From:	[redacted] on behalf of [redacted]
To:	Laura Friend; jennifer.howe@canada.ca; "Hon. Ric McIver"
Cc:	"Tri-river joint reservoir discussion group"; "Contact (INFC)"; info@oag.ab.ca
Subject:	Written submission to the hearing panel / March 22, 2021
Date:	Thursday, February 25, 2021 12:21:58 PM
Attachments:	Written submission on behalf of (FWMC), March 22, 2021 Hearing.pdf

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Dear Laura, Jennifer and respectable members of the hearing panel,

We direct our request in the attached document to the proponent/designer during the upcoming hearing of March, 22, 2021, to provide a satisfactory answer to the concern raised hereafter regarding the dam safety in the proposed SR1 project and the aftermath destruction, following dam failure, including the loss of lives and billions of dollars.

We are speaking on behalf of thousands of residents in the City of Calgary and the surrounding area who attended our multiple presentations after the 2013 flood event, and were affected by the flood, including businesses that were destroyed, yet, were not necessarily adjacent to the river. Nonetheless, the flood water was able to inflect serious damage on them.

Thus, respectfully and strongly, we disagree with the decision to deny a “directly affected party standing” to our Flood and Water Management Council (FWMC).

Therefore, we expect that our written submission asking to provide a satisfactory answer to the question of the SR1 dam safety will not be **ignored**, in order to demonstrate your sincere recognition to the thousands of Albertans who have also signed a petition demanding a proper and nonbiased study of other alternatives.

Sincerely,

Flood & Water Management Council (FWMC)

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Table of Contents

1.1 Serious Issues with Alberta Transportation Springbank Off-Stream Reservoir Project

1.1.1 Background

The Impact Assessment Agency of Canada is welcoming public comments on both the Draft Environmental Assessment Report as well as the draft potential conditions.

The NRCB AND AEP SUPPLEMENTAL INFORMATION REQUEST 1 of JULY 28, 2018, IN REFERENCE TO THE PROPOSED SR1 PROJECT ASKED[i]:

1.1.2 Question 213

The TOR asked for a description of how the project will be utilized to manage back-to-back storm events. The EIA identifies that once the project design inflow is reached then excess flow will be passed onto the Glenmore Reservoir which is assumed to also be full.

a. How is the Glenmore Reservoir equipped to manage back-to-back storms given that the Project is not able to accommodate flows beyond those of the 2013 flood event and given the lengthy residence and release times in the off-stream reservoir?

b. Provide information on the potential for overland flow from the Glenmore reservoir to the Bow River if the Glenmore Dam Spillway is not able to manage the floodwater inflow. (P.63)

1.1.2.1 The Response

"The Glenmore spillway is designed to pass the probable maximum flood for the Glenmore dam without consideration of Project. Construction and operation of the Project reduces the risk…".

THIS MEANS THAT THERE IS A RISK

AND IT APPEARS TO BE SIGNIFICANT.

1.1.3 Question 270

"The maximum release rate from the outlet structure of the dam is limited and may not be enough to draw down the storage quick enough for the second flood, if any.

a. Provide further details on the reservoirs capabilities to manage back-to-back floods. Describe how much volume can be emptied into the reservoir, at what release rate and within what time period in case back-to-back floods are expected." (P.82)

1.1.3.1 The Response

"The reservoir does not have the ability to contain two back-to-back design floods (an extremely low probability). In the event of back-to-back design floods, flood water that would exceed the capacity of the reservoir would not be diverted into the reservoir and would continue to pass down Elbow River."

THIS SIMPLY MEANS THAT THE CITY WOULD BE FLOODED. ALSO, A STATEMENT SUCH AS," BACK-TO-BACK FLOODS IS AN EXTREMELY LOW PROBABILITY" IS HIGHLY QUESTIONABLE.

1.1.4 Back-to-back floods are a real possibility in light of these facts

1- The life time for most of the dams in Alberta has exceeded 50 years and some are reaching 100 years operating life.

2- It is against basic engineering practices to assume that during the 100 years period after building the SR1 our province wouldn't experience a flood bigger than that of 2013.

3- Most scientists and experts predict next floods could be worse than previous ones, considering recent unprecedented events worldwide and the **climate change effect**.

4- We have witnessed the nature's mayhem and the human tragedies in Quebec and Ontario last year, in addition to the fact that records show that there have been two floods in Alberta 30% larger than the 2013.

5- The Director of Production and Maintenance with Hydro-Quebec, Simon Racicot, told reporters the dam at Chute Bell was built to withstand what he called a millennial flood. *"That means a flood that happens every 1,000 years", then added: "Hydro workers discovered earlier in the day the millennial level of water had been reached. We are entering into an unknown zone right now, completely unknown".*

6- *There isn't any precedent of a similar project built in Canada, which calls into question all the assumed safety levels.*

1.2 History of failing projects and financial blunders in our province

Few examples from the past:

From the late 90's onwards, projects such as the Novatel debacle, the Swan Hills debacle, and Alberta government trying to salvage a sinking shopping mall, (West Edmonton Mall), have cost the taxpayers billions of dollars.

1.2.1 Recent history of failing projects

The government's investment arm, AIMCo, took a $2.1-billion hit betting on market volatility. Keystone XL.

1.3 Giving the TsuuT'ina Nation $32M was not wise or beneficial move

Under current economic circumstances, a prolongated pandemic, and a rising debt and deficit, the decision to hand $32M over to the TsuuT'ina does not provide the best solution for their main concern regarding their groundwater, nor does it demonstrate a careful use of taxpayers' hard-earned money.

The Tsuut'ina Nation chief and council have published some details about that agreement, "The Tsuut'ina Nation has been able to negotiate a grant for $32 million from the province of Alberta for, among other things, flood mitigation, restoration and prevention".

The Canadian Environmental Assessment Agency has issued a letter to the province, stating there are "deficiencies," including **groundwater impacts** during construction and how lands on the adjacent Tsuut'ina Nation will be affected once the reservoir is in full operation.

Primarily, the Tsuut'ina Nation has opposed the project, concerned it will be only metres from reserve land and could negatively impact sensitive treaty land both upstream and downstream of the project.

There is not a known engineering remedy to deal with the groundwater problem except moving the project away from the potentially affected groundwater. If the claim that TsuuT'ina Nation's groundwater can become contaminated during, or after the construction of the SR1, the project's proponent will be held liable and the taxpayers would be on the hock for many more millions of dollars.

1.4 Issues with fish habitat

Bull Trout is our provincial fish and is covered under the Canada species at risk act.

According to the Regulatory Assurance Division - Approvals Unit report to Alberta Environment and parks:

This project may put the local population of Bull Trout **at high risk** and may lead to extirpation in this reach of the Elbow River. If this population declines as a result of this project, this would represent a trade-off for fish populations in this reach.

It should be further noted that fluvial life history strategies of large Bull Trout only reside in 2 reaches of the Elbow River; upstream of Elbow Falls, and downstream of Elbow Falls. Any plans to offset these losses should be carefully considered as it is unclear whether Bull Trout could persist sustainably in this reach of the Elbow River with the flood diversion operational over the long term.

If deemed as an acceptable trade-off by regulatory agencies, alternative offsets should be pursued in consultation with Fisheries and Oceans Canada and other regulatory agencies in alignment with AEP-FM fisheries management objectives (FMOs[ii]).

1.5 Public Input

Public Comment Period on the Draft Environmental Assessment Report and Potential Federal Environmental Assessment Conditions for the Springbank Off Stream Reservoir Project

In this most recent letter issued on January 4, 2021 by the Impact Assessment Agency of Canada (IAAC), it was stated, "After reviewing all comments, the Agency will revise the draft EA report and potential federal EA conditions as appropriate before sending them to the Minister of Environment and Climate

Change for consideration in making his EA decision under the Canadian Environmental Assessment Act, 2012."[iii]

The most important requirement for a dam such as that of the SR1 project which is to be built on the doorstep of a large city like Calgary and in the midst of smaller communities is SAFETY.

An expert panel (which was assembled by the province consisting of more than 50 members representing a variety of disciplines), has estimated the volume of the 2013 flood as 100M m^3, and since the SR1 is classified as an "extreme" consequence dam[iv], basic engineering design requires adding a margin of safety with an order of magnitude, at lease, 25% – 50%, larger than 100M m^3.

In other words, the storing design capacity of the reservoir could range from 125 M m^3 to 150 M m^3. However, the flood storage capacity was designed as low as 70,200,000 m^3 / 77,771,000 m^3 (p2.2, Table 2-1)[v].

- The City of Calgary released a Flood Mitigation Options Assessment Report, prepared by the IBI Group and Golder Associates, the report reads: "Sophisticated modelling data used: The results clearly suggested that SR1 was not a "triple-bottom-line" assessment that would include **environmental and social costs** alongside economic costs."
- At this time the SR1 is still facing many hurdles, rejection, delays and opposition.
- The taxpayers, under current economic circumstances, where businesses are struggling and many jobs lost, would not have an appetite to waste more funds on a project that is not designed for "Extreme Weather Conditions", its safety is highly questionable and, still has not received approval after six years since it was selected.
- The province of Alberta has not been immune to bad, or ill-conceived projects, for example, the Swan Hills fiasco with $285-million funding that was cancelled. At that time, former Alberta Premier Alison Redford told reporters, "We're not going to continue to push things if the private sector's telling us they don't make sense."

1.6 More alarming issues with Springbank Off-Stream Storage Project

Preliminary Design Report[vi]

According to this specific report prepared for: Alberta Transportation – Project Number 110773396. March 31, 2017, titled:

Submission No. 20171114 AT EIA-R To NRCB:

2.3 HAZARD CLASSIFICATION

A dam breach inundation study **was completed** and is provided as Appendix C. This study evaluated potential failure scenarios and the consequences of failure of the Off-stream Storage Dam and the Diversion Structure as individual dams.

The Off-stream Storage Dam breach analysis results identify **thousands of residential and commercial properties within the inundation zone**. Based on the size of the population at risk a **Hazard Classification of "Extreme" is justified for the Off-stream Storage Dam**.

Failure of the Diversion Structure during a flood event would produce minimal increases in discharge and water surface elevation. **However, the breach wave caused by a failure of the Diversion Structure may carry concentrated debris that could damage Highway 22 which is located a short distance downstream. Based on the potential for significant economic losses, a dam class of "High" is justified for the Diversion Structure**. Page 13

10.3.2 Design Objectives

The Dam and its appurtenances are designed as an **Extreme hazard facility** in accordance with CDA Guidelines and Alberta Dam and Canal Safety Guidelines. P.159

6.2 FIELD EXPLORATIONS
6.2.1 Completed Activities
The field program started on March 21, 2016 and **was completed on August 25, 2016**. The laboratory testing **was completed by December 2016**.

6.2.2 Supplementary Explorations (P.44)

A. Some areas of the project site **were not available for equipment access** during the field exploration due to property access constraints.
B. Additionally, the geotechnical fieldwork **occurred before the full development of the preliminary design.**
C. As the design progressed, structures and features were revised, critical areas and added design drivers were identified, **and subsequent data gaps were noted.**
D. While predictable soils occur at the site, **critical variations in the thicknesses and properties were determined to be significant.**
E. Eleven borings are planned near the upstream toe of Dam between Stations 21+000 and 22+500. **Stantec was unable to access some of the area or make modifications to the drilling program** in order to complete the 2016 field exploration for the Dam. (The purpose of the borings is to confirm the depth to rock and the thickness of the glacio-lacustrine layer, and to determine **the presence of any materials different from current assumptions for the foundations soils** in this area).
F. At the time of the 2016 geotechnical exploration, the general layout of the LLOW's **was assumed, however, specific details were not known.**
G. Additional borings are required to provide the necessary **subsurface information coverage.**
H. The Off-stream Storage Reservoir is absent of the "High" risk factors listed by the USBR; however, the infrequency of proposed operation and the inability to **"test fill"** are identified risks documented in the Project Risk Matrix. Given these expected "carried" risk factors, Stantec suggests a **"Significant"** rating for use in determination of evacuation criteria. (Page 175).
I. A breach analysis of the Off-stream Storage Dam indicates that its failure would likely result in **loss of life** and **excessive** economic damages downstream **including the City of Calgary**. (Stantec, 2016). P.175

If the damage, losses and human suffering caused by the 2013 flood was considered a tragedy, the magnitude of destruction, losses and suffering that can be inflected by the failure of the SR1 dam, which is proposed to be located just 15 km. away from the city of Calgary, would not be less than a ***"Catastrophic event".***

1.7 December 18, 2020 report DID NOT address the main safety concerns

However, the most recent report of December 18, 2020 in the document titled:

"Comparison of SR1 interim Design Report (2017) and Preliminary Report (2020)"

DID NOT address the main concerns mentioned above, as you can see in the following paragraphs:

Reference: Comparison of SR1 Interim Design Report (2017) and Preliminary Design Report (2020)

This memorandum summarizes the revisions incorporated into the Final Preliminary Design Report (September 25, 2020) relative to the Draft Preliminary Design Report (March 31, 2017), also referred to as the Interim Design Report. The Preliminary Design for SR1 was completed through an iterative process that incorporated multiple rounds of geotechnical data collection, input from the future operator Alberta Environment and Parks and an external review process with the Project Review Board. Evolution of a project's design, including estimated construction costs, is standard as additional data becomes available, stakeholder outreach and regulatory compliance tasks are completed, and reviews from the client and operator are incorporated.

Notable changes from the Interim Design Report to the Final Preliminary Design Report (PDR) are summarized below. Some of these changes were also identified in the Introduction to Alberta Transportation's responses to Round 2 Natural Resources Conservation Board and Alberta Environment and Parks supplemental information requests filed on June 23, 2020.

Geotechnical Exploration and Laboratory Program

- *2017 Interim Design Report:* The report included the results of the initial geotechnical exploration program that took place from March 21 to August 23, 2016 and included 135 boreholes and 20 cone penetration tests (CPTs).
- *2020 Final Preliminary Design Report:* Additional field work was performed over two mobilizations in 2018. This work included an additional 20 boreholes, CPTs and 14 test pits and trenches. This additional work was focused on the Debris Deflection Barrier, Low Level Outlet Works and Off-stream Storage Dam.

The only other technical issues that were mentioned in this report of December 18, 2020:

- Diversion Channel
- Off-stream Storage Dam Embankment[vii]

The reoccurring changes in the outlet channel design including the most recent complete redesign, shortly before the hearing date, does not convey a reasonable degree of assurance to the safety of this project and its components.

Therefore, when the satisfactory geotechnical tests supporting the presence of a suitable location to build a SAFE dam cannot be obtained, THE SR1 PROJECT MUST BE REJECTED.

1.8 The natural question

The natural question that could occur to the mind of the reader is, "Are not all those engineers and designers aware of the risk?"

The answer that has been provided by the officials and managers responsible for the project indicated that this is the best they can do, adding "we can't speculate the future".

Accordingly, and as demonstrated in this submission by the very documents provided by officials and scientists, the question now becomes: Who is willing to bear the awesome responsibility of answering to the residents of Alberta, and for that matter, to the nation, when that dam fails resulting in a catastrophic event that involves environmental destruction, the loss of lives and another billions of dollars?

AT THIS TIME, THERE ARE MORE THAN 1000 PEOPLE HAVE ALREADY SIGNED A PETITION ASKING FOR AN ALTERNATIVE, AND THOUSANDS OF ALBERTANS ACROSS THE PROVINCE HAVE ATTENDED PRESENTATIONS ON THE TRJR OPTION AND REMAIN WAITING FOR THE GOVERNMENT TO CONDUCT A PROPER FEASIBILITY STUDY ON IT).

[i] SIR Consolidation Template (nrcb.ca)

[ii] https://www.nrcb.ca/download_document/2/83/10713/20210203-aep-eia-to-nrcb-re-eia-complete-letter

[iii] https://www.nrcb.ca/download_document/2/83/10670/20210104-agency-eia-to-at-re-draft-ea-report-cover-letter

[iv] http://www.calgary.ca/UEP/Water/Documents/Water-Documents/Flood-Panel-Documents/Expert-Management-Panel-Report-to-Council.PDF

[v] https://iaac-aeic.gc.ca/050/documents/p80123/122347E.pdf

[vi] file:///C:/Users/Emile/AppData/Local/Temp/20171114_AT_EIA-R_to_NRCB_re_draft_Preliminary_Design_Report_dated_20170331.pdf

[vii] https://www.nrcb.ca/download_document/2/83/10662/20201218-at-sir-to-nrcb-re-preliminary-design-report-change-summary-memo