International Joint Commission
Canada and United States

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June 20, 2018

Ms. Cynthia Kierscht
Director, Office of Canadian Affairs
Room 3918
U.S. State Department
2201 C. St. NW
Washington DC 20520

Dear Ms. Kierscht,

We write to you with regret that the U.S. and Canadian Commissioners have not been able to reach consensus on the report entitled: *A Review of Human Health Impacts of Selenium in Aquatic Systems* that was prepared by our Health Professionals Advisory Board. Our Canadian colleagues prefer an earlier version of the report that is weak on addressing the recently defined impacts of selenium in the Elk River-Lake Koocanusa-Kootenai River watersheds. The issue is far more significant as it relates to the foundation of the 1909 Boundary Waters Treaty and Article IV which states, "… *boundary waters and waters flowing across the boundary shall not be polluted to the injury of health or property of the other"*.

Specifically, U.S. Commissioners are very concerned about long–term impacts of selenium pollution in the Elk-Kootenai watersheds caused by leaching of mountain valleys filled with waste materials from existing and expanding mountaintop coal mines. In addition to documented short-term impacts, it is well understood that high concentrations of selenium will have long lasting impacts on water quality, fish, other aquatics species, wildlife and human health in southeast BC and northwestern Montana communities. These impacts could become permanent. Besides selenium, other significant pollutants from the exposed waste rock include nitrates (nitrate-N), sulfates, and cadmium.

This issue is not new to the IJC. In its 1985 Flathead reference letter to the IJC on assessing the impacts of the proposed Sage Creek metallurgic coal mine, the governments invoked Article IV of the Treaty as the foundation for the assessment. The reference requested the IJC to assess the potential impacts to water quality, water quantity, biological resources and recreation economies from the proposed coal mine that would have been located 6 miles north of the international boundary in the upper Flathead River watershed (called the North Fork of the Flathead in the U.S.).

The proposed Sage Creek coal mine site would have surrounded two tributaries very near their confluence with the Flathead River. Based on results from the impact assessment carried out by over 50 binational scientists, the IJC, referring to Article IV as requested by governments, recommended against approving the proposed coal mine until the mine impacts could be mitigated to the satisfaction of both the U.S. and Canadian governments. British Columbia and the Canadian federal government did not accept the 1988 IJC recommendation. The province knows that mining impacts cannot be mitigated to satisfy Article IV of the Boundary Waters Treaty, and, for this reason, British Columbia does not want the Parties to refer mining issues to the IJC for resolution.

One weakness of the December 1988 binational Flathead assessment was the lack of selenium data. The Sage Creek coal mine assessment was to be based on the existing selenium and other mine pollutants from the Elk River coal mines that had been in operation since the 1950s. However, no selenium data were made available for the assessment, and, therefore, the IJC could not determine the potential selenium impacts. These five Elk River coal mines produce coking or metallurgic coal that is exported overseas, primarily to Asia for steel production.

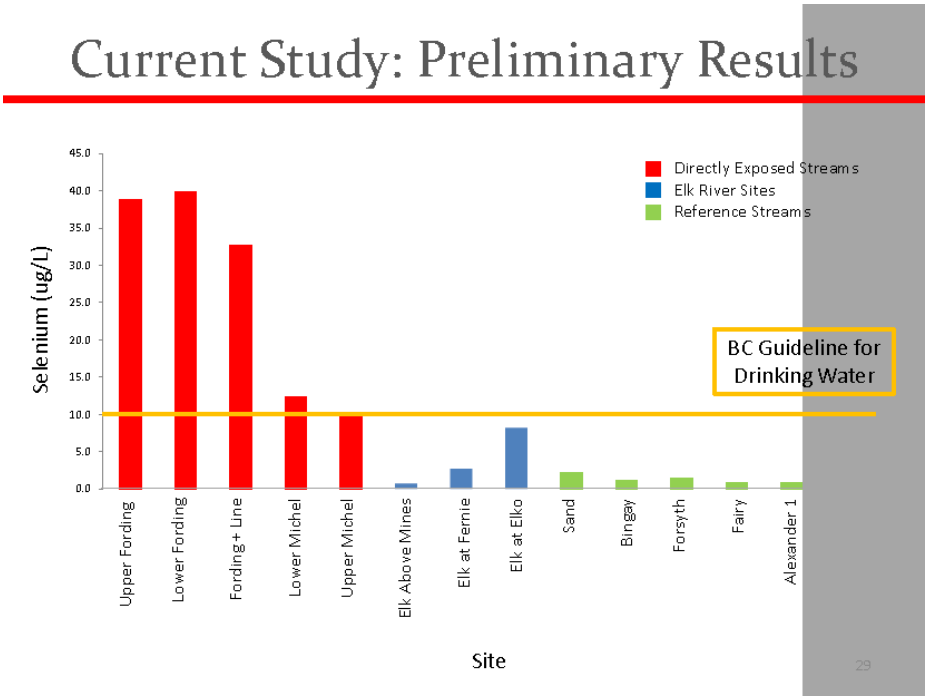
With more extensive selenium data becoming available, U.S. Commissioners had hoped that a new report would, in part, contribute to fulfilling the original intent of the 1985 Flathead Reference. Therefore in 2012, U.S. Commissioners requested, and Canadian Commissioners supported, the IJC's Health Professionals Advisory Board (HPAB) to prepare a study of selenium impacts on human health. Unfortunately, after six years of effort by HAPB members, contractors and staff, the Commissioners have not been able to achieve a majority or consensus decision on a selenium report. Canadian Commissioners have not been willing to submit a report that addresses selenium pollution in transboundary waters of the Kootenai River drainage. Whereas, U.S. Commissioners have been unwilling to endorse a report that lacks accurate and available information relevant to health impacts in the transboundary Elk/Koocanusa watersheds from the Teck coal mines. The U.S. Commissioners have wanted to include the most recent data from the mining company Teck Resources (previously Teck Cominco) and Environment and Climate Change Canada.

The more recent and attached report *A Review of Human health Impacts of Selenium in Aquatic Systems*, (with a front cover picture of the Elk River) which Canadian commissioners have been unwilling to endorse, cites more recent screening assessment from Environment and Climate Change Canada and Health Canada. It shows that exceedances of a health-based screening value, based on the Institute of Medicine Tolerable Upper Intake Level (Table 1 in attached report), were found for high fish consumption (subsistence fishers including First Nations people) around point sources of selenium such as mines, smelting and refining facilities. The same assessment further described the Elk River basin as an area where such exceedances were a risk.

Today, selenium is a significant environmental and human health concern in the Elk/Koocanusa drainage in both countries. As figure 1 below shows (Preliminary data from Environment and Climate Change Canada, and Teck Coal), selenium concentrations are already 4 times higher than BC's own drinking water guideline in the Fording River and Line Creek. Yet, BC still

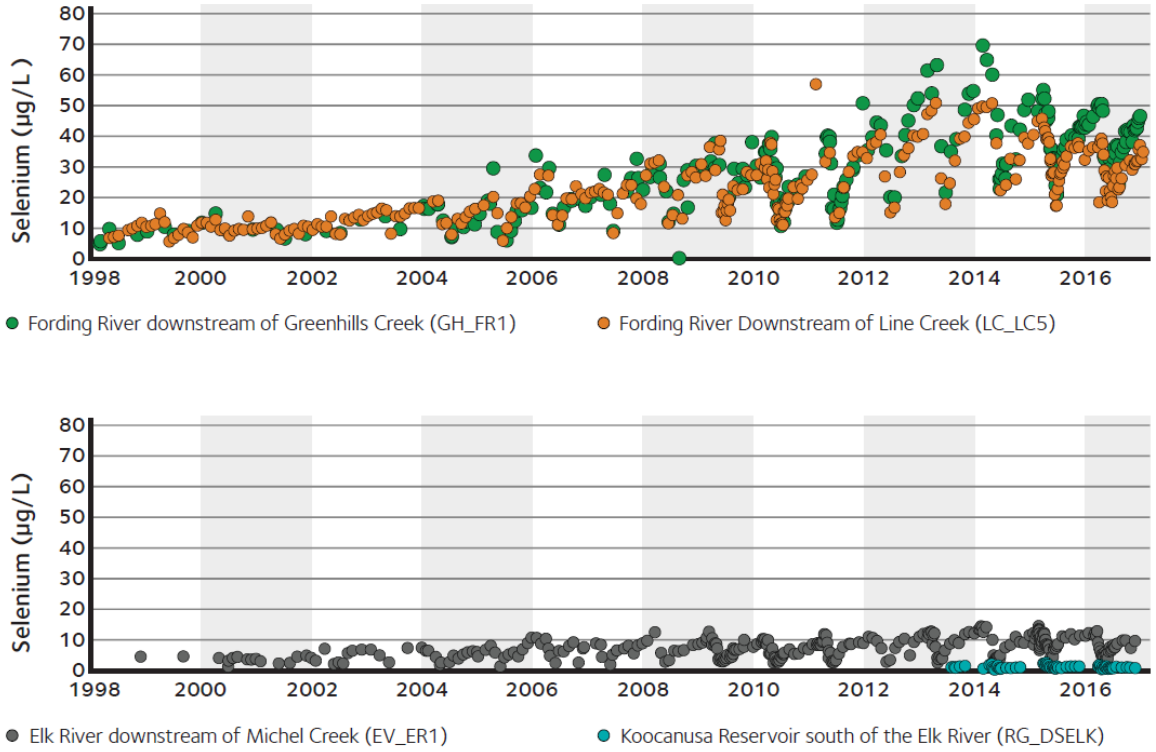
issued mine expansions to a number of Teck's existing mines. Recently, one of the three municipal water supply wells in Sparwood (where many of the mine workers live) was contaminated by selenium and had to be shut down. A number of domestic water supply wells have also registered high selenium levels. Ground contamination with selenium will only get worse, as the zone of influence by leaching selenium through mine spoils is very expansive and will last for centuries in the Elk River watershed.

Figure 1



According to data collected and published by Teck, selenium concentrations have progressively increased and are now 70 times higher in the Elk and Fording Rivers as compared to the Flathead and are projected to continually rise as mines expand (Figure 2). In response to this increase in selenium, Teck proposed to build a number of wastewater treatment plants to reduce the selenium load to the Elk River and its tributaries, as shown in Figure 3 (provided by Teck). The figure shows that after the wastewater treat plants are built, the selenium concentration will decrease drastically. From their own data (Figure 3), is apparent that Teck is relying entirely on active wastewater treatment to address what is an otherwise an increasing trend in selenium leaching into the Elk and Fording rivers.

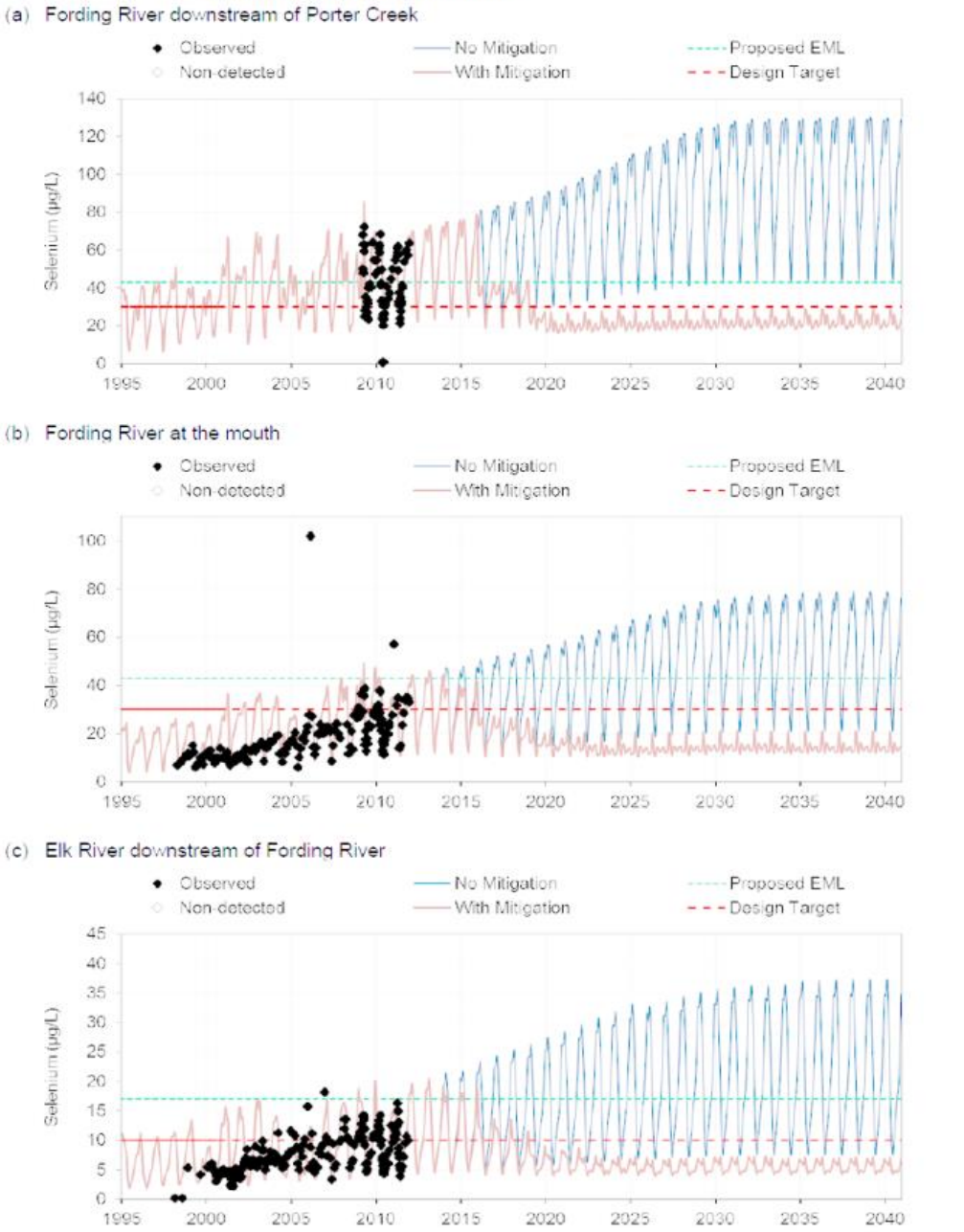
Figure 2



Despite Teck's and BC's commitment to reduce selenium concentrations in 2014 (Minister Order No. M113), there have been serious setbacks over the past 3 years. There have been fish kills in Line Creek (2014) and numerous delays in the plan to construct the active wastewater treatment plants in the affected watersheds. As noted in figure 3 (next page), Teck has projected that selenium levels would continue to rise without proper treatment to remove selenium. However, it is now reasonably clear that Teck will have difficulty meeting its commitments in the Elk Valley Water Quality Plan. In the fall of 2017 Teck had to shut down its only active wastewater treatment plant on Line Creek because the plant was releasing a much more toxic and bioavailable form of selenium resulting in increased harm to water quality and fish. Selenium will continue to pollute the Elk and Kootenai transboundary waters for hundreds of years if no viable solution is found. There is a question as to whether the technology even exists to remove selenium from large volumes of flowing water and there is no viable solution to remove selenium from groundwater.

Figure 3

Figure 3-1 Historical and Projected Selenium Concentrations at Key Locations in the Elk Valley



In addition to the impact to human water supplies, the impacts to the aquatic environment are also significant. High selenium concentrations are resulting in deformities and reproductive failure in trout and increasing fish mortality of up to 50% in some portions of the Elk and Fording watersheds. It is also established that mine pollutants are poisoning and killing off the more sensitive species of macro-invertebrates downstream of the mines. Figure 4 shows the increase in selenium concentrations found in macro-invertebrates downstream of its Line Creek Treatment plant before and after treatment. Rather than improving the river's macro-invertebrate communities, the treatment facility may have made it worse.

Figure 4

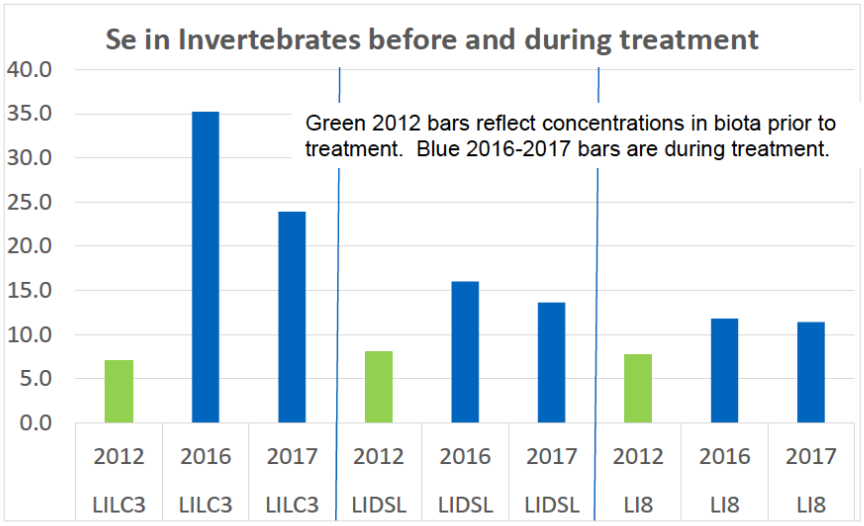


Figure 1. Selenium concentrations in benthic invertebrates in Line Creek downstream of the West Line Creek Active Water Treatment Facility discharge. Note: LILC3 is located just downstream of the discharge, LIDSL is located downstream of South Line Creek and LI8 is located near the mouth (see Figure 2).

State of Montana data from 2008 and 2013 show that selenium concentrations have increased between 21-70% in a cross section of fish species found in Lake Koocanusa - a transboundary reservoir. In May 2018, Teck notified the US EPA, MT DEQ and BC Ministries and the transboundary Ktunaxa Nation that selenium levels in Koocanusa Reservoir reached 2.6 ug/L. This number exceeds their permitted water quality target for that site (2.0 ug/L), and the new EPA standard of 1.5 ug/L, for protection of aquatic life.

The on-going leaching of mining contaminants including selenium into an international river basin is a liability to Canada and the U.S. The U.S. Commissioners firmly agree with the 2016 BC Auditor General's assessment that BC's negligence to address the mining impacts puts Canada at risk of violating Article IV of the Boundary Waters Treaty of 1909.

We hope the attached report and this correspondence will be helpful to you in your discussions with Global Affairs Canada on way to protect the health of humans and aquatic ecosystems from toxic contaminates in the transboundary Elk River-Kootenai watersheds.

Sincerely,

Lana Pollack
Chair, U.S. Section

Rich Moy
Commissioner, U.S. Section