar Creek are similar to those before the Board here in relation to SR1. In particular, there is without doubt a similar need in this case, specifically the need for flood mitigation on the Elbow River to avoid devastating social, economic, and environmental impact. These impacts are outlined in our clients' evidence, as well as the evidence of Alberta Transportation and the City of Calgary. 11:10

SR1, the evidence shows, will be successful in providing such critical flood mitigation as it is designed for a design flood equivalent to the 2013 flood. In our respectful submission, the evidence on this record overwhelmingly supports a conclusion that SR1 is needed, viable, and justified.

After establishing that the Cougar Creek project was justifiable, the Board also considered the project's social, economic, and environmental effects. 11:11 The Board noted that there is no fixed objective test determining whether a project is in the public interest.

And you heard that this morning from Mr. Kruhlak as well. Rather, the Board must balance the economic,

environmental, and social interests of the project.

The Board found that the balance favoured approval of the Cougar Creek project because of its public benefit, namely the increase in public safety and protection of private property and public infrastructure, which the Board noted is of paramount importance to Albertans.

At paragraph 339 of the decision, the Board stated it this way: (as read)

"The Board finds that the town's primary objective for developing the project is to mitigate the effects of future flood events. The project design is focused on reducing the risk of loss of life and protecting residences, businesses, and infrastructure when flood events occur. The Board finds that the mitigation of potential economic losses is a key consideration that favours approval of the project." 11:11 11:12

Clearly, sir, in our submission, those circumstances and considerations under review in Cougar Creek are analogous to the application before the Board here. SR1 will also have a significant public benefit to Albertans, protecting the City of Calgary and other

downstream communities from flooding and avoiding significant social, economic, and environmental impacts, impacts which were front and centre for the Board in Cougar Creek.

And it is important to note that compensation for or mitigation of any local area impacts has occurred or will occur, and any such impacts are limited and temporary in nature such that the balance, in our respectful view, clearly favours SR1 being in the public interest. 11:13

The Action Group and FFC therefore ask this Board to approve this project, and that any conditions imposed not delay construction or operation, as any delay risks downstream communities being exposed to another flood.

We will now elaborate on the basis on which it should, in our respectful view, be found that SR1 is justifiable, the benefits of the project, and respond to some of the positions taken by the SCLG.

First, let's speak about the justification for SR1 and why in our view it is justifiable. 11:13

In the Cougar Creek decision the Board determined that a project is justifiable if it is needed and meets its intended outcomes or, in other words, is viable.

SR1 addresses the critical need for flood mitigation on the Elbow River. The 2013 flood is clear

evidence of this need.

Another flood on the Elbow River is inevitable. Calgary is built on a floodplain at the confluence of the Bow and Elbow Rivers and has historically experienced flooding on several occasions, the 2013 flood being only its fourth largest. Climate change has the potential to make matters worse, increasing the flood risk.

This is evidence that Calgary will flood again. The only question is when, how badly, and whether the city will be prepared. 11:14

Like many other major cities located near a water source, city planners in the early 1900s did not take flood risk into account and Calgary was allowed to grow around both of its rivers. The result is that many of the river communities that flooded in 2013 were some of the earliest to be established. The Action Group and FFC represent many residents and businesses in these communities, and our clients' evidence provides personal accounts of the devastating impacts of flooding to lives, livelihoods, property and businesses in the city. 11:15

In addition to affecting residential and commercial property, the 2013 flood had a significant impact on public safety and public infrastructure. We will speak to these impacts in more detail shortly. But what is

important, and this conclusion is in our respectful view self evident, is that these impacts which would be avoided for a future flood if SR1 were in operation establish clearly that SR1 is critically needed.

It is important to note that the SCLG who opposes SR1 agrees that flood mitigation is needed on the Elbow River. For example, Ms. Hunter and Ms. Feist both stated in their opening remarks for Topic 1 that no one wants to see the City of Calgary flood. And Ms. Massey stated that: (as read) 11:16

> "...we are all in total agreement, folks. We all want flood control, we want flood mitigation..."

And in fairness, Mr. Chairman, there are, of course, matters on which the SCLG joins issue with Alberta Transportation, and those matters are, of course, for the SCLG and Alberta Transportation to address.

SR1 is not only needed but it is viable. SR1 is designed to afford the City of Calgary protection from future flooding events and, in particular, a design 11:16 flood, which is a flood equivalent to the 2013 flood, approximately equal to a 1 in 200-year flood.

SR1 therefore has the capacity to satisfy the need for upstream flood mitigation for the City of Calgary and avoid the devastating impacts of another 2013-sized

flood. Specifically, SR1 will remove 600 metres cubed per second of peak flow from the Elbow River, which, with the contribution of storage available at the Glenmore Reservoir, will protect communities downstream of the reservoir on the Elbow River from a 1 in 200-year flood, plus a safety factor of 25 percent.

SR1 also provides flood mitigation benefits to other downstream communities. Particularly, SR1 will significantly reduce the flood risk for communities between SR1 and the Glenmore Reservoir by reducing the peak flow of a 2013-sized event in half, from 1,240 metres cubed per second to 640 metres cubed per second, and a 1 in 100-year flood event to a flow rate as low as 165 metres cubed per second. 11:17

And, secondly, lower inflows from the Elbow River into the Bow River during flood events, which will provide flood mitigation benefits for communities on the Bow River downstream of the confluence of the two rivers.

In our respectful submission, sir, there can be no other conclusion than this project is needed and viable and, therefore, justifiable based on the evidence before the Board in this proceeding. 11:18

Sir, the principal purpose of our clients' evidence is to speak to the social, economic, and environmental

impacts of the 2013 flood on the City of Calgary and other downstream communities. Alberta Transportation's and the City's evidence speak to such impacts. The evidence shows that these are the impacts that would be avoided if SR1 were operational. And the avoidance of these impacts is clearly a public benefit and, therefore, in the public interest.

In the Cougar Creek decision, the public benefits of mitigating flood events on Cougar Creek and the social and economic benefits of public safety and damage avoidance to the local area weighed heavily in favour of the project's approval. 11:19

In our submission, the same can be said of SR1. In fact, SR1 would have a greater public benefit as the damage avoidance to the City of Calgary and downstream communities is significantly larger in magnitude.

Avoiding the impacts of a design flood has significant, economic, social, and environmental benefits. This is without doubt and is evidenced from the staggering quantifiable impacts of the 2013 flood that are outlined in Section C of our clients' evidence found in Exhibit 237. It is important to note that this evidence is uncontroverted and stands on this record without challenge. 11:19

We would like to share a few examples of these

impacts. For example, 14,500 homes were damaged in Calgary, and 136 homes required reconstruction on the Siksika Nation downstream of where SR1 would be located. 4,000 businesses and 3,000 buildings were flooded. 16 LRT stations were closed. 50 bus routes were cancelled or detoured, and it took about 13 days to get service to be fully restored. 39,837 ENMAX customers were impacted and 34,000 locations were without power. Evacuations occurred in 26 communities, affecting 110,000 people, and a state of emergency was declared for 14 days. 11:20

These are just some of the quantifiable impacts of the 2013 flood.

By reducing flows on the Elbow River, SR1 will prevent or mitigate these negative impacts in a future flood and will protect much of the historical, cultural, and recreational heart of the City of Calgary. It will also protect those areas of the downtown core that were impacted by Elbow River flooding in 2013, and benefit communities downstream of the confluence of the Elbow and Bow Rivers. 11:21

The 2013 flood also had a significant impact on the environment. For example, we know that three years' worth of garbage entered the City's landfills in the weeks after the 2013 flood; the province established the

$10 million FISHES program to mitigate the negative impacts of the flood on fish and fish habitat; and the City spent $100 million repairing erosion damage from the flood.

SR1 would have the added public benefit of avoiding such environmental impacts.

In our submission, sir, in light of the weight of this evidence, it is difficult to argue, let alone establish, that SR1 would not create a significant public benefit. 11:22

I will now speak to the social and economic benefits of SR1 generally, and then turn to the Action Group and Flood Free Calgary's evidence on the specific social and economic benefits of SR1 to the people and businesses it represents.

SR1 would have considerable social benefits. First and foremost, SR1 will improve public safety, a concern of paramount importance to Albertans, and, we suggest, to the Board.

SR1 is expected to reduce the number of injuries 11:23 and fatalities that would be directly attributable to a flood in Calgary. This is critical given that five people lost their lives in the 2013 Alberta floods. The Calgary Fire Department performed over 400 water rescues in the first 24 hours of the flood, which likely

prevented further death or injuries.

SR1 would also have a positive effect on the City's ability to respond to emergencies.

In the lead-up to the 2013 flood, the City had only 15 hours to enact its emergency response plan and conduct evacuations.

SR1 will increase the City's response time, and enhance the City's emergency response capacity which will help ensure the safety of those downstream.

Alberta Transportation has identified that the 11:23
period during and after flooding causes a multitude of public health and safety issues, including waterborne communicable diseases, exposure to chemical contaminants, as well as anxiety, depression and posttraumatic stress disorder. Such impacts would be avoided or significantly reduced if SR1 is operational during the next flood.

In addition to the significant social benefits of SR1, SR1 has a clear economic benefit. This is evident when considering the financial damage numbers from the 11:24
2013 flood, the estimates for which range between 4.875 and $6 billion. In addition, it is estimated that 5.1 million working hours were lost in southern Alberta during the 2013 flood.

The 2017 IBI study estimates that another flood of

the same magnitude would cause $4.7 billion in damages. $4.7 billion.

The operation of SR1 would significantly avoid future flood damages, which is undoubtedly in the public interest. Alberta Transportation estimates a design flood on the Elbow River would cause 935 -- approximately, $935 million in direct costs for commercial and residential properties and 318 million for infrastructure, pulling something in the range of $1.254 billion. In addition, the City of Calgary and IBI group both estimate that SR1 would reduce the average annual flood damage by approximately $27 million. 11:25

In the Cougar Creek decision, this Board recognized that the 700,000 average annualized damage avoidance to buildings was an important factor for determining the project was in the public interest. The Board also noted there that avoiding damages to public infrastructure, including transportation corridors, further benefits the public at large and all Albertans and Canadians. On this basis, the Board concluded that the economic benefits of the project were significant and a material consideration weighing in favour of the project being in the public interest. 11:26

Those considerations, we say, are equally

applicable here. The average annualized damage cost for SR1 at $27 million is significantly higher than the $700,000 for Cougar Creek.

And the loss of transportation corridors was also experienced during the 2013 flood in Calgary. We have already spoken to the impact of the 2013 flood on LRT and bus routes. In addition, 1,000 kilometres of roads were washed away as were rail lines, pedestrian bridges and culverts in Calgary. A rail bridge on the Bow River downstream of the Elbow River confluence also failed causing a train carrying highly explosive liquids to derail. 11:27

The $27 million annual avoidance of damages, including potential damages to transportation corridors, indicate that the economic benefits of SR1 are significant and demonstrate that SR1 is indeed in the public interest.

These numbers also indicate that SR1 is a sound investment. Multiple studies conclude the benefits of SR1 far outweigh its costs, with the City of Calgary finding that the benefit to cost ratio is 5 to 1. 11:27

With SR1 currently budgeted to cost $432 million, Alberta Transportation predicts that SR1 would more than pay for itself after a single design flood. In fact, a single design flood would pay for SR1 three times over

based on Alberta Transportation's $1.254 billion property and infrastructure damages estimate for the next design flood.

In our respectful view, sir, SR1 is clearly an economic benefit.

Sir, most important to our clients' membership and supporters are the significant and social economic benefits to the lives, livelihoods and properties of those that were impacted by the 2013 flood, and those that stand to be protected by SR1. 11:28

Our clients' evidence gives a voice to the people behind the statistics of the flood. As Ms. Leeds Binder stated in her opening statement, quote: (as read)

> "Our members are the homeowners, residents and businesses whose financial, mental and physical health suffered, and in many cases, continues to suffer as a result of the 2013 flood. These are the people whose lives, livelihoods and properties stand in the 11:29 cross-hairs of the next inevitable flood event."

End quote. It is devastating still to hear those words, let alone speak them. The experience of the Action Group's and FFC's members and other community members

are outlined in the letters and emails received in support of SR1. These accounts describe what it is like to suffer through what was then Canada's worst natural disaster, all of which were shared so the Board can appreciate the future devastation that could be avoided by SR1.

Our clients received 193 letters or emails from individual residents of flood-affected communities in Calgary. One theme is the devastation and loss in the immediate aftermath of the flood, including the loss of homes and valued possessions, including family heirlooms, precious mementos and other irreplaceable items collected over generations. 11:30

The pungent odours and sounds associated with the flood and its aftermath continue to be constant companions for many, their memories jolted into regular reminders of the devastation loss and heartache suffered.

The video played during our clients' opening statement demonstrated the harrowing experience of one family that lost their home as a result of the flood. Unfortunately, this was not a unique experience. Several homeowners along the Elbow River in Calgary similarly lost their homes as they were damaged beyond repair and demolished, including 10 percent of the homes 11:30

in the community of Roxboro alone. Similar harrowing experiences from the flood are illustrated in many of the photos included in the submissions received.

The letters and emails speak to the immeasurable and continuing impact of flooding on physical and mental health and the stress, anxiety and the sense of insecurity that remains following the flood. Many accounts speak to the fear of another flood and the anxiety felt during flood season. The added security that SR1 would provide to landowners, residents and businesses affected by the 2013 flood, or to those who now reside or work in the flood-impacted area cannot be understated. This is an important social benefit of flood mitigation and the Board recognized in Cougar Creek decision. How could it be argued otherwise in the face of the evidence on this record? Indeed, in our respectful view, it cannot. 11:31

Perhaps most devastating is that almost every letter or email that has been included in our clients' evidence, speaks to the mental health impact of the flood and the lingering effects for so many. For this reason, many found it too hard to write a letter and this is why an online survey was created where 393 responses in support of SR1 were received. 11:32

Finally, the accounts our clients received from

individual residents speak to the significant costs they have incurred on personal flood mitigation. For example, installing sump pumps, generators, break resilient glass, relocating mechanical, electrical equipment, and raising water tanks, furnaces and other utilities. This was done with the expectation that the city and the province would do their part to protect their citizens.

For the most part, individual efforts can only reduce property loss. The reality is that only upstream mitigation can actually keep the flood water out of Calgary, and only the province can build such mitigation infrastructure. 11:33

In our clients' evidence you will also find letters from 10 inner city community associations which, together, represent well over 43,000 residents. These letters describe the physical and mental impacts of the flood on their communities and the ongoing stress felt each spring by residents looking anxiously at weather forecasts and river levels. 11:33

While the impact on residential communities was profound, SR1 is about more than protecting these communities. SR1 is critical infrastructure to protect the economy of Alberta, and most certainly Calgary.

As Mr. Battistella noted in his opening statement,

the City centre area of Calgary that was impacted by the 2013 flood is not only the economic engine for Calgary, but also for the province.

Not to be forgotten are the impacts the 2013 flood had on the businesses in Calgary. 4,000 businesses were flooded, and 7,000 were impacted in total, a third of which never re-opened after the flood. In addition to losses due to direct flooding for some businesses, many more were impacted by loss of business due to evacuations, power outages, street closures and the 11:34
temporary suspension of the LRT. One example is First on Colour, the locally owned and operated copier store that Mr. Battistella referenced in his opening statement that was forced to close for 17 days.

Fifteen businesses and business-related organizations, such as the Calgary Chamber of Commerce, Calgary Economic Development, Calgary Downtown Association, and local business improvement areas, and revitalization zones representing over 6,000 businesses, wrote letters in support of SR1 expressing their 11:35
concerns about a repeat of the 2013 flood.

As Mr. Battistella outlined in his opening statement, SR1 is a benefit to businesses for several reasons, including the protection of current and future assets, protection of business revenues, which, in turn,

protects owners and employees, reduction of business operating costs such as insurance rates, and the reduction of the risk profile for locating and operating business in and attracting business to the downtown of Calgary.

The social and economic benefits of SR1 that are outlined in the evidence of the Action Group and Flood Free Calgary and the evidence of Alberta Transportation and the City of Calgary demand careful consideration, for such benefits are clear and significant and, in our view, overwhelmingly favour approval of SR1. 11:36

Let me turn now to some of the positions taken by the SCLG. The SCLG is of the view that SR1 creates unequal outcomes for downstream communities on the Elbow River. Such a position is premised on the assumption that there is a project that could create equal outcomes for all downstream communities. We agree with Alberta Transportation that no such project could exist.

We do not dispute that flood protection for all communities on the Elbow and Bow Rivers is in the public interest and a laudable goal, our clients know all too well the devastating impacts of another flood and would not wish their -- 11:36

THE CHAIR: Mr. --

MR. CUSANO: Yes, sir?
THE CHAIR: Perhaps if you could just go back about one minute. There's a fairly lengthy break there. I think it was just before you indicated that you agreed that flood mitigation in all communities along the two rivers -- try about there.

Or Ms. Vespa -- Ms. Vespa, if you could maybe -- what was the last piece that you had?

THE COURT REPORTER: (as read)

"We do not dispute that flood protection for all communities on the Elbow and Bow Rivers is in the public interest and...

MR. CUSANO: Thank you, Ms. Vespa. And thank you, sir.

We do not dispute that flood protection for all communities on the Elbow and Bow Rivers is in the public interest and a laudable goal. Of all participants before this Board, our clients know all too well the devastating impacts of another flood and would not wish their experiences on any community. 11:38

However, SR1 is the only project before this Board, and this project is not intended to be everything for everyone, nor could it be. It is not intended to be flood, fire, and drought protection for

Calgary, Bragg Creek, and Redwood Meadows. Rather, it has been designed to protect the City of Calgary from a design flood on the Elbow River equivalent to the 2013 flood.

And here it is worth noting that our reference to the city is a reference to not only the lives and property of downstream residents but to businesses, livelihoods and the economy of the province writ large, as we outlined earlier. SR1 is clearly needed in our view and must be built. 11:38

Having said that, it is worth mentioning that SR1 does have ancillary benefits in terms of water security because it reduces the quantity of water that must be drawn down on the Glenmore Reservoir during the flood season, thereby increasing water supply to the City.

It also bears noting that SR1 and other flood mitigation projects are not mutually exclusive. Indeed, many other such projects have been undertaken or concluded to date, and, no doubt, other such projects will be pursued as the province, cities, and 11:39 counties act to protect their property, citizens, and businesses from future floods.

In particular, as Alberta Transportation notes in its evidence, SR1 is just one component of a larger flood mitigation plan for the Bow River Basin. Other

components include a potential new flood control structure on the Bow River, upgrades to the Glenmore Reservoir and berms within the City of Calgary, Bragg Creek and Redwood Meadows.

The building of SR1 does not preclude these other components or other flood, fire, or drought mitigation, nor are these other components or projects being considered here relevant to the Board's determination of whether SR1 is in the public interest.

The SCLG also takes the position that MC1 is the project that would cause equal flood mitigation outcomes for downstream communities. First and foremost sir, and with respect, such argument is not relevant because MC1 is not the reviewable project before the Board as recognized by the Board in the pre-hearing conference decision report. This is an issue which we will revisit in a moment. 11:40

Despite MC1 being out of scope, we do want to comment briefly on some of the evidence advanced by SCLG. MC1 is upstream of SR1 and, therefore, has a smaller rainfall catchment area to manage water entering the Elbow River. If significant rainfall were to occur downstream of MC1, as occurred, for example, in the 2005 flood, this would mean the project would afford less protection to communities downstream of 11:40

that rainfall area. In and of itself, this could create unequal outcomes for different communities.

The SCLG's unequal outcomes' position is similar to its position that alternatives like MC1 provide greater benefits than SR1. This conclusion cannot be justified on the evidence before this Board. MC1 was considered by Alberta Transportation and ultimately not chosen as an option because of its significant number of adverse effects compared to SR1.

Mr. Hebert from Alberta Transportation provided further detail on this point in his opening statement for Topic Number 1. He stated that compared to MC1, SR1, as an off-stream dam, is less sensitive to impacts from sediment and debris; is closer to operational response teams and access roads; has less environmental impact; has less of an impact on the Elbow River; is less vulnerable to damage during extreme weather, including catastrophic failure during construction, and has less impact on social, recreation, tourism and commercial values. 11:41 11:42

Mr. Hebert also --

THE CHAIR: Sorry, Mr. Cusano, just go back just 30 seconds. Just that last little clip there, please. Thanks.

MR. CUSANO: Mr. Hebert from Alberta

Transportation provided further detail on this point in his opening statement for Topic 1. He stated that compared to MC1, SR1, as an off-stream dam, is less sensitive to impacts from sediment and debris; is closer to operational response teams and access roads; has less environmental impact; has less of an impact on the Elbow River; is less vulnerable to damage during extreme weather, including catastrophic failure during construction, and has less impact on social, recreational, tourism and commercial values. 11:43

Mr. Hebert also noted that SR1 has a positive economic impact, and perhaps, most importantly, is years closer to being built than any alternative project.

It is, therefore, in our view, clear that Alberta Transportation made the right decision in choosing SR1. However, all of this is not relevant to the Board's public interest enquiry because it is not choosing between SR1 and MC1; rather, SR1 is the only reviewable project before this Board. 11:44

SR1 has been selected by three provincial governments and in preference to other options including MC1. The federal government has backed the project with a significant funding commitment, and SR1 has also successfully navigated two environmental

assessment processes, one at the provincial level and one at the federal level.

In the pre-hearing conference decision report, this Board recognized that SR1 is the only reviewable project before it, specifically stating that the focus of this proceeding is on the social, economic and environmental effects associated with SR1. This Board further stated that there is no merit in the expenditure of significant time and resources assessing projects that are not reviewable projects under the *Natural Resources Conservation Board Act*. 11:44

The Board showed exceptional tolerance at hearing evidence from the SCLG on this point during the hearing. However, at the risk of sounding like a broken record, the fact remains MC1 is not the reviewable project, nor does the Board have jurisdiction to consider a project that has not been applied for. In fact, it appears that SCLG's real concern is with the government of Alberta's decision to choose SR1 as the preferred option over other alternatives, including MC1. However, that decision is not subject to review in this proceeding. 11:45

Let us not forget, sir, that it has taken nearly eight years to get to this point. There is no evidence that the government of Alberta would pursue MC1, or any

other option, if SR1 were not approved, or that funding from the provincial and federal government for such a project would even be available, nor is there any evidence that it would take any less time to get another project to this stage.

We cannot predict with certainty the groups or individuals that might oppose MC1, nor can we predict, assuming an application were ever made, that the project would successfully navigate the environmental assessment process, the NRCB process, and ultimately receive approval. All of this would be conjecture, and conjecture about MC1 is not an issue before this Board in this application. 11:46

Therefore, SR1 is the only project before this Board and, most importantly, most critical, the only prospect of implementing effective and needed mitigation for the City of Calgary and other downstream communities.

For all these reasons, in our respectful view, no weight can or should be given to SCLG's decision about alternatives with greater benefits and the relative implications of such alternatives. 11:46

Let us now turn to briefly local area impacts of SR1. This project, like many projects this Board and other facility regulators consider, will not be free of

impacts to the local area.

In determining whether SR1 is in the public interest, this Board must balance the social, economic, and environmental impacts of the project. In this case, we submit that such a balance heavily favours approval of SR1.

The City of Calgary's evidence indicates that over 15,000 dwellings, over 3,000 buildings and over 34,000 suites stand to be protected by SR1. In comparison, there are only five residences that exist within the footprint needed for the project. 11:47

The impacts to the local area from the operation of SR1 will be limited and temporary in nature. In most years SR1 will not be operational, and when it is operational, it will only contain water for a short period of time. Furthermore, the Impact Assessment Agency of Canada, in its draft environmental assessment report, has concluded that SR1 is not likely to cause significant adverse environmental effects when taking into account the implementation of key mitigation and follow-up program measures by Alberta Transportation and any local impacts of SR1 are heavily outweighed by the significant benefits to the City of Calgary and other downstream communities from the reduced risk of flooding and the avoidance of the devastating, social, 11:48

economic, and environmental impacts of a flood.

SR1, as we have noted, is designed for a 1 in 200-year flood plus a safety factor of 25 percent. This stands in stark contrast to the City of Calgary and other downstream communities that are not designed to endure flooding to any degree. Furthermore, SR1 local area impacts can be mitigated where as the impacts of a future 2013-size flood on Calgary cannot be fully mitigated without upstream mitigation.

In terms of the mitigation of impacts of SR1, 11:49
Alberta Transportation has consulted with impacted parties and has worked and is working to address and, where possible, mitigate those impacts. Alberta Transportation has proposed numerous mitigation measures, and has promised to continue to listen to the concerns of residents and accommodate where possible to achieve further mitigation of any impacts.

In some circumstances where impacts could not be addressed through mitigation, such as for landowners whose lands are needed for the project, Alberta 11:49
Transportation has offered compensation. And to date, Alberta Transportation has acquired approximately 25 percent of the lands in the project area through voluntary purchases and is in the process of negotiating agreements with three additional landowners

which would increase this number to 43 percent.

In the City of Calgary, the city has taken significant steps in terms of local mitigation measures to reduce the potential exposure of flooding, but local mitigation is simply not sufficient to protect the city from a 2013-size flood. Only the province of Alberta can protect the city and southern Alberta from such a flood.

The social, economic and environmental benefits of SR1 heavily outweigh any such impacts to the local area of the project. As the Board stated in the Cougar Creek decision, public safety, protecting private property and public infrastructure are of paramount importance to Albertans. And like the Cougar Creek project, these goals will be achieved by SR1 and should weigh heavily in favour of the project's approval. 11:50

In conclusion, sir, it is important to emphasize the public benefit of this project, a project that is fully supported by all three levels of government. SR1 will increase public safety, protect private property and infrastructure, and protect the wellbeing of people and businesses in the City of Calgary and other downstream communities. A project of such public benefit is in the best interest of all Albertans. 11:51

It is inevitable that the catastrophic impacts of the 2013 flood will be repeated if SR1 is not approved. We, therefore, ask the Board to find SR1 is in the public interest and approve this project to avoid such impacts in the future. A decision otherwise would be, in our respectful view, in effect, a decision to leave the city vulnerable to flooding indefinitely which cements the intolerable status quo.

At this point in time, the reality is that it's SR1, a viable project with significant cost/benefit ratios or nothing. That is the reality. 11:52

Time is of the essence to ensure that SR1 is fully operational before the next major flood. On this point, the mayor of Calgary, Naheed Nenshi, stated the following in a letter supporting SR1: (as read)

> "...if SR1 is not approved or the Province is forced to reconsider other alternatives that have already been dismissed as less effective, the flood mitigation infrastructure Calgary requires could be delayed by decades." 11:52

We simply cannot afford to have the City of Calgary and other downstream communities remain unprotected.

As Mr. Morris stated in his opening statement : (as read)

"The city will flood again, the only question is, will it be ready?"

And with the approval and construction and operation of SR1, Mr. Chair, the city and the province will indeed be ready.

Sir, those are our submissions. We wish to echo Mr. Fitch's comments regarding the efforts of the Board and Board counsel and staff, the court reporters whose task, no doubt, is daunting at times, also the efficiencies with which this hearing was conducted, and the participation of all of the parties. 11:53

Thank you, sir, and Panel very much for your time and attention.

THE CHAIR: Thank you, Mr. Cusano. And thank you for the kind remarks in terms of Board staff and all the help that we've received in terms of conducting hearings. So thank you very much.

City of Calgary is up next. Ms. Senek, are you speaking on behalf of the City of Calgary?

MS. SENEK: Yes, I will be. Thank you. 11:54

THE CHAIR: All right. So we're at 5 to. So if you still require your 40 minutes, then that's -- that's what was requested and approved so that would take you to about 20 to or so. But, if you don't need that time, that's fine, you don't have to take it but

just to let you know that you'd be up around 20 to 1, so...

MS. SENEK: Okay, thank you so much. I suspect I won't need the full 40 minutes that we requested.

THE CHAIR: Thank you. Please proceed.

MS. SENEK: Thank you, Mr. Chair, and members of the Panel. I will start by thanking counsel for Alberta Transportation and for Calgary River Communities Action Group and Flood Free Calgary for their submissions. The City of Calgary supports their remarks. 11:54

I'd also like to thank the Board staff and panel members, court reporters and Zoom host for their patience and assistance, and all parties for taking the time to participate in this very important hearing.

Like the other parties you've heard this morning, I will submit a written copy of my submissions to the Board which contains references to the evidence, which I will not include in my oral submissions today. 11:55

There has been a lot of information communicated, tested and digested over the past two weeks. You've heard about the need for SR1, you've heard about the devastating impacts of the 2013 flood, the design flood for the project, and you've heard a number of concerns

from some of the interveners.

The Board's task, under Section 2 of the *Natural Resources Conservation Board Act* is to determine whether SR1 is in the public interest, having regard to the social and economic effects of the project and its effects on the environment.

Mr. Chair, the City submits that the evidence has overwhelmingly shown that SR1 is in the public interest and, indeed, that the public cannot afford to wait any longer for that interest to be met. 11:55

The City submits that the project meets its stated purpose of reducing the effects of future extreme flood events on the City of Calgary and downstream communities. SR1 is not about protecting pockets of residences along the Elbow River. It will protect critical infrastructure and economic assets needed for the entire region, and will potentially save lives.

For our closing, the City will highlight the dramatic benefits SR1 offers, the conservative approach to design, safety and risk incorporated into the 11:56 project, and why the City believes that SR1 is a preferable choice to alternatives put forward. I'll begin with the project need and benefits.

The City of Calgary is located at the confluence of the Bow and Elbow River. Both of these rivers drain

steep, high-elevation mountain terrain that is subject to heavy rainfall and rapid run-off, and both lack sufficient natural storage, leaving Calgary at a unique potential for severe flooding.

I don't need to repeat the devastating impact of the 2013 floods on Calgarians. The Board has heard this evidence. Some of you may have lived it and nearly everyone who has spoken during this hearing has recognized it. Years of technical, economic, engineering and citizen engagement have shown that 11:57
upstream storage on both rivers is greatly needed, particularly on the Elbow River.

The City of Calgary faces constraints in addressing flooding risks from the Elbow River within City limits, but it has done what it can. Since 2013, it has doubled the storage capacity of Glenmore Reservoir from 10 to 20 million cubic metres. The city has completed stream bank and riparian erosion protection improvements, gravel bar modifications, rehabilitated fish habitat, replaced bridges with 11:57
higher flow capacity structures, and completed storm water, water and waste water system improvements. Mitigation efforts have reduced the flood risk to Calgary by 54 percent.

Unfortunately, the mitigation that was possible

for the City to undertake on its own is not enough.

Unless additional mitigation is undertaken, flood damages on the Elbow River will be approximately 2 to $3 billion over the next hundred years.

In 2014, in recognition of the City's limitations respecting flood mitigation within its boundaries, it was agreed that the province would lead the study and configuration of resilience elements outside of city limits.

Nearly eight years later, and after extensive 11:58
study and careful thoughtful design, the SR1 project is before this Board. Over 1.3 million Calgarians are now relying on the completion of SR1 to protect public safety, private property, critical regional infrastructure, including waste water treatment, road and rail networks, utilities and vital services, and Calgary's downtown core.

With SR1 in place, the likelihood of another flood like that in 2013 causing widespread damage and disruption is significantly reduced. SR1 will work 11:59
synergistically with other flood resilience measures in Calgary, including the Glenmore Dam itself, to virtually eliminate overland flooding in a 2013-sized flood downstream of the Glenmore Reservoir.

SR1 will also have appreciable effects on events

larger than the design flood. Though overland flooding cannot be eliminated in floods larger than a 1 in 200 event, the combined mitigation of SR1 and Glenmore Reservoir offer significant attenuation of larger flows. For example, after passing through SR1 and the Glenmore Reservoir, a 1 in 500-year event turns into a 1 in 29-year event. This makes SR1 an adaptive measure that offers substantial benefits should changes in climate and hydrologic regime bring more frequent, more severe floods. 11:59

Even those Calgarians upstream of the Glenmore Reservoir will benefit from SR1. Discovery Ridge, the only Calgary community upstream of Glenmore, was regulated at the time of development to the design to 1 in 100 standards, meaning that it was designed to a flow rate of 883 cubic metres per second. SR1, by diverting up to 600 cubic metres per second, will increase the threshold for damages in this area to around the 1 in 350-year range.

The benefits of SR1 are staggering. SR1 will 12:00 avert major social, environmental, and economic impacts along the Elbow and Bow Rivers in Calgary, including about $1.2 billion in damages for a 1 in 100 flood and $1.9 billion in damages for 1 in 200 event. The average annual damages to public and private

infrastructure averted by SR1 are approximately $27 million a year. The City submits that with SR1 on the landscape, almost 3 billion in damages will be avoided for over 100 years, resulting in a 5-to-1 benefit to capital cost ratio.

While the benefit cost analyses performed by Alberta Transportation has been more conservative, all benefit cost analyses have shown net benefit. It is likely, as well, that the net benefits are greater than those shown, given that most analyses do not account for some crucial factors that are difficult to monetize, such as the increased flood response flexibility afforded by SR1, health and safety elements, potential increased and, therefore, avoided damages due to climate change, and benefits that would be felt outside of the City of Calgary. 12:01

While upstream mitigation on the Bow River would certainly have its own positive impacts on the flood outlooks of the City of Calgary and other downstream communities, upstream mitigation on the Bow is not necessary for SR1 to provide benefits. The $27 million of average annual damages avoided by SR1 are solely attributable to SR1 and are not dependent on any additional projects on the Bow River. 12:01

Furthermore, flooding on the Bow River would have

a minimal impact on a mitigated Elbow River as the topography of the riverbeds would not allow water to travel very far upstream at the confluence of the two rivers.

River flooding has caused at least seven fatalities in southern Alberta since 2005, three of which were in Calgary. It must be highlighted that any further loss of human life to flooding in Calgary is intolerable to the city.

Beyond the life safety impacts of further flood mitigation along the Elbow, tens of thousands of Calgarians stand to benefit from the peace of mind this infrastructure will provide, particularly those still impacted mentally and economically by the 2013 flood. 12:02

I'll move now to a discussion on safety and risk. There have been many suggestions to this Board that SR1 is underdesigned. With respect, the City submits that the evidence shows the opposite. The design approach taken by Alberta Transportation and its consultants has been conservative. This conservative design, combined with stringent regulatory requirements, results in infrastructure that has been engineered to be safe. The clearest example of SR1's conservative design is the design flood itself. 12:03

Despite the Alberta standard being mitigation to a

1 in 100-year event, SR1 was designed to a standard of roughly 1 in 200.

In addition, there has been a 25 percent increase from the flood of record to the maximum diversion rate to allow for flexibility and maximum effectiveness throughout a flood event.

SR1 is designed to safely withstand and pass the probable maximum floods. While not SR1's intended operation, it is also notable that SR1 has an available incremental capacity that will bring SR1 storage 12:03
capacity from 77 million cubic metres up to approximately 100 million cubic metres if required.

In addition, multiple redundancies have been built into SR1's design to increase its safety, including respecting debris management, mechanical and operational systems and, as noted, an emergency spillway that is designed to safely pass the probable maximum flood.

SR1 will be classified as an extreme consequence dam. The City owns and operates 13 classified dam 12:04
structures including the Glenmore Reservoir which is, itself, classified as extreme consequence.

The City is, therefore, familiar with the stringent design, surveillance, operation and maintenance standard such a consequence classification

entails. Unlike other extreme consequence dams, SR1 will only be operating for periods of up to 40 days following a major flood and will not hold large amounts of water continuously, making the already remote chance of a fair weather failure even less likely.

With its off-stream design, components configure to meet or exceed its extreme consequence classification, large storage volume capable of holding back-to-back 1 in 100 floods and significant operational flexibility, the City submits that SR1 has a vanishingly remote chance of failure, and that these remote risks are far outweighed by the benefits I've already described. 12:05

In, addition and importantly, providing this higher level of permanent flood protection on the Elbow River will provide the city with more time to respond to flood events. It will also allow the city to eliminate over 40 percent of the emergency actions in its emergency response plan in a 1 in 200-year event and direct more emergency response resources during such a flood to mitigate impacts on the Bow River where less flood mitigation infrastructure has been completed to date, increasing overall public safety and reducing damages on both rivers. With this additional emergency response capability, combined with the reduced flooding 12:05

impacts discussed earlier, it is clear from the evidence, Mr. Chair, that not only is SR1 safe but it increases public safety.

I now want to touch on the alternatives. There have been numerous claims throughout this hearing that MC1 ought to have been chosen by Alberta Transportation over SR1.

The City reminds the Board that the Board's mandate is limited to determining whether SR1 is in the public interest. However, given that this Panel 12:06
indicated in its Pre-Hearing Conference Decision Report that a general understanding of the relative merits associated with project alternatives may be contextually relevant to the Board's decision on public interest, the City presents the following submissions supporting SR1 as the superior choice to MC1.

SR1 takes advantage of a natural topographic and geological feature that happens to be underlain by low permeability material. The off-stream design of SR1 means that only intermittently, during, and for 12:06
relatively short periods following major floods does it appreciably interact with the Elbow River's fluvial system. In addition, as already discussed, SR1's off-stream nature makes it less susceptible to fair weather failure, giving it an advantage over MC1 in

terms of operational risk.

SR1's catchment is 28 percent larger than that of MC1. The proposed position of MC1 higher in the catchment means that it would not capture rainfall events occurring lower down in the basin that could raise flows between MC1 and the Glenmore Reservoir, such as the event observed in 2005.

Drought management has been frequently cited by the interveners opposed to this project as a reason that MC1 ought to have been selected over SR1 by Alberta Transportation. 12:07

The City's witnesses cross-examined extensively on the City's water security concerns. With respect, water security is not the purpose of SR1. Its purpose is flood mitigation. It is an added public benefit of SR1 that it does provide a modest incremental benefit for water supply.

The existence of SR1 will allow the city the flexibility of not needing to draw down Glenmore Reservoir in anticipation of the flood season, allowing the City to maintain higher levels in Glenmore for its potable water needs. 12:08

The City agrees that water is a precious and limited resource. The City supplies potable water to almost 25 percent of Alberta's population and takes

water quality and supply very seriously.

SR1 will not negatively impact its citizens and regional customers' access to water. The City does not anticipate any appreciable changes to the timing and availability of water in the Elbow River with SR1 in place.

Further, as an off-stream structure, any potential water quality changes in the Elbow River as a result of the operation of SR1 are expected to be intermittent, of short duration, reversible and manageable by the water treatment infrastructure at Glenmore Reservoir and the flexibility of the City's water treatment strategy. Indeed, in the event of an unmitigated flood, pipelines, utilities and construction materials found in the urban environment are a real concern and these would pose a real threat to water quality, a threat that would be mitigated by SR1. 12:09

The City has 50 to 70-year horizon plans in place to address the financial infrastructure and licensing needs of the City and its regional partners, while considering the regions' and basins' sustainability for all water licence holders. 12:09

While the modest increase in water security provided by SR1 is, as I mentioned, an added benefit, the City does not view the Elbow River as the

preferable or practical source as longer-term population, hydrology, treatment and climate dynamics unfold.

The City's water licence capability on the Elbow River is essentially optimized with the Glenmore Reservoir, particularly since the installation of the new gates.

As stated by Frank Frigo, the Elbow is only so large of a roof. If you put a bucket at the end of that roof, you're only going to get so much water off of it, especially in times that are more, if you will, droughty. On the Elbow, there would simply not be enough water. Even a larger bucket would provide no appreciable benefit in terms of water supply. 12:10

The Bow River is a preferable candidate for upstream storage given its larger catchment, higher elevation, glacier permanent snowfield, less seasonal variability and higher precipitation. That said, as the City has submitted repeatedly throughout these proceedings, while upstream storage on the Bow River is important, so is flood mitigation on the Elbow River. SR1 is necessary. 12:10

In conclusion, there has been a lot of discussion throughout these proceedings about what sort of water management strategies the City wants and needs. To be

clear, the City is before this Board to very clearly and emphatically state that what the City needs today is SR1.

In the City's submission, SR1 is the most important piece of proposed infrastructure in the history of the City of Calgary and the broader Calgary region. This is not a for-profit natural resources project; this is critical public investment necessary for the protection of human life and regional infrastructure. 12:11

The Board has seen the evidence of SR1's economic benefits. You've heard how it has been designed to stringent and conservative standard, and you've heard from the source that the project's construction and operation will not sacrifice water quality or security.

If this project is completed, the residents of Calgary will finally have protection from one of the greatest threats currently facing the city.

SR1 is very much in the public interest and the City urges this Board to recommend its approval. 12:12

And those are the City of Calgary's submissions. Thank you.

THE CHAIR: Thank you, Ms. Senek. Much appreciated. And you're right, you didn't need all of your time, so we are now a little bit ahead of

schedule, but it is almost 12:15.

So let's break for -- yes, let's break for lunch. If we can get back at 1:00.

And, Ms. Louden, will you be representing Stoney Nakoda.

MS. LOUDEN: Yes, Mr. Chairman, I will be.

THE CHAIR: Okay. And 1:00, you'll be ready to go?

MS. LOUDEN: Yes, sir, I will be.

THE CHAIR: Okay. Well, thank you, everyone. 12:12

Let's reconvene at 1:00.

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

PROCEEDINGS ADJOURNED TO 1:00 P.M.

Volume 10
April 6, 2021
P.M. Session

(PROCEEDINGS RESUMED AT 1:01 P.M.)

THE CHAIR: Just before we start, Ms. Louden, welcome, Ms. Gerbrandt, the court reporter for this afternoon. You're a new face for us, but welcome this afternoon.

And we now have the final argument for The City of Calgary and CRCAG, so we could enter those as exhibits. 13:01

So, Ms. Friend, Calgary River Communities Action Group, could be Exhibit Number?

MS. FRIEND: That would be Number 410 for the final argument.

THE CHAIR: 410. Thank you.

EXHIBIT 410 - FINAL ARGUMENT OF CRCAG AND FFC

MS. FRIEND: And they also had transcript corrections. 13:02

THE CHAIR: Yes, that's correct. And, hopefully, people have had a chance to have a peek.

Are there any objections to having those entered as an Exhibit 411?

MR. SECORD: I have no objections.

THE CHAIR: Thank you, Mr. Secord.
MR. SECORD: Richard Secord here.
THE CHAIR: Thank you, Mr. Secord.
Ms. Louden?
MS. LOUDEN: We have no objections.
THE CHAIR: Okay. Hearing no others, we can enter those, Ms. Friend, 411.

EXHIBIT 411 - TRANSCRIPT CORRECTIONS FROM CRCAG AND FFC

THE CHAIR: And we can enter Exhibit 412, then, City of Calgary's final argument from Ms. Senek. 13:02
MS. FRIEND: Okay. Will do.

EXHIBIT 412 - FINAL ARGUMENT OF THE CITY OF CALGARY

THE CHAIR: Okay. Perfect. Thank you very much, everyone, and welcome back.
Ms. Louden, the stage is yours. Please proceed.
MS. LOUDEN: Thank you, Mr. Chairman.
Thank you, Panel members.
Just to briefly note, as with the other parties, which we just heard, upon concluding our arguments this afternoon, we will be filing with the Board a written copy of our arguments, which will include references to the material that I refer to this afternoon. 13:03
The Stoney Nakoda Nations are comprised of the

Bearspaw First Nation, the Chiniki First Nation, and the Wesley First Nation.

The Stoney Nakoda, as represented by the Bearspaw, Chiniki, and Wesley First Nations were signatories to Treaty Number 7 at Blackfoot Crossing in 1877.

The Stoney Nakoda have six Indian reserves. The propose project is located within the Stoney Nakoda's traditional territory to which they have an ongoing claim for Aboriginal title and rights in the Court of Queen's Bench of Alberta. 13:04

Woste Igic Nabi Limited is a wholly-owned company of the Stoney Nakoda and owns lands in close proximity to the SR1 project.

The purpose or benefit of the proposed project is to provide flood protection for the city of Calgary. However, the evidence shows there will be relatively few benefits to the city of Calgary from the project unless similar flood protection is not also provided on the Bow River.

The scope of the EIA for the project should, 13:04 therefore, have been expanded to include the proponent's projected flood protection measures on the Bow River in addition to those on the Elbow River. However, this did not happen, and this Board's mandate is restricted to the SR1 project.

Nevertheless, the Stoney Nakoda submit that the Board, in order to determine the public interest, must still review the costs and benefits of all the flood control projects proposed to protect the city of Calgary from another flood similar to the 2013 flood.

But the public interest must also include flood protection for communities upstream of the city of Calgary and must recognize their riparian rights. The public interest cannot assume the priority of downstream urban populations over upstream rural populations. Most of all, the public interest must include the oldest rights holders of this land, the Indigenous Peoples. 13:05

Both Alberta Transportation and The City of Calgary have de facto agreed that SR1 is part of an overall plan for the Bow River Basin, as is evidenced by the voluminous evidence they have put forward that relates to flood damage and flood control on the Bow River.

The City of Calgary's models that include both SR1 and upstream storage reservoirs on the Bow River rank highest of all of its flood mitigation options. 13:05
The City of Calgary expressly states that it is an advocate for upstream water storage on both the Bow and Elbow Rivers.

The City of Calgary speaks of total watershed management. Calgary's preferred flood control options are the SR1 project combined with a new reservoir on the Bow River.

As stated by City of Calgary witness Mr. Frank Frigo: (as read)

"The City of Calgary's long-term plans anticipate the population growth and changes in demand would likely be met through incremental infrastructure investment and licensed considerations along the Bow River."

13:06

The evidence before the Board shows that the SR1 project is only one piece of a combined set of projects on the Bow and Elbow watersheds that would provide the necessary mitigation.

As stated again by City of Calgary witness Mr. Frank Frigo: (as read)

"In the case of the Bow River Basin, both SR1 and any potential project on the Bow River combined, would provide the mitigation necessary for Calgary and other communities that may benefit from these projects."

13:07

For all these reasons, any review of the SR1 project

alone without a commensurate review of these other projects does not serve the public interest.

Alberta Transportation has adopted these models prepared by The City of Calgary. However, the models are based on only an analysis of the financial costs and benefits of flood control and mitigation measures. While such analyses are valuable, ultimately, the Board must determine the public interest by taking into account a much broader range of criteria.

Value judgments must be transparent and cannot be hidden with an arbitrary attempt to monetize the value components that purport to constitute the make-up of the cost benefit analyses. 13:07

Alberta Transportation should have come before this Board with a comprehensive solution for both the Elbow and Bow Rivers, providing various alternatives for each of the rivers, and letting the NRCB choose the best solution for each river from an overall perspective. Such a comprehensive solution should also have considered the cultural impacts on landscapes. This did not happen. 13:08

To do so would have involved comparing the costs and benefits of the various projects for each of the rivers, taking into account not only the 2013 flood, but also the future: Climate change, drought, fire

protection, recreation, and perhaps most important of all, the greater Calgary area's predicted future water needs for generations to come.

Included in any such review of the Elbow and Bow projects, the rights of upstream riparian residents and users must be taken into account and not simply sacrificed for the greater good.

This Board must ask whether Alberta Transportation has taken into account the ecological and conservation values of rural landscapes, or did financial and other benefits to urban communities simply supersede the costs and benefits to the rural communities? 13:09

Remember, there is no legislative policy that mandates the flooding of upstream landowners for the benefit of downstream riparian residents.

The waters flowing through the traditional territory of the Stoney Nakoda have been powering the city of Calgary for over 100 years. Any consideration of water control projects on the Bow or Elbow Rivers must consider the long-standing historical and cultural connections that the Stoney Nakoda have to these waters. 13:09

Over the past two weeks, the Board has heard evidence of Alberta's haphazard consultation process with the Stoney Nakoda, admit the limitations created by

COVID-19 on Stoney Nakoda communities.

The Aboriginal Consultation Office confirmed that it may rely on the NRCB process to fulfil the Crown's duty to consult.

Further, the Court of Appeal of Alberta confirmed in Fort McKay First Nation versus Prosper Petroleum Limited that tribunals must consider the honour of the Crown when making a determination about whether a project is in the public interest.

As stated by the Court of Appeal: (as read) 13:10

"A project authorization that breaches the constitutionally protected rights of Indigenous Peoples cannot serve the public interest."

Consultation with Indigenous groups generally is not consultation with the Stoney Nakoda. Negotiations and agreements with the Tsuut'ina and other distant First Nations bear no relevance to the rights of the Stoney Nakoda. For Alberta Transportation to imply that consultation with unrelated Indigenous groups 13:10 constitutes consultation with the Stoney Nakoda is extremely disrespectful.

While the Cree Nations from central Alberta and the Blackfoot Nations from southern Alberta have their own rights and interests, they do not speak for the Stoney

Nakoda.

The duty to consult and accommodate involves both the procedural and a substantive component. Procedurally, an infringement of constitutional rights might occur. Indigenous peoples must have the opportunity to have their views heard and considered.

Substantively, where adverse effects to constitutional rights might occur, Indigenous Peoples must have the impacts to their rights mitigated or accommodated. Both the procedural and the substantive components must be fulfilled. 13:11

The assessment of potential impacts from the SR1 project on the rights and interests of the Stoney Nakoda has not been adequate and has not been complete. As a result, the extent of potential effects, including what mitigation or accommodation measures may be required to reduce, mitigate, or avoid those impacts, has not yet been determined. Without this information, the Board cannot make a determination about whether the project is in the public interest. 13:12

In its environmental assessment, Alberta Transportation only assessed potential project effects on traditional land and resource use. However, traditional land and resource use is only one component of Aboriginal and Treaty rights, as these rights also

include Stoney Nakoda cultural, social and governance components.

For example, the right to hunt includes much more than just the activity of hunting. Hunting is grounded in the respect for the land and animals and is a central part of Stoney Nakoda culture.

For the Stoney Nakoda, it is essential to be out on the land to access traditional sites, for not just the exercise of the right to hunt, but, also, for example, the passing down of knowledge to younger generations. 13:12

Since there has not yet been assessment or consideration of project impacts to these components of Aboriginal and Treaty rights, there has not yet been a complete assessment of potential effects to the rights and interests of the Stoney Nakoda.

The oral evidence of Stoney Nakoda elders and knowledge keepers in this hearing, detailed among numerous other concerns, the trauma they have experienced as a result of inadequate consultation and engagement and the destruction of their lands, including 13:13 cultural, spiritual, and burial sites.

Elder John Snow, Jr. spoke of the trauma he still feels as a result of the flooding and desecration of Stoney Nakoda grave sites resulting from the Big Horn Dam. Such a situation is intolerable and must not be

permitted to happen again.

Alberta Transportation asserts that the proposed project, including the proposed future land use plan, will provide for an enhanced opportunity for the exercise of treaty rights and traditional uses.

However, this statement ignores the fact that the project will disturb or destroy existing traditional use in cultural sites of the Stoney Nakoda in the project area, and that the future land use plan includes a multitude of restrictions and competing uses to the exercise of Aboriginal and Treaty rights. This cannot be said to enhance the opportunities of the Stoney Nakoda. 13:13

Alberta Transportation acknowledges that mitigation measures should be directly proportional and responsive to identified impacts. Yet, Alberta Transportation also concedes that the mitigation measures it has proposed for impacts to traditional land and resource use are simply mitigations of biophysical components. Mitigations aimed at addressing biophysical components, and by proxy some of the resources used by the Stoney Nakoda are not the same as accommodation of impacts to Aboriginal and Treaty rights. This has been confirmed by the Supreme Court of Canada. 13:14

For all the foregoing reasons, the Stoney Nakoda

therefore submits that it is premature to approve the SR1 project and that the application should be denied.

However, in the event the Board approves the project, the Stoney Nakoda submit that the construction of SR1 not be permitted to commence until, and only if, one, the 2016 agreement between the Province of Alberta and TransAlta Utilities Limited governing water management in the Ghost Reservoir not be renewed unless the Stoney Nakoda Nations be made a party to that agreement. 13:15

Two, a full assessment of all the proposed flood and water control structures on the Bow River upstream of the city of Calgary has been completed, including an accounting of all payments to third parties. As part of this assessment, the Board must mandate a fulsome response to both climate change and solutions to the threat of flooding facing the city of Calgary.

And, three, the government of Alberta has obtained a full, free, and informed consent of each of the Stoney Nakoda Nations to any and all flood mitigation or 13:15 water storage structures on the Bow River upstream of the city of Calgary, regardless as to whether there is projected to be any actual flooding of Stoney Nakoda Indian Reserves 142, 143, and 144.

We would emphasize that there is no reasonable

reason why these conditions cannot be complied with prior to the commencement of construction of SR1. Further, these positions are responsive to the principles under the United Nations Declaration of the Rights of Indigenous Peoples, which Alberta Transportation has confirmed its commitment to.

In the event the Board approves the SR1 project, the Stoney Nakoda also asks that the following be made binding and forceable conditions of any such approval:

We note that evidence during the hearing indicated that 13:16
Alberta Transportation can only make commitments for itself. That is, it cannot make commitments on behalf of the eventual operator of SR1, Alberta Environment and Parks. The Stoney Nakoda requests that any commitments by Alberta Transportation, therefore, be made conditions of approval that are also binding on Alberta Environment and Parks.

These include the following:

Condition 1, completion of the Stoney Nakoda
traditional land use assessment. 13:17

Prior to construction, Alberta Transportation shall enable the Stoney Nakoda to complete the traditional land use assessment. Alberta Transportation shall review the completed traditional land use assessment and meet with the Stoney Nakoda to discuss outstanding

issues and appropriate mitigation or accommodation measures for identified impacts.

Alberta Transportation shall provide upfront funding to the Stoney Nakoda for the completion of the traditional land use assessment based on a budget to be provided by the Stoney Nakoda.

Condition 2: Cultural awareness training.

Prior to construction and any further fieldwork, all employees and contractors for the project must undergo Stoney cultural awareness training in the communities of Eden Valley, Morley, and Big Horn. Alberta Transportation shall offer reasonable capacity to the Stoney Nakoda for the development of the training program. 13:17

Condition 3: Information sharing agreement.

Prior to further fieldwork and the completion of the Stoney Nakoda traditional land use assessment referred to in condition 1, Alberta Transportation must engage the Stoney Nakoda on the development of an information sharing agreement for the SR1 project based on the First Nations' principles of ownership, control, access, and possession. 13:18

The agreement shall include and apply to Alberta Transportation, Alberta Environment and Parks, and Alberta Culture, Multiculturalism, and Status of Women.

Alberta Transportation shall offer reasonable capacity to the Stoney Nakoda for the development of the agreement.

Condition 4: Independent Indigenous monitor.

Alberta Transportation shall contract an independent Indigenous monitor to monitor all fieldwork activities undertaken as part of the completion of the Stoney Nakoda traditional land use assessment referred to in condition 1. The Indigenous monitor shall be mutually agreed upon between Alberta Transportation and the Stoney Nakoda. 13:19

Condition 5: Stoney Nakoda traditional knowledge monitoring committee.

Prior to construction and prior to the resumption of fieldwork and completion of the Stoney Nakoda traditional land use assessment referred to in condition 1, Alberta Transportation shall offer reasonable capacity for the development of the Stoney Nakoda traditional knowledge monitoring committee. This committee shall be in place for the life of the project, and its operation shall be funded by Alberta Transportation and/or Alberta Environment and Parks. 13:19

This committee shall be engaged on pre-construction, construction, operation, and

post-flood activities including, but not limited to: Fieldwork investigations and mitigation activities relating to cultural, spiritual, historical, and archeological features and sites in the project area, including those captured by the *Historical Resources Act*; cultural monitoring of the project area at predefined intervals including during and after ground disturbance and flood events; monitoring and verification of environmental assessment and mitigation effectiveness including for water, fish and fish habitat, wildlife and wildlife habitat, vegetation, and wetlands; and cumulative effects monitoring including for water, fish and fish habitat, wildlife and wildlife habitat, vegetation, and wetlands. 13:20

Condition 6: Stoney Nakoda archeological and heritage management plan.

Prior to further fieldwork, Alberta Transportation shall offer reasonable capacity for the development of an archeological and heritage management plan for any structures, sites or things of historical, archeological, paleontological or architectural significance, or physical or cultural heritage resources within the project's development area including, but not limited to, sites and things subject to the *Historical Resources Act*. 13:20

This plan shall include, but not be limited to, engagement of the Stoney Nakoda traditional knowledge committee, referred to in condition 5, on all future fieldwork and investigations relating to sites and features including those subject to the *Historical Resources Act*; provision of reasonable capacity to the Stoney Nakoda to monitor investigations and mitigation activities of sites and features captured under the *Historical Resources Act*, and conduct ceremonies at these sites as requested; and a procedure for sites and features not captured under the *Historical Resources Act*, which provides for documentation and protection of the sites and features in accordance with Stoney Nakoda cultural protocols. 13:21

Condition 7: Previously recorded archeological and historical sites.

Alberta Transportation shall provide the Stoney Nakoda with all information and reports regarding previously recorded archeological and historical sites in the project area, including the findings of the historical resource impact assessment undertaken for the project. Alberta Transportation shall offer reasonable capacity to the Stoney Nakoda to conduct site visits and undertake ceremonies at these archeological and historical sites. 13:22

Condition 8: Stoney Nakoda sacred ceremonial objects, repatriation regulation.

Alberta Transportation shall provide reasonable capacity to the Stoney Nakoda to engage the government of Alberta in the development of the Stoney Nakoda sacred ceremonial objects repatriation regulation under the *First Nations Sacred and Ceremonial Objects Repatriation Act*.

Condition 9: Wildlife overpass.

Alberta Transportation shall install a wildlife overpass over Highway 22 to facilitate the movement of culturally significant animals. 13:22

Condition 10: Crown land offset measures plan.

Alberta Transportation shall calculate the permanent loss of unoccupied Crown land and private land to which Indigenous groups have a right of access, and based on this calculation, shall develop and provide a Crown land offset measures plan to the Board and the Stoney Nakoda.

The plan must include, at minimum, a description of site-specific details and maps showing their locations where unoccupied Crown land or private land to which Indigenous groups have a right of access is no longer available for traditional use as a result of project activities, and a list of the offset or compensation 13:23

measures that will be implemented to address the permanent loss of unoccupied Crown lands and private lands to which Indigenous groups have the right of access.

Condition 11: Water monitoring for Woste Igic Nabi Limited lands.

Alberta Transportation and/or Alberta Environment and Parks shall monitor the water quality and quantity of the Woste Igic Nabi Limited lands prior to, during, and after ground disturbance activities for the project, and on an annual basis thereafter, for the life of the project. 13:24

Should the water quality or quantity be impacted, Alberta Transportation and/or Alberta Environment and Parks shall provide potable water to the Woste Igic Nabi Limited lands for agricultural and other purposes.

Condition 12: Chair of the Indigenous advisory committee.

A Stoney Nakoda member shall be appointed chair of the proposed Indigenous advisory committee. 13:24

Condition 13: Stoney Nakoda communication plan.

Alberta Transportation shall offer reasonable capacity for the development of a communication plan specific to the Stoney Nakoda communities regarding, at minimum, all impacts to land use resulting from the

project, post-flood activities and restrictions, and accidents and malfunctions occurring in relation to the project, including those within the project development area, which may affect areas outside the project development area.

Condition 14: Funding for participation in conditions or programs.

Where participation of Indigenous groups is an option as it relates to a project condition or follow-up program, Alberta Transportation and/or Alberta Environment and Parks shall offer the Stoney Nakoda a reasonable amount of capacity funding to support their involvement. 13:25

Condition 15: Funding for consultation on conditions.

Alberta Transportation and/or Alberta Environment and Parks must offer the Stoney Nakoda a reasonable amount of capacity funding to support consultation activities where such activities are a requirement of a project condition. 13:25

Condition 16: Regional assessments.

No further flood control infrastructure will be considered for approval by the NRCB until a regional assessment on flood control needs and impacts has been completed, either pursuant to the *Impact Assessment Act*

of Canada or an equivalent standard. This assessment shall consider the region to be assessed to include the entire Bow River system, including the Elbow River as a sub basin. This assessment shall include, but not be limited to, describing a baseline against which to assess the incremental impact of a discrete project; identifying thresholds to inform future project decisions and limit unaccessible cumulative effects; clarifying expected standard mitigation measures for future projects; addressing potential impacts on the rights and interests of the Stoney Nakoda; and providing guidance for land use planning that may be undertaken by various jurisdictions. 13:26

Thank you, Mr. Chairman and Panel members. Those conclude the final arguments on behalf of the Bearspaw First Nation, Chiniki First Nation, Wesley First Nation, and Woste Igic Nabi Limited.

Thank you to the Board and to the Board staff and to the other parties as well, and we appreciate the opportunity to participate in these hearings. 13:27

Thank you.

THE CHAIR: Thank you, Ms. Louden.

Mr. Secord.

MR. KRUHLAK: Mr. Chairman, it's Ron Kruhlak. If I could just ask Ms. Louden, would you be able to

provide us with a copy of your closing argument in the next short while, just so we have an opportunity to review it this evening?

MS. LOUDEN: Certainly, Mr. Kruhlak. We'll be sending that off right away.

MR. KRUHLAK: Thank you very much.

Thank you, Mr. Chairman.

THE CHAIR: Thank you.

Sorry. Mr. Secord on behalf of SCLG.

MR. SECORD: Good afternoon, Mr. Chair. I have circulated our argument to counsel and hearing participants. So, Mr. Kruhlak, I hope you received it and you'll have time to look at it. 13:28

So my --

THE CHAIR: Sorry, Mr. Secord, in terms of the timing, we're just slightly ahead, so I think it would take you to about 4:00, and I presume that will still work.

MR. SECORD: I was hoping I would still get that 4:15 end time, sir, but I will -- you know, I will do my best. 13:28

As you can appreciate, there's a lot of material, and actually to respond to what Mr. Kruhlak and his team put together this morning in their, you know, 90 plus-page document, I didn't really factor that in

in terms of my request.

Anyway, I'll do my best, and maybe at 4 we can -- you can cut me off if need be.

THE CHAIR: Well, how about I'll try to give you a bit of a heads-up before that. I would -- I'll let you get your stuff in. We all agreed on the time.

MR. SECORD: Sure.

THE CHAIR: We're a little bit ahead of time. So it's not like we're going to sort of cut people off for a few minutes, but just a bit of a heads-up. 13:29

MR. SECORD: Sure.

THE CHAIR: Thank you.

MR. SECORD: And I'll endeavour to finish by 4.

THE CHAIR: Great, thank you.

MR. SECORD: So this is the final argument of the SCLG. This argument will address the issues identified by the Board in the five topic blocks.

To the extent that this argument does not specifically address matters raised by AT, CRCAG, or The City of Calgary in their final arguments today, 13:29 SCLG's positions remain as expressed in its previous submissions and through the hearing process.

So my first series of remarks are going to be on the public interest and how that is framed in this case.

Is the test for whether or not the SR1 application is in the public interest, is that it is "better than nothing"? Is the public interest test served when only a portion of the public is protected, in this case the homeowners downstream of the Glenmore Reservoir in Calgary? Meanwhile, the Alberta residents upstream of SR1 in Redwood Meadows, in Bragg Creek are hung out to flood.

If approved, one community wins flood protection to a 1 in 200-year level, and one loses its environment, its heritage, its inheritance, its culture, its quality of life, and potentially its future. Does this serve the public interest? 13:31

In the Cougar Creek decision, NR2018-01, the Board stated in paragraph 345 under the heading "Public Interest Test": (as read)

> "The Board does not have a fixed formula...the outcome of a Board review is shaped by the nature of the project under review...community support for the project..." 13:31

And it goes on to say that:

> "...the Board must be convinced that the identified project benefits the region and the province...without generating

unacceptable economic, social or environmental impacts."

Cougar Creek had an estimated $38 million construction cost. Nothing like the project that you have in front of you today.

SR1 does not have the support of the Springbank community. SR1 does not benefit the region upstream of SR1 and generates unacceptable economic, social, and environmental impacts between SR1 and the Glenmore Reservoir. 13:32

Is the test of public interest time specific? The SR1 project will be here for hundreds of years if it is approved. Is it the public interest for the next five years because Calgary needs flood mitigation now and this is the only project before the Board? Should not consideration of the public interest on a long-lived project like SR1 consider the next 50 years? The next 100 years? The next 200 years?

What if, as Dr. Fennell stated last week, the 1 in 500-year flood becomes the 1 in 200-year flood 50 years from now. 13:33 What is the responsibility of this Board to consider the long-lived nature of this project?

Is it a test of public interest to consider whether this project manages our precious water resource, the Elbow River, for future generations? After all, the

name of this Board is the Natural Resources Conservation Board, with emphasis on "conservation."

Is it in the public interest to invest over half a billion dollars in a project that will sit idle while severe drought and climate change takes hold over the next hundred years.

Is it in the public interest to approve a project that has not considered the worst-case scenarios? I find it amazing listening to Alberta Transportation saying, "Oh, you can't possibly take a look at the floods on the Bow River in terms of, you know, what might happen in the future. There's no evidence that they occurred on the Elbow." From a worst-case scenario, why wouldn't you do that? I mean, what are you scared of? 13:35

Is it in the public interest to approve a project where modelling changes and recalculations continue to be made as late as March 2021?

For instance, the soil and sediment modelling revisions and the air quality modelling revisions in Exhibit 327. 13:35

Is the public interest served when material costs have been hidden from public view, are uncertain, or simply unavailable for review by this Panel? Is the public interest served when AT explicitly refuses to

disclose certain material costs?

Is the public interest served when one community, Springbank, is asked to accept fugitive dust emissions, where no exposure is acceptable, on behalf of another community such as Elbow Park or the Calgary Golf and Country Club?

My next series of remarks are on Topic Block 1, "Project Purpose and Need."

The SCLG requests that the Board pay close attention to the numerous submissions made by its members in Exhibit 250, the landowner statements. The SCLG also requests that the Board pay close attention to the viva voce evidence given by Ms. Karin Hunter, Mr. Brian Copithorne, Ms. Mary Robinson, Ms. Tracey Feist, Mr. Marshall Copithorne, Mr. Lee Drewry, Ms. Jan Erisman, Mrs. Barbara Teghtmeyer, and Dr. Karen Massey. 13:37

The SCLG members do not dispute that there is a need for flood management or mitigation to manage high consequence floods. As Marshall Copithorne put it, nobody could. 13:37

But the SCLG disputes the need for a project such as SR1 that has crucial design limitations, that creates unequal outcomes, and that limits its ability to adapt to a range of future flood conditions. And I would

refer in particular to Karin Hunter's evidence in Topic Block 1.

Under the rubric of project purpose and need, let's recall the two SCLG aids to cross-exam discussed on March 22, the first day of the hearing.

Those exhibits, Exhibit 360 and 361, provide a side-by-side comparison of SR1 to MC1. The comparison demonstrates that MC1 is vastly superior to SR1 in capturing peak flows.

The most basic test of whether SR1 should be approved by this Panel is its ability to manage flood risk. Exhibit 350, Transcript page 156, Mr. Wood stated: 13:38

> "It is the peak, you know, that is the most important when it comes to flood damages."
>
> "It is the peak, you know, that is most important when it comes to flood damages."

If that is so, why were volumes used to compare SR1 and MC1? The comparison has always been volumes, not flow rates. MC1, as an in-stream dam, has superior outcomes to SR1 for more communities and under more extreme flood events. 13:39

If a flood surge or peak flow arrives that is not

captured by SR1, either because the reservoir is full, due to forecasting errors or environmental conditions, back-to-back storms or a short, but high-intensity storm, SR1 will not be effective at capturing the floodwaters and preventing damage downstream. What is the point of infrastructure that may not capture the peak -- the flood peak it is intended to capture?

Consider that we are in the middle of a "hypothetical pandemic." Let's call the virus in this case a "1 in 200-year flood," with a maximum flow rate of 1240 cubic metres per second. 13:40

There is a vaccine that is 100 percent effective against the virus. That is MC1.

There is another vaccine that is 0 percent effective for the population upstream of SR1, and only 25 percent effective for the population downstream of SR1 to the Glenmore Reservoir, to which the proponent eagerly acknowledges 1 in 50-year level of protection rather than the proponent's 1 in 200 target level, and this SR1 vaccine is only 100 percent effective for the population downstream of the Glenmore Reservoir to the confluence of the Elbow and Bow Rivers. 13:41

Shouldn't the government of Alberta and the NRCB look to protect everyone with the vaccine that is 100 percent effective? This vaccine is MC1.

Why would we choose a vaccine that has lower effectiveness?

Using the vaccine analogy, MC1 is also effective against the variants of climate change, 1 in 1,000 and 1 in 500-year floods; drought, water security, fire-fighting protection, and recreation.

SR1 is useless against the variants of a 1 in 1,000 and 1 in 500-year flood.

Even the residents downstream of the Glenmore will not be protected by SR1 from those events as SR1 can only take the top off a flood to a maximum of 600 cubic metres per second. 13:42

SR1 is also useless against the variants of climate change: Drought, water security, fire-fighting protection, and recreation.

And SR1 has a wide range of negative side effects such as PM 2.5 air pollution for the Springbank residents.

As Marshall Copithorne stated, "It is never too late to reverse course and ditch a bad decision." The SCLG notes the government recently did that with a 1976 coal policy. 13:43

Marshall Copithorne stated at Transcript page 537: (as read)

"With listening to this morning's

dialogue, I recognize that, with SR1 in place, we do not protect Calgary. In fact, 80 percent of the damage could still occur in Calgary with SR1 and, to me, that's ridiculous."

And, of course, he's referring to the fact that the Bow is not looked after in this -- by SR1 and, of course, there was considerable damage done to Calgary from the flood of the Bow River in 2013.

And Mr. Copithorne went on to say: (as read) 13:44

"There is some things that really bother me. In the presentation this morning with regard to folks in Calgary, and it seemed to me that private land and property rights and homes in the city of Calgary are more important than private property out in the country. What are we teaching our kids these days? That bothers me. Should we let this continue in our society or should someone stand 13:44 up and say this is enough?"

He went on to say: (as read)

"I'd like to advise the Board to the fact that, whether you're in business or whether you're in government, it's never

too late to reverse a bad idea or an investment. It will enhance Alberta's credibility for future generations to come. Cut and move on from our suffering Alberta taxpayers' sunk costs into SR1. Excite anxious Albertans with a better, comprehensive, multiuse plan to address the longer term future of this great province."

13:45

"This huge financial investment we have for SR1 is good for something that might happen. I know this has been clearly identified and it just -- it just sticks with me. Why wouldn't we put that huge investment and all our resources into a project that will serve this province and this community for the next hundred years? Next thousand years."

He went on to say: (as read)

13:45

"What's wrong with us? Why are we worried about building a mud hole when we could build a resource that would enhance the lifestyle and the productivity of the province for a long,

long time."

This application should be denied, and the government should be advised by the NRCB that SR1 is not in the public interest and is not the best alternative.

Why are we building a mud hole when we could build something like MC1 that could provide lasting benefits, from permanent water storage for generations to come.

As Jan Erisman stated, there is a reason why no one is building dry dams anywhere else in the world.

And as Barbara Teghtmeyer has noted from personal experience, the Elbow River's water flow has been declining, so why aren't we looking to the future? 13:46

The NRCB issued a decision for the Revised Highwood Diversion Plan in 2008. This is NRCB Decision NR 2008-01.

And at pdf page 13 of that decision the Board stated: (as read)

"Several conclusions reached by the Joint Review Board in the Decision Report are significant with respect to the deferred items listed in NRCB Board Order 9601-1. Of particular importance is the Joint Review Panel's approach to assessing the approached proposed diversion plans. Fundamental to this 13:47

approach was its adoption of a sustainable development frame of reference to assess the proposed project, based on the following principles:

'First, water management projects must respect existing riparian rights and water licences, and should not result in the loss or injury to existing water rights.'" 13:48

So the Board then, we submit, should adopt a sustainable development frame of reference for the SR1 project as well.

In terms of the first principle noted above, it appears that AT clearly stated that the operator of SR1 will need a water licence from the Elbow River to remediate the reservoir after flood events, water for reseeding and vegetation growth. This may result in the loss of water from the Elbow River for downstream communities in the future. 13:48

Why would we do that with water being such a scarce resource?

The second principle noted by the NRCB, and I quote: (as read)

"Second, water management projects must

be able to meet basic environmental criteria to avoid significant adverse effects."

In this case, the bull trout may be extirpated from certain reaches of the Elbow River as noted by Paul Christensen in Exhibit 187, pdf page 3.

And it's interesting in this case, do we really know what's going to happen to the environment when you remember that AT didn't do their fish survey until August. I mean, how much information do you have to know what the environmental consequences will be from SR1? 13:49

The SR1 project will have significant environmental effects. Intact native grasslands will be destroyed and revegetation success is unproven.

Mr. Wallis's report references Lancaster, et al., which confirmed that revegetation of native grasslands is not successful, and the only site that recorded success was an undisturbed site.

The third principle noted by the NRCB is, and I quote: (as read) 13:50

"Third, water management projects must be able to meet current and future needs for domestic, riparian, and municipal needs, and other consumptive uses."

SR1 is unable to meet current and future needs for domestic, riparian, and municipal needs and other consumptive uses. For crystal clarity, SR1 is merely a diversion channel whereby contaminated water is stored in a mud pit for a short period of time. There is no practical and real storage application of this facility.

In Decision NR 2008-01 the Board stated, and I quote: (as read)

> "These environmental, social, and economic considerations are basic to the determination of the public interest. A project must be able to meet these three criteria to be worthy of detailed consideration by the Panel with respect to project effects."

13:50

The NRCB should find that the SR1 fails the sustainable development frame of reference test and is not worthy of being found to be in the public interest. The focus on flood mitigation as the sole purpose of the project created a warped decision project, narrow in scope, that did not allow consideration of drought, fire suppression, and potential recreation.

13:51

Rather than allowing this narrow scope to define the Board's review, we ask the Board to consider that the original scope was inappropriate for a project of

this magnitude.

In NRCB Decision NR 2008-01 the Board stated: (as read)

"Accordingly, the Joint Review Panel concluded that the proposed diversion plan fails to remedy the current deficits and fails to meet future needs for water. The Panel concludes that the applicant's proposed diversion plans are not sustainable and could not remedy the problems that already exist." 13:52

And then it goes on to say: (as read)

"Further, the Joint Review Panel observed there were very few alternatives for dealing effectively with the demand for consumptive uses of water during low flows."

And it concluded that, in the context of sustainable development, there was a need for storage in the Highwood Basin. 13:52

And then the Joint Review Panel went on to say, and I quote: (as read)

"The Joint Review Panel also required that diversion plans for management of water in the Highwood River be revised

to meet the basic criteria of a sound water management project, including..."

And this is the fourth bullet: (as read)

"Known future demands are met..."

And the fifth bullet:

"Consideration is given for reserving water, if possible for future unknown requirements."

SR1 does none of that.

13:53 And in relation to consideration for reserving water if possible for future unknown requirements, given climate change, there should be consideration given to that.

Mr. Frigo from The City of Calgary suggested that the Elbow River doesn't have the flow for a new storage dam, but the Glenmore Reservoir is on the Elbow and yet it was filled up.

Dr. Klepacki estimated you could fill MC1 four times in the course of a year based on volumes from the Elbow River. 13:54

SCLG asserts that the SR1 design is unprecedented. On day 5 of the hearing, Mr. Wood testified that the Pine Coulee Reservoir in southern Alberta is a comparison to SR1. Mr. Wood referred to Pine Coulee as an off-stream storage reservoir.

When asked for details of the similarities between Pine Coulee and SR1, Mr. Svenson attempted to provide some clarity on the similarities. He was unable to tell the Panel whether Pine Coulee had a debris deflector; he did not know the outlet capacity; he acknowledged that the reservoir did not empty completely and had some park-like amenities.

When you look at the NRCB Pine Coulee decision report, you will see the small creek referred to by AT on Friday, Willow Creek, is used for the Pine Coulee Reservoir. Its maximum diversion flow is 8.5 cubic metres per second, and yet that reservoir is 50,000 dam cubed. 13:55

From the NRCB decision report, it states: (as read)

> "The canal would be constructed with a seven metre bed width and have a flow capacity of 8.5 cubic metres per second."

Further, in Exhibit 325, AT states regarding the Elbow River: (as read) 13:55

> "The mean annual flood of the Elbow River in this reach is 70.9 cubic metres per second."

This is nearly nine times the maximum Pine Coulee

diverse flow rate.

Pine Coulee Reservoir is filled by this small Willow Creek, yet provides drought mitigation and irrigation capabilities over the long run for the surrounding and downstream communities.

There is very little that is similar between that body of water and the SR1 plan. It is a desperate and misleading attempt to make an experimental project that is without precedent, SR1 seem common and normal. When questioned, AT failed at drawing any direct comparisons between Pine Coulee and SR1. Let's be crystal clear, there is no similarity. 13:56

AT also refers in its reply evidence to the Miami Ohio conservancy dams, which are 100 old. The Bow River Basin Council Report, dated March 2014, refers to a tour of the Ohio Dams by members of the Flood Recovery Task Force and the Expert Panel on Flood Mitigation in January 2014. From this BRBC report, I quote: (as read)

"Compared to the Elbow River system, the dry dams of the Miami Conservancy District in Ohio are in a radically different ecosystem and climate and have a much different elevation drop in their rivers, as well as differing riparian 13:57

ecology and species. To expect the same results of a dry dam in each system may be misleading. The highest rainfall event in the Miami River occurred in 1925 at 121 millimetres in one day. Over three days, 170 millimetres was recorded in Bragg Creek in 2013. Considering the length and drop of each river, the average drop of the Miami River is .6 metres per kilometre, 13:58
whereas the average drop of the Elbow River is 8.83 metres per kilometre. The runoff coefficient in the Alberta East Slopes would be much higher than in the Eastern Corn Belt Plains Ecoregion with a dramatic difference in soils and slope. In our East Slopes, we would face a very different issue of introducing shallow-rooted, large, woody debris and 13:58
large boulders with significant gradient and bedload movement. This will make flows, timing, and debris very different, as well as the associated ongoing maintenance costs."

A further discussion of the Miami Ohio dam is available in Exhibit 133.

Moving now to project justification - key points: Storage volumes. The Deltares report included that both storage facilities have sufficient SR1, MC1 storage capacity for a 1 in 200-return period and can offer the same level of protection.

As discussed throughout this hearing, the reliance on storage capacity to conclude that SR1 equals MC1 is erroneous. The diversion limitation of SR1 creates a disproportionate reliance on river flow rate, which was not explored, not discussed by AT until this very hearing. This oversight is nothing less than astounding. 13:59

Perhaps in-stream dams don't need to consider flow rates if they can control their outflows up to a certain storage volume. Perhaps people involved simply overlook that SR1 allowed more water to bypass it in a design flood than was captured by the diversion inlet. Perhaps no one thought to look at the outflow of the two projects side by side to assess the impacts of a capped diversion. Nonetheless, when MC1's superior outcome becomes apparent, it should have been broadcast far and wide. This is a fundamental and critical oversight that is inexcusable considering communities, properties, and 13:59

lives are on the line. To rely on the storage capacity comparison is inexcusable.

We heard specifically from AT that flow rates are far more important than volumes.

Catchment area. Another reason given for the choice of SR1 over MC1 is SR1's larger catchment area.

AT and The City of Calgary referred to catchment area repeatedly over the course of the hearing. On Day 1 of the hearing, Mr. Hebert noted that very thing at Transcript page 158. 14:01

Mr. Frigo, on March 26th, offered to undertake to provide details on the catchment area, which concluded that SR1 was superior to MC1. The response from Mr. Frigo, Exhibit 378, provided details on the catchment area.

AT has repeatedly referred to this so-called advantage of SR1 over MC1. This appears similar to a reference in Exhibit 12, Table 12, page 38. This is really a critical point, and clarification is required.

A larger catchment area, in this case square 14:01 kilometres, does not necessarily translate to a much larger water volume or flow rate, especially considering the topography of the Elbow River.

The City of Calgary response stated that MC1 was 58 percent of the catchment rather than 96 percent

suggested in cross-examination. This is an apples-to-oranges comparison and misleads the Board by falsely comparing SCLG's number of 96 percent of the flow that MC1 would catch relative to the flow that SR1 would catch, to a drainage area based on square kilometres.

The 96 percent is a flow rate measurement that comes from the Elbow River tributary made by a graduate environmental science class of the University of Calgary in 2012. 14:02

Dr. Klepacki reviewed published flow measures of the tributaries and mainstream Elbow River by Sosiak and Dixon. These are the last published measurements of these quantities. These measurements show that MC1 captures 90.4 percent of the peak flows above the Glenmore Reservoir, and SR1 will have the capability of a percentage of 98 percent of flows above the Glenmore, if all flows were captured. However, because SR1 allows some river flows to bypass the diversion, MC1 will capture more than 91 percent of what SR1 captures. 14:03

In summary, on this point, the Elbow River, most of the volume and flow rate is generated in the headwaters, as would be expected in a Foothills region. This is why Bragg Creek floods when Calgary floods. This is intuitive.

The use of square kilometres to choose SR1 over MC1 is not appropriate and the analysis should have been to a much deeper level that considered rates and volumes.

Catchment area is a gross oversimplification in the SR1 versus MC1 context. A review of Exhibit 12 shows the very high correlation between the Bragg Creek station and the Combined Station/Glenmore readings over time for both volumes and rates, consistent with Dr. Klepacki's findings.

In Exhibit 252, the AEP decision report from 2015, the SR1 project was chosen because it was less expensive, more environmentally friendly, and could be delivered in a shorter timeline. 14:04

In Exhibit 325, page 8, AT's response to SCLG still uses these same justifications that existed in 2015. The SCLG rejects all these justifications, with the exception of SR1 timelines, which at this point is no doubt faster.

SNN is less expensive. Now we know that SR1 costs are well over MC1. SR1 has less environmental impact. 14:04 This is not backed up by science. No negative environmental outcomes for SR1 were considered at all until the EIA in 2018. A comparison of the two projects based on science has not been done.

SR1 has less impact on the Elbow River. This is a

judgment not based on science. Now the proponent states that water may be drawn from the Elbow River to water the reservoir.

SR1 is off-stream and less sensitive to impacts from sediment or debris. This is not backed up by evidence. If anything, SR1 has more sediment and debris issues being downstream. In fact, a debris reflector wasn't added until 2018, after the EIA was submitted. There is no doubt that sediment is a huge problem at SR1. 14:05

SR1 presented less risk than MC1 during construction. We have seen no evidence to support this conclusion. Yet the 2017 Opus report stated that MC1 is relatively easy to operate, meanwhile, the complexity of operating SR1 during a flood is glaring.

SR1 has less impact on social recreational values. This is a judgment and is reflective of continued bias by the proponent against natural grasslands and their environmental, social, and recreational utility.

There was no consideration of the community surrounding the SR1 at all and no mention of any air quality concerns until 2018. Air quality risks are highly concerning to my clients. 14:06

SR1 has less impact on commercial tourism values. Another judgment. There was significant focus on MC1

recreational attributes in the AEP decision report, Exhibit 252.

Yet, in the Opus report of 2017, it was concluded that, in fact, very few existing recreational amenities were impacted (19 camp stalls, a camp store, wastewater lift station, and a Ranger station.)

The question that the Panel needs to consider when reviewing the justification for this project is whether or not the proponent's conclusions are based on judgment and science. Rocky View County's 2018 report on SR1, Exhibit 255, stated: (as read) 14:07

> "That in choosing the SR1 project over the McLean Creek option, Alberta Environment and Parks relied on technical experts to make subjective choices on values not linked to the technical merit of either option. The public should have inputs into these value-based decisions, as other choices are possible." 14:07

Regarding the Bragg Creek berms, a project upstream of Bragg Creek would still benefit Bragg Creek and Redwood Meadows. It would reduce groundwater flooding and increase flood mitigation substantially at higher flow rates, such as a 2013 flood or greater, by reducing the

chance that the berms are breached. There is still incremental benefit to these communities from an upstream alternative like MC1.

Under the heading of "Unequal Outcomes." Alberta Transportation acknowledges that SR1 was designed to protect the city of Calgary from a 1 in 200-year flood. As has been shown through AT's Witness Panel Number 1's responses to cross-examination questions, the SR1 creates unequal levels of flood protection.

As confirmed by Mr. Dowsett in his report, there are 16 Springbank properties located directly below and south of the proposed SR1 embankment reservoir that experienced flooding in the 2013 flood that would not be protected by this project. Mr. Dowsett highlighted this during his cross at Exhibit 379, page 1405. 14:08

He said: (as read)

"The ones I'm concerned about are those directly below the foot of the dam, that are below the emergency spillway, and I'm worried about those people and what they knew and what they understood the hazard was and what operational decisions may be taken by the operator that would increase the rates coming down this river and raising numbers even 14:09

higher."

It is important to note that AT did not challenge this evidence.

AT also agreed with Mr. Dowsett that the residual flood risk of the project is similar to that of a 1 in 50-year flood, in Exhibit 327. This is best explained by using rates. Some of these properties flooded in 2005 with a 300 cubic metres per second flood event.

In a design flood of 1240 cubic metres per second, SR1 will take between 480 and 600 cubic metres per second. This leaves between 640 and 780 cubic metres per second going down the river. If these homes were protected to a 1 in 100-year flood, that would be protection to approximately 990 cubic metres per second, the rate used for the design of the Bragg Creek berms. Rather, these homes and businesses will flood at levels well below a 1 in 100-year flood. This is inferior and in contravention of the design standards in Alberta of a minimum of 1 in 100-flood mitigation level. 14:10

The Canadian Dam Association Guidelines state a minimum level of 1 in 100-year level of flood protection for new projects. Similarly, the Government of Canada, the Alberta government, and The City of Calgary bylaws state a 1 in 100-year minimum level of flood protection. Why are some communities receiving a vaccine that is not 14:10

100 percent effective?

Although AT accepted -- attempted to diminish the impacts to these 16 residents by suggesting, during cross-examination of Mr. Dowsett, that those residents within the 1 and 100-year flood hazard are in an area that Rocky View County's land use bylaw had prohibited development. It is important to note, as Mr. Fitch said, not only is it not an exhibit, but there's no documentary evidence of Rocky View's land use bylaw on the record, there's no evidence from Rocky View County 14:11
regarding this bylaw, their interpretation of it, and its effects on existing residents. This bylaw dated January 2021 is not applicable retroactively, and we submit that the Board should disregard any information regarding Rocky View's land use bylaw in making a decision on this project. It simply doesn't apply to the existing residents that are going to be affected.

In response to the concerns raised by the SCLG about flood risk downstream of SR1, Mr. Wood in Exhibit 350 stated: (as read) 14:12

"There are some residents, part of Rocky View County, there's some golf courses. It is only those who have built very close to the river who may get flooded. Those who are down low may

still have problems in a 2013 event, that what they get for living near the river."

Is this statement not diametrically opposed to the entire purpose of SR1, which is to protect residents and inner city locations that are next to the river?

Can we transpose this statement to, that's what Elbow Park, Roxboro, and Rideau get for living near the river, all of which are located along the river in the city of Calgary. 14:13

As expressed by CRCAG in their submissions, the Board must prioritize public health and safety. Prioritization of public health and safety should include consideration of impacts to residents upstream of the project and directly below the project.

In the event of a failure of the dam or structure, or in the event of flows greater than the design flood, SR1's location is a serious concern. As discussed in Exhibit 373, the time for the residents below the reservoir to evacuate could be less than one hour. And 14:13 Mr. Menninger indicated there could be up to a hundred fatalities as a result of a catastrophic failure of the SR1 reservoir.

Moving now to the heading "Social and Economic Project Costs and Benefits."

The NRCB/CEAA Joint Review Panel issued a decision report in May 1998 on the Little Bow Project/Highwood Diversion Plan Application to construct a water management project to convey and store water diverted from the Highwood River.

And at Section 8.9 of that decision, the Board, the JRP wrote: (as read)

> "Despite concerns about the extent to which some project benefits and costs were adequately quantified in the economic evaluation, the Panel concludes that, on balance, project benefits would exceed costs."

14:14

They go on to say that -- they go on to say: (as read)

> "A conclusion that the project is in the public interest does not commit the government of Alberta to actually -- to actually investing public funds in the project. Should the Panel determine that a project is in the public interest, it remains the responsibility of the government of Alberta to actually decide whether an investment of public funds is warranted."

14:15

And it's interesting, in relation to -- in relation to

the project that the JRP were looking at, they said the project operations would directly and indirectly lead to a significant increase in reasonable employment and economic activity, would provide new recreational opportunities, it would further enhance the quality of life in the region and become a reasonable tourist attraction. But even with all of those benefits, there was still this caveat that I just expressed.

In this case, the Board should have a great deal of concern about the extent to which project benefits and 14:16
costs were adequately quantified in the economic evaluation. The SCLG submits that the Board should conclude that, on balance, project costs, including ongoing operating costs, which exceed project benefits.

Some things are a certainty. SR1 will not improve water supply conditions, like the Little Bow project. SR1 will not result in irrigation expansion. SR1 will not provide new recreational opportunities. The mud hole will not become a regional tourist attraction and, in fact, it's likely the opposite. 14:17

As I mentioned, the Board -- the JRP said that, just because a project is in the public interest doesn't commit the government of Alberta to actually invest public funds in the project.

The SCLG hopes the Board will warn the government

of Alberta that this project does not meet the test of sustainable development and that the money could be better spent on a project like MC1 that included flood protection greater than 1 in 200 for more communities, as well as contemplated future water needs in the age of rising temperatures, climate change and drought.

Alternatively, given the benefits of SR1 are designed to accrue to communities downstream of the Glenmore Reservoir, then perhaps some of this money for SR1 is best redirected to a large-scale flood mitigation project for Calgary's downtown core where most of the damage occurred in 2013. The advantage to this is the city of Calgary would not be beholden to adverse parties from a timeline standpoint. 14:18

So let's examine the benefits.

On day 1 of the hearing, the proponent agreed that the avoided damages used to arrive at a benefit cost analysis for SR1 did not include any avoided damages upstream of the Glenmore Reservoir and below SR1.

The proponent also agreed that MC1 would have higher benefits as it would have protected more communities to a higher level than SR1. These benefits would be higher for the life of the project. The increased benefits for MC1 over SR1 were not measured above a 1240 cubic metres per second flood or for the 14:18

communities between SR1 and Glenmore, or the communities upstream that would be better protected by MC1 even to a 1 in 1,000 flood level.

Capital project costs.

Bragg Creek, which have always been linked with SR1, have increased from 209 million in 2014 to 263 million in the 2015 IBI report to $580 million today. The proponent refers to 432 million as the project cost. This ignores costs to date and is a present value or discounted number. 14:19

The $580 million capital cost includes construction costs of 340 million from Exhibit 159; land costs of 140 million, Exhibit 100; Bragg Creek berms of 42 million, Exhibit 254; that totals $522 million.

Add to this, payments to the Rocky View County of 10 million cash, and 10.5 million in intersections, and the 32 million grant to Tsuut'ina.

Add to this the newly disclosed detour road upgrades to Range Road 40 and Township Road 250 of 3.8 million, Exhibit 385; and wetland replacement costs 14:20 of approximately 800,000, and you arrive at $580 million. The MC1 report, Exhibit 101, included a capital cost of $406 million.

Uncertain costs. In cross-examination on day 3, Mr. Hebert indicated twice that access road relocation

for landowners was a construction cost, but in response to an undertaking, the claim was made it was a land acquisition cost. Which one is correct?

The access relocation costs were not specifically mentioned in Exhibit 159. These changes are mentioned at Exhibit 138, with no costing associated with the changes.

Uncertain costs. Land. The total project budget for the 3600 acres is now $140 million. That is just under 40,000 per acre, which is nearly doubled the 2017 cost. The original land cost used in the 2015 decision was 40 million, as stated in Exhibit 100. It is unclear how this land cost will settle out. The strange shape of the PDA, the fingers that creates the 3600 acres is nonsensical from a land acquisition standpoint and there will be budgetary implications. 14:21

Missing costs. All other facilitation payments to First Nations which AT has refused to disclose. This is a public project, not a private corporation. Disclosure of these payments is in the public interest to determine the true cost benefit. 14:22

Missing costs. Kamp Kiwanis accommodation, either for interrupted operations during construction, relocation of the camp, or any other compensation. Again, this is a cost that should be disclosed for the

purpose of determining the true cost benefits.

Missing costs. Environmental offsets, including -- and this was news to us -- "building replacement habitat on the Bow River for habitat lost on the Elbow River" as a result of SR1, as discussed in Exhibit 385 at Transcript pages 1774 and 1779. This is the first time that SCLG has heard of this additional cost.

MC1 in Exhibit 101 included 10 million for aquatic habitat management plan, but there is no equivalent for SR1. 14:23

Missing costs. AT did not provide fish passage measures on the Unnamed Creek, where erosion mitigation measures are proposed. Are fish not passing through the conduit, into a constructed channel, and into the Unnamed Creek? The proponent rejected a request to have a sediment screen at the low-level outlet which would impede fish passage. Is this another missing cost?

And I provide a transcript reference. I'm not going to read the transcript references, but they're in the document. And in some cases the transcript 14:24 reference is in the document -- in the argument.

Missing costs. AT has not provided a cost for wetland replacement. MC1 did have a wetland offset cost of 700,000 in Exhibit 101, while SR1 has no such budget, despite the fact that wetlands are lost.

The SCLG provided an estimate of 830,000 using the MC1 budget per hectare, but we look to the Panel to require this detail as a direct project cost of SR1. To date, AT has not provided any offsetting details aside from what we heard from AT on day 9. It is possible that there are more offsetting plans that weren't mentioned.

Missing costs. CEAA conditions, Exhibit 219, for embankment and diversion channel riprap, removal of storage of the diversion channel substrate and reservoir grading are expensive. 14:25

Missing costs. Dam safety recommendations are costly, especially the recommendation for a second outlet and increased capacity of the emergency spillway.

In Exhibit 327, AT states: (as read)

"The design of the emergency spillway is underway. The need for erosion protection is part of this design and will be reviewed by AEP dam safety as part of Alberta Transportation's *Water Act* application." 14:25

We are unclear how unsubstantial these costs are, but they should be included by the Board.

Missing costs. Public benefit. Parking lot, pathways, any accommodations for the local community for

benefit.

Missing costs. Any upgrades required to systems or infrastructure for emergency management, especially considering the significance of this project on a small county like Rocky View County.

Missing costs. Updated pipeline estimates that have not changed for five years or so, 2016, Exhibit 159. Mary Robinson was told by TEC, which is two of the seven impacted pipelines, that their costs are 24 million. That's Exhibit 357, transcript pages 509 to 510. 14:26

The current budget in Exhibit 159 is 12.4 million in totality. Again, we are seven years into this project, sitting here for a final approval by the regulatory body, and pipeline costs haven't been updated in the past five years. If Mary Robinson is correct, these costs could increase the project budget by at least $20 million.

Exhibit 138 lists a change of new erosion management measures along the full length of the Unnamed Creek: (as read) 14:27

"Alberta Transportation, as a result of feedback from regulators, Indigenous groups and stakeholders, has revised the design to include measures to reduce

erosion along the full length of the Unnamed Creek and to further mitigate sediment mobilization into the Unnamed Creek and reduce sediment input into the Elbow River."

These were also referenced on day 7. The SCLG is unable to find reference to these erosion reduction measures along the full length of the Unnamed Creek in Exhibit 159. In the change summary memo, Exhibit 160, these erosion measures are not mentioned. As such, we are concerned that these costs are excluded from Exhibit 159. We attempted to ask about these costs on day 1 of the hearing, but were unable to determine if they are included and what the specific costs are. 14:27

Operating costs. Exhibit 159 shows annual operating costs of 30,000, with no full-time staff listed; no costs for fire suppression operations; no costs for testing and reporting requirements for water or air; no costs for wildlife management, no costs -- sorry -- no costs for wildlife management, including surveys and reporting, mapping for migratory birds; no costs for security; no costs for emergency planning preparedness, including staff training; no costs for flood forecasting; no costs for the proposed community liaison or administration of First Nations land use 14:28

committee. Exhibit 159, Table 49, page 231.

Flood costs direct. Exhibit 159 provides some estimate of flood operations and post-flood operations activities. The proponent has used an average annual benefit calculation for the design flood. Yet, the post-flood costs appear to relate to smaller floods. Reseeding, for instance, uses 25 percent of a 20-year pool. Is this reflective of a design flood?

This appears to be inconsistent with the benefits which are annualized and based on a design flood. Why would benefits be based on a design flood, but costs on a much smaller flood? Should benefits be based on a much smaller flood, then, or should the costs be based on the design flood? 14:29

Flood costs - direct. Dam personnel costs in a flood event are estimated to be every 20 years for a total of 65,000 for four dam attendants. Mr. Wood stated it would be used ten times in the last hundred years. Why is this cost every 20 years? Is the dam going to operate itself during a 1 in 10-year flood? Do these people stay at the site for 36 hours or 50 hours straight during filling, or are they working shifts with another crew or two? Are they on site while water is in the reservoir? This is lacking all sorts of detail. 14:30

Flood costs - direct. Flood operations are missing

costs for emergency operations, including personnel for road closures and security at the site of impounded water. All costs of water testing and reporting, air quality monitoring and reporting. There appear to be no costs for the adaptive management program Mr. Hebert referred to for dust suppression, which would include tackifier, even the 16 months post-flood. There is no budget for tackifier listed anywhere. Mr. Zelt estimated that tackifiers could run into hundreds of thousands of dollars for a design flood. 14:31

Flood costs - direct. There's additionally no cost for watering the newly seeded sediment, and in an arid, windy location like Springbank, during the dry summer months, watering is a likely requirement, although the proponent acknowledged on day 10 that water may be diverted from the Elbow River for this purpose. This cost -- this is a cost that could be substantial.

Flood costs - direct. All wildlife rescue costs in the two to three days before a flood. This would be a massive undertaking at significant costs which are not 14:31 estimated.

Flood costs - direct. Fish rescue costs are missing. If a 30-person crew of fish rescuers, including supervising biologists, is required for the 30 days of draining, this could run in the hundreds of

thousands of dollars. See day 7 of the transcript.

Why haven't these operating costs been estimated? How can the Board make a decision without a full accounting of the future expected costs? We view that this lack of detail is due to the unique nature of the project, which does not provide an operating model anywhere in Canada. Yet, these costs are relevant to the decision before this Board. All flood relating operating costs should be estimated for a design flood just like the benefits. 14:32

Post-flood costs - indirect. This includes repairs to the Bragg Creek berms, Redwood Meadows berms. Although the proponent states these will be borne by the owner of the infrastructure, it must be clear that, had MC1 been chosen, these costs would be avoided. Instead, these costs are being downloaded to Rocky View County and Tsuut'ina Nation.

Post-flood costs - indirect. Park infrastructure. Park infrastructure at Highway 66 was damaged in the 2013 flood, pathways, parking lots, visitor amenities 14:33 such as washrooms. These costs would reasonably be expected again in a design flood.

Benefit cost analysis. Until 2019, SR1 had a favourable benefit cost ratio relative to MC1. All figures from Exhibit 100, the May 2019 benefit cost, I

guess B/C update, SR1 has a benefit cost of 1.28, including Bragg Creek berms of 32 million, while MC1 had a benefit cost ratio of 1 to 41. MC1 is the project with the better economics at this point.

SR1's benefit cost ratio of 1.28 is also missing the 9 million of new costs of the Bragg Creek berms, now at 42.2 million, and also the updated capital costs, including another 17 million of capital to align with the new capital costs of 340 million, versus the 323 million included in Exhibit 100. It is also missing 14:34
the road costs of 3.8 million required for the detour route and all facilitation payments.

Each new cost added to SR1 drives this benefit cost ratio lower and lower, further below the benefit cost ratio of MC1. This is relevant to this Panel.

Simplistically, the MC1 project has higher benefits due to more communities receiving a higher level of protection; all communities receive the 100 percent effective vaccine. It also has lower costs at this point with the capital cost of 406 million, sitting 14:35
approximately 170 million cheaper than SR1's 580 million. Yes, the 580 million includes facilitation payments to RVC, and to Tsuut'ina. These are costs of the project. Even excluding these known payments for withdrawal of opposition, generously, SR1 is sitting at

527 million, including construction costs from Exhibit 159, Bragg Creek berms and the new roads.

In summary, SCLG asks that all the costs of the SR1 project be estimated and documented. Hidden capital costs, including infrastructure repairs to upstream berms, should be identified and noted. Secret agreements must be brought to light. Operating costs for flood events should be estimated prior to the Panel ruling on this project.

Social costs. AT from the very beginning chose a strategy that pitted stakeholder against stakeholder. It has been highly divisive. In the beginning it was rural landowners against Elbow River residents. Rocky View against Calgary, urban against rural. There was never an attempt to bring stakeholders together to try and find a win/win solution. And I hope, Mr. Chair, you'll address this in relation to how the consultation was conducted. 14:36

Looking to the future, the conflict will be between the landowners surrounding SR1, First Nations, and the public. The SCLG did not see a satisfactory resolution to this conflict looming. 14:36

In their opening statement on Day 1, the proponent was dismissive of the impacts to Springbank and to landowners. There was no mention of the

multi-generational ranching history, the families who will be wiped out by this project. For Lee Drewry and his siblings, land taken by the government when it will be -- will essentially wipe out the family ranching business in the area, leaving the family with the choice of relocating or giving up their ranching operations. That is a tough choice, but even tougher for the children who will no longer have a choice to live on or ranch the land of their great, great grandparents. If they had to do it all over again, landowners might have had their children provide evidence. Their children are losing most if this project proceeds. 14:37

If this project gets approved, then generational land will be taken. The proponent makes this sound like an everyday occurrence. It is not. The taking of such a huge contiguous block of land is extremely uncommon.

The potential for degraded air quality following flood operations is an unacceptable social cost. This project creates an air quality problem that will be challenging to manage and that will no doubt impact the quality of life of residents surrounding the reservoir and downwind. The proponent contends that these periods will be brief, but does not dispute that they will occur. How is it possible that this Panel would knowingly approve a project with this unacceptable 14:38

outcome when it could be avoided?

The SCLG asserts that the Springbank community bears all of the social and also economic costs of the project while the benefit is passed to residents downstream of the Glenmore Reservoir in Calgary.

The safety and viability of our community is at risk with this project over the long run. SCLG will live with the impacts to water quality and quantity, degraded air quality, loss of heritage and culture, including the loss of pioneering families who also 14:39
experience loss of inheritance, and loss of their natural environment. This imbalance of the distribution of benefits and costs is striking. Monitoring these effects is not mitigating.

CRCAG's closing argument mentioned disruption and impacted bus routes, so, instead, these burdens are passed to Springbank residents and their children on school buses, who will be detoured.

With all due respect, CRCAG will take any project that has the shortest timeline when referring to impacts 14:39
of lost memories collected over generations. What about lost generational land due to SR1? By enthusiastically supporting SR1, CRCAG is enthusiastically supporting negative social and health outcomes in another community.

CRCAG also mentions substantial economic costs for flood-proofing homes. These costs are borne by upstream communities too.

The proponents have referred to various future plans that will be developed for all areas of the project operations, land use, dam operations, first fill, air quality monitoring, and adaptive management, weed control, and more. These theoretical plans are important and are required now, not after the project is approved. 14:40

As a condition of approval, the SCLG requests the Panel consider the burdens imposed by the project on the local community and include a budget for community benefit.

Alternatives considered. Despite what AT and CRCAG have said in their final argument today about alternatives, the Board specifically included in Topic Block 1, 1.3, "Alternatives Considered" as a specific subtopic in Topic Block 1.

As The City of Calgary correctly noted in its final 14:41 argument, alternatives considered are contextually relevant to the Board's decision in this case.

And I thought I would direct your attention to the May 1998 Little Bow Project decision of the NRCB. The JRP stated at pdf page 37 of that decision under heading

3.2: (as read)

"As discussed in Section 2, water management alternatives within the Little Bow River basin have been extensively examined. Twelve potential water storage sites in the Little Bow River were identified."

Contrast that to what we have in front of you. MC1 and SR1 were both screening level through 2015 and maybe AT could argue for conceptual design by 2017. AT has led 14:42
the taxpayers of Alberta and the future generations of Alberta down by only taking one project through a feasibility stage. In fact, when new information about cost, sediment, air quality were identified, no one even stopped to ask if SR1 was still the best path forward.

The Little Bow project offers a glaring contrast to SR1. There was no extensive examination of alternatives in this case, and that is a shortcoming of this application.

At pdf page 40 of the JRP report, the JRP stated -- 14:43
basically they were critical. They said: (as read)

"Consequently, the diversion plan associated with the Expanded Squaw Coulee project component failed to meet basic conveyance needs and licence

requirements. This less comprehensive approach to identifying alternatives needed has serious implications."

One of the major implications is climate change in this case. What if the -- what if the 1 in 500-year flood becomes the 1 in 200-year flood in terms of frequency as noted by Mr. Fennell. What if there is serious drought in the future? The lack of a comprehensive approach in identifying alternatives should result in a denial of this application. Indeed, after the horse had left the 14:44
barn, the Opus report, basically, dated Exhibit -- dated August 2017, but only brought to light in June of 2019 when it was filed as a result of an NRCB round 1 IR, indicated that MC1 was a superior alternative to SR1.

So there was no extensive investigation done here. AT jumped to a rapid conclusion in 2014 without any serious study. It is worthwhile comparing the Bow River dam projects as Karin Hunter discussed in Topic 2. SR1 is just now at the feasibility stage, and it is not too late to take another look. On the Bow River, all three 14:44
dam options are going through a three-year feasibility study. What a contrast. Further, public consultation with affected parties on the Bow River occurred during the conceptual design and will be ongoing through the feasibility stage.

In the Rocky View County report dated December 2018, Exhibit 255, it stated: (as read)

"This report does not recommend one option over another; however, in the review of the literature and discussions with technical experts, the County believes that both the McLean Creek dam and the Priddis diversion were prematurely dismissed and not given a thorough technical analysis so that objective decisions could be made."

14:45

In Exhibit 358, AT stated that RVC was presented with the Opus report and provided a link to an update provided to RVC. However, the three pages presented on the Opus report in 2017 to RVC did not show the difference between SR1 and MC1 on flood effectiveness.

Therefore, SCLG rejects the proponent's claim that RVC was aware of the superior flood mitigation outcomes of MC1. The three pages were MC1 costs and timelines and two MC1 illustrations.

14:46

And Rocky View County residents are directly harmed by SR1 and would have improved outcomes -- and would have improved outcomes with MC1. This outcome has never been discussed by the proponent until raised by the SCLG at this hearing despite the outcry from the local

community over the past seven years.

RVC residents are harmed by new provincial guidelines, Exhibit 356, that will cap payouts to landowners at $500,000, one time.

And I've listed here in paragraphs 151 through to 154 a number of other harms that Rocky View County and my clients, in particular, are harmed by.

And I think what I'll do, Mr. Chair, is, again, given that I'm sort of halfway -- I think I'm more than halfway through, so I'm just going to check on my -- how I'm doing. So-so from a timing perspective. 14:47

Okay. I want to then move ahead to Crown engagement with the public, and this is starting at paragraph 163 of our final argument.

It is the position of the SCLG that AT's consultation with the public, especially the directly impacted landowners, is inadequate and lacking in depth considering the impact these landowners -- considering the impact on these landowners and the Springbank community. 14:48

And I'm again, just to save time, I'm not going to read those paragraphs line by line, but I would refer to paragraph 168.

As pointed out by members of the SCLG, notably Lee Drewry, AT's approach to consultation has not been

fair. The residents that are directly impacted by this project have not been given the same level of consideration and attention as AT has given to other groups, such as CRCAG. Mr. Drewry put the issue this way: (as read)

> "So that, to me, is a theme throughout this whole seven or eight-year debacle that the rural communities don't seem to matter as much as the urban communities, and not even all communities are treated equally. It seems the ones downstream from the Glenmore Reservoir are treated better than the rest. With regards to the City of Calgary's presentation, I thought it was interesting that they indicated they attempted to monetize the cultural and historical values created within that flood zone area, and yet I'm not aware of any attempt by the proponent to monetize the loss of family history and the agricultural history that would be decimated with the proposed project. So I found that a bit disconcerting that there's not an equal playing field in terms of valuing that

14:49

14:50

historical resource."

Even in the creation of future land use plans for the reservoir area, priority is being given to First Nations' exercise of their traditional rights without any recognition of the multigenerational ranching history of the families that will be removed by the project.

For instance, Mary Robinson, Brian Copithorne, and Lee Drewry's families have been ranching in the area since the 1800s, and yet there's no recognition of that history that will be wiped away. 14:50

And I think what I'll do is, given that I've got four more topic blocks to discuss, I will just leave the remaining paragraphs in my document for your perusal without reading them into the record.

So now --

THE CHAIR: Excuse me, Mr. Secord, and I presume, then, that other counsels, they will all receive or maybe already have your final argument --

MR. SECORD: They have, yes. 14:51

THE CHAIR: -- this is perhaps a little different than what would normally happen, but I mean, if it's going to be accepted in as an exhibit under no objection, then, unless other parties would want to object now and have you either not enter

anything you're not sort of addressing orally or -- which I don't really see, but I would just like to ask the question now --

MR. SECORD: Sure.

THE CHAIR: -- in terms of time, I sort of appreciate the approach --

MR. SECORD: Sure.

THE CHAIR: Other counsel, any objections?

MR. KRUHLAK: Mr. Chairman, it's Ron Kruhlak.

I certainly understand Mr. Secord's position, that if he has materials and feeling some time constraint to not have to review everything orally, and I don't think we'd have a concern if it's some minor limits, but I guess I just would flag it, that if we're having what might become effectively a written submission, then that makes it a little more challenging, that's all. 14:52

But I take it, there's a few paragraphs we're moving from one section to the next?

MR. SECORD: Right. And I'm sort of halfway through my argument, so I think I'm in -- I think I should be able to finish by 4. I may not read every line. 14:52

And, of course, there's a lot of references in there, which I think we agreed we wouldn't be having to read transcript references.

So, hopefully, that will be, you know, acceptable to Mr. Kruhlak.

MR. KRUHLAK: Agreed.

THE CHAIR: Agreed. Okay, thank you, Mr. Kruhlak. Thank you, Mr. Secord. Proceed.

MR. SECORD: So moving to Topic Block Number 2, in terms of the future land use plan for the project development area, the draft land use plan creates wholesale land use changes from what was contemplated. In the early days of the project, the proponent assured landowners they would continue to be able to ranch the land. Lee Drewry asserts landowners were regularly -- well, as First Nation opposition became more obvious, the proponent changed gears and cut out landowner usage and began to focus on making promises to First Nations regarding land use. 14:53

This is obvious in the First Nations' consultation records. Landowners were kicked to the curb and the focus became traditional usage for First Nations to try and bring them onside. In the hearing, the proponent seemed to try to appease the public and the First Nations by claims of opportunities to use the lands, but essentially AT is kicking the can down the road to AEP to figure out all the competing land uses that AT has promised. Interestingly, landowners are 14:54

way down the list in terms of future land usage.

If SR1 is approved, AEP says it will be responsible for consulting the stakeholders to develop the final land use plan consistent with the Draft Use Principles for the project. What does this even mean? Does "consistent with the draft land use principles "mean that any and all community benefit items are automatically excluded because they conflict with First Nations' use?

Additional conflicts relate to hunting. 14:55

Mr. Wagner is concerned about hunting for a variety of reasons, including safety and concern for the elk herd. First Nations support hunting. Hunting is at odds with public use of this land and its location along two main roads, yet even more conflicts are expected post-flood with the use of tackifiers and herbicides conflict with traditional use.

Further, the state of the reservoir, the largest land use area post-flood is a completely unknown outcome. 14:55

General management of the reservoir may also be at odds with First Nation traditional use. Mowing for fire suppression conflicts with traditional uses such as planned collecting and may impact wildlife behaviour. AT thinks that AEP can solve all these

issues.

In terms of historical resources, Mary Robinson notes that there are many historical and native traditional factors in this area that need to be considered. As noted by Jan Erisman, this project will destroy 14 historical structures, and 22 archeological sites will be compromised. Such destruction of historical structures and archeological sites is unjustified considering there are other alternatives, such as MC1, that would not involve any destruction of historical resources. 14:56

The SCLG has requested a condition concerning gathering the historical resources in the SR1 area. See the discussion between Ms. Roberts and Ms. Erisman relating to the gathering of historical resources at Transcript page 19 -- 991.

In Exhibit 365 I requested that AT advise whether it would accept a number of conditions arising out of the land use topic block as a condition of any approval that might be issued by the Board. A series of undertakings were given to the SCLG by AT. The SCLG requested these conditions asked for by the SCLG be specifically attached to any approval that might be issued by the NRCB. 14:57

Moving to Topic Block 3, SR1 design, safety, and

risk. The SCLG rely on the prefiled evidence of Dr. Dave Klepacki and Ian Dowsett in this topic block. See also Karin Hunter's evidence in Exhibit 254.

The pivotal Deltares report of 2015 stated the following, which still applies to SR1 today: (as read)

> "Temporary storage of water in detention areas is not a very robust measure, in the sense that it is effective up to a certain design condition, but when it is overcharged, its effect is reduced to nil."

14:58

We do not believe that operating risks identified by Deltares, which include the following, have been fully addressed, even as this project sits before the NRCB.

SR1 is "very sensitive to sound operation and fast response time" and "the effective storage heavily depends on the expected range in possible flood hydrographs, accurate forecasts, and quick operation of the gates."

We have not seen the range of possible flood hydrographs prepared by the proponent. It is expected that SR1 is more sensitive for differences in flood hydrograph or inaccurate forecasts than MC1.

14:58

We have not seen sensitivities of SR1 across various forecasts and nothing over the 2013 flood except

for the PMF. Is this because SR1 becomes more and more unfavourable at higher flow rates?

The AEP Draft Hydrology Assessment Report from the fall of 2020, Exhibit 265, summarizes rates with associated return periods and confidence intervals. What happens if a downstream flood approaches the upper limit of this forecast? The proponent will say SR1 will bypass the balance of the flood, while the diversion skims off 480 to 600 cubic metres per second. That is fine for SR1, but what about the other communities downstream? 14:59

From Decision report 2008-01 pdf 13, the Board stated -- this is under Section 2.1.4: (as read)

> "Operating plans for the facilities in the high flow period were approved. Operating plans for the facilities in the high flow period were approved, while consideration of the operation plans for these works during the low flow season of late July and August was deferred pending receipt and review of additional information." 15:00

It is worth noting that the NRCB specifically approved the operating plans for the facilities in the high flow period. Why is that not the case, or will you be

opining only on the operating plan to only siphon off 480 cubic metres to 600 cubic metres per second of a 1260 cubic metres per second flood of record and pass the balance of the flood downstream?

In SR1 we have no operations manual. This to me is a huge deal. So much of this project is dependent on these future operating conditions. Why haven't they brought operating plans for you to review as you did in the 2008 decision?

Exhibit 2018 provides a high-level flow chart for operations of SR1 during a flood. Critically, this flow chart relies on several fundamental assumptions that, if voided, introduce a significant operating risk. Examples, all hydrometric stations are in operation and priority should be to divert to SR1 over Glenmore. A critique of this flow chart is available in Exhibit 199. 15:01

I reference Mr. Kruhlak's letter marked Exhibit 172, which says that the operating plans are not available. How can the NRCB approve operating plans for the project when there is no operational manual to review? 15:02

Dam safety. The SCLG relies on AEL's evidence in this proceeding (Roger Austin and Ruth Keyes.) In particular, the AEL would like to see -- in particular, the SCLG would like to see AEL's recommendations as

discussed during the hearing added as conditions to any approval issued by -- to AT for SR1.

And as I -- what I have set out in my argument, then, are these three recommendations: The number one recommendation was the diversion inlet maximum discharge capacity be reviewed and modelled with the access bridge in place. We would like to see that added as a condition.

AEL's recommendation Number 2 was that the emergency spillway maximum discharge capacity is less than the diversion channel design flow. And a reassessment of the emergency spillway should be considered to increase the discharge capacity. We would like to see that recommendation Number 2 added as a condition. 15:03

AEL's recommendation Number 15 is as follows: (as read)

> "The low-level outlet works design capacity was selected based on industry standards for evaluation times for the reservoir. No basis for increased capacity has been provided." 15:03

Austin Engineering accepts this response, but we note that there is no secondary means for draining the reservoir should a failure of the low-level outlet

occur, and a significant reduction in the risk and operation of the structure can be realized from the addition of a second low-level outlet.

The Canadian Dam Association Guidelines and the Alberta Dam and Canal Safety Directive do not address requirements for sizing of outlet works or evacuation times for reservoirs. The SCLG would like AEL's recommendation Number 15 added as a condition to any approval issued to AT.

And then AEL's recommendation Number 17 deals with riprap on the upstream face of the dam. Austin Engineering stated: (as read) 15:04

> "We caution that riprap along the crest of the dam would function during the event where water would be required to be stored within a reservoir at full service level or full supply level for a period of time during passage of a major flood. Riprap would still provide a benefit in this instance." 15:05

The SCLG would like AEL's recommendation Number 17 added as a condition to any approval issued to AT.

The proponent suggests that first fill requirements will be determined through the dam safety review, yet when the SCLG asked for a controlled first fill, as is

standard in dams, the proponent said no. Is it possible that the Dam Safety review recommends a first fill that is at odds with the first fill during a flood event? For instance, if the Dam Safety office requires limits to reservoir fill level or diversion rate, all financial benefits could be eroded. In that case, SR1 loses its time advantage over other options.

The SCLG would like the NRCB approval to be conditional on findings from the Dam Safety review, which may impose operating conditions or significant additional capital costs. How long does it usually take for a first fill process? Is it common for dams to go from empty to full in 50 hours, or 36 hours? Most dams are filled over months or even years. 15:06

I know they said this is part of future commissioning plan, but by my math, SR1 reservoir fills at a rate of one half to three-quarters of a metre per hour. How long for the water to impact the readings from instrumentation? How long before you know if it's okay if there's an issue? Hours? Days? Weeks? 15:06

Also, in my cross-examination of the 2018 Dam Canal Safety Directive, I note that the SCLG is concerned that AT has not considered safety of excess flows passing the structure during expected operations. There are a number of paragraphs of concern to the SCLG in

Exhibit 339.

And with respect to AT's final argument, the SCLG makes the following points on dam safety: The reference to low probability by Mr. Austin is taken out of context. Even though there is a low probability of the gate failing in the open position, it does not preclude the design taking this into consideration.

(b) the point with regard to the two low-level outlets is not to do with the drawdown rate. This is risk management. We are talking about the only outlet for the reservoir that cannot be tested until it is at full service level. What if the low-level outlet fails to function? It will be tested under full design head. It would be prudent to include a secondary means of dewatering the reservoir, as is typical with other structures which have one conduit for the purpose; i.e., water supply, power generation, and a low-level outlet. 15:08

With regard to the emergency spillway using the US Army Corps Inflow Design Floods for Dams and Reservoirs suggests the initial reservoir level be taken at the full supply level or the pool level after a flood, half the size of the IDF. 15:08

Based on the operation assumptions, we cannot be certain the reservoir will be near empty during routing, and, as an extreme consequence dam, it must be able to

pass the PMF with reservoir routing starting at an appropriate level.

If the diversion inlet gates fail open or are left open when the SR1 reservoir is already at its FSL, then it only takes 13 hours to overtop the storage dam. By increasing the discharge capacity of the emergency spillway to match the design capacity of the diversion inlet, you can prevent the possibility that the storage dam can be overtopped. For an extreme consequence dam, this possibility, no matter how low, must be avoided. 15:09

And operation of the SR1 reservoir has repeatedly been discussed as simple. This is not likely to be the case during flood conditions as information on river levels, instrumentation readings, weir settings, flood forecasts, Glenmore storage volumes will all need to be considered and acted upon appropriately.

And then, finally, both Mr. Austin and Ms. Keyes have much experience with dams within Canada and the application of the CDA guidelines. Their task was to review the safety of the SR1 structure, and they have 15:09 done that. Their experience with permitting -- their experience with the permitting process in Alberta is not relevant to the safety of the dam.

In terms of risk management, the SCLG rely on Exhibit 199, which is the Springbank Community

Association's 36-page letter to IAAC and the NRCB relating to risk and the limitations to the SR1.

SR1 is not able to rapidly draw down its water levels, which has implications for risk, and also for climate change.

Public safety, including emergency response and conditions requested. There is the potential for more than a hundred lives to be lost as a result of the failure of SR1. And I refer to -- I also refer to my questioning on the Dam Directive, Exhibit 399, at Transcript page 1132. Public safety and emergency response is of great concern to the SCLG. In Exhibit 373, I requested that AT accept a number of public safety conditions to be attached to any approval issued by the Board. 15:10

Mr. Fitch noted this might be a problem because AT was kicking the emergency management plan to AEP. As noted by the Chair and Mr. Kennedy, it would appear to be commonplace for conditions to carry forward to future custodians of the ownership of the project. And I refer to the transcript pages. I will obviously read them. 15:11

It is important to the SCLG that these conditions that I requested relating to public safety of the Springbank community not fall through the cracks and that they be added as conditions to any approval issued

by the Board.

Sensitivity of the project operation. Project design, operation, and safety elements to changes are viability [verbatim] in climate parameters.

The SCLG rely on Dr. Fennell's prefiled evidence as well as his PowerPoint and viva voce evidence on March 30 and 31.

AT suggests the protection of people and property from a future event like the one we experienced in 2013 is the primary goal. 15:12

Having said that, the SCLG is quite surprised at how the climate change aspect of this project has been dealt with, or, more importantly, how it has not been dealt with, in a manner consistent with this goal.

Much of the work done to support SR1 has been based on an evaluation of documented events over a very protracted period of time. This is a dangerous limitation and one that has driven the process since the beginning and, in our opinion, has led to a false sense of security. 15:13

2013 was a significant event, but not the most significant event that has occurred in this region in our known history, or likely in the past. You are probably familiar with the terms "known knowns" and "unknown knowns" when speaking about situations or

concepts we are trying to understand. But it is often the unknown knowns and, more importantly, the unknown unknowns that tend to get us into trouble. And it's no one's fault really, but these oversights often lead to unintended consequences, sometimes catastrophic.

If approved, SR1 will be a rather unique and large extreme consequence dam set right in the middle of a quiet country residential setting. Now, you are not dam engineers, but if there was an option to put something like this in a safer and more beneficial location, wouldn't you do that? So it's beyond the SCLG how SR1 -- this SR1 option got so much traction from the outset. It doesn't seem logical. 15:14

When it comes to climate change, this is where we see -- the SCLG see us getting into trouble if we don't use our imagination.

It is clear SR1 will only be able to deal with a flood similar to 2013, and the rest of the disaster will be sent downstream to other communities, with the possible exception of those below the Glenmore Reservoir. This focus seems to have been on preserving those communities and businesses at the expense of those upstream. I am sure AT has to be aware of that, and there is another solution that would mitigate that risk, and that risk of an even greater flood. 15:14

What is a bit disheartening is that when presented with evidence prepared by AT themselves from the benefits of MC1 option, they continue to argue the merits of SR1, an arguably inferior option.

Maybe it's because they have come so far down this road that they feel compelled to work with it, but it is clear that the benefits of SR1 are limited and, in fact, the full cost, and I mean the full cost, has not been fully explored, only a limited version of it.

As taxpayers in Rocky View County, that makes my clients nervous. Nevertheless, AT remains convinced that it can engineer a way -- its way around these limitations, but at what costs? Costs that seem to keep escalating with each tweak of the design, and there have been many. Is that because of failure of imagination? Shouldn't we strive for something more simple, more robust, more beneficial? 15:15

The fact that higher magnitude flood events have occurred in the past but perhaps have not been measured or documented is not a reason to move forward with a partial solution. 15:15

If there was an option to address larger floods and protect more people and property, we should be looking at that. That is the agreed-upon goal, right, protect people and property? This is no time to have a narrow

view.

All of the literature that we have read about what the future hydro climate of Alberta holds for us, both from a flood and drought perspective, should alarm us. We cannot and should not just rely on the period of record. We have to step outside conventional thinking to deal with something we don't really understand or totally understand.

This is due diligence. It should be clear to the Board that higher magnitude floods of greater frequency are a distinct possibility in the future when one looks at the existing data in a different way. 15:16

If we are truly trying to assess the worst-case scenario when it comes to climate change, we need to step beyond the conventional, and we know that can be hard for some, but if we don't, then bad decisions are going to be made that will become other people's problems.

The SCLG understands the need for standards, and that much of Canada designs infrastructure with the 1 in 100 event in mind. In Alberta, we align with this standard, and design infrastructure to withstand such an event; however, SR1 is designed to address a 1 in 200 event. That would appear conservative, but other jurisdictions are starting to see a move towards more 15:17

conservative than proactive design constraints. Saskatchewan's recent move to incorporate the 1 in 500 event in their design considerations is a good example. BC's adoption of the 1 in 200 as their design event is another. As Dr. Fennell noted, it is clear that the engineering community is beginning to understand the risks related to climate change and are adapting to its inevitability.

Given the documented limitations of SR1 to address an even greater than 2013, or 1 in 200, the chance that 15:18
an even -- an event greater than that occurred in response to climate change and the extreme consequence classification makes this project a precarious one. The fact that a much better option was put forward earlier that protects all, and I mean all, downstream communities from a flood much greater than 1 in 200, and that this option was put aside is, frankly, unbelievable.

One other aspect we would like to address is drought. This was not really dealt with in the 15:18
application beyond some passing statements.

The SCLG finds it quite interesting that AT and The City of Calgary is putting forward the notion that SR1 will increase water security for the city of Calgary. The SCLG struggles with this logic, given that

during an extended drought, which would include low snowpacks and low seasonal rainfall, SCLG expects that water levels in the Glenmore Reservoir would not be lowered to the usual degree in order to preserve water for the high-use season. Under such a scenario, SR1 would not be engaged anyway, but would instead sit there generating dust for the local residents to breathe.

So how does SR1 enhance water security in this case? It certainly doesn't enhance public health security. 15:19

During the hearing on Thursday, April 1, Alberta Transportation admitted that some of its climate change data it relied on was incorrect. This had to do with a role that snowpack plays in the intensifying of flood risk during early spring rain-on-snow events like 2013. SCLG questions whether AT has modelled the worst-case scenario for climate change in coming up with its design criteria for SR1.

In terms of reservoir capacity, why isn't the diversion capacity, why isn't the diversion capacity 15:20 greater so that the entire peak flow can be diverted into the reservoir thus providing residents downstream of SR1 with the same protection as the residents downstream of the Glenmore Dam.

MC1 has a reservoir capacity of 93,000 dam cubed in

a PMF. SR1 is inferior.

Topic Block 4. I would briefly mention Calgary's water supply document, Exhibit 347. It specifically notes: (as read)

> "Water is a limited resource and our water supply is changing due to climate change and a growing population."

And we've already noted SR1 does not store any water on the Elbow River.

In terms of hydrology, the SCLG is concerned that 15:21
flow from the low-level outlet is going to scour the Unnamed Creek. The faster the low-level outlet drains, the greater the risk to the environment and the riparian areas below the low-level outlet.

And Ms. Robinson also has concerns about the head pond from SR1 backing up floodwater onto her property.

And I guess another hydrological issue is, you know, what happens if SR1 is on operation and you have a huge flood coming down the Bow River? Will that end up, you know, metres higher than the Elbow River at the 15:22
confluence? Will you end up seeing water backing up into the Bow River and flooding those communities that SR1 was supposed to protect?

On surface water quality, Mr. Frank Frigo suggested that SR1 would sequester -- could sequester water

contaminated by forest fires. That was last Tuesday. However, AT has done no modelling to use SR1 to hold contaminated water from -- that would be coming from the -- from a watershed that was on -- you know, contaminated by forest fire.

There's also an issue with the flow coming into the SR1, and if the -- and if the head pond will impact the water quality on Mary's ranch. This is a concern that she has, and you've heard about the number of water wells that she has in her -- on her property. 15:23

The SCLG is also concerned that the Pirmez canal or creek has not been investigated, including the possibility that floodwaters from a design flood could bypass the SR1 diversion structures via Pirmez Creek. Mr. Wood was asked if he looked at the Pirmez canal on Ms. Robinson's land, and he said that was outside of the PDA and that the water would just go across Highway 22.

In terms of aquatics, the SCLG relied on Mr. Locke's evidence, as well as his viva voce evidence. They requested the recommendations set out in 15:24 Mr. Locke's report be attached as conditions to any approval.

Mr. Locke's recommendations to consider alternative release scenarios is based on the fact that it is far better and more efficient to consider all reasonable

flow release scenarios now so that the findings can be incorporated into the final design.

Mr. Locke believes it is better to invest more time up front instead of more time later trying to react to unintended outcomes.

With respect to fish entrainment and other possible detriments, deterrence to fish entering the diversion channel, all potential solutions should be investigated. Examples of unique approaches include creating an electrical field or using physical structures. 15:24

Mr. Locke also noted there's considerable uncertainty when predicting fish entrainment and headwork structures. It is unlikely a precise estimate -- it is unlikely a precise estimate can be calculated. However, it makes sense to try and frame the estimate as best as possible in terms of a low and high value for the number of fish and size of fish that potentially will be entrained.

Based on the information provided today for this project, and what is known for irrigation headworks, all 15:25 that is possible should be done first to first keep fish out of the diversion channel; secondly, return fish during lower flow diversions where it is feasible; and, thirdly, to have a good fish rescue plan.

Finally, Mr. Locke emphasizes spending more time up

front will be better than spending more time later reacting to unintended consequences.

A large amount of data has been collected and a lot of modelling has been carried out making sure the sideboards have been properly identified and all reasonable options have been investigated should be done before final dam design.

Regarding fish, there are really no redeeming outcomes from the project and there will be much work required to minimize the impacts, the best that they can do is mitigate. 15:26

The SCLG does not consider AEP's conclusion that bull trout may be extirpated to be a positive outcome of SR1.

The SCLG would also note the absurdity of fish rescue. 30 people, supervising biologists, wandering around the reservoir as it drains. Again, this could be an expenditure of hundreds of thousands of dollars in a big flood.

On hydrogeology, section 4.4, the SCLG rely on Dr. Fennell's prefiled evidence, as well as his PowerPoint and viva voce evidence on March 30th and 31st. 15:26

An extensive cross-examination of AT was conducted on hydrogeology. Mr. Yoshida -- I've got his name.

It's -- I have his name misspelled, my apologies -- AT's hydrologist was an evasive witness, and an examination of the transcript will reveal that he refused to answer straightforward questions on multiple occasions. Sometimes the question had to be asked three times, prolonging the length of the SCLG cross-examination.

The SCLG submits that the evidence of Dr. Fennell should be preferred over the evidence of AT's hydrogeologist.

To recap some key points from the cross-examination of AT's hydrogeologist, and others on the AT panel who attempted to help him, Exhibit 110 shows that the base of the reservoir is underlain by at least 5 metres of lacustrine clay. The evidence also shows the top three layers of the model will be -- with a low permeability soil beneath the base of the SR1 footprint. The lacustrine clay should be in these three layers because it is in the uppermost formation. The K value in the top three layers is indicated on those figures. 15:27

Missing from the top three layers of the model is the documented sand and gravel in the Unnamed Creek valley, which was indicated by AT to be anywhere from 1 to 7 metres thick overlain by a layer of glacial material. The sand and gravel in the Unnamed Creek valley should have been at least in layer 1 or 2 of the 15:28

model, given its proximity to the surface.

Sand and gravel is given the K value of up 2.8 times 10 to the minus 3 metres per second in the previously cited Table 4.3. This configuration of soils and associated K values in the model is not reflective of the actual geological conditions documented beneath the SR1 reservoir from the exploratory drilling programs. The presence of this much lower K value layer will influence the leakage from the base of the SR1 reservoir. It will reduce it by up to two orders of magnitude. 15:29

Given the fact that only three measurements of K values were obtained with only one for lacustrine clay, the Board should have no confidence that a full range of values has been obtained, including any influence from fractures or other features that would result in higher K values like silt layers.

AT indicated in testimony on March 29th that a number of K tests were performed, but were not documented because of slow recovery or lack of water. 15:30 However, we see in Exhibit 10 that samples were collected for water quality analysis from up to 16 monitoring wells in the unconsolidated deposits. If you were able to sample these wells that were obviously full of water, then why were you not able to K test them

as well?

Also brought up -- AT also brought up some evidence on March 29th showing very different K values for the model layers, all of which are lower by orders of magnitude than those indicated in Table 4.3. Why the change? And how can the Board have any confidence in a model that just keeps on changing and incorporating lower and lower K values beneath the SR1 footprint, lower K values that lack a sufficient degree of field verification. 15:30

SR1 will increase the risk to human and ecological health due to the leakage of water out of the base of the reservoir when full or partially filled. This will result in flushing of accumulated contaminants either naturally occurring in the underlying soils or routed to the reservoir during floods. It is going to be flushed into the underlying groundwater and connected systems. This includes the bedrock intervals, the surface water in the channel outlet, and the receptors that will be affected. 15:31

Alberta Transportation also relied heavily on models to frame the hydrogeological and hydrological risks of SR1, but failed to address the geochemical risks.

I would argue that the hydrological and

hydrogeological modelling from the physical standpoint and acknowledgement of climate change as a risk is flawed to some degree.

The SR1 does not consider the risks that the structure poses from extended drought conditions, and SR1 does not increase the water security for the city of Calgary contrary to what AT and The City of Calgary have said.

Only three hydro -- only three hydraulic conductivity field tests were conducted to give real 15:32
data, not laboratory data, to understand the leakage that would occur from the structure.

It is real data that's giving you a better idea of the real picture, as opposed to a point measurement from a small core that's confined in a laboratory and tested under controlled conditions.

One of those three field tests was a test for clay, the main seal beneath the reservoir, and the other two were from the till. This is hardly not enough information to properly constrain the hydraulic 15:32
conductivity under SR1, and likely led to the very low leakage estimate of 426 cubic metres per day as opposed to the likely greater than 100,000 cubic metres per day that Dr. Fennell calculated, considering the reservoir, partially filled, during a 1 in 100 flood event.

AT's response to much of Dr. Fennell's groundwater concerns is to monitor in order to assess the information gaps. Monitoring is not mitigation, and oftentimes when you detect things, it can be too late and it can be very difficult, sometimes impossible to remediate. So this is why we assess the worst-case scenarios, but that did not happen here.

SCLG's concern is the proximity of the project to local residents and the utter lack of assessment regarding potential changes to groundwater quality and impacts to human and ecological receptors. Absolutely no work has been done on this aspect beyond some baseline sampling and reporting. 15:33

I understand that AT does not believe that SR1 will not create any water quality issues, but that is not good enough. People need some form of evidence. Are we going to just leave this up to belief?

In my clients' opinion, AT has in no way covered off this issue. This seems to fall into that category of unknowns, unknowns for them. It is abundantly clear there was no qualified geochemist involved in the development of this application. 15:34

If the NRCB Board members are being asked to approve an extreme consequence structure placed in a high-risk area with no real analogues to compare to

them, you should -- you should be given the information necessary to make an informed decision. It can't simply be left up to belief.

The SCLG has some concerns with the groundwater model that has been used to support AT's impact assessment. It is clear the lack of information on the range of hydraulic conductivity for the underlying clay and tills is impacting the results. Again, only three measurements have been provided.

Yet AT was able to collect water from up to 16 wells. If these wells could yield enough water, then why couldn't they have not been K tested? This is an example of a discrepancy that we have been painfully trying to resolve. The fact that AT thinks three measurements of K value in the clay tills is sufficient to constrain things is alarming. 15:35

This concern also extends to how the model layers have been configured, which is causing some issues with being able to accurately mimic the measured hydraulic heads. They still refute near surface sand and gravel that they admitted numerous times is there; yet it is absent in the model. How is this considered comprehensive and reflective of the site conditions? They miss these things, yet they dig in on a flawed model. Again, this is to be expected. 15:35

There's also the concern with the sub-surface pore pressure changes once SR1 is built. This relates to whether or not issues will occur in the interfaces between the formations or within weak intervals.

It appears from the answers provided that higher risk intervals of sediment may have been assessed or tested. No mineralogy was performed, yet we know for a fact that the tills contain swelling clays which could be subject to failure.

Dr. Fennell stated that models are only as good as the information used. How it is configured and the skill of the model are to look at the output and make sense of it. In the end, models are not meant to replace human intelligence. They are meant to enhance it; you can't just give it up to a machine. 15:36

If the NRCB is being asked to make a judgment on a project that is heavily predicated on model results, then they need to be sure they can trust them. And if I was a Board member, I would be quite dubious given the explanations or lack thereof provided by the applicant. 15:37 There are better options and simpler solutions, but, unfortunately, this is the only one before us.

So we will just convince ourselves that we can engineer our way around the limitations, unfortunately, at a greater and greater cost with diminishing benefit.

If there is a more elegant solution, to use Mr. Menninger's vernacular, then we should advance it, not just work with something that is better than nothing.

As educated professionals entrusted with protecting the public good and ensuring that sound decisions are being made, they have a duty to ensure that we are not inadvertently creating a situation that we will later regret just because we believe it is the right choice or we are searching for some convenient answer. 15:38

Politics has no place here, particularly when we are talking about people's safety, wellbeing and financial security.

Given that everything that the SCLG have heard over the past two weeks, along with volumes of support materials, the overconfidence displayed by the applicant during these proceedings and the magnitude of questions that remain unanswered, the SCLG have a hard time seeing how this project can possibly be in the public's best interest when better options exist. 15:38

And in terms of sensitivity of the project, water elements -- I've already dealt with that under Topic Block 3.

And now turning to the final topic block -- and, Mr. Chair, could I have just a brief, you know,

two-minute break, please, if I could?
THE CHAIR: Yeah, granted.
MR. SECORD: Thank you. Just a quick stretch.
THE CHAIR: We could probably all use that.
Thank you.
(ADJOURNMENT)
THE CHAIR: You look a little more refreshed, Mr. Secord.
MR. SECORD: Shall I continue?
THE CHAIR: Yes. And just note we're just about quarter to 4. 15:42
MR. SECORD: Right. And I have -- I'm on the last topic block. Topic Block 5. Lucky there weren't 6, or I would be in trouble.
So dealing with air quality -- first of all, 5.1, air quality and dust. AT has acknowledged in response to Dr. Zelt's air quality report that SR1 air born articulates may result in unacceptable short-term risk to human health. The SCLG has raised air concerns for years, and, unfortunately, their fears have turned out to be well founded. 15:43
And I, you know, reference Exhibit 327, pdf 94, where AT uses the word: (as read)
"Based on this certainty analysis, partial mitigation to reduce fugitive

dust emissions, i.e. assumed dust control efficiency of 84 percent, could still result in an unacceptable short-term risk to human health."

And they use the words "adaptably manage." Mr. Speller went to great lengths to point out the use of the word "could." SCLG agrees with "could." Could children be exposed to unsafe levels of air quality and an unacceptable short-term risk to human health? The answer is yes. 15:44

In response to a question regarding school locations, Mr. Speller stated that they were equally alarmed. The SCLG is equally alarmed by the fact that the health impacts to their community do not seem to merit serious consideration in this project. There are a number of schools that we have already drawn your attention to: Elbow Valley Elementary, Springbank Middle, Springbank High, Edge, Springbank Playschool, Discovery Corner Playschool, Changemakers Charter school, and a future private high school, Webber Academy. 15:45 There are multiple sports facilities and various developments proposed downwind.

I asked Ms. Noble: (as read)

"What period of time did your education designate as an acceptable period of

time that young children should be exposed to unsafe air quality."

Her response was: (as read)

"Children should not be exposed to unsafe air quality, nor should the elderly, nor should members of the public."

In terms of Dr. Zelt's review of air quality, he noted that AT made a calculation error for PM 2.5, which was acknowledged and corrected by Stantec. This correction doubled the PM 2.5 emissions for the 100- and 200-year flood scenarios. 15:45

And Dr. Zelt noted issues with AT's assessment dealing with the meteorological data, surface roughness, threshold friction velocity, sediment areas, particle size distribution. AT submits that the project air emissions will be adaptably managed. Where is a precedent for a massive sediment reservoir? Are there any other dry reservoirs in Canada that we can look to? How do you know you can manage it when the best minds in California can't manage it there? This adaptive management plan is an attempt to instill confidence when none is earned. 15:46

In terms of the AT argument, with regard to paragraph 269 of AT's final argument, this statement is

not factual. Dr. Zelt's evidence was based entirely upon the uncertainties that were not properly recognized, nor accounted for, in the AT assessment of air quality. Dr. Zelt's evidence showed both the urgency required to apply controls. That is the potential for the severity of air quality issues during the period before air quality controls are affected and the likelihood that residual air quality is likely to remain poor, even with controls in place. The AT assessment of air quality was based upon misrepresentation of emissions area and strong bias underestimating the impacts. 15:47

With respect to paragraph 270 of AT's final argument, this statement is not factual. Dr. Zelt's assessment was careful to explain that it was all too easy to demonstrate unreasonable predictions. Dr. Zelt's reassessment of air quality, using validated sediments and validated meteorology, demonstrated that air quality impacts are very likely following post air drawdown and not serve serving, agency the AT assessment is. 15:48 Dr. Zelt carefully outlined that his representations were more representative of the conditions rather than favourable for the project. Dr. Zelt qualified his predictions as being infrequent, only during the period of larger post-flood drawdown,

and meteorologically dependent. However, the evidence presented by Dr. Zelt clearly demonstrates the errors and bias in the AT assessment as not being representative of the potential for impacts.

With respect to paragraph 271 of AT's final argument, there is a difference between results being alarming and an assessment being alarmist. Dr. Zelt's objective analysis may be alarming compared to the improper assessment by AT, but Dr. Zelt's objective consideration of each of the major components of the air dispersion modelling presented by AT is factual and representative of potential conditions. Therefore, it is not an alarmist assessment. 15:49

AT's use of terms such as non-guidance assumptions remain non-factual. AT's assessment made use of guidance values for emissions and meteorology when the conditions of their assessment were not within those guidance limits. Guidance documents are minimalistic in nature, setting out minimal requirements for assessment and suggested values for inputs into modelling based upon generalized scenarios. It is up to the assessor to determine whether the guidance is acceptable for the particular assessment. In this case the AT assessment has been overwhelmingly simplistic and minimalistic to the point where the predictions for air quality are 15:49

biased.

The particular emissions in the guide documents are not representative of the conditions of the site, as demonstrated by Dr. Zelt. The meteorology of the site is not representative of the generalized guidance in the guideline. An expert in air quality, as is Dr. Zelt, recognizes when the other considerations are required due to site-specific conditions.

With respect to paragraph 273 of AT's final argument, this statement is not factual. In fact, AT's 15:50
air quality assessment clearly demonstrated that it did not read, nor follow, their own hydrological assessment, by including the larger area of sediment deposits of at least 3 centimetres, as per the AT hydrological assessment. The AT air quality assessment was based upon an arbitrary and completely unsubstantiated use of 10 centimetres. The AT soils expert even testified that soil and dust erosion could be based upon 3 centimetres. The hydrological assessment, Exhibit 67, and updated hydrological assessment in revised Exhibit 327 showed 15:51
the flooded area to be covered in fine particulate matter, whereas the AT assessment ignored this information but instead was modelled using material that would be buried by the fines. AT's assessment was based upon sediment material from the alluvial conditions on

the river's edge, which was proven to be not representative of the post-flood deposits by literature values presented by Mr. Zelt. AT's assessment of the sediments that would be exposed over the larger project area is erroneous.

With respect to paragraph 274 of AT's final argument, Dr. Zelt presented evidence of the effectiveness of tackifiers based upon research and the specifications of AT suggested tackifier. Dr. Zelt independently inquired about the effectiveness of the tackifier longevity and was presented with similar specifications. AT is basing their conclusions on claims of their vegetation ecologist, that is not an expert in air quality emissions modelling. 15:52

The presence of remnants of tackifier or patchy vegetation growth is evidence of only partial fugitive dust controls. As presented by Dr. Zelt's assessment, even 100 percent effectiveness of controls will not be sufficient to prevent impacts upon a project area under the right meteorological and post-flood conditions. 15:52

With respect to paragraph 275 of AT's final argument, Dr. Zelt is a recognized expert in air quality dispersion modelling, whereas Mr. De Carlo is not. Mr. De Carlo's interpretation of the cover misrepresents the effectiveness of the cover to prevent air quality

emissions.

With respect to paragraph 276 of AT's final argument, Dr. Zelt made inquiries into tackifiers to determine the cost of application of tackifiers to supplement information not provided in AT's reports.

With respect to 277 of AT's final argument, in short, Dr. Zelt's assessment was objective and impartial. Dr. Zelt clearly outlined where AT's assessment of air quality was not representative of site-specific conditions. AT's assessment used a 15:53
minimalistic approach, using guidance documents without regard to the proper application of the guidance, nor limitations of the guidance. The result of AT's assessment is a strong bias that underpredicts the potential air quality for post-flood drawdown and favourable meteorology. Dr. Zelt's objective assessment was based upon reasonable and site-specific conditions that would be expected, and while applying emission controls, as suggested by AT. Dr. Zelt showed that even with highly effective controls suggested by AT, which 15:54
would somehow be applied pre-emptively, air quality could still be expected to be degraded in the region surrounding the project area and potentially impacting Calgary City limits and First Nations lands.

With respect to paragraph 279 of AT's final

argument, this statement is not factual. Because the air quality assessment is a necessary input into human health assessment. Any change to the air quality assessment is a change in the human health assessment. Dr. Zelt clearly demonstrated the faults in the air quality assessment.

With respect to paragraph 280 of AT's final argument, Ms. Noble's testimony indicated that air quality was a human health concern. She testified that based upon AT's assessment of flood frequency and 15:55
meteorological frequency that the risk would be acceptable. Ms. Noble's assessment is therefore flawed by the fact that the human health impacts are greater than she assessed because the emissions are greater than presented by AT.

Downwind air quality concentrations are a direct relationship to emissions. Therefore, if emissions are greater than what was assessed, the air quality concentrations downwind will be greater. Ms. Noble's testimony was based upon bias and incorrect air quality 15:55
predictions. Further, the risk by Ms. Noble -- the risk qualification by Ms. Noble is flawed because the frequency of meteorology is not representative of the site-specific conditions. Since the frequency of exposure is expected to be greater using site-specific

conditions, the risks will be greater than Ms. Noble presented.

With respect to paragraph 281 of AT's final argument, AT did not provide any evidence to base their claim that the meteorological conditions were rare or infrequent. This comment is anecdotal at best. While the operation of the project is a rare and infrequent event, Dr. Zelt showed that the meteorological conditions are more frequent than modelled by AT.

Dr. Zelt also showed that the meteorological 15:56
conditions relating to dry and windy scenario for high emissions were much greater than AT presented. In fact, AT did not provide any statistics for precipitation, frequency of strong wind, periods between rain events, etcetera, whereas Dr. Zelt did present such evidence. This evidence suggests site-specific conditions cannot be assumed to be infrequent events, as per the AT assessment.

With respect to paragraph 282 of AT's final
argument, fugitive dust can be mitigated with 15:57
appropriate controls. However, the effectiveness of those controls must be considered.

With respect to paragraph 284 of AT's final argument, this statement is non-factual. The evidence was presented that because TSP would be present in the

dust cloud, which is visible, than a resident could visibly see when they were being impacted. There was no evidence in reference to travel time. Travel time is a function of wind speed. In high winds the dust emissions would reach homes of 1 kilometre away from the project within one to two minutes. It is not possible to monitor, detect, and notify the public within this limited amount of time.

With respect to paragraph 285 of AT's final argument, this statement is not factual. What the AT minimalist and biased assessment has demonstrated is that AT is basing their conclusions on hope that the flood does not occur, hope that they can achieve complete fugitive dust emission controls, hope that they can achieve complete fugitive dust controls before conditions occur that lead to emissions, hope that meteorological conditions don't occur, and hope that people are not outdoors to be exposed. I think we can do better than just hope, but actually assessment and modelling of the situation to plan. 15:57 15:58

Conditions. In Exhibit 406 I requested that AT advise whether they would accept a number of specific conditions arising out of Topic Block 5 as a condition to any approval. The SCLG request that these be added as conditions to any approval that might be issued by

the Board. And I've given you the transcript reference there in paragraph 361.

And in terms of Dr. Zelt, the cost of the tackifier and time to spread it out, a condition should be to cost out this and provide a timeline for the application of the tackifier on this massive footprint.

I think I've dealt with the human health. I did refer you to a number of transcript references in my cross-examination of Dr. Noble, and the references are there. And I've also referred to Exhibit 398 for the air quality isopleths and locations of homes, schools, playgrounds, and camps. 16:00

In terms of vegetation --

Mr. Chair, I realize I'm at 4. I've got about -- I've got about nine pages left. I just wonder whether you would give me that time to just finish off these last two areas.

THE CHAIR: And how many minutes per page is that, Mr. Secord? What is your request?

MR. SECORD: I had kind of thought about -- I was kind of going at about a minute and a half per page, is what I was hoping for. I don't know that I've met that time frame, but... 16:00

THE CHAIR: I'm not sure, but I think that would take us to about ten after. So if you could wrap

up by ten after or so. If you could wrap up by 10 after or so. I mean, that's our original timeline. It does give you a bit more time.

MR. SECORD: Thank you.

THE CHAIR: But, you know, it's not excessive, but I would appreciate your diligence in getting through by 4:10.

MR. SECORD: Sure.

THE CHAIR: Thank you.

MR. SECORD: 5.3 was vegetation, including noxious weeds and invasive species. You'll recall that my clients had testified to the increase in weed growth after the 2013 flood. We retained Dr. Osko to look at the impacts of weeds on the landscape. 16:01

As noted by Dr. Osko, weeds compete with crops and native plants for space, light, and nutrients, as well -- and water, as well as introduce pests and diseases. This is of significant concern to the SCLG members, considering that many of them are agricultural producers and ranchers. 16:01

AT's assertions that the influence of weeds on vegetation and wetlands will be located -- localized to the PDA is incorrect. Mr. Osko's evidence and Mr. De Carlo's responses provided to cross questions confirm that the spread of weed vectors will not be

limited to the PDA but could spread to the surrounding lands. It is therefore important that a comprehensive weed management plan be put in place to prevent and manage weed introduction and dispersal. The SCLG submits that the Panel should include as a condition of approval that AT must develop a comprehensive weed management plan prior to construction of the project. The SCLG further submits that the condition of approval should require that the comprehensive weed management plan include, at a minimum, preventative measures 16:02
requiring the cleaning of vehicles and equipment prior to entry to the PDA; upon leaving the PDA; details on how cleaning of the vehicles and equipment would be achieved, including locating cleaning stations at entry point and exit points; how to manage potential weed transport by commuting employees; identify the source of all incoming materials; the weed risk associated with them; and identify the dispersal barriers to employ. The plan must also assess and prioritize all of the possible vectors by which weeds could be 16:03
transported on and off the project area.

The SCLG submits the Board should include a further condition of approval, that AT must ensure all trucks hauling excavated fill material from the diversion channel to the floodplain berm between prior

to leaving and entering the site. Note that Mr. De Carlo and Mr. Wood agreed in cross that these are reasonable measures.

The SCLG acknowledges AT's willingness to accept and implement some of the recommendations of Dr. Osko.

Further, it is likely that the risk of weed seeds and plant seeds entering the river through the low-level outlet will continue, especially in times of non-flood and post-flood.

The SCLG submit that AT must take steps to prevent the spread of weeds from the reservoir. 16:04

Secondly, there's no supportable basis for suggesting that the filter will prevent stormwater freely passing through the low level of networks during dry operations. No information was presented that shows the impacts that a filter might have on free passage of stormwater. A filter should not significantly restrict the free flow of stormwater.

Thirdly, it is not clear how...

So the SCLG submits that a refiltration system at the outlet limited to operating during dry operations is necessary to ensure that more weed seeds, including noxious and prohibited weed seeds, are not introduced into the Elbow River, resulting in likely weed infestation of downstream Springbank communities. 16:05

The SCLG submits that this should be included as a condition of approval. In the alternative, the SCLG submits the Panel should require AT to inquire further into this issue and conduct a model analysis of their findings.

Under vegetation and wetlands. The Board has heard and seen the submissions and oral testimonies of the SCLG members and their expert witnesses. The project is located in one or more landscapes of conservation significance, high value landscape, 16:06
environmentally significant areas, areas of high wildlife sensitivity, key wildlife and biodiversity area, and high sensitivity watershed. This fact is not disputed by AT. Much of this area is high risk.

AT attempts to reduce the significance of this designation by asserting that the high value landscapes occupy the entire landscape west of Calgary.

While high value landscapes may be present in other locations in the project, at other locations this does not reduce the significance of the impacts of the 16:06
project on the environment. In any event, the project's impacts on the environment on which it is situate is the issue and not whether there are other high value landscapes present elsewhere.

The South Saskatchewan Regional Plan mapped some

of the project area as intact native grasslands, as noted by Mr. Wallis in his report.

Section 2.1 of the NRCBA requires the Board to act in accordance with any applicable ALSA regional plan. By virtue of Section 2.1 of the NRCBA, the Board must consider the provisions of the SSRP and act in accordance with its directions in determining this application. In fact, I believe that was also done in the Cougar Creek decision. This means that the Board must, in accordance with the guidance of the SSRP, ensure that intact native grasslands within the project area remain intact and in an undisturbed state. Any application such as the SR1 project that would result in destruction of the intact native grasslands should be a factor in denying this project. 16:07

The SCLG notes that Appendix G of the SSRP provides guidance to decision-makers that require considerations of provisions in Strategy 3.7 of the descriptions of the intact native grasslands, as mapped at page 150 of the SSRP. 16:08

While acknowledging that this project will intersect areas mapped as intact native grasslands, AT argues it is committed to revegetation.

As Mr. Wallis has noted, according to Lancaster et al, revegetation success of rough fescue grassland

has been recorded only on sites that have not been disturbed.

It is extremely doubtful that AT will revegetate the land to provide the equivalent variety of grassland communities that were present before the project. This outcome was acknowledged by AT in the transcript.

In terms of wetlands, Mr. Wallis testified that the project will also directly impact 5 kilometres of productive stream courses and numerous productive wetlands during construction. 16:09

Also, other than wetlands that will be permanently lost during construction, the project will impact wetlands during flood operations. The alteration of wetlands' functionality during flood operations means that more wetlands could be lost over time.

And I would also refer you to Mr. Wallis's evidence on the impact of downstream riparian communities.

In relation to cumulative impacts, cumulative impacts on the project on upland habitats and wetlands 16:10 have not been adequately addressed due to lack of consideration of the degree to which foothills parkland natural subregion habitat has already been heavily modified. Every incremental loss of native habitat is a significant loss for the natural subregion.

Despite the application of mitigation, impacts will still remain. Mr. Wallis recommended that the project not be approved in its current operating mode due to the impacts on downstream riparian habitat.

Mr. Wallis also discussed sedimentation impacts on vegetation, and we would refer you to his evidence in that regard.

We would also refer you to the SCLG evidence on wildlife and biodiversity, in particular as set out in the landowners' statements in Exhibit 250 and the remarks made by Dr. Klepacki and Brian Copithorne in his submissions. 16:11

And with that, I think I should go to my concluding remarks.

Rejecting this project should spur immediate innovation and create a substantial budget for the city of Calgary to pursue flood-proofing projects downtown, fully within the purview of The City of Calgary. These could include new floodwall-type projects that would protect against the Bow and Elbow flooding. The increased Glenmore Reservoir capacity is an example of such a project that is already complete. 16:11

Approval of SR1 would be a triumph of politics over process. The proponent tried to play down the negative elements of SR1, including air, water, and

environment by stating that most floods are small and big flood events are so rare. If there is no worry about these big floods, what is the rush? Send this project back to the drawing board.

The SCLG is concerned that the various secret compensation agreements have resulted in a biassed presentation before the NRCB. Rocky View County should be here as an intervener representing its residents, as should the Tsuu T'ina Nation.

Why was Alberta Transportation trying to avoid having any parties participate as an intervener in this process? 16:12

It is not the fault of this Panel, the regulators, or the Springbank residents who have raised concerns that this project has dragged on for years. The Ignasius report clearly points that out.

The responsibility for the delays falls squarely on the proponent's shoulders.

Rejecting SR1 will create uncertainty for future flood risk for the city of Calgary, but pursuing a flawed and inferior project with an indefinite lifespan due to anxiety about near-term flood risk is not in the public interest. The SCLG requests that the Board reject the SR1 application. 16:13

And, finally, I would like to thank the Board

Panel members, Board counsel and Board staff, especially Ms. Friend and the document managers, the hearing participants and their counsel, and, of course, Ms. Vespa and Ms. DiPaolo -- and, Donna, I hope you'll forgive me for speaking so quickly -- for running a very efficient and collegial hearing. It was much appreciated by the SCLG members and our expert witnesses, Ms. Okoye and me.

I would also like to thank Ms. Karin Hunter for her tremendous effort in assisting Ms. Okoye and me with the navigation of the voluminous record relating to MC1 and SR1. I relied heavily on her encyclopedic memory and attention to detail and am very grateful to her. 16:14

And thank you, Mr. Chair, for giving me those extra minutes. Much appreciated.

THE CHAIR: Of course. Thank you, Mr. Secord, and thank you to Ms. Okoye and all of the landowners and members that you represented.

MR. SECORD: Thank you. 16:14

THE CHAIR: I think we should take a bio break now, and we'll come back with Mr. Williams with Calalta followed by Mr. Wagner.

And, Mr. Williams, you're there?

MR. WILLIAMS: Yes, I am.

THE CHAIR: And you're ready to go after the break?
MR. WILLIAMS: Yes, I am.
THE CHAIR: Okay, thank you. So let's come back at 4:30 and resume with Mr. Williams. Thank you.
(ADJOURNMENT)
THE CHAIR: So Ms. Louden had provided her final argument, and that could be Exhibit Number 413, with no objections. Hearing none.
EXHIBIT 413 - FINAL ARGUMENT OF THE STONEY NAKODA NATIONS 16:30
THE CHAIR: And Mr. Secord's exhibit -- or, sorry, final argument would be Exhibit 414.
MR. SECORD: Thank you.
THE CHAIR: And any objections? I know that you skipped over a few paragraphs here and there and it was -- I think, Mr. Kruhlak, you weighed in. Do you want to at least have a peek at what happened? Before you sort of said "no problem," but are there objections or have you had a chance to review? 16:30
MR. KRUHLAK: Well, I guess, Mr. Chairman, we have the opportunity to reply tomorrow, so we may do it then. I can't say that the document shouldn't be marked in some fashion. I guess our caution is that there was more than a paragraph or two. There were

some large components of this argument that was almost getting close to a written argument that was simply tendered with the Board.

So our caveat would be that we'll address -- perhaps it's best addressed through the weight to provide certain components of the argument that were not orally highlighted for the Board.

THE CHAIR: Okay.

MR. KRUHLAK: But with that we won't object to it being marked and we'll speak to it tomorrow. 16:31

MR. SECORD: And I'm fine with that, Mr. Chair. I mean, I didn't -- because of time I had to skip over the soils and terrain components, so I didn't put that on the record. I tried to use my time up efficiently. So Mr. Kruhlak is right, and I'm sure he'll be fair in his response.

THE CHAIR: Well, and the Board will for sure be reading the entirety of the -- of your exhibit, of your final argument, Mr. Secord, and of course will be interested in any reply you might have tomorrow, 16:32 Mr. Kruhlak, so thank you for that.

So that's 414, the exhibit number.

EXHIBIT 414 - FINAL ARGUMENT OF SCLG

THE CHAIR: And I do believe Mr. Williams has already submitted his final argument to Ms. Friend, and

that could be entered as Exhibit 415. Now, that may have just been distributed. If parties would rather wait until either later -- last thing of the day or first thing tomorrow when we re-adjourn, we can do that, unless you're prepared to allow that to stand as Exhibit 415 now with no objection.

So any preference on that, parties? Mr. Kruhlak?

MR. KRUHLAK: Well, I haven't -- Mr. Chairman, I haven't had a chance yet to look at it. I don't know if Mr. Williams will confirm it's going to be just essentially a written version of what he'll say or whether it's to supplement it in some fashion. If it is, then perhaps we should defer it until we've had a look at it. 16:32

MR. WILLIAMS: It's just -- Mr. Chairman, it's Mr. Williams. It's basically verbatim of what we will say.

THE CHAIR: Okay. With that caveat, let's enter it then. Thank you. Yeah.

EXHIBIT 415 - FINAL ARGUMENT OF CALALTA WATERWORKS AND CALAWAY PARK 16:33

THE CHAIR: Okay, Mr. Williams, if you're ready to go, please proceed.

MR. WILLIAMS: I'm ready to go. Okay.

Good afternoon to Mr. Chairman, the Board, and to

all hearing participants. The overview that I will present today of our closing comments will be in the fashion of introduction, our three objections, and then a conclusion.

Starting with the introduction. Calalta Amusements Ltd., Calaway Park has been in operation for 40 years. We are proud to be one of Alberta's top tourism destinations, employing 650 seasonal and 40 permanent year-round jobs. We have worked hard to achieve what we have without any provincial, municipal, or federal capital funding. We did receive a small grant for our campground development in 1990. 16:33

Calalta Waterworks Ltd. has operated and provided safe drinking, potable water to the Springbank community; the Springbank elementary, middle, high school; Edge School; Springbank Park for all seasons; Springbank Heritage Club; Commercial Court, which is approximately 18 businesses; and soon to be developments of Bingham Crossing, Pradera Springs, and River Edge, as well as Calaway Park for the last 40 years. 16:34

In 1992, the addition of five intake wells; in 2014, a half million gallon aboveground water reservoir, and in 2015, a $6 million investment into an ultra membrane water treatment plant; and in 2020, the

franchise agreement. We have proven our commitment and responsibility to Alberta Environment, the Springbank community, and Rocky View County.

Safety is a priority for Calaway Park and Calalta Waterworks. We are held accountable by a number of regulatory standards and believe that Alberta Transportation, Alberta Environment, and Stantec should be held accountable to these same standards.

As in our presentation in Topic area 1, Exhibit Number 372, we have three objections that the NRCB has given us standing on, which are. And I will proceed to share that information now. 16:35

Objection 1: air quality, ambient air, atmospheric environment. As shared in our evidence, we are sensitive to the dust and the ambient air quality. The concern in our evidence, Exhibit 372, Slide 3, is that SR1 will take three summer seasons to construct. Calaway will potentially experience consequences and negative impacts of construction dust and/or ambient air to our guest experience, team members, rising equipment, PLCs, and the sensitivity extends beyond the construction of the dam for the foreseeable future and years in the future. 16:36

A great question was asked on April 1, Exhibit Number 406, by Ms. Vance in regards to ambient

air and PM 2.5 and whether we would notice this amount. It is even more evident on the answer that was submitted that the monitoring stations are necessary. During construction post air quality will be a minimum standard for human safety PM 2.5, or 27 percent micrograms fugitive dust. Pausing construction could be a mediation action if required.

Westerly winds and chinook winds are what the community experiences. This should be taken into consideration. Alberta Transportation Matthew Hebert has had conversations with Calalta on our concerns. As this is higher level conversations, we are requesting that the NRCB Board make the monitoring stations on the Calalta property and that all reporting will be available to Calalta on a weekly basis during our in season and monthly offseason to be a condition of approval and that mediating actions to be determined and approved by both parties prior to construction. 16:37

In Alberta Transportation's closing argument, Exhibit Number 409, page 80.286, agrees to the monitoring station and to the results being shared with Calalta. Further to this, Alberta Transportation cites: (as read) 16:37

"If data from the station indicate exceedances of applicable air quality

objectives, Alberta Transportation will undertake appropriate mitigation."

They go on to say that Calalta's request has been adequately addressed.

We appreciate Alberta Transportation's mediation implementations. We do, however, disagree that our requests have been adequately addressed. As an undertaking provided by Alberta Transportation on our request of insurance, in the event of Calaway, Calalta Waterworks would be forced to close, Alberta Transportation is not contemplating the insurance coverage as we requested. Our insurer will not provide coverage for the events that are not related to property peril. Calalta is requesting that the Board add to the condition of approval compensation for any business interruption caused by the SR1 project. 16:38

Aside from this, it was brought to our attention that information that we provided, which is not an undertaking, regarding the Springbank Airport states that the Springbank Airport is the second busiest airport in Canada, and one states it is the seventh busiest based on touchdowns and takeoffs, not on passenger traffic. And this is information that was requested that we submit. 16:39

Objection Number 2: Surface water sediment back

into the Elbow River. In One City One Water document, Exhibit Number 345, that The City of Calgary submitted stated water security is essential. And we agree.

Separate from the Calalta operation there are approximately 2100 school children to consider, plus 20 businesses, residences, community, and senior centres. Calalta submitted evidence, Exhibit Number 372, Slide 4, with concerns raised in the NRCB supplement information report, Exhibit Number 84, page 91, indicating that a sediment dump could have perils on the Calalta water intake, water treatment plant filtration system. 16:40

Sensitivity of the diversion barrier causing downstream's sweepers piling up causing diversion of the river of the natural -- of the river's natural course. Who will monitor this? What is the procedure?

The current solution being discussed with Alberta Transportation is that in the event of a flood, where SR1 is used, it is understood that an agreed third party will assess damages caused to the Calalta water intake well system and our water treatment plant filtration system. The third party will work with Calalta and Alberta Transportation to ensure and resolve compensation required for any damages. Nowhere in Alberta Transportation's closing argument, 16:40

Exhibit Number 409, do they agree to this third-party condition to assess damage, as we have previously discussed.

As stated, Alberta Transportation this morning, Exhibit Number 409, page 63.223, yes, our intake wells are set back from the Elbow River and we did not experience damage as a result of the 2013 flood. But, despite this, this does not discount the possibility of a future flood event causing significant damage, and release of water from the usage of SR1 would be significantly different than consistent water flow due to the risks of sediment buildup. 16:41

We are requesting the NRCB put in place a condition of approval that Alberta Transportation determines the detail of mediation prior to construction that both parties are in agreement.

Objection Number 3: franchise agreement. I will address many of Mr. Kruhlak's cross questions. I cannot assume, yet only use my intuition to the intent of his cross questions. 16:42

Mr. Kruhlak brought up Calalta's 10-inch waterline along Range Road 33. The lines shown did not show the lines into Commercial Court, 18 businesses, and some residential developments that are tied onto the primary line and secondary line. Exhibit Number 362, page 65.

Future waterlines that are built are development driven, as identified in the evidence Mr. Kruhlak submitted, being our franchise agreement, Exhibit Number 362. Mr. Kruhlak identified the aspect of water licence availability. Currently the water plant has seven water licences, and Calalta owns five of them. There is an additional licence in the area, that we stated, for water and land, as we shared, which is well documented. Exhibit 362, page 89.

We do not need to own the licence. In essence, 16:43
water licence capacity for potable water is available for future growth.

The County recognized the utility and the infrastructure that exists. They have included it in both the north and south ASP plans as being one of the regional solutions. In these documents provided are exclusive franchise area, Exhibit Number 362. The same as the evidence we provided on February 25th, Exhibit Number 221, is there.

For the Board's information, the franchise 16:43
agreement document is in excess of a hundred pages. I believe it's 104 to be exact, but I could be slightly incorrect. Mr. Kruhlak has brought up the date of the franchise agreement of February 25th, 2020, first reading. As with this process being seven years to

date, the deliberation of the franchise agreement started in the fall of 2009, when Rocky View County considered the concept of the aqueduct for the county. The franchise agreement is, and was, a public process, no different than this one that we're currently experiencing, which input was ascertained by the AUC and the Rocky View County. Exhibit Number 362, page 6.

The evidence of this map we shared in our Objection 3, and several maps of evidence of other participants in this process, Exhibit Numbers 372, Slide 5, clearly shows that the proposed dam is adjacent to a major thoroughway: the TransCanada Highway, Highway 8, Highway 22, and Springbank Road. The exact location is a premier opportunity for future development, being residential or business commercial. 16:44

And one other point I would say is that that intersection or interchange of 22 and TransCanada is a future of cluster for many potential businesses in the area.

The Board must consider why this area was included in our exclusive franchise area. The answer is for its potential opportunity of future development and to provide the utility service for the future. 16:45

Mr. Kruhlak brought up evidence that I was referring to the Bow River TransAlta agreement; and,

yes, he was correct in this reference. In this reference it states: (as read)

> "Compensation paid to TransAlta is intended to offset the end estimated commercial loss."

Exhibit Number 363. This is the same as the lost sterilized land for SR1 for Calalta Waterworks Ltd.

We would applaud Mr. Frigo and The City of Calgary on the One City One Water document, Exhibit Number 345. It shares what in our mind is the importance of water security for both flood, drought, and water supply sustainability. 16:46

As in our evidence, Exhibit Number 372, Slide 6, Rocky View County has been compensated $10 million; Tsuut'ina Nation has been compensated for $32 million. Not in the evidence, but in Mr. Secord's cross, the Ermineskin First Nations, amount not disclosed; Kainai Blood Tribe amount not disclosed; and the landowners on expropriation of land, the total is unknown for us.

We have a formal legal franchise agreement, Exhibit Number 362, in which we agree to ensure and secure safe potable drinking water. This agreement identifies an exclusive boundary area for the potential future development of the utility. Exhibit Number 362, page 65. 16:47

We entered into this agreement, with further regulatory oversight on us, for the opportunity to tie on future development and growth. As stated in our presentation, 62 percent of the 3600 acres of our right has been sterilized. If a legal binding agreement with AUC and Rocky View County is recognized for them, then this bylaw enforced agreement needs to be recognized for us. Alberta Transportation compensated and recognized other agreements.

In Alberta Transportation's closing arguments, Exhibit Number 408, page 63 and 4 and points 224/225, they state that the given -- the uncertainty and the lack of evidence supporting this claim, Alberta Transportation submits it would not be appropriate for the Panel to impose on approval conditions with respect to Calalta's water franchise. 16:48

We appreciate the open conversation with Alberta Transportation. However, we feel they have discounted this franchise agreement. Alberta Transportation sees this as a commercial business. This is partially correct. This is a utility that serves the community at large and, like The City of Calgary, water sustainability is a priority. We disagree. Our beneficial right has been taken away. 16:48

We are asking Alberta Transportation to recognize

and compensate for the lands that are sterilized for the life of this agreement and our beneficial right. We are requesting the Board make this an objection, a condition of approval.

Conclusion. Our concern about safety is the unintentional incident, which no one can know at this time. It is the unintentional incident that has consequences. As this project serves the masses, we are protecting our livelihood that we have built over the last 40 years. This protection of 660 summer seasonal 16:49
jobs, 40 permanent positions, and safe potable drinking water for the local community.

Flood mitigation for the city of Calgary is critical. We wholly understand this as we witnessed the 2013 flood. Calalta Amusements Ltd., Calaway Park, Calalta Waterworks, and myself want to thank the following: All the participants that have been involved in this hearing: Karin Hunter, our community president for all that she does for the community; the NRCB Board members; you, Mr. Chairman; specifically Laura Friend 16:50
and Bill Kennedy for guidance and helping us understand the process, and our participation in this process; to the court reporters, staff, and team members that assisted the NRCB in this position; to Elders Holloway, Wesley, and Snow for their spiritual prayers.

Thank you once again for the standing of our objections and for the opportunity for us to present them. I/we have learnt a lot.

We ask the Board to consider the evidence and presentation in regards to our three objections. We ask the three conditions of approval for our three objections to be a condition of approval for this project.

We look forward to the final report from the NRCB on this matter, and thank you very much. 16:51

And that would conclude, Mr. Chairman, my closing arguments.

THE CHAIR: Thank you, Mr. Williams, and thank you for your participation throughout these proceedings. It's very much appreciated, and you've done a nice job of it.

MR. WILLIAMS: Thank you.

THE CHAIR: Mr. Wagner, are you online?

MR. WAGNER: I am.

THE CHAIR: Okay. And if you're in the same 16:51 location, we can give it a try in terms of video. I know that often it locks, but once your audio is on, it has seemed to work flawlessly throughout the proceeding, so...

MR. WAGNER: Well, hopefully -- I exchanged a

few settings, so maybe it will work a bit better, but it is still in the country.

Good afternoon, Panel, participants and observers.

As a successful business owner, my best decisions have always been bottom up. That is, gather the information on alternatives and being informed prior to making a final decision. I always ask for alternatives as well. I never wanted to be left with a single alternative and an answer of yes or no.

As noted in the NRCB hearing over the past two weeks, the Bow River alternatives being examined appear to be this improved process. However, SR1 has all the makings of a top-down process. 16:52

SR1 was chosen without prior public study, and now an army of 18 employees and consultants are tasked with justifying that decision. I don't envy the AT group. They have a job to do, and obviously have been given marching orders. If only they would have been involved in the beginning to evaluate alternatives.

The SR1 process has been totally upside down, and the results are showing. Costs have escalated, budgets are out of date, money is being borrowed from other areas, and corners are being cut on the ultimate solution. The scramble is on. 16:53

The budget sits at 432 million, which is over

double the initial estimate, and there have been many areas that were discussed in the past two weeks that would grow this cost greatly. By AT's own submission, many budget items have not been updated.

Some payments to stakeholders have been published up until recently, and now they have been increasingly NDA. It is reasonable to total at least a hundred million and growing. And this number will escalate as many stakeholder payments have yet to be fully negotiated. 16:54

As for cutting corners, I will hit my two biggest on my thought process.

I was unable to find a single earthen dam without riprap.

And why 600 cubic metres per second? Why not 800? Why not 1,000? Why not 1500? Why not 2,000? I heard 2800 cubic metres per second as a potential thousand year. All would have been available if MC1 would have been chosen. Most engineers I know prefer to overdesign rather than meet minimum requirements. I 16:55 can only assume that engineers were not present from the initial specification. Road costs, pipeline costs, ongoing operating costs, updated budget all seem to have costs shortcomings.

In 2018, the Auditor General of Canada sent the

federal government back to the drawing board for misrepresenting the complete costs of the new fighter jets. SR1 looks no different to me.

Landowners were shocked by the SR1 announcement in the Calgary Herald, and AT took nearly six months after the news release to accept an initial meeting upon our request.

Consultants with AT and landowners have been very much one-way: AT telling and landowner opinions not required. 16:56

I'm personally struggling with an understanding of how AT is going to keep water, sewer, and swelling clay from destroying my house.

After seven years we have no engineering solutions. In fact, we have no engineering assistance at all, and are left with a whole lot of questions.

Furthermore, the first archeological dig, which was in a very odd location, was not well executed, and I am left with questions of whether the GoA is capable of caring. 16:56

We have been left with the comment that has been burned into my brain that we can have "a newer, smaller house." This does not seem like a party that is interested in landowner input.

Safety. It appears as though the GoA is willing

to put my family and any visitor to our house or casual weekend walker within the SR1 footprint in the crosshairs of a rifle. Further complicating the issue is the fact that driving in and out on our laneway is within the rifle hunting zone.

No less concerning will be the high possibility of having a deer or an elk being killed on our lawn; hopefully, by an arrow because a rifle would be technically illegal.

Mr. Kruhlak, in this morning's presentation by AT, 16:57
stated that there will be no unfettered hunting. However, the AT plan is the exact opposite.

My only request in the hearings to make SR1 a no hunting zone was rejected by AT. Therefore, I contend that AT's comments are inconsistent.

As a rural landowner -- as any rural landowner knows, dealing with hunters is a challenging vocation, and AT's response to date has been that local knowledge is not required.

The distance from Calgary and the presence of elk 16:58
magnifies the SR1 location risk.

Without NRCB hunting clarification, SR1 will be a safety risk for both public and residents, and the elk and grizzly bear populations. Help.

We have two people at our location with

respiratory considerations, and given that we are within metres of the waterline, confined sediment is what we should expect. Air quality does not look good for us.

While I agree that this may only happen on a design flood at our location, it is an event that would be real. It is not our choosing.

I must say I had quite a chuckle when it was suggested at a recent CEAA forum that the frogs would be rounded up. I was not sp amused when a frog pond was chosen for the first archeological dig. 16:59

As for elk and grizzly bear, the GoA has, in my humble opinion, thrown wildlife under the bus, as they have not addressed the concerns about unfettered hunting, these issues have been raised before and continue to be ignored or dismissed by AT.

I have dealt with the federal government as a business owner. I admit I have limited dealing with the Alberta government.

Having said this, the NRCB submission would be unique in all of my dealings, having only one solution or sole sourcing was not accepted by any government department I dealt with. 17:00

I have submitted a few recommendations, but here are my top three, after listening over two weeks.

My first one: Send the project back to the drawing board and compel AT to have MC1 as an alternative in the second application.

As a condition of approval, compel the AT to renegotiate hunting rights to make SR1 a no hunting zone, or at the very least, a no rifle zone.

As a condition of approval, Number 3, compel AT to deal with landowners, as they have stated in their very own SR1 submission, with respect and consultation and negotiate in good faith. 17:01

Finally, I would very much like to thank the Panel, support staff, and Alberta Transportation for indulging me.

This has been my first process that I have gone through, and I've learned a lot, and I look forward to potentially being involved in another one at some point.

Take care and stay safe.

THE CHAIR: Well, thank you, Mr. Wagner. And the Board does recognize that this is particularly 17:02 difficult for those folks that aren't represented by legal counsel and for those folks that are new to the process, to the hearing process, which you just indicated.

So we appreciate your participation and we

understand that, you know, it can be a challenge for those folks that aren't familiar.

So thank you once again and good for you for stepping up.

MR. WAGNER: Thank you again, Mr. Chair.

MR. KENNEDY: Mr. Chair, Mr. Wagner did submit a copy of his final argument. We should enter that.

THE CHAIR: Thank you. And that is what number? And also --

MR. KENNEDY: 416. 17:02

THE CHAIR: 416. I'm not sure if anybody has had a chance to review it. It was submitted while he was talking, of course. Probably not.

Mr. Kruhlak, perhaps under the same caveat?

MR. KRUHLAK: We have no objection, sir. We've had a look at it. Thank you.

THE CHAIR: Okay.

MR. WAGNER: Mr. Chair, it was basically a read submission.

THE CHAIR: Okay, thank you. 17:03

So hearing none.

EXHIBIT 416 - FINAL ARGUMENT OF MR. S. WAGNER

THE CHAIR: I would like to thank everyone for today, and I do appreciate the fact that many of you

used up a long weekend working on these submissions, the Panel recognizes that, and we do appreciate all the work that's been put in to final argument over the weekend largely, we expect.

And we also appreciate the fact that you were respectful of the time. It was a long day, but we were able to get all final arguments in today, which allows us to complete the hearing tomorrow with Alberta Transportation's reply.

And I'll have additional closing comments tomorrow at the close of the hearing, so I won't go into those now. 17:03

We can adjourn for the evening and get back tomorrow morning, but I will have some closing remarks tomorrow following Alberta Transportation's reply.

So, once again, thank you to everyone. It's much appreciated.

Thank you, Ms. Gerbrandt. I know these final argument days are probably a little tougher on court reporters than on other days, so thank you very much. 17:04

Thank you, Mr. Wiebe.

Are there any other matters that anybody wanted dealt with before we open tomorrow?

Okay, hearing none, tomorrow morning we start at 9

with an 8:30 sign-in to Zoom.

So thank you once again and we'll see you tomorrow morning.

MR. KRUHLAK: Thank you, good night.

THE CHAIR: Good night.

(PROCEEDINGS ADJOURNED AT 5:04 P.M.)

PROCEEDINGS ADJOURNED TO 8:30 A.M., APRIL 7, 2021

Certificate of Transcript

We, the undersigned, hereby certify that the foregoing pages 2491 to 2809 are a complete and accurate transcript of the proceedings taken down by us in shorthand and transcribed from our shorthand notes to the best of our skill and ability.

Dated at the City of Calgary, Province of Alberta, on April 6, 2021.

"Lorelee Vespa"

Lorelee Vespa, CSR(A) RPR CRR
Official Court Reporter

"Donna Gerbrandt"

Donna Gerbrandt, CSR(A)
Official Court Reporter

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