

21 February 2018

Syed Abbas, Director
Water Management Section
Alberta Transportation
2nd fl Twin Atria Building
4999 - 98 Avenue
Edmonton, AB T6B 2X3

SENT BY EMAIL

Dear Mr. Abbas:

**Re: Springbank Off-Stream Reservoir Project – NRCB Application No. 1701
Priority Questions from NRCB**

Attached are a number of priority questions identified by the NRCB from its review of the EIA/NRCB Application material filed to date by Alberta Transportation. As we discussed at our meeting in January, in situations where the NRCB identifies priority questions, it advances those questions to the proponent at the earliest opportunity. The NRCB takes this approach to minimize delays in the overall project review timeline by providing more time to respond to these questions. The NRCB understands that AEP reviewers may have similar or related questions that will appear in the anticipated formal SIR; as a consequence, the attached questions may be modified somewhat in the formal SIR.

The balance of the NRCB questions on the Alberta Transportation NRCB Application/Environmental Impact Assessment will be forwarded in due course to Alberta Environment and Parks for inclusion in the SIR.

For specific inquiries regarding the Priority Questions, please contact Walter Ceroici at 780-422-1950.

Yours sincerely;



Bill Kennedy
General Counsel

Enclosure

cc: Margot Trembath, EA Coordinator, Alberta Environment and Parks (by email)
Mark Svenson, Provincial Transportation Environmental Coordinator, Alberta Transportation
Ronald Kruhlak, Q.C., McLennan Ross
JoAnn Jamieson, McLennan Ross
Shauna Sigurdson, Director: Prairie and Northern Region, CEAA (by email)
Shelly Boss, Project Manager, CEAA (by email)

February 8, 2018
Proposed Springbank Off-stream Reservoir Project
Priority Supplementary Information Requests from the NRCB

Question	Reviewer	TOR # (if applicable)	Is Additional Fieldwork Required?	SIR Category
<p>1. Volume 1, Executive Summary, Section 3.0, Table 3-1, Page 3.3. Volume 1, Section 1.2.2.3, Table 1-3, Page 1.16. In both tables, AT states the <i>Catchment Area</i> for the Springbank Project is 868 km^2 and for the MacLean Creek (MC1) Option is 695 km^2.</p> <p>Volume 1, Executive Summary, Section 2.0, Page 2.1. Volume 1, Section 1.1.1.2, Page 1.4. AT states that the Project <i>can hold 77,771,000 m³ of water as active flood storage.</i></p> <p>Volume 1, Section 1.2.2.2, Page 1.10. AT states that the MC1 Option is <i>designed to withstand the probable maximum flood (PMF) of 2770 m³/s. The maximum reservoir volume, when passing that flood, would be 93 million m³...</i></p> <p>a. Explain the methodology and rationale for concluding that flood protection is greater with a SR1 larger catchment area even though SR1 has a smaller maximum reservoir compared to MC1.</p>	NRCB		No	Please refer to Appendix 5 of the <i>Guide to Reviewing Environmental Impact Assessment</i> for categories (e.g. vegetation, terrain and soils, hydrogeology, EPEA approval, etc.) Project Description
<p>2. Volume 1, Executive Summary, Section 3.0, Table 3-1, Page 3.3. Volume 1, Section 1.2.2.3, Table 1-3, Page 1.16. Under <i>Project Timeline</i>, AT states the Project is <i>Operational in 2020</i> while the MC1 Option is <i>Operational 5.5 years from decision to move forward.</i></p> <p>a. Clarify baseline project timelines for SR1 and MC1 under assumption each project is initiated at the same time.</p>	NRCB		No	Project Description

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<p>3. Volume 4, Supporting Documentation, IBI Report, Section 5.1.4.2, Page 34. Under the heading <i>Flood Defences at Bragg Creek</i>, AT states <i>Detailed design of the dyke system has been estimated at \$32.8 million (previously estimated at \$6 million).</i></p> <p><i>The Province is initiating this solution independent of considerations relating to benefits accruing to MC1 vs SR1. Accordingly, these are considered “sunk costs” and no additional benefits to MC1 or costs to SR1 associated with this standalone alternative have been factored into the benefit/cost analysis.</i></p> <p><i>Given the total value of flood recovery projects associated with the 2013 flood (\$5.6 million) it is suggested that the additional benefits would be nominal in any event and would not impact the benefit/cost ratio significantly.</i></p> <p>Volume 4, Supporting Documentation, IBI Report, Section 6.2.2, Exhibit 6.1, Page 35. AT lists a total cost of \$372 million for SR1, and a total cost of \$406 million for MC1. The difference in these total costs is \$34 million.</p> <p>a. What additional flood mitigation is necessary at Bragg Creek with the MC1 option? b. What are the costs, benefits and benefit/cost ratios for the Project when the costs and benefits of the flood protection dykes at Bragg Creek are included? c. Provide updated results.</p>	NRCB		No	Project Description
<p>4. Volume 4, Supporting Documentation, IBI Report, Section 6.2.3, Page 36. Alberta Transportation states <i>To fairly include this difference in the benefit/cost analysis, the annual benefits (average annual damages averted) begin in 2020 for the SR1 project and in 2023 for the MC1 project. Over the same 100 year period (2018-2118), with the 4% discount rate, the four-year advantage gives SR1 \$74 million in additional present value of benefits compared to MC1.</i></p>	NRCB		No	Project Description

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<p>Under <i>Assumptions regarding timing</i>, Alberta Transportation lists that the annual benefit amounts begin in year 3 for SR1 and year 6 for MC1.</p> <p>a. Explain the contradiction between 4 year differential for annual benefits in the explanatory text compared to the 3 year differential stated in the assumptions. Which year differential was used to calculate the present value of benefits?</p> <p>b. Provide the difference in net present value of costs between SR1 and MC1 given that costs for SR1 are expended in two years and sooner compared to MC1 costs that occur later and spread over a longer period.</p>				
<p>5. Volume 1, Section 3.3.1.3, Page 3.31. Volume 3A, Section 4.3, Page 4.15. Volume 3A, Section 4.4.2.2, Page 4.36</p> <p>In these sections, Alberta Transportation suggests that blasting may be required (for the diversion channel), and that details on the blasting would be submitted by the contractor to Alberta Transportation.</p> <p>Reference Document : Stantec Consulting Ltd. March 31, 2017. Springbank Off-stream Storage Project Interim Design Report, Section 9.2.2, Figure 30, Page 125.</p> <p>This figure shows the diversion channel elevation and length relative to existing grade, proposed channel bottom and top of rock. In this figure, Alberta Transportation shows that approximately half of the diversion channel's bottom will be constructed in bedrock, over four bedrock zones. The approximate bedrock excavation maximum depths across the four zones are 17m, 6m, 6m, and 15m.</p> <p>a. If a blasting plan is employed: i. comment on the noise effects of blasting on receptors, in addition to the noise</p>	NRCB	3.1.2	Unknown	Air Quality, Climate and Noise

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<p>effects already discussed in the EIA, and,</p> <p>ii. comment on the air quality effects of blasting (wet and/or dry, as appropriate) on receptors, in addition to the air quality effects already discussed in the EIA.</p> <p>b. If a blasting plan is not employed:</p> <p>i. comment on the noise effects of the bedrock excavation construction techniques through the depths of these bedrock zones, and,</p> <p>ii. comment on the air quality effects of the bedrock excavation construction techniques through the depths of these bedrock zones.</p>				
<p>6. Volume 3A, Section 8, Report Section 8.2.1.1.</p> <p>Requirements specified in ToR 3.6.1 Baseline Information should be reviewed. The Desktop review provides a general overview of ecology and habitat requirements of fish species expected to occur in the LAA. Information from historical and current studies that characterize fish and fish habitats of the Elbow River within the LAA are not presented. The field survey utilized one sample event, one fish collection method, and one qualitative fish habitat evaluation method. For each survey site habitat quality was rated for fish groups, not for fish species.</p> <p>Baseline information that describes the species composition, distribution, abundance, movements, habitat use, habitat quality, and life history parameters of fish populations currently residing within the LAA are not presented. There is no comprehensive discussion of the ecology of species populations identified as indicator fish species to be used by the effects assessment.</p> <p>a. Based on the review, identify gaps in baseline information that may hinder the ability to evaluate Project effects.</p> <p>b. Identify specific components of the baseline information data gap that that may hinder the ability to evaluate Project effects (e.g., timing and duration of Bull Trout</p>	NRCB		No	Aquatic Ecology

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population movements in the vicinity of the diversion structure, location and size of Mountain Whitefish spawning habitat sites downstream of the diversion structure, distribution of the Rainbow Trout population relative to the location of the diversion structure).				
<p>7. Volume 3A, Section 8, Report Section 8.4.4.2, Page 8.40. AT states <i>During construction, fish passage concerns would be mitigated with passage around the site.</i></p> <p>a. Provide information that demonstrates safe, unhindered upstream and downstream fish passage during operation of the Elbow River diversion channel. The information should indicate whether the diversion channel will operate during the entire period of river diversion and what measures will be applied to provide suitable water velocities and water depths for upstream and downstream passage of each indicator fish species and life stage.</p> <p>b. If there are periods when the diversion channel is not operating and/or effective fish passage cannot be provided by the diversion channel at all flows, identify the duration and timing of hindered fish passage and indicate the indicator fish species and life stage that will be affected.</p> <p>c. If safe, unhindered upstream and downstream fish passage during operation of the Elbow River diversion channel cannot be provided revise the effects assessment of fish passage during construction.</p>	NRCB		No	Aquatic Ecology
<p>8. Volume 3C, Section 1, Report Section 1.1, Page 1.1. AT states <i>The assessment of cumulative effects focuses on the construction and dry operations phases only, Volume 3A. An assessment of cumulative effects for a flood and post-flood operations, Volume 3B, is not considered possible due to the inability to predict when a flood would occur and the identity of other future projects may be occurring at the same time as a flood and that Other projects or activities that have been or will be carried out are identified for inclusion in the cumulative environmental effects assessment, based on their potential for residual environmental effects that</i></p>	NRCB		No	Aquatic Ecology

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<p><i>could interact spatially and temporally with the residual environmental effects of the Project.</i></p> <p>It is unclear why the EIA excludes flood and post-flood operations from the cumulative effects assessment when there appears to be a connection to the operation of an existing downstream facility (i.e., Glenmore Reservoir) and upstream improvements (e.g., at Bragg Creek and Redwood Meadows).</p> <p>a. Justify and provide rationale for excluding Flood and Post-Flood Operation from a Cumulative Effects Assessment.</p> <p>b. Address cumulative effects of Glenmore Dam and Reservoir operation on aquatic ecology.</p>				
<p>9. Volume 3A, Section 6.1.4.1, Page 6.5, Figure 6-1, and Volume 4, Appendix J, 2.1, Page 2.1. AT states that the LAA included the PDA and the Elbow River from Redwood Meadows to the inlet of Glenmore Reservoir (Volume 3A 6.1.4.1), that the LAA extends from the diversion structure... (Appendix J, 2.1), and in Figure 6-1 (which is used again in various sections) it appears it may start below Redwood Meadows (i.e., inlet structure) and that the LAA may include the Glenmore Reservoir.</p> <p>a. Clarify, and justify, the boundaries of the LAA for the hydrology assessment scenarios.</p> <p>b. Update any of the hydrology and surface water quality sections of the EIA affected by the boundaries of the LAA, ensuring the assessments include all areas of the LAA where applicable.</p>	NRCB		No	Hydrology

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<p>10. Volume 3A, 6.1.4.1, Page 6.5, Figure 6-1, and Volume 4, Appendix J, 2.1, Page 2.1 AT states that the RAA is the Elbow River watershed from headwaters to Glenmore Dam (Volume 3A, 6.1.4.1), that the RAA is the Elbow River watershed, including Glenmore Reservoir (Appendix J, 2.1), and Figure 6-1 appears to include the entire watershed, including Glenmore Reservoir and upstream and downstream of Glenmore Reservoir.</p> <p>a. Clarify, and justify, the boundaries of the RAA for the hydrology assessment, including why the Glenmore Reservoir and downstream of the Glenmore Reservoir is, or is not, included in either of the assessment areas given that the goal of the Project is to limit discharge downstream from the Glenmore Reservoir to less than 160 m³/s.</p> <p>b. Provide a description of the hydrology of the Elbow River at Glenmore Reservoir and below Glenmore Dam to the confluence with the Bow River, if determined to be within the RAA, and/or explain why this assessment was not completed.</p> <p>c. Update any of the hydrology and surface water quality sections affected by the boundaries of the RAA, ensuring that the assessments include all areas of the RAA.</p>	NRCB		No	Hydrology
<p>11. Volume 3B, 7.1, Page 7.2 AT acknowledges that [t]he Terms of Reference include a requirement to assess potential and implications of lead, arsenic, cadmium, and mercury methylation.</p> <p>a. Provide an assessment (including quantification) for lead, arsenic, and cadmium (mercury methylation completed), as well as for major ions, nutrients, bacteria, invertebrates, aquatic plants, algae, temperature, and DO for all phases (i.e., flood operation, post-flood operation, construction, and dry-operations) in the Elbow River, within the Project Reservoir (flood and post-flood), and at the Glenmore</p>	NRCB		No	Surface Water Quality

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Reservoir. Identify any potential changes due to storage and release of flood water in the Project reservoir on receptors and relative to applicable guidelines.				