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The Honourable Jonathan Wilkinson MP  
Minister of Environment and Climate Change  
200 Sacré-Coeur Boulevard  
Gatineau QC K1A 0H3

Impact Assessment Agency of Canada  
22nd Floor, Place Bell  
160 Elgin Street  
Ottawa ON K1A 0H3

Dear Minister Wilkinson,

**Re: New information regarding our request for designation of the Castle Project**

I write today to inform you of important biological modelling prepared by the U.S. Geological Survey as a key part of the bilateral B.C.-Montana process to adopt a shared water quality objective for selenium in Lake Kooconusa. This report<sup>1</sup>, which was released only yesterday, is the culmination of five years of work by scientists and experts working on the problem of selenium pollution from the Elk Valley coal mines. It details in-depth selenium bioaccumulation modelling with the aim of finding a scientifically sound selenium limit that will protect the many species of fish found in transboundary Lake Kooconusa, including SARA-listed westslope cutthroat trout.

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<sup>1</sup> U.S.G.S. "Understanding and Documenting the Scientific Basis of Selenium Ecological Protection in Support of Site-Specific Guidelines Development for Lake Kooconusa, Montana, U.S.A., and British Columbia, Canada" (2020), online: <https://pubs.er.usgs.gov/publication/ofr20201098>.

The report concludes that a protective selenium limit<sup>2</sup> should be 1.0ug/L<sup>3</sup>, while B.C.'s limit under the Elk Valley Water Quality Plan is twice that number. Even that 2.0ug/L limit has been exceeded in three of the past six years.

The modelled 1.0ug/L safe limit for selenium lays bare the growing gulf between reassuring statements from B.C. and Teck and the reality of current and predicted future selenium pollution levels and their impact on fish in Lake Koochanusa. In this context, federal assessment of the Castle Project is critical in order to evaluate the Koochanusa selenium limit in the U.S.G.S. report and Teck's ability to meet that limit in both the medium and long terms with the cumulative impacts of existing, permitted and planned coal mining and the Castle Project.

As you are aware, selenium pollution in Lake Koochanusa is a critical concern for the State of Montana, U.S. federal agencies, U.S. Tribes, and many conservation organisations. The potential for significant additional cumulative impacts to fish in Lake Koochanusa and downstream in the Kootenai River is a key reason that you should designate the Castle Project for a federal Impact Assessment. The Castle Project alone has the potential to add enough selenium to Lake Koochanusa to increase the concentration of the pollutant by more than 1ug/L.<sup>4</sup> Teck plans to increase the volume of selenium-leaching waste rock by 75% in the Elk Valley over 20 years through mining that is already permitted at their four operating mines.<sup>5</sup> The addition of the Castle Project could result in long-term selenium levels in Lake Koochanusa of more than five times the safe limit found through the U.S. Geological Survey report.<sup>6</sup> The long-term risk to fish on both sides of the border requires a federal Impact Assessment before the Castle Project may proceed.

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<sup>2</sup> This limit is based on the E.P.A. criterion for fish tissue of 8.5mg/kg, while B.C.'s Water Quality Guideline is 4mg/kg. The U.S.G.S. report indicates (p. 35) that 0.5ug/L would be the selenium limit to meet the lower B.C. limit for selenium in fish tissue.

<sup>3</sup> *Ibid* p. 29. The report indicates that to keep selenium under the E.P.A. fish tissue limit in half of modelled scenarios, the selenium limit in the Lake should be slightly less than 1.0ug/L.

<sup>4</sup> Per Teck Coal Limited, "Elk Valley Water Quality Plan 2019 Implementation Plan Adjustment" (31 July 2019), available online at:

<https://www.teck.com/responsibility/sustainability-topics/water/water-quality-in-the-elk-valley/news-and-publications/>, Annex E, Tables 2-1 through 2-6, the existing Fording River mine is responsible for 50% of the total selenium load. Per Teck's Initial Project Description submitted to B.C. Environmental Assessment Office, p. 5 and p. 40, Castle will produce 350 million metric tonnes of clean coal, while the existing Fording River mine has produced 280 million metric tonnes of clean coal. Assuming similar amounts of waste rock per tonne of clean coal and with a current selenium level in Koochanusa exceeding 2.0ug/L (see note 8), we estimate that Castle would increase seasonal selenium concentrations by more than 1.0ug/L in Lake Koochanusa as it will produce more waste rock than the Fording River mine, which is responsible for 50% of the selenium load to Lake Koochanusa currently.

<sup>5</sup> Relative to 2016 figures given in Teck's Implementation Plan Adjustment, Annex E, Tables 2-1 through 2-7 and Figure 2-2 in the main document of the Implementation Plan Adjustment.

<sup>6</sup> Starting from a current dry year selenium concentration in Lake Koochanusa of more than 2ug/L (see note 8), accounting for lag time to reach peak selenium load from recently dumped waste rock, and assuming a 75% increase in selenium load due to increased waste rock from permitted mines plus the increase due to Castle.

We applaud B.C. and Montana for launching the *Lake Koochanusa Monitoring and Research Working Group* that led to this report, but we are concerned that B.C. is promising much more than Teck can deliver with respect to a shared water quality standard for selenium. B.C. recently wrote to Montana indicating a desire to reach consensus on a water quality limit for selenium in Lake Koochanusa, to be based on the research found in this report<sup>7</sup>. The scale of the problem given past, present and permitted coal mining will make it extremely difficult for the two jurisdictions to reach such a consensus. Montana has made clear their intention to adopt the 1.0ug/L limit found in the report before the end of this year and to put the limit into effect immediately, even if B.C. refuses to act concurrently, while the province has been far less committal with their proposal for “amending the long-term selenium target of 2ug/L”.<sup>8</sup> There is a very significant difference between Montana’s plan to adopt 1.0ug/L as an immediate binding criteria and B.C.’s plan to amend a long-term target, which would not be binding.<sup>9</sup>

With current selenium levels reaching more than double 1.0ug/L<sup>10</sup>, and limited capacity for additional reductions through water treatment in the coming years, Teck is simply not able to reduce selenium concentrations in Lake Koochanusa to 1.0ug/L within any reasonable timeframe, if at all. In fact, Teck’s water quality plan envisions capturing and treating water from streams containing 91% of the total known selenium load by 2037<sup>11</sup>, in order to limit selenium in Lake Koochanusa to approximately 1.75ug/L.<sup>12</sup> Additional water treatment to further reduce selenium would likely not be possible due to the contribution of mine-affected groundwater, non-capturable runoff, and other sources that are not practically treatable. B.C.’s commitment to reaching consensus with Montana on a scientifically sound pollution limit is not likely to survive the reality of existing selenium pollution, let alone additional permitted mining, additional pollution that is already unavoidable from existing waste rock dumps which may not yet be apparent due to the multi-year lag time, and the additional pollution anticipated from the Castle Project and other proposed mines in the Elk Valley.

When Montana adopts the 1.0ug/L selenium standard for Lake Koochanusa based on the U.S.G.S. research and B.C. continues to allow pollution at twice this limit or more across the border, Canada is at significant risk of violating the 1909 *Boundary Waters Treaty*.

Looking to the long-term, even if Teck’s plans for Saturated Rock Fill treatment facilities work as the company hopes, this unproven technology has an unknown lifespan and significant

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<sup>7</sup> Letters between Mark Zacharias, Deputy Minister, BC Ministry of Environment and Climate Change Strategy and Shaun McGrath, Director, Montana Department of Environmental Quality, October 2019.

<sup>8</sup> *Ibid*

<sup>9</sup> The current 2ug/L target is a site performance objective under Teck’s provincial discharge permit, which is not directly enforceable.

<sup>10</sup> Monthly selenium averages in Lake Koochanusa from BC Environmental Monitoring System (EMS ID E300230) show one or more months above an average of 2.0ug/L in 2015, 2018 and 2020.

<sup>11</sup> Elk Valley Water Quality Plan 2019 Implementation Plan Adjustment, Annex E, Table 2-7, p. 24.

<sup>12</sup> However, this estimate appears overly optimistic given recent permit amendment applications for treatment facilities that have requested higher selenium performance targets than the output assumed in Teck’s modelling.

operating and capital costs.<sup>13</sup> It is not reasonable to assume water treatment will continue to operate for the lifetime of the selenium-leaching problem, which is not well-characterized, but expected to last for many centuries. As noted above, if currently permitted mining and the Castle Project proceed, long-term selenium levels, once water treatment ends, could reach more than five times 1.0ug/L established as the maximum safe level in Lake Kootenai.

We also note the concerns indicated in the U.S.G.S. report about the impacts of selenium on endangered white sturgeon downstream in the Kootenai River. White sturgeon are the most toxicologically sensitive species to selenium according to the US E.P.A.<sup>14</sup> Significant increases in long-term selenium levels in the Kootenai/Kootenay River downstream of Lake Kootenai could have devastating impacts on this SARA-listed endangered population<sup>15</sup>, which is already struggling to survive.

We urge you to consider these recent developments alongside the many reasons given in the designation requests from both sides of the border in making your decision on the need for an Impact Assessment of the Castle Project.

Sincerely,

Lars Sander-Green  
Mining Coordinator  
Wildsight

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<sup>13</sup> Teck Resources Limited, “2019 Annual Report” (26 February 2020) online: <https://www.teck.com/media/2019-Annual-Report.pdf>, p. 12-13. This report estimates long-term operating costs at \$72 million annually with capital costs for 2014-2024 exceeding \$1 billion.

<sup>14</sup> p. 10 and p. 35.

<sup>15</sup> The Canadian portion of the Kootenay River downstream of the U.S. border and its delta are designated as critical habitat in the Recovery Strategy for White Sturgeon (p. 126).