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Ktunaxa Submission on the Readiness Decision Recommendation for the Fording River Extension Project

August 11, 2022





Photo 1 (top): High elevation grasslands on Turnbull Mountain facing Fording River Operations
Photo 2 (bottom): High elevation grasslands on Castle Mountain

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This document provides the Environmental Assessment Office (EAO) and the Chief Executive Assessment Officer (CEAO) with the Ktunaxa perspective on the appropriate pathway forward under section 16 of the *Environmental Assessment Act* (2018) (the Act) for the Readiness Decision regarding Teck's Fording River Extension Project (the FRX Project or the Project). Ktunaxa believe that enough is known about the adverse effects the FRX Project will have on the environment, Ktunaxa First Nations and Ktunaxa rights to conclude that the Project will cause extraordinarily adverse effects (EAE). Ktunaxa accordingly support a recommendation to the Minister that the environmental assessment (EA) for the FRX Project be terminated pursuant to section 17 of the Act.

This information is provided in the interest of seeking to build understanding and, ideally, consensus between Ktunaxa and the EAO on the Readiness Decision. Ktunaxa expect that the EAO will continue to engage in the dispute resolution (DR) process, as contemplated by the Engagement Protocol, in order to better understand the Ktunaxa perspective and seek points of consensus.

A. Summary of Ktunaxa perspective

Ktunaxa firmly believe that there is sufficient reliable, readily available information from which to conclude that the FRX Project will cause extraordinarily adverse effects. This information, which is detailed below and in the appendices to this document, demonstrates the following:

1) **The FRX Project is the largest coal mine project ever proposed within the Elk Valley and is situated in the most impacted area of the region.** FRX has the largest footprint, strip ratio, total waste rock volume, life of mine and total and annual production in comparison to existing or proposed coal mine projects in the Elk Valley. It is also located in the Upper Fording, which is identified by the Elk Valley Cumulative Effects Management Framework (EV CEMF) as the "highest hazard" area within the region.
2) **The FRX Project will cause unmitigable, significant adverse effects to Ktunaxa First Nations, Ktunaxa cultural practices and stewardship authority, and Ktunaxa rights as recognized and affirmed by section 35 of the *Constitution Act, 1982*.** Ktunaxa leadership, and specifically Yaq̓it ʔa·knuqƛi 'it First Nation, have been clear that Ktunaxa stewardship values are not being protected in the Elk Valley. Recent provincially approved EAs in the Fording River watershed, including the Line Creek Operations Phase II (2013) and Fording River Operation Swift Project (FRO Swift; 2015), confirm that Ktunaxa rights and interests, including knowledge and use, have already been severely impacted by mining in the area. Ktunaxa use and occupancy mapping from 2014 shows that the remaining, relatively intact high elevation slopes and ridges that would be impacted by the Project are uniquely important to Ktunaxa cultural practice in the area, including use of trails, preferred habitation areas, and preferred harvesting areas in one of the only intact drainages in the region where Ktunaxa can still follow the footsteps of their ancestors. The FRX project is located in one of the last corridors between the industrial operations of Fording River Operations, Line Creek Operations Phase 2, and

Greenhills Operations. Ktunaxa cultural rights, including knowledge transmission and stewardship, have already been displaced by more than 50 years (two generations) of mining in the Upper Fording and resulting impacts to Ktunaxa rights and cultural practice, particularly as exercised by Yaq̓it ʔa·knuqƚi ‘it, are already high magnitude and permanent. The Project will expand the area of displacement and extend operations by another 50 years to more than four generations, meaning that the chain of Ktunaxa knowledge transmission regarding the area could be severed entirely. Efforts to mitigate impacts to Ktunaxa rights, including knowledge and use, are partial and have had limited success. Teck has not demonstrated an ability to manage its mining impacts or successfully restore mine areas in a timely manner to a self-sustaining and ecologically and culturally functional condition. As a result, the majority of Project impacts to Ktunaxa rights and interests, in particular as they relate to Yaq̓it ʔa·knuqƚi ‘it, must be considered permanent and not mitigable. The FRX Project will significantly worsen existing negative impacts that Yaq̓it ʔa·knuqƚi ‘it has already been facing for many years.

3) **The FRX Project will cause very significant adverse effects to numerous valued components that cannot be effectively mitigated or offset.** These effects include:
    a. *Endangered high elevation grasslands and ridges that depend on specific climatic, slope, and soil conditions that cannot be reliably restored to a self-sustaining ecologically and culturally effective condition after disturbance*. Even if success at culturally and ecologically effective restoration of high elevation grasslands can be demonstrated, the Detailed Project Description (DPD) makes clear that the time lag between disturbance and restoration (more than 50 years) would result in high magnitude and permanent impacts to regionally important habitat and movement corridors, particularly for kwi‡q‡i (Rocky Mountain bighorn sheep), as well as associated Ktunaxa knowledge and cultural practice. Given the unique location of Castle mountain, its important ecological and cultural role, and the rarity of similar large areas of intact high elevation grassland in the region, Ktunaxa do not consider like-for-like offsets providing adequate additionality to be possible.
    b. *Impacts to water quality, aquatic habitat and unique fish populations in the Upper Fording River, Chauncey Creek and downstream to the Elk and Kootenay Rivers.* FRO is currently, by a wide margin, the largest selenium polluter to water in Canada. The Project would extend the life of this mine for another 50 years. Extremely high levels of contaminants, including selenium, nitrate and other pollutants leaching from mining waste rock, already enter the Fording and Elk Rivers. These contaminants result in regular exceedances of provincial drinking water guidelines, water quality limits and objectives and aquatic health benchmarks and resulted in the largest *Fisheries Act* fine in Canadian history. Teck’s water treatment program to date only removes approximately 5-10% of the annual load of selenium and nitrate released by the mine sites. Habitat destruction due to mining contributed to a recent population collapse of listed westslope cutthroat trout in the Upper Fording. High levels of contaminants extend more than 100km downstream to the Koocanusa Reservoir (and are even

detectable 300 km downstream to Creston), displacing Ktunaxa fishing and water use, impacting Ktunaxa communities and rights in the United States, and challenging Canada's international obligations. The Project will substantially increase (by about 25%) the total amount of permitted waste rock (Elk Valley wide), making this already extraordinary situation worse. Based on the DPD, the Project will place a large portion of waste rock within the Kilmarnock watershed and contribute more load to the unconfined Kilmarnock groundwater aquifer, which is currently a load source to the Fording River. Offsetting impacts to fish habitat is not considered feasible due to the already significant loss of fish habitat in the upper Fording River from current and legacy mine development and the lack of like-for-like opportunities. Based on the DPD, Project impacts would impact Chauncey Creek, one of two remaining unimpacted tributaries in the Upper Fording River that has been identified as high priority for protection by government and industry scientists. FRX will reduce the catchment area of Chauncey Creek drainage, reducing flow and introducing fly rock and other impacts into a relatively unimpacted drainage that is critical for westslope cutthroat trout recovery.

4) **Teck has not demonstrated the capacity or willingness to accurately predict, control, manage and mitigate the adverse effects of coal mining in the Elk Valley through meeting their legal requirements.** The EAO's evaluation of the likelihood of the FRX Project causing EAE must take into account Teck's record in assessing, mitigating and reducing the adverse effects of its current operations and meeting their legal requirements. Ktunaxa's experience with past EAs (in particular the Dry Creek LCO EA) is that Teck's predictive modeling fails to accurately predict the timing, intensity and scope of adverse effects, particularly to the aquatic environment. Teck also has a record of failing to achieve existing permitting conditions, regulatory standards and reclamation that restores ecosystems to their natural state. In addition, Teck has failed to adaptively manage their impacts and the Province has not been able to successfully enforce EAC or permit conditions intended to mitigate impacts to Ktunaxa and the environment. This has resulted in the environmental conditions of the Elk Valley continuing to deteriorate, despite years of research and monitoring. Ktunaxa accordingly do not have confidence in Teck's ability to adequately mitigate the FRX Project's effects.

Ktunaxa emphasize the unique circumstances of the FRX Project. It is a massive mine expansion that far exceeds the footprint and lifespan of other coal mines, situated in the most heavily impacted mining region in BC. Ktunaxa, the EAO and the Province have over a decade of experience in working to manage and reduce the existing cumulative effects of Teck's operations. This experience includes repeated failures of the EA process to properly characterize the scope, intensity and timeframe of adverse effects; Teck's failure to implement promised water treatment technologies that were incorporated into environmental assessment certificate (EAC) conditions; multiple and continuing instances of regulatory non-compliance;

and the continued deterioration of the aquatic and terrestrial habitat upon which the practice of Ktunaxa culture and rights depends.

Given this experience, the unique setting of the Elk Valley, and the scale and timespan of the FRX Project, the EAO is in a position to conclude that the FRX Project as proposed in the DPD will cause extraordinarily adverse effects to the environment, Ktunaxa First Nations and Ktunaxa rights. ***The Readiness Decision report should accordingly recommend to the Minister that the EA be terminated.***

B. The Ktunaxa understanding of section 16(2)(c)(i) and EAE

A detailed explanation of Ktunaxa's understanding of the purpose of section 16(2)(c)(i) and the EAO's responsibility in evaluating the FRX Project for extraordinarily adverse effects is contained in Appendix 1. Ktunaxa believe that the parties are closer to a shared understanding of the factors that inform an EAE evaluation then we were at the start of the DR process. In our first meetings, the EAO expressed a limited understanding of its task under section 16(2)(c)(i). The EAO expressed that the information it considered was limited to the DPD, and at the DR sessions on July 7 and 8 the EAO articulated the "test" under section 16(2)(c)(i) as limited to the three factors listed at page 8 of the Readiness Decision Policy. Since those meetings, the EAO provided further clarity on its approach to the EAE evaluation in Mr. Shepherd's letter dated July 20, 2022. That letter advised that the EAO is open to considering relevant information that is in addition to the DPD. The letter identified three further factors that the CEAO may consider:

- Whether the CEAO is of the view that there is no value in carrying out an EA because the Project will clearly have unmitigable adverse effects, such that the CEAO is satisfied they would likely recommend that no EA Certificate be issued for the project if the project proceeds through environmental assessment to a decision under Section 29.
- How extreme the effects are generally, or on a specific Indigenous nation or its constitutionally protected rights, as compared to other projects of a similar type and size.
- How extreme cumulative effects are generally as evidenced by existing conditions which impact an Indigenous nation or its constitutionally protected rights.

Mr. Shepherd also stated that the EAO's evaluation of extraordinarily adverse effects must be focused on effects that are unmitigable.

There are several points of alignment between Mr. Shepherd's letter and the Ktunaxa perspective. Ktunaxa believe that the EAO is required to consider relevant, reliable and available information beyond the DPD, for several reasons. The DPD does not contain any information on effects assessment, thus making it difficult (if not impossible) for the EAO to conduct a reasoned evaluation of the Project's potential for EAE. Section 2 of the Act also requires the EAO to consider best available information in decision-making. Finally, the EAO

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specifically sought input from the Technical Advisory Committee on the Readiness Decision, and received highly relevant substantive input from both Provincial Agencies and Indigenous Nations. It would be inconsistent with section 2 for the EAO to disregard that information simply because it is not in the DPD.

Ktunaxa also see points of similarity in our respective approaches to evaluating EAE. We agree that the intensity of effects on the environment and Indigenous Nations must be considered, and that comparing the FRX Project to other similar projects is a good measure of whether those effects are "extraordinary" (see section C below). Ktunaxa also agree that cumulative effects must be taken into account, particularly in the unique context of the Elk Valley.

We take a slightly different view on the requirement that an adverse effect must be unmitigable in order to qualify as EAE. To the extent this means that a significant adverse effect that is known to be unmitigable qualifies as an extraordinarily adverse effect, we agree. As noted below, the technical reviewer from the Minister of Lands, Water and Resource Stewardship confirms that this is in fact the case for high elevation grasslands. However, Ktunaxa are concerned that the EAO's assessment of the potential mitigation of significant adverse effects must be based on science, data and sound technical assessment, not assumptions. To date, the EAO has not shared any information with Ktunaxa regarding the particular adverse effects it considered when evaluating the FRX Project for EAE, or the specific mitigation measures the EAO may have relied on in concluding that those effects can be managed to below a level of extraordinary. A reasoned analysis of both points is required in order to support a valid exercise of the EAO's decision-making power under section 16.

Based on the foregoing, Ktunaxa believe that a meaningful evaluation under section 16(2)(c)(i) of the potential for the FRX Project to cause extraordinarily adverse effects should address the following factors (see Appendix 1 for further details in support of this approach):

- The scale, footprint, lifespan and waste rock production volumes of the FRX Project as compared to other coal mines in the region.
- The additive effect of adverse impacts from the FRX Project to existing cumulative effects within the region.
- The likelihood of the FRX Project causing significant, multi-generational impacts to Ktunaxa First Nations, including Ktunaxa culture, knowledge transmission, stewardship practices and authority and rights.
- The likelihood of the FRX Project causing significant, multi-generational impacts to the environment that are non-mitigable or impossible to mitigate within the Project's operational lifespan.
- Evidence of Teck's failure to implement previous mitigation measures, or failure to implement such measures in a timely manner that achieves their intended mitigation objectives, as well as Teck's record of non-compliance under the *Environmental Management Act* and *Fisheries Act*.

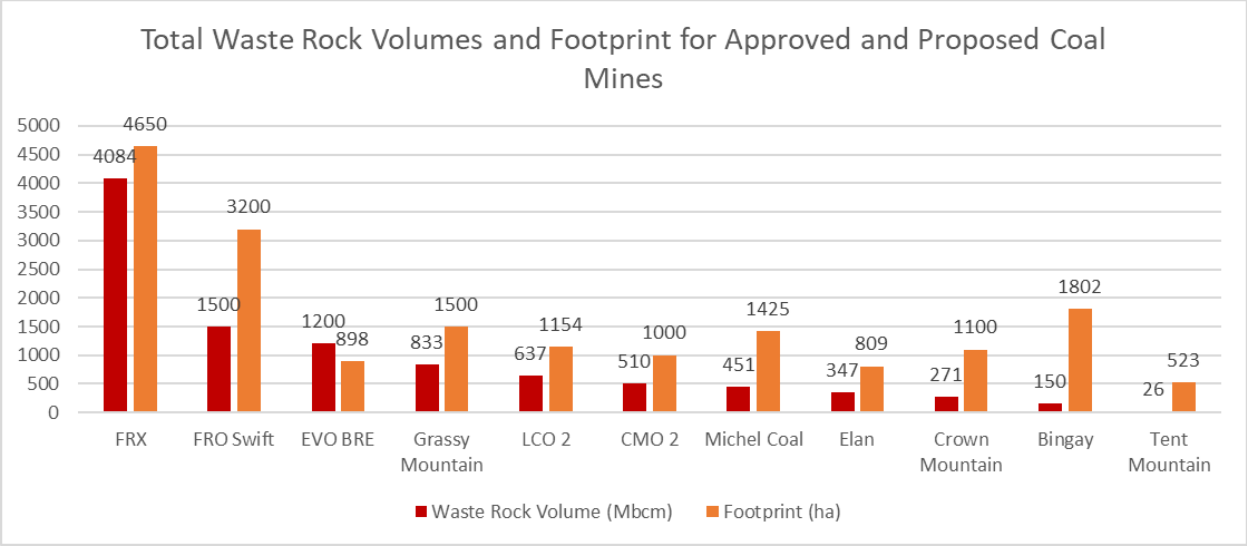
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- The extent to which the FRX Project is consistent with the EAO's obligation under section 2(2)(ii) to support reconciliation with Ktunaxa by, among other things, supporting the implementation of the *UN Declaration on the Rights of Indigenous Peoples* and recognizing and respecting Ktunaxa jurisdiction.
- The extent to which the FRX Project is consistent with the EAO's obligation under section 2(2)(i) to promote sustainability by protecting the environment and fostering a sound economy.

An evaluation of these factors does not require an EA. The DPD and existing information derived from previous project EAs and ongoing cumulative effects mitigation programs (which is cited below and in the attached Appendices) is sufficient to reliably characterize the FRX Project's likelihood of causing EAE. Ktunaxa believe that, based on that information, a consideration of each of the factors listed above supports the conclusion that the FRX Project will cause EAE and should accordingly be terminated from the EA process.

C. The FRX Project is extraordinary as compared to similar projects

As noted above, one important consideration in evaluating EAE is how the FRX Project compares to other similar projects. A detailed analysis of FRX's comparative size (footprint), lifespan, total and annual production, strip-ratio and total waste rock volumes is contained in Appendix 2. In summary, FRX is far and away the biggest mining project with the largest footprint and lifespan in or near the Elk Valley. As illustrated by the following table, FRX will have a much larger footprint and total waste rock volume than any other mine that is currently operating or proposed in the region. FRX's footprint dwarfs all other mines. For example, it is 2,848 ha larger than the Bingay Project, and a massive 4,127 ha larger than Tent Mountain project.



Waste rock production is a key indicator of environmental impact due to the leaching of pollutants, including selenium, into the aquatic environment. FRX will produce a total of 4,084 Mbcm of waste rock over its lifespan, which is 2.7 times more than the FRO Swift project and 157 times more than the proposed Tent Mountain project. These numbers indicate that FRX Project will, by itself, produce more waste rock than all of the recently approved EAs in the Elk Valley (LCO Phase II, FRO Swift and EVO BRE), and a waste rock volume that is comparable to all of the waste rock deposited in the Elk Valley prior to the coming into effect of the Elk Valley Water Quality Plan (EVWQP).

Project lifespan is another key consideration. FRX is projected to operate for 50 years. Fording Swift, in contrast, has half that projected lifespan, and Crown Mountain is projected to operate for only 16 years. The lifespan of the FRX Project means that the landscape it consumes will not be restored within the next two generations, if such restoration is even possible, and the aquatic impacts from the Project will be felt for decades if not centuries.

By any measure, the FRX Project is "extraordinary" as compared to similar projects in and near the Elk Valley region.

D. The FRX Project will cause extraordinarily adverse effects to Ktunaxa First Nations and Ktunaxa Rights

The EAO has advised that, as part of this DR process, it will consider information from Ktunaxa on the adverse impacts to Ktunaxa and Ktunaxa rights from the FRX Project. Given the tight timeframes for this process and the small capacity funding provided by the EAO, our ability to gather that information has been limited. What is shared here is therefore only a partial picture of the impacts the Project will have to Ktunaxa and Ktunaxa rights. Despite those constraints, Ktunaxa leadership and knowledge holders confirm that the FRX Project will have significant, unmitigable impacts to Ktunaxa cultural values – including stewardship authority and traditions, language and cultural transmission - and rights in the Upper Fording area.

At our meeting of July 7 – 8, 2022 Nasuʔkin Gravelle of Yaq̓it ʔa·knuqƚi 'it provided opening remarks framing the ability to protect and maintain relationships with the land, water, and animals as a fundamental right, responsibility and sacred Ktunaxa covenant or law, referred to in Ktunaxa as ʔa·kxaʔmis q̓api qapsin – all living things.

> It's our covenant with the Creator to ensure that we protect and preserve as much as possible and begin that reconciliation process with the land, at the grass roots, as a process on the ground… We know, and we're committed to do right by the land. That's our covenant. That's why we exist.

Yaq̓it ʔa·knuqƚi 'it is located immediately downstream of the Elk River's confluence with the Kootenay River. Nasuʔkin Gravelle highlighted the special importance of the Elk Valley and Qukin ʔamakʔis to Yaq̓it ʔa·knuqƚi 'it, and the importance of seeing demonstrated action and

positive change to address impacts. She highlighted the opportunity that dispute resolution holds, and the kinds of impacts Yaq̓it ʔa·knuqƛi ‘it faces already as a result of industrial mining in the Elk Valley.

> … we want to keep an optimistic viewpoint that this [dispute resolution] is the right step forward, that this is something different that can have positive outcomes in the favour of the land and water and ecosystem…Words on paper, for Indigenous people, mean nothing. We are action people. Our entire livelihood and survival is from action. We have the opportunity here for real, transformative action. That’s why we are here today and committed to this process. But it can’t just be paper. …There are ways of doing things that keep the next 50 years, the next generations, at the forefront, but that’s not how things have been done in the past, not at all…We know we can’t drink out of our rivers because of the mines. We can’t do activities, like fishing in the Elk River, that we did as children, because we know we can’t eat it. We can’t do those activities with our children and grandchildren. Our way of life, our cultural practices, our survival, is impacted on a daily basis…My grandmother – she just passed away a year ago at 98. She took a trip up to the mountains and the Elk Valley was unrecognizable to her. When we take our elders to the mine sites, it is complete and utter devastation to them. It is unrecognizable and traumatizing. Traumatizing to the core.

Regarding the existence of extraordinarily adverse effects in the Elk Valley, Nasuʔkin Gravelle was very clear, inviting BC decision makers to visit and see for themselves the extraordinarily adverse effects of coal mines in the upper Fording:

> The change in the ecosystems we have experienced in the Elk Valley are extraordinary, insurmountable, and farther than that… Whatever the maximum level word is, for massive detrimental impacts, that’s what it is.
>
> You don’t have to be an expert. Go see for yourself, talk to our people. You would have to be a monster to not see it… It affects our social wellbeing, mental wellbeing, spiritual wellbeing, physical wellbeing. Ultimately, as decision makers, we need to play a major role, not be a backdrop or a side note. It needs to be meaningful.

Nasuʔkin Gravelle’s words are echoed in past Ktunaxa submissions and by other land users and knowledge holders from Yaq̓it ʔa·knuqƛi ‘it. The 2015 Ktunaxa Nation Community Report includes a powerful statement of the Ktunaxa relationship to the land:

> My understanding of water and land is that water is the blood of the land. The hills, the mountains, the valley bottoms, it’s all living, even stone and water and air. So when it comes to strip mining, it’s like taking a knife and cutting my arm. And it bleeds... That mountain range that people call Rocky Mountains is a being … his head is down at the south and his feet are up north, and it’s a being. When people are digging into it, think

> of yourself lying there and people picking into your body. The water to me is a living being unto itself, whether it's vapour, surface, falling from the sky, or underground.

In preparation for this submission, one land user with extensive water monitoring experience compared his experience in a relatively unimpacted valley, the Flathead, to his experience in the Elk Valley. In his experience, impacts and mitigations on the Elk River have resulted in the Elk River being treated more like a 'sewer system' than a river, with collection points, treatment points, and exceptionally high levels of contaminants being permitted in order to allow mining to continue.

Kyle Shottanana, an elected councillor for Yaq̓it ʔa·knuqƛi 'it, echoed Nasuʔkin Gravelle's comments, highlighting the permanent impacts the Project would have on the Ktunaxa relationship with the upper Fording and Elk Rivers for his children and grandchildren:

> We keep going to Teck, over and over, from a leadership standpoint, telling them… the levels of toxins that are in that river are way too high and they need to be addressed before anything else can be done. Chief Heidi talks about reconciliation with the land. [A] big part of reconciliation is healing. And a big part of healing is time… from a Ktunaxa perspective, how we would manage the land is that we will give that land time to rest so that it would rejuvenate itself, and heal itself, build itself back up. But would you look and see what Teck is doing in the Fording River and their attempts at an expansion? It's not an expansion - it's a whole other mine that has a life expectancy of another 50 years, which will outlast any of the other mines that are coming in. In order for that land to heal [from existing impacts] they'd have to stop now, and it would take probably, at a minimum, 200 years for that land to heal… That's not only me, my kids, or my kids' kids - that's how many generations? Those generations will not have a chance to experience that land the way that our ancestors experienced it…
>
> … [If] we lose that land, we lose the education we pass on to our children, that was passed on to us from our elders. We lose that university that teaches our children the things that we know… That will be taken away for not only us but the future generations as well.
>
> …when we talk about Ktunaxa, and we talk about our uniqueness, you know, our language identifies us. Our river system, the Kootenay River, how unique that is. As we dig deeper and deeper … when our elders spoke a long time ago, it meant more than what we see today. We just see what is in front of us and what we can reach and touch -- but our elders were able to see past that, see farther, see deeper. And that's how they spoke when they spoke of ʔa·kxaʔmis q̓api qapsin - All Living Things. Everything has purpose, everything has a spirit. That's what we forget - that uniqueness. And the thing about uniqueness - you can't copy it. You can't replicate it again. So once it's gone, it is gone."

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In 2014, as part of the FRO Swift Project, mapping of Ktunaxa use and occupancy in the upper Fording, including the area of the FRX Project, was provided as part of the Application. Figure C3.2-3 from the FRO Swift application is reproduced below, with the approximate area of the FRX Project shown in red. The figure shows a clustering of reported Ktunaxa use, including preferred camping areas, harvest areas, trails and environmental features along the Chauncey Creek, and extending into the Project area. This map highlights the unique importance of the Project area for Ktunaxa land users, and for learning and teaching place-based knowledge to younger generations. The impacts of the original Fording River mine displaced Ktunaxa use, likely contributing to increased reliance on Castle Mountain and the FRX Project area. The clustering of values along the Elk River south and west of the Project is associated with an important historic Ktunaxa village area at Round Prairie. Values mapped in the 2014 were reported by respected elders and knowledge holders from Yaq̓it ʔa·knuqƚi ‘it as well as from other Ktunaxa First Nations, with important ancestral trails passing through the Project area extending south to the area of Yaq̓it ʔa·knuqƚi ‘it, as well as west to Whiteswan Lake, and east to the eastern slopes of the Rockies.

Figure C3.2-2, also from the FRO Swift application, shows the concentration of reported Ktunaxa use in the area of the Project within the context of the wider Elk Valley. It shows extensive Ktunaxa fishing and habitation use, including use of surface water for drinking, downstream along the Fording and Elk rivers. As reported in the 2014 assessment, Ktunaxa confidence in harvesting of water and fish from the Elk River has been severely impacted by existing mining and other impacts in the watershed.

Figure C3.2-3 Reported Ktunaxa Site-Specific Values within the FRO Swift Project LSA

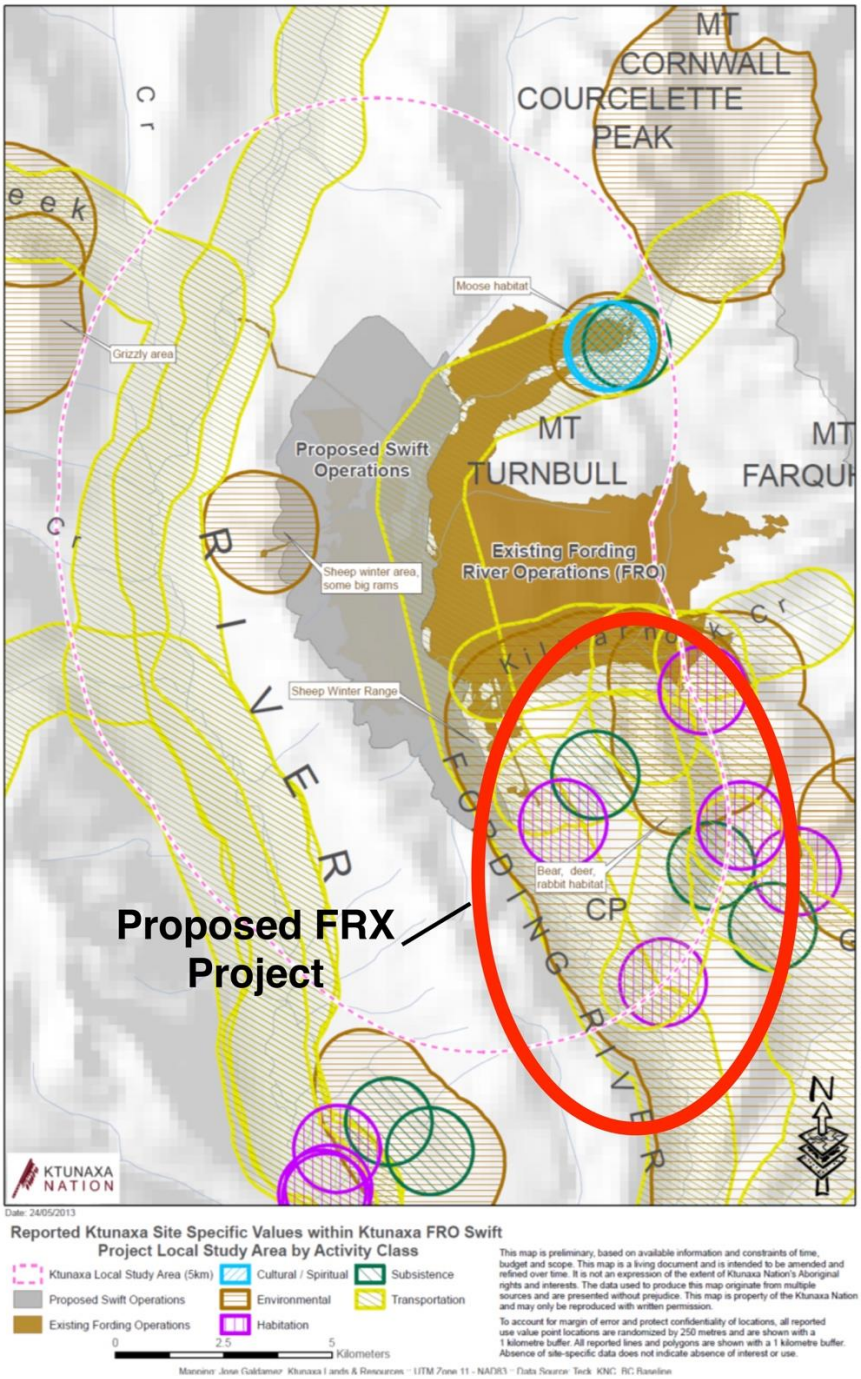
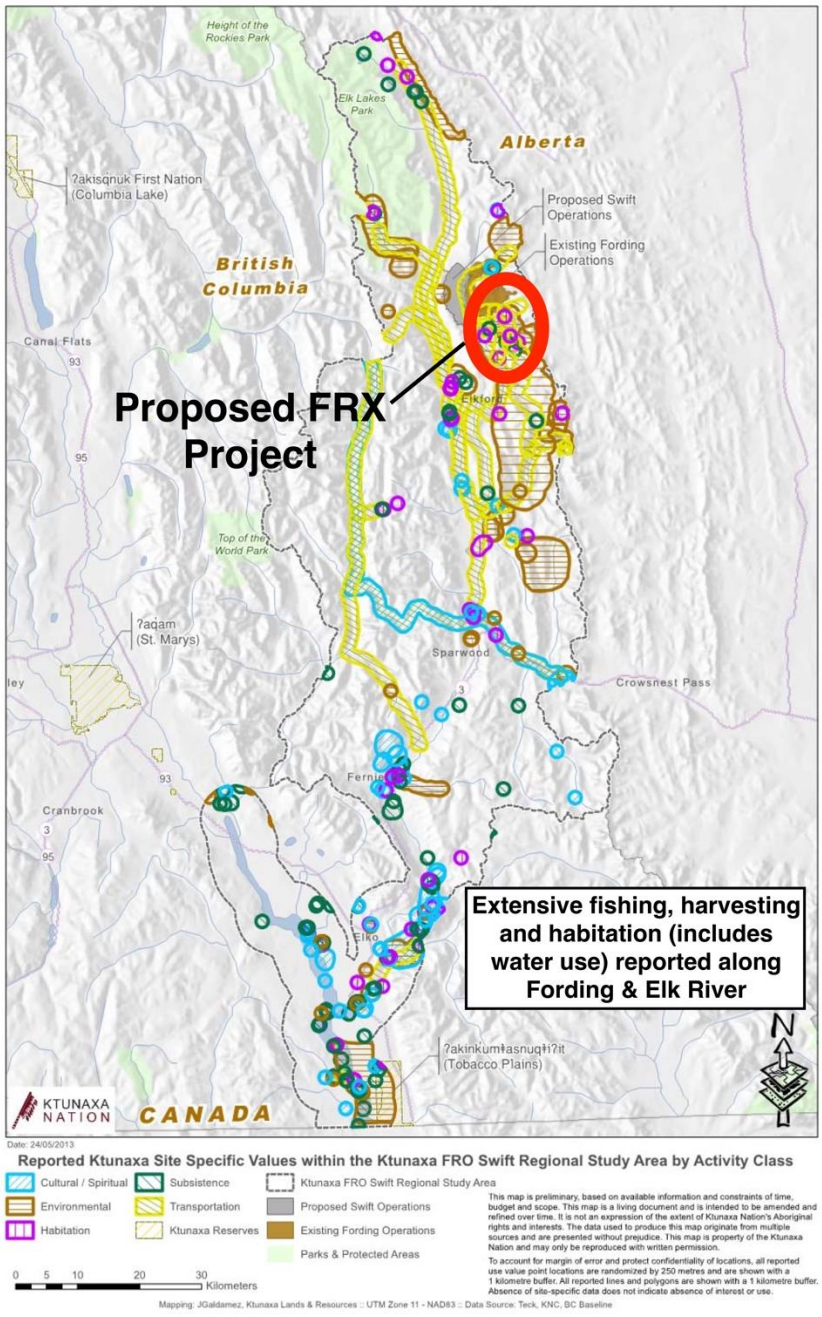


Figure C3.2-2 Reported Ktunaxa Site-Specific Values within the FRO Swift Project RSA by Activity Class



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The 2014 Ktunaxa assessment in Section C of the FRO Swift application makes clear that industrial impacts to Ktunaxa rights and use in the Fording and portions of the Elk Valley are already significant and adverse, and any further impacts in the area will also be significant. Given this baseline of existing significant adverse effects to Ktunaxa, and taking into account the size, waste rock production and lifespan of the FRX Project as described in the DPD, the FRX Project will result in extraordinarily adverse effects to the rights of Ktunaxa First Nations, as affirmed by section 35 of the *Constitution Act, 1982* and recognized and protected by the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP). These include:

1) Further displacement of Ktunaxa from an entire mountain that is over 2,000 ha of the lands and waters of Qukin ʔamakʔis and significant additional loss of lands and waters to support the exercise of Ktunaxa hunting, fishing, harvesting and plant and mineral gathering rights.

2) Further contamination of downstream waters that render those waters undrinkable for Ktunaxa and seriously infringe Ktunaxa's right to harvest and rely on the fish which bio-accumulate those contaminants.

3) Interference with and infringement of Ktunaxa stewardship and governance rights, including the rights to protect and determine the use of lands and resources in accordance with the Ktunaxa value of ʔa·kxaṁis ḳapi qapsin – all living things.

4) Interference with and infringement of Ktunaxa's right to maintain a healthy culture through the exercise of rights and cultural practices within the Project area, including the elimination of the ability of Ktunaxa to use the FRX Project area for purposes of knowledge and language transmission between generations;

5) Interference with and infringement of Ktunaxa's right to ownership of and control of mineral resources, including the right to determine how those resources will be used and the right to benefit from their use.

6) Interference with and infringement of Ktunaxa's relationship with the land, which is central to Ktunaxa identity, culture and way of being.

All of these effects will be endured by Ktunaxa over multiple generations. The mine will operate for over 50 years, and will leave a legacy of scarred landscapes and water contamination that will last far into the future. These effects to current and next generations cannot be "mitigated" by promises of future restoration or plans to operate water treatment facilities for decades to come. They are irreparable and unmitigable.

E. The FRX Project will cause extraordinarily adverse effects to terrestrial valued components

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Ktunaxa believe that there is sufficient information concerning the FRX Project's impacts to terrestrial valued components to support a conclusion that the Project will cause extraordinarily adverse effects to key valued components. Appendix 4 provides more detail on this point. Before providing an overview of that information, Ktunaxa have a preliminary concern regarding the extent to which the EAO has in fact engaged in a meaningful evaluation of information regarding adverse effects under s. 16(2)(c)(i), up to this point in the process.

The EAO stated that it limited its consideration to the DPD when evaluating the Readiness Decision options. As the DPD does not provide an effects assessment, this would indicate that the EAO made a preliminary determination on extraordinarily adverse effects without considering any information about the FRX Project's environmental effects. The EAO has also advised that it does not itself carry out a technical assessment of the project, and relies on Provincial agencies (among other participants) for that work. In light of this, and given that Ktunaxa have been raising the issue of extraordinarily adverse effects for some time, Ktunaxa would have expected the EAO to specifically request input from Provincial agencies on the issue of extraordinarily adverse effects, before preparing the draft Readiness Decision report. However, we have no information to show that the EAO did so. The EAO circulated the draft Readiness Decision report to EA participants, including Provincial agencies, on March 23, 2022. That email does not request any information regarding environmental effects, nor does it ask the agencies to consider whether the project may cause extraordinarily adverse effects. As far as Ktunaxa are aware, the EAO never specifically asked Provincial agencies for their views on that issue.

The technical memos and comments provided by Ministry of Forests (MOF), Lands, Water and Resource Stewardship (LWRS) and Ministry of Environment (ENV) do in fact contain information on adverse effects, which substantially supports the Ktunaxa's concerns about the FRX Project. In particular, the reviewers for LWRS and MOF provided expert advice to the EAO that the FRX Project will cause unmitigable significant adverse effects to high elevation grasslands, and in turn, bighorn sheep:

> FRX will have an additional significant negative impact on remaining high elevation grasslands in the Elk Valley, and impacts associated with direct loss of high elevation grasslands will not be mitigatable *(E. Cameron memo, July 22, 2022)*
>
> Large scale removal of native winter ranges would likely result in a bighorn sheep population decline (Poole 2013) as this grassland ecosystem is irreplaceable and highly selected by sheep (Poole et al. 2018). *(I. Teske memo, July 19, 2022)*

These statements conform to the EAO's explanation of the criteria for establishing extraordinarily adverse effect as stated in Mr. Shepherd's letter. The effects to grasslands are described as certain or likely, significant, and non-mitigable. Yet, after over two months of engagement with Ktunaxa in this DR process, the EAO has not yet explained how it addressed

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this information (along with the rest of the information from the technical memos), nor how it reached a conclusion of no extraordinarily adverse effects given this information from the technical reviewers it relies on.

The impression left with Ktunaxa is that the EAO has not yet done an evidence-based evaluation of the central question under section 16(2)(c)(i). The EAO instead assumed that FRX "deserves an assessment", and defaulted to a recommendation that the Project continue to an EA without serious examination of the issues raised by Ktunaxa (including CSKT and KTOI), Provincial agency comments or available information regarding regional cumulative effects. Given Ktunaxa's history of raising EAE as a concern for this Project, it is Ktunaxa's expectation that the draft Readiness Report would have provided a transparent, evidence-based rationale of EAO's assessment and conclusion on EAE. Yet that information is absent, indicating that the EAO has yet to engage in a meaningful assessment of an issue of central importance to the legislative scheme and Ktunaxa.

Appendix 4 is a table collating readily available review information regarding the FRX Project's terrestrial impacts. This information demonstrates that:

1) **The FRX Project will cause significant, unmitigable adverse impacts to red and blue listed high elevation grasslands (HEG).** FRX will destroy 18% of remaining HEG in the Elk Valley, and contribute to the permanent loss of 44% of HEG as compared to a 1950's baseline. These losses are permanent and irreplaceable. There is no evidence that HEG can be successfully re-established through post-mine reclamation.
2) **The FRX Project will cause the permanent loss of 18% of the HEG winter range for bighorn sheep.** Winter range is the most important habitat type for blue-listed bighorn sheep. 30% of winter habitat has already been lost in the Elk Valley. The FRX Project will permanently destroy a further 18% of the remaining habitat, thus contributing to population declines in this blue-listed species.
3) **The FRX Project will cause the loss of a further 2,330 ha of terrestrial habitat and significantly increase Teck's inventory of un-reclaimed lands.** Teck's Biodiversity Management Plan Workbooks indicate the loss of about 14,000 "quality hectares" to coal mining, of which only approximately 1,000 (or 7%) has been reclaimed and of the 25 ecosystem types identified, Teck has to date only reclaimed 8 of the ecosystem types. The FRX Project will contribute a massive 2,330 ha of further habitat loss to this reclamation liability and a permanent loss of biodiversity.
4) **The FRX Project will generate extraordinarily high volumes of waste rock.** Teck's operations in the Elk Valley have generated approximately 8 billion banked cubic meters (bcm) of waste rock to date. If approved, the FRX Project will contribute a further 4.1 billion bcm, which would represent more than 25% of the total permitted waste rock volume for all mines in the Elk Valley. This massive volume of rock will permanently

destroy terrestrial and aquatic habitat and contribute to excessive contaminant loads in the Fording River and downstream watersheds.

5) **The FRX Project will contribute to the extraordinarily high reclamation liability.** The Elk Valley coal mines have an estimated liability of $1,708,810,000. Teck currently has a bond of $1,193,310,000 in place. Compared to the other 96 bonded mine sites in BC, the Elk Valley coal mines represent 50% of the total liability of mines in BC and are responsible for 45% of BC's provincial short fall in bonding requirements. Given FRX's significant footprint and waste rock volumes, it is reasonable to expect that FRX would significantly increase the liability estimate and bond requirement.

This information demonstrates that the FRX Project will cause extremely significant, long-term adverse effects to terrestrial valued components that are rare and/or already seriously compromised.

F. The FRX Project will cause extraordinarily adverse effects to aquatic habitat and water quality

Ktunaxa also believe that there is sufficient information concerning the FRX Project's impacts to aquatic valued components to support a conclusion that the Project will cause extraordinarily adverse effects. See Appendix 5 for a detailed summary of this information. The technical memo provided by Ministry of Forests (MOF) on fish and fish habitat contains information on adverse effects that substantially supports the Ktunaxa's concerns about the significant and unmitigable impacts from FRX Project including, but not limited to, discussion on existing significant environmental impacts and unproven mitigation measures with respect to calcite management and recognition that the Upper Fording River population of West Slope Cutthroat Trout is not meeting the Provincial Management Plan (J. MacLeod memo, March 31, 2022). It is not clear to Ktunaxa how this and other expert opinions were considered by EAO when drafting a Readiness Decision recommendation.

Appendix 5 is a table collating readily available review information regarding the FRX Project's terrestrial impacts. This information demonstrates that:

1) **The FRX Project will significantly contribute to unmitigable impacts to water quality.** If approved, the FRX Project will contribute a further 4.1 billion bcm, which would represent more than 25% of the total permitted waste rock volume for all mines in the Elk Valley and 50% of the waste rock that is currently placed. This significant increase in waste rock would be a major source of additional loading of constituents (including selenium and nitrate) and will cause additional impacts to both surface water and ground water quality likely extending the need for treatment for hundreds of years beyond what is already required. FRO is already the largest polluter of selenium to water in Canada by a significant margin – the addition of FRX would increase that margin significantly. Of the current selenium and nitrate loads released annually, Teck's

water treatment facilities (which Teck claims is the largest water quality management program of its kind anywhere in the world) have only removed 5 to 10% of the selenium loading per year. This shows that Teck has yet to demonstrate that they can effectively mitigate impacts to water quality. The placement of waste rock within the Kilmarnock watershed will contribute more load to the unconfined Kilmarnock ground water aquifer, which is already carrying high contaminant load to the Fording River.

2) **The FRX Project will cause additional impacts to an area that has already been subject to the largest fine under the Fisheries Act - $60M CAD - due to selenium and calcite contamination.** On March 26, 2021, Teck pleaded guilty to charges by Canada (ECCC) under the *Fisheries Act* that waste rock from the Fording River and Greenhills mines have, and continue to, leach deleterious substances, selenium and calcite, into the upper Fording River and its tributaries, and that all reasonable measures consistent with public safety and with the conservation and protection of fish and fish habitat had not been taken. Teck has publicly reported to their shareholders that they "cannot operate the Elk Valley Mines in compliance with the *Fisheries Act* and its current associated regulations" and has recognized that the provincial ABMP may not be protective of the environment.
3) **The FRX Project will cause additional unmitigable impacts to tributaries.** FRX will impact the Chauncey drainage and impact one of the last two remaining tributaries (out of twelve) within the upper Fording River that have not been impacted by mining. Chauncey was identified as a top priority for protection by government and industry scientists and developing a mine on top of it in the adjacent watershed will not maintain its current condition. The FRX Project also proposes to spoil in the Kilmarnock drainage which would impact the current Kilmarnock Clean Water Diversion (mitigation requirement of the ABMP) by further infilling the 57 km of remaining isolated tributary headwaters that is still considered fish habitat despite the recent extirpation of the isolated WCT population in Upper Kilmarnock.
4) **The FRX Project will not support Westslope Cutthroat Trout Recovery.** Abundances of SARA listed, high conservation value (genetically pure) Westslope Cutthroat Trout declined significantly between fall 2017 and fall 2019 in the Upper Fording River. The effects from the Project will not support WCT recovery and will further exacerbate the already poor habitat conditions, including impacts to water quality, decreasing flow further (decreased catchment area of the Chauncey drainage and groundwater diversions into the pit) and will likely affect one of the core overwintering areas for this population (the S6 oxbow pools, directly adjacent to Castle Mountain and Chauncey Creek) which is considered critical habitat for the recovery of the population.
5) **The FRX Project will contribute to impacts to drinking water and ʔa·kpiƛis (Ktunaxa favourite food)**. Impacts to both surface water and ground water quality from coal mining have resulted in surface and ground water that exceeds drinking water quality guidelines – including the BC selenium drinking water quality guideline (10 ug/L). For

selenium, surface water exceedances span from the Upper Fording River down the Fording River to the Elk River and all the way down to Fernie ranging from 208 ug/L at FR4 Fording River compliance point in February 2021 to 10 ug/L in the Elk River at Elko Reservoir. The draft 2022 human health risk assessment (HHRA) concluded that ʔa·kpiẏis (Ktunaxa favourite food) from the Elk Valley is higher than "market basket" (store bought foods) and reference area foods (foods harvested from areas outside the Elk Valley). Sukiɬ ʔiknaɬa (eating good) is unique to the Ktunaxa People, consistent with Ktunaxa cultural practices. Preferred consumption rates are estimated quantities required to enable sukiɬ ʔiknaɬa. At preferred rates, the draft HHRA concluded that Ktunaxa are at an increased risk in the Elk Valley due to selenium exposure with cumulative selenium hazard Indices that are up to 4x higher than reference condition. The significant additional waste rock will increase the risk to the human health caused by selenium (and other contaminant) exposure and further impact the cultural practice of sukiɬ ʔiknaɬa.

6) **The FRX Project will be regulated to a lesser standard than other mines in British Columbia and coal mines Canada.** The Elk Valley coal mines do not meet the BC ENV Technical guidance document - Development and Use of Initial Dilution Zones in Effluent Discharge Authorizations and Teck has publicly reported to their shareholders that they cannot operate the Elk Valley Mines in compliance with the *Fisheries Act* and its current associated regulations. Both BC and Canada acknowledge that there is no feasible way to control the effluent from the Elk Valley coal mines by regulating coal mine effluent through "non-point sources" vs. final discharge points/points of control. The Elk Valley coal mines are the only mines/industrial facilities in BC operating under an Area Based Management Plan and the proposed federal Coal Mining Effluent Regulation has created an "alternative approach" just for the existing Elk Valley coal mines – all other coal mines in Canada will be held to a higher standard. Not only do both of these approaches regulate in the receiving environment, they also allow "pollute up to" thresholds that represent effect levels, not environmental protection. Instead of a new being held to a higher standard (as a new mine), the FRX Project will fall under provincial and federal regulatory regimes that fail to protect the environment.

7) **The FRX Project will further limit Teck's ability to meet existing and future permit limits and Canada's ability to avoid violations of the 1909 Boundary Waters Treaty.** Teck has failed to meet the Permit 107517 limits for selenium and nitrate since 2015 at the Fording River Compliance Point and the Line Creek Compliance Point. These failures have, over time, culminated in exceedances of the Fording River and Koocanusa Reservoir Order stations and the 2021 US EPA site specific water quality criteria of 0.8ug/L selenium for Koocanusa. Teck has stated in their financial reports that the selenium standard may not be achievable with existing technology. Based on the significant waste rock volumes, FRX will further significantly hinder Teck's ability to meet these requirements and standards.

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This information demonstrates that the FRX Project will cause extremely significant, long-term adverse effects to aquatic valued components that are already seriously compromised.

F. Conclusion

The FRX Project is a uniquely large mine proposed within a region that is already uniquely impacted. The EAO and Ktunaxa have the benefit of years of work in assessing existing coal mines, monitoring and measuring current environmental impacts, and identifying shortcomings in the assessment and mitigation tools which have been used to date. This information, combined with the information in the DPD, enables the EAO and Ktunaxa to reliably predict that the FRX Project will result in significant adverse cumulative impacts that are far greater in scope, intensity and duration than any comparable project. These impacts will be very high in magnitude and will extend well beyond the mine footprint, especially along the Fording and Elk Rivers but also further downstream to the Koocanusa Reservoir and ultimately Kootenay Lake. Based on an anticipated active mine life of approximately 50 years, and considering the already seriously impacted context and limited progress in addressing restoration shortfalls at existing mine sites, many of the Project impacts to Ktunaxa rights and the aquatic and terrestrial environment are unmitigable. Residual adverse effects would act cumulatively with existing impacts already permitted in the area, further contributing to the degradation of Ktunaxa cultural values and rights and the environment upon which Ktunaxa depend.

Ktunaxa believe that, based on the information currently available to the EAO, it can reasonably conclude that further consideration and possible future approval of the FRX Project is inconsistent with the EAO's statutory obligations under section 2. The Project does not promote sustainability as defined in section 2(2)(i). There is no way that the FRX Project can be approved in a manner consistent with "protecting the environment"; the Project simply has too big a footprint and too major an impact to an already seriously impacted area. The FRX Project does not contribute to "fostering a sound economy"; there is nothing "sound" about a Project that will generate short-term profits and employment while leaving a multi-generational legacy of pollution and habitat loss. Water treatment from existing mines is already expected to be required in perpetuity and the existing bonding requirements for the Elk Valley are the largest in BC and currently have in excess of a $500M shortfall and are likely significantly underestimated. The 2022 IPA reports that 20 mitigations (treatment facilities) will be required to meet existing permit requirements to 2053. Teck currently has three facilities in operation with one scheduled to enter commissioning soon. Teck states that they have spent more than $1.2 billion (so far) to implement the EVWQP and plans to invest a further $750 million – which seems like a large underestimation considering only 3 of 20 mitigation measures are constructed and in operation. The discrepancy in costs associated with water treatment alone vastly overshadow short-term economic benefits.

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The Project is also plainly inconsistent with the EAO's obligation to support reconciliation with Ktunaxa pursuant to section 2(2)(ii). Ktunaxa have repeatedly and clearly informed the EAO that the Project is not supported by Ktunaxa, and is fundamentally inconsistent with Ktunaxa laws, values, jurisdiction and rights. A decision by the EAO to nonetheless continue with the EA of the FRX Project in the face of this opposition contradicts *UNDRIP* and undermines, rather than supports, reconciliation.

Based on the unique characteristics of this Project, the level of existing knowledge from past assessment in the Upper Fording system, and the current lack of demonstrated mitigation and restoration success in the Elk Valley, we can reliably predict that the FRX Project, as described in the DPD, will result in extraordinarily adverse effects. The Project is not compatible with the EAO's statutory objectives under section 2 and, as such, Ktunaxa support a recommendation under section 16(2)(c)(i) of the Act that the EA be terminated.

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Appendix 1 - The Ktunaxa understanding of section 16(2)(c)(i) and EAE

1. The implications of the new Act

Ktunaxa understand section 16 of the Act as introducing an important new decision-making phase to the EA process. Under the previous *Environmental Assessment Act* (2002), the Executive Director's options under s. 10 were limited to exempting a project from EA or requiring an EA. There was no "off ramp" for projects that, due to their unique attributes, were known to cause very significant impacts to the environment or Indigenous Peoples. The EAO had no option but to proceed with an EA of those projects, even if it was apparent from the outset that they would cause unacceptable impacts.

Section 16(2)(c)(i) changes that *status quo*. The legislature has now provided the EAO with the power to recommend terminating the EA process due to a project's extraordinarily adverse effects on the environment and/or Indigenous Peoples. The purpose of this new section seems clear: where a project is, by its design and circumstances, clearly inconsistent with the statutory purposes and objectives of the Act, it should be rejected at an early stage. This avoids the wasted investment of years of effort, time and resources in assessing a project that is clearly incompatible with the purposes and objectives of the Act.

Details of the Ktunaxa perspective on the criteria and information the EAO should consider under s. 16(2)(c)(i) are set out below. As a preliminary comment, Ktunaxa note that the EAO's evaluation under that section must be informed by its purposes and obligations as described in section 2 of the Act. These include:

- The EAO must use "the best available science, Indigenous knowledge and local knowledge" when considering whether a project will have extraordinarily adverse effects;
- The EAO must support reconciliation with Indigenous Peoples by, among other things: supporting the implementation of the *UN Declaration on the Rights of Indigenous Peoples* (UNDRIP); recognizing the inherent jurisdiction of Indigenous Peoples; collaborating with Indigenous Peoples in EA's consistent with UNDRIP; and recognizing Indigenous People's rights.

Ktunaxa emphasize these two elements of section 2 due to information shared by the EAO during this dispute resolution process (DR) about its approach to the Readiness Decision report. We have heard the EAO emphasize that the primary information source it considered was the Detailed Project Description (DPD). With respect, this takes too narrow a view of the EAO's responsibility when considering whether a project meets the EAE threshold. Section 2 indicates that, where relevant and reliable information concerning a project's effects is available from sources outside the DPD, the EAO must take that information into account when making a readiness determination.

The EAO must as well expand its view beyond technical, western science-based information concerning a project's effects, and consider what is known about a project's effects on the rights of Indigenous Peoples as affirmed through UNDRIP. These include: UNDRIP Articles 11 - 13 (right to practice of culture, language, spiritual traditions and knowledge transmission); 25 (right to maintain spiritual relationship with territory); 26 (right to use and control of territory); and 32 (right to determine priorities and strategies for how lands are used). The EAO's evaluation of extraordinarily adverse effects must therefore be informed by the Ktunaxa perspective on how the FRX Project will affect its rights, jurisdictions, cultural and spiritual well-being, and relationship with ʔamakʔis Ktunaxa, as affirmed by UNDRIP and incorporated into the Act by section 2.

2. What constitutes extraordinarily adverse effects

Ktunaxa have heard the EAO say that it does not wish to set a precedent for this or other EAs by attempting to define what extraordinarily adverse effects means. While we respect the EAO's need to not limit or fetter how it approaches future project reviews, Ktunaxa believe that some shared articulation of what extraordinarily adverse effects means in the context of the FRX project is necessary. Otherwise Ktunaxa and the EAO will be looking at the same issue through quite different lenses, and with quite different standards in mind.

The Act provides guidance as to the types of effects that should be considered in evaluating EAE. While section 25 defines factors that must be considered during an EA, Ktunaxa view the list of potential effects it lists as nonetheless providing guidance on the types of effects to be considered under section 16(2)(c)(i)(B), as it would be incongruous for the legislature to intend the EAO to have regard for different types of effects at different stages of the process. An important qualification to this statement is that, as noted in Mr. Shepherd's letter of July 20, 2022, the EAO's focus at the Readiness Decision stage is on adverse effects only. Potential positive economic effects of the FRX Project are excluded from the Readiness Decision consideration.

Section 25 requires that an EA consider, among other things:

- effects of a project on Indigenous nations and rights recognized and affirmed by section 35 of the *Constitution Act, 1982* (see also 16(2)(c)(i)(B));
- environmental, economic, social, cultural and health effects and adverse cumulative effects;
- effects on biophysical factors that support ecosystem function; and
- effects on current and future generations.

Note that section 16(2)(c)(i)(B) differentiates between effects on Indigenous nations and effects on their section 35 rights (see also section 25(1)). This implies that the EAO must consider and give weight to information regarding the effects FRX will have on Ktunaxa cultural and social wellbeing, sense of place, transfer of knowledge and other values, even if those practices have not yet been legally recognized as "rights" protected by section 35.

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In contrast, the Act provides no guidance on what "extraordinarily" means when used in s. 16(2)(c)(i). Dictionary definitions indicate that for something to be "extraordinary", it does not have to be an extreme or radical departure from normal standards. Rather, "extraordinary" means above and beyond what is ordinary:

> The Law Dictionary (including Blacks Law Dictionary)
> "Out of the ordinary; exceeding the usual, average, or normal measure or degree."
>
> Cambridge Dictionary – "very; more than usual"

Ktunaxa have heard the EAO attribute a slightly different meaning to "extraordinarily" as requiring evidence of effects that are greater than significant and "blatantly obvious on the face of the project". Ktunaxa agree that the standard of "extraordinarily", when used in the context of the Act and EA practice, likely means something more than significant. However, the ordinary and legal meaning of extraordinary, as noted above, indicates that while an extraordinarily adverse effect may need to be greater than significant, it does not have to be at an extreme or radically intense level. An effect that is significant and exceeds what would usually be expected for a similar project meets the standard of "extraordinarily adverse". We note that this description is consistent with the second factor listed in Mr. Shepherd's letter, which states that the EAO must consider "how extreme the effects are generally, or on a specific Indigenous nation or its constitutionally protected rights, as compared to other projects of a similar type and size".

EA practice documents indicate that the following criteria should be considered to evaluate and measure a project's effects:

- Magnitude
- Geographic extent
- Timing
- Frequency
- Duration
- Reversibility

> (Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012)

In the Elk Valley, the additional factor of existing cumulative effects to the environment, Ktunaxa and Ktunaxa rights is also of central importance. If FRX was a green field project occurring in an area untouched by coal mining, it is possible that Ktunaxa would not have initiated dispute resolution. However, the reality is that FRX is proposed for an area that is already heavily impacted by Teck's existing mining operations, to the point that regulatory thresholds are consistently exceeded, Ktunaxa rights are already severely infringed, and Ktunaxa cultural practices have been eliminated from huge parts of Qukin ʔamakʔis (the

Ktunaxa Land district of Raven's Land and also known as the Elk Valley) – particularly the Upper Fording area that is impacted by three of Teck's coal mines (Fording River, Greenhills and Line Creek Operations). The potential for the FRX Project to cause extraordinarily adverse effects must therefore be evaluated in the context of an ecological setting that is already deeply compromised by Teck's existing operations. This approach appears consistent with the third bulleted factor in Mr. Shepherd's letter of July 22.

There is one point of apparent divergence between Ktunaxa and the EAO in how to evaluate EAE. Mr. Shepherd's letter states that an adverse effect must be unmitigable in order to be considered extraordinary. To the extent this means that non-mitigable significant effects would qualify as extraordinarily adverse effects, we agree. The FRX Project meets this standard for impacts to high elevation grasslands, water quality and westslope cutthroat trout (see Appendices 4 and 5), and impacts to Ktunaxa rights, including knowledge and use (see Appendix 3 and main submission). However, Ktunaxa do not believe that the EAO must have evidence that an adverse effect is demonstrably unmitigable in order to meet the extraordinarily adverse effect threshold, for several reasons:

- The EAO has repeatedly emphasized that it has focused on the information contained in the DPD. The DPD does not identify, assess or evaluate the efficacy of mitigation or offset measures. Given this, it is difficult to see how the EAO could have reached a reasoned conclusion on whether effects are capable of mitigation. Making assumptions about the potential availability of mitigation measures is not enough; reliable information based upon data, science and demonstrated success is required. In the absence of that information, the EAO cannot simply proceed on the optimistic assumption that adverse effects can be solved by unidentified future measures.
- This is particularly so given the evidence that Teck's current mitigation measures and plans have consistently failed to achieve their goals (see below). Instead of assuming that Teck can mitigate all the impacts from FRX, the EAO must have regard for Teck's record of non-compliance and failure to meet EAC conditions, regulatory thresholds, guidelines and water quality targets. This is fundamental to Nasuʔkin Gravelle's insistence at our July 7, 2022 meeting that Ktunaxa leadership need to see demonstrated action, not just commitments on paper. Teck's regulatory track record supports the EAO taking a precautionary approach, consistent with professional EA standards, and requiring a high standard of proof before concluding that effects of the FRX project are mitigable to below the standard of significance.
- Effects from FRX to Ktunaxa culture, connection to the land and ability to continue to exercise Ktunaxa stewardship responsibilities and practices cannot be mitigated to a level of insignificance. While partial mitigation may be possible, more than a decade of effort in the Elk Valley has had very limited success. Where impact duration occurs beyond two generations – as is the case with the FRX Project - effects on Indigenous culture and knowledge transmission should be considered permanent. This is consistent with Ktunaxa perspectives that nothing can replace the elimination of almost all of the

Upper Fording from the landscape that supports Ktunaxa culture and rights, or the elimination over multiple generations of the ability of Ktunaxa people to safely drink

- Mitigation measures that require decades to restore environmental damage do not address near and medium-term significant effects, as experienced by current and next generation Ktunaxa. The promise that endangered rare high elevation grasslands may be somehow restored (although not yet proven to be possible) sixty years from now, for example, does not render the loss of those grasslands over a multi-generational timeframe non-significant.
- Ktunaxa do not accept that the destruction of rare high elevation grasslands and the loss of critical high elevation bighorn sheep winter range in the Upper Fording can be mitigated by offsets. The EAO has no information to indicate that Teck can or will be able to offset these impacts. Any conclusion that the extraordinary adverse effects the FRX Project will cause to those two valued components can be offset would therefore amount to little more than an assumption that is contradicted by Teck's record (as detailed in the Appendix 4). Of equal importance, if the offset calculation method used in the Province's Habitat Offset Tool is applied to FRX, it generates an offset ratio of 20:1 for high elevation grasslands. There is not enough of that habitat type remaining in the entire Elk Valley for Teck to be able to meet this offset requirement. Offsets that still result in a significant "net loss" are not effective mitigation.

Ktunaxa accordingly suggest that the EAO must exercise care in evaluating whether an effect is unmitigable. It would not be appropriate for the Readiness Decision to be based on assumptions regarding possible future mitigation measures that are not supported by any information from the DPD, and are in fact contradicted by experience and other available information sources. The CEAO's recommendation under section 16 must reflect a reasoned evaluation of reliable information sources, which in this case indicate that the FRX Project will have numerous, long-term significant effects that cannot be feasibly mitigated or offset.

Based on the foregoing, Ktunaxa view the following factors as relevant to a meaningful evaluation under section 16(2)(c)(i) of the potential for the FRX Project to cause extraordinarily adverse effects:

- The scale, footprint, lifespan and waste rock production volumes of the FRX Project as compared to other coal mines in the region.
- The additive effect of adverse impacts from the FRX Project to existing cumulative effects within the region.
- The likelihood of the FRX Project causing significant, multi-generational impacts to Ktunaxa First Nations, including Ktunaxa culture, knowledge transmission, stewardship practices and authority and rights.
- The likelihood of the FRX Project causing significant, multi-generational impacts to the environment that are non-mitigable or impossible to mitigate within the Project's operational lifespan.
- Evidence of Teck's failure to implement previous mitigation measures, or failure to implement such measures in a timely manner that achieves their intended mitigation

objectives, as well as Teck's record of non-compliance under the *Environmental Management Act* and *Fisheries Act*.

- The extent to which the FRX Project is consistent with the EAO's obligation under section 2(2)(ii) to support reconciliation with Ktunaxa by, among other things, supporting the implementation of the *UN Declaration on the Rights of Indigenous Peoples* and recognizing and respecting Ktunaxa jurisdiction.
- The extent to which the FRX Project is consistent with the EAO's obligation under section 2(2)(i) to promote sustainability by protecting the environment and fostering a sound economy.

An evaluation of these factors does not require an EA. The DPD and existing information derived from previous project EAs and ongoing cumulative effects mitigation programs (which is cited below and in the attached Appendices) is sufficient to reliably characterize the FRX Project's likelihood of causing EAE. Ktunaxa believe that, based on that information, a consideration of each of the factors listed above supports the conclusion that the FRX Project will cause EAE and should accordingly not proceed to a full EA.

3. What information needs to be considered

Ktunaxa have heard divergent messages from the EAO on the scope of the information it has considered to date in reaching its draft Readiness Decision recommendation. Early in the DR process the EAO emphasized that it viewed the Readiness Decision as restricted to a review of the detailed project description (DPD). The EAO subsequently appeared to modify that view at the July 7 – 8 meetings by acknowledging that it received and considered input from participants on the technical review team, including technical memos from Provincial agencies (which were only provided to Ktunaxa on July 21, 2022). It also noted that it must take into account information received from Ktunaxa through this DR process. Mr. Shepherd's July 22 letter further indicates that the EAO may - but not necessarily will - consider currently available information regarding the FRX Project's adverse effects.

This appears to be a point of potentially significant difference between the parties. Ktunaxa view the EAO's position that it is restricted to a review of the DPD as inconsistent with the EAO's obligations under the Act, and so narrow as to effectively negate the purpose and intent of s. 16(2)(c)(i). Ktunaxa also view the EAO's subsequent acknowledgment that it has considered technical memos from Provincial agencies about the Project's effects, as part of the Readiness Decision stage, as implicitly recognizing that an evaluation of extraordinarily adverse effects cannot be limited to the DPD alone.

Evaluating whether the FRX project will have extraordinarily adverse effects requires the EAO to consider information regarding what the Project is, and what effects it is likely to have. The first issue depends on the DPD. It is the full scope of the FRX Project defined by Teck through its DPD that must be evaluated, not a potentially reduced or adjusted version of that project. The second issue cannot be addressed on the basis of the DPD alone because that document is

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not intended to provide information on environmental effects. This is confirmed by the DPD itself, which states under the heading "Purpose of the Detailed Project Description":

> "[this] Detailed Project Description is not intended to and does not provide an assessment of potential impacts of the Project, nor does it describe all of the measures that may be required to mitigate potential impacts."

Limiting the information the EAO considers under s. 16(2)(c)(i) to the DPD would therefore have the questionable effect of ensuring the EAO evaluates the potential for extraordinary adverse effects from the FRX Project by examining a document that intentionally omits information on adverse effects. This cannot be the legislative intent behind introducing s. 16(2)(c)(i) into the Act, nor would it be consistent with the EAO's obligation under section 2 of the Act to take into account best available information. From the Ktunaxa perspective, it is clear that more information than the DPD is needed to meaningfully evaluation the FRX project's potential to cause extraordinarily adverse effects. The task before the EAO and Ktunaxa is to identify and define the scope of that information, taking into account the fact that the project has not yet gone through a full effects assessment.

Ktunaxa view multiple information sources as relevant and necessary to building a shared understanding of the FRX project's potential to cause extraordinary adverse effects:

1) The DPD, which defines the project.
2) Information concerning the existing impacts to Ktunaxa culture, traditional practices and rights from Teck's coal mines and the additional effects the FRX project will cause.
3) Existing information derived from past EAs and Provincial regulatory processes, including but not limited to the Cumulative Effects Management Framework (CEMF), Area Based Management Plan (ABMP) and permit applications that characterize existing impacts and mitigation measures and support an evaluation of the FRX project's impacts.
4) Comments from the Technical Advisory Committee for the FRX Project on the draft Readiness Decision report.

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Appendix 2 - FRX Project in Comparison with Other Permitted and Proposed Mines

Qukin ʔamakʔis and the surrounding area (including the neighboring Crow's Nest Pass area in Alberta) is well known for its coal deposits – with several existing (5) and proposed mines or expansions (6) in the region (not including the recently rejected Grassy Mountain Project). A map showing these projects is presented in Figure 1. Within this context, the FRX Project is by far the largest project ever proposed in this coal-mining region. This is in comparison to both projects that have already completed the EA process (Table 1) and those that are still in (or beginning) the EA process (Table 2). Across all the comparisons, the FRX Project is the largest project by a significant margin with respect to footprint (145% to 889% greater), life of mine (147% to 417% greater), total and annual production rates (211% to 2769% greater and 129% and 900% greater respectively), strip-ratio (104% to 387% greater) and total waste rock volumes (272% to 3582% greater). For an "apples to apples comparison", project characteristics for projects that have been issued EACs and are in operation (Line Creek Phase II, Fording Swift and Elkview Baldy Ridge Extension), are as described in the EA process (vs. current operational status). Figure 2 presents the project foot print and waste rock volumes for all of the coal-mining projects (in descending order according to waste rock volumes. Of the metrics presented, footprint and waste rock volumes are likely the best "on the surface" indicators of project size and potential impact and this figure illustrates the massive scale of the FRX Project relative to other coal mine projects in the region. As shown in Figure 2, the second largest project in the region (compared to FRX) is Fording Swift – also an expansion to the Fording River Operation that was issued an EAC in 2015.

In addition to the uniquely large size of FRX, it's important to note the geographic location of the FRX Project. The Upper Fording River (UFR) is the most impacted area of the Elk Valley and is currently affected by three mine operations – Fording River Operations (FRO), Greenhills Operations (GHO) and Line Creek Operations (LCO). As shown in Figure 1, FRO and GHO have developed to the extent that they are directly adjacent to one another with plans to process FRO reserves at GHO (DPD – Table 3.1-1 Alternatives to the Project) – effectively creating a super-mine with cumulative impacts that must be considered collectively. FRX will exacerbate this impact by developing one of the few undeveloped areas within the UFR – an area that provides a critical habitat and movement corridor for wildlife, and a refuge for Ktunaxa cultural practice in the area. As part of the Elk Valley Cumulative Effects Assessment and Management Report (December, 2018), a Combined Valued Component Analysis was conducted to evaluate the cumulative response of all VC indicators by scaling all indicators from zero to one, where zero was no hazard and one was high hazard. The results revealed that the highest hazard area is within the UFR – which includes the location of FRX (Figure 28, page 51 – represented here as Figure 3 with dark blue representing high hazard). The report states:

The combined indicator is presented in Figure 28, demonstrating that the highest hazard for all VCs is currently located in AWs [assessment watersheds] where mining has occurred and along the valley bottoms. These areas currently experience the highest amounts of land use in the study area. This map supports decision makers to prioritize management/mitigation actions by showing the worst of the worst AWs. Also, it may point to AWs where to minimize/avoid further development.

- Elk Valley Cumulative Effects Assessment and Management Report (December, 2018)

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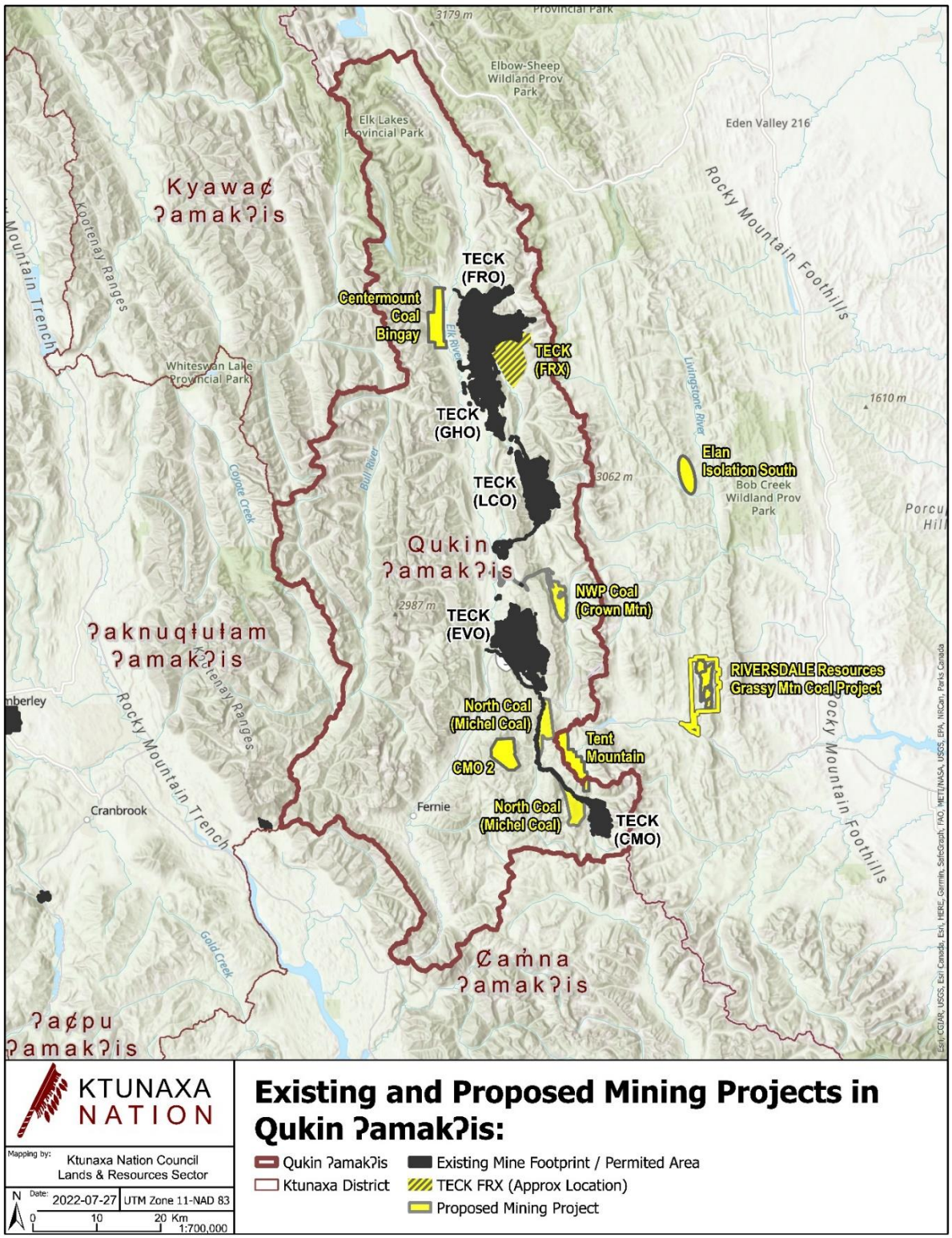
Instead of utilizing CEMF as a planning tool to inform future development, Teck has proposed the largest coal mine project in the history of the Elk Valley within the "worst of the worst" areas of the Elk Valley. KNC has updated and validated this analysis based on the latest information and the Combined Valued Component Analysis still shows the UFR as the "hot spot" of the Elk Valley (Figure 4; with the darkest red representing high hazard on a scale from zero (no hazard) to 1 (high hazard)).

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Figure 1: Map of Existing and Proposed Coal Mines within Qukin ʔamakʔis and Surrounding Area



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Table 1: Comparison of the Fording River Extension Project with other coal-mining projects that have completed the EA process*

Project Name	Fording River Extension	Line Creek Phase II	Fording Swift	Baldy Ridge Extension	Grassy Mountain
Company	**Teck Coal**	Teck Coal	Teck Coal	Teck Coal	Benga Mining Ltd.
Footprint (ha)	**2330 new + 2320 existing** **Total = 4650**	Total = 1154	1400 new + 1800 existing Total = 3200	Total = 898	1125 new + 375 existing Total = 1500 ha
Life of Mine (Operations)	**50**	18	25	23	20 - 25
Total Production and Annual Rate (Mmtcc†)	**Total: 360** **Annual: 9**	Total: 59 Annual 3.5	Total: 170 Annual 6.8‡	Total: 153 Annual: 7	Total: 83 Annual: 4
Average Strip Ratio (waste rock : coal)	**12**	10.8§	8.8**	7.8	9.0
Total Waste Rock Production (Mbcm††)	**4084**	637	1500	1200	833‡‡
EA Status	**Readiness Decision**	Approved	Approved	Approved	Rejected

* Table 1 References:

Fording River Extension:

- British Columbia Environmental Assessment Office. 2015. Fording River Operations Swift Project: Assessment Report. Available at: <https://projects.eao.gov.bc.ca/api/public/document/58868f5ee036fb010576818c/download/TAB%202%20-%20Environmental%20Assessment%20Report.pdf>

Line Creek Phase II:

- British Columbia Environmental Assessment Office. 2013. Line Creek Operations Phase II: Assessment Report. Available at <https://projects.eao.gov.bc.ca/api/public/document/5e7a580dbd1578001a11bad0/download/Assessment%20Report%20and%20Appendices%20for%20the%20Line%20Creek%20Operations%20Phase%20II%20Project%20dated%20August%2030%2C%202013.pdf

Fording Swift:

- British Columbia Environmental Assessment Office. 2015. Fording River Operations Swift Project: Assessment Report. Available at: <https://projects.eao.gov.bc.ca/api/public/document/58868f5ee036fb010576818c/download/TAB%202%20-%20Environmental%20Assessment%20Report.pdf>

Baldy Ridge Extension:

- British Columbia Environmental Assessment Office. 2016. Baldy River Extension Project: Recommendations of the Executive Director. Available at: <https://projects.eao.gov.bc.ca/api/public/document/588698b4e036fb010576929f/download/Recommendations%20of%20the%20Executive%20Director%20dated%20Aug%2012%2C%202016.pdf>
- British Columbia Environmental Assessment Office. 2016. Baldy Ridge Extension Project: Technical Report. Available at <https://projects.eao.gov.bc.ca/api/public/document/588698b4e036fb010576929e/download/Technical%20Report%20dated%20Aug%2012%2C%202016.pdf>

Grassy Mountain:

- Benga Mining Limited & Riversdale Resources, 2016. Benga Mining Limited Grassy Mountain Coal Project Section C: Project Description. Available at:<https://iaac-aeic.gc.ca/050/documents/p80101/115590E.pdf>

† Mmtcc = million metric tonnes of clean coal
‡ Calculated value.
§ Calculated value.
** Calculated value.
†† Mbcm = million banked cubic metres
‡‡ Calculated value.

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Table 2: Comparison of the Fording River Extension Project with other coal-mining projects that are still within (or about to begin) the EA process[8§§]

Project Name	Fording River Extension	Michel Coal	Crown Mountain	Bingay	Coal Mountain II	Tent Mountain	Elan
Company	**Teck Coal**	North Coal	NWP Coal Canada Ltd.	Centermount Coal Ltd.	Teck Coal	Montem Resources Ltd.	Atrum Coal Ltd.
Footprint (ha)	**2330 new + 2320 existing** **Total = ~4650**	1424	~1100	1802	Total = 1000	150 new + 373 existing Total = 523	809
Life of Mine (Operations)	**40+**	25	16	12 - 14	34	14	21
Total Production and Annual Rate (Mmtcc[9])	**Total: 360** **Annual: 9**	Total: 87.4 Annual: 2.3 to 4	Total: 56 Annual: 3.7 mil	Total: 13 Annual: 1	Total: 76.5 Annual 2.25	Total 13 Annual: 1.1	Total: 112 Annual: 6
Average Strip Ratio (waste rock:coal)	**12**	5.6	4.84	11.5	7.1	8.8	3.1
Total Waste Rock Production (Mbcm[10])	**4084**	451	271[11]	150	510	114[12]	347[13]

§§ See next page for full table references.

[8]**Table 2 References:**

Fording River Extension:

- Teck Resources. 2021. Fording River Extension Project: Detailed Project Description. Available at <https://www.projects.eao.gov.bc.ca/api/public/document/6109b6765f5fad002270449e/download/02_Teck_FRX_Final_DPD_Version2.0.pdf>

Michel Coal:

- North Coal Limited. 2020. RE: Michel Coal Project Update Addendum to Revised Project Description August 2018 – Tent Mountain Deposit. Available at <https://projects.eao.gov.bc.ca/api/public/document/5feb9fc1ec05430021581265/download/Michel%20Coal%20Tent%20Mtn%20Final%2003.03.20.pdf>
- Michel Coal Waste Rock Volumes and strip ratio: Bill Arling personal communication. July 26, 2022.

Crown Mountain:

- NWP Coal Canada Ltd. 2014. Crown Mountain Coking Coal Project: Project Description. Available at: <https://projects.eao.gov.bc.ca/api/public/document/5886a90be036fb01057693ea/download/Project%20Description%20for%20the%20proposed%20Crown%20Mountain%20Coking%20Coal%20Project%20submitted%20by%20NWP%20Coal%20Canada%20Ltd.%2C%20November%202014.pdf>

Bingay:

- Centermount Coal Ltd.. 2017. Bingay MainCoal Project: Updated Project Description – Update. Available at: <https://projects.eao.gov.bc.ca/api/public/document/599df2b336f6f70019f62204/download/Bingay%20PD%20Revised%20August%2016%202017.pdf>

Coal Mountain II:

- Government of British Columbia. N.D. *Coal Mountain Phase 2: Project Details.* EAO's Project Information Centre (EPIC). Available at: < https://projects.eao.gov.bc.ca/p/588511f8aaecd9001b828a03/project-details>
- Teck Coal Limited. 2014. Coal Mountain Phase 2 Project Description. Available at: <https://projects.eao.gov.bc.ca/api/public/document/5886a8d4e036fb01057693e0/download/Project%20Description%20for%20the%20proposed%20Coal%20Mountain%20Phase%202%20Project%20submitted%20by%20Teck%20Coal%20Limited%20September%202014.pdf>

Tent Mountain:

- Montem Resources Alberta Operations Limited. 2021. Tent Mountain Mine Redevelopment Project: Initial Project Description. Available at <https://iaac-aeic.gc.ca/050/documents/p81436/142154E.pdf>
- SRK Consulting (Canada) Inc. 2020. Technical Assessment Report for the Tent Mountain Mine Re-start Project, British Columbia, Canada. Prepared for Montem Resources Ltd. Available at <https://montem-resources.com/wp-content/uploads/2020/09/Tent_Mtn_Technical_Assessment_Report_2CM044.003_20200819_updated_revised.._-min.pdf>

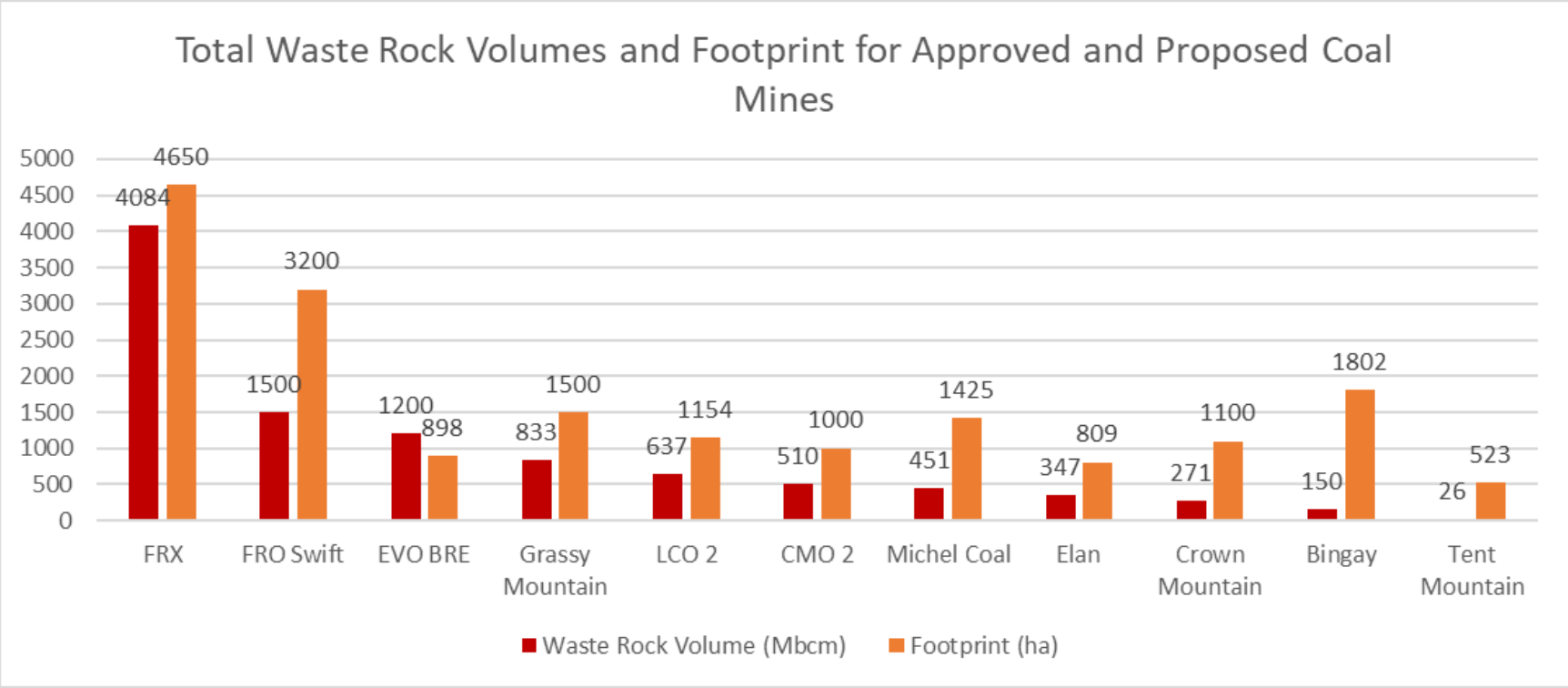
Elan:

- Atrum Coal Ltd. 2020. Elan Project Updated Scoping Study. Available at < ttps://www.atrumcoal.com/wp-content/uploads/2020/12/ATU_ELAN_PROJECT_UPDATED_SCOPING_STUDY.pdf> Atrum Coal Ltd. 2022. Project Information. Elan. Available at <https://elancoalproject.ca/project-information/>

[9] Mmtcc = million metric tonnes of clean coal
[10] Mbcm = million banked cubic metres
[11] Calculated value.
[12] Calculated value.
[13] Calculated value.

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Figure 2: Total Waste Rock Volumes and Footprint for Approved and Proposed Coal Mines



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Figure 3: Reproduction of Figure 28 in the Elk Valley Cumulative Effects Assessment and Management Report (December 2018) Page 51 https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/final_elk_valley_ceam_12122018.pdf

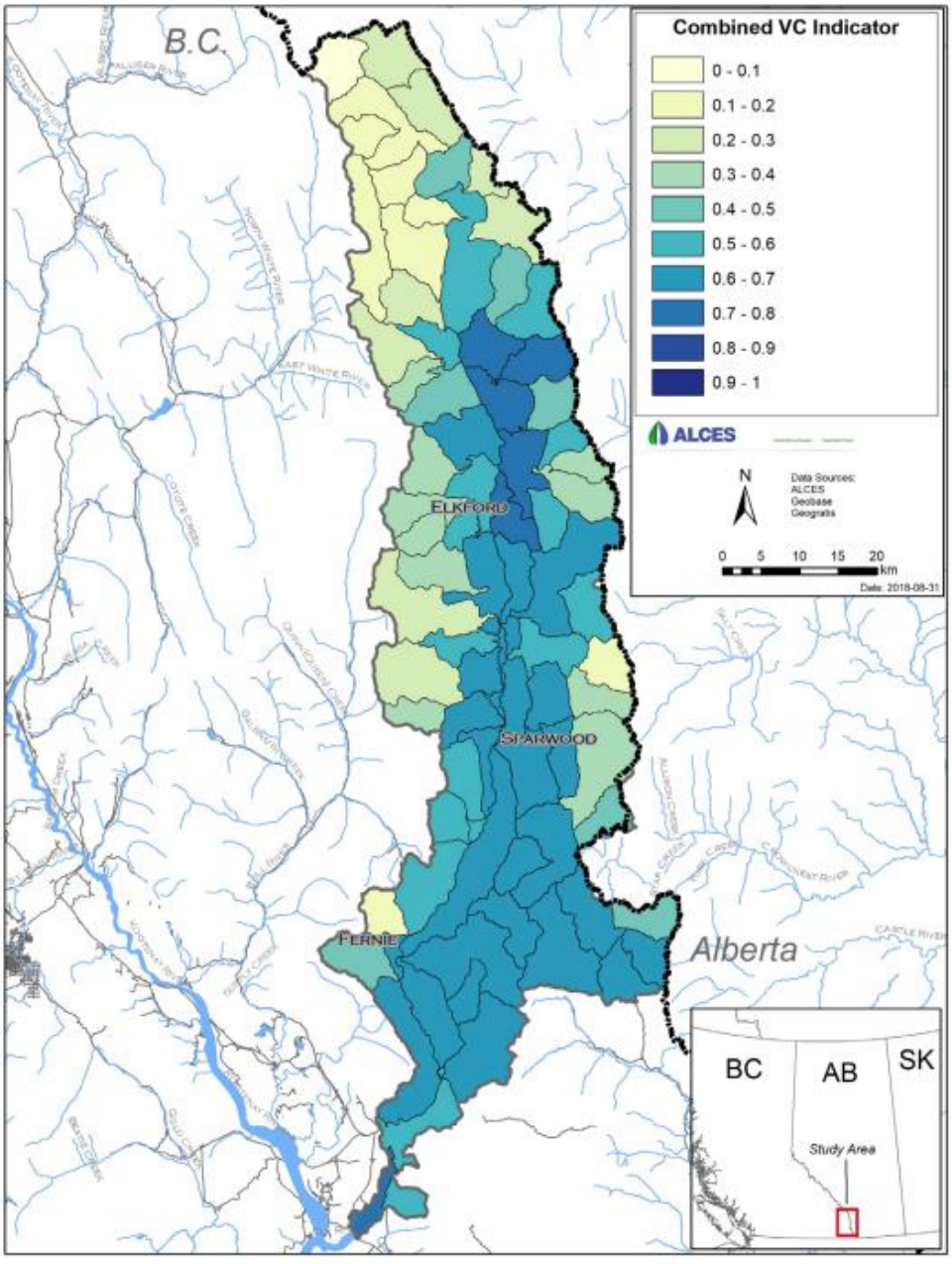
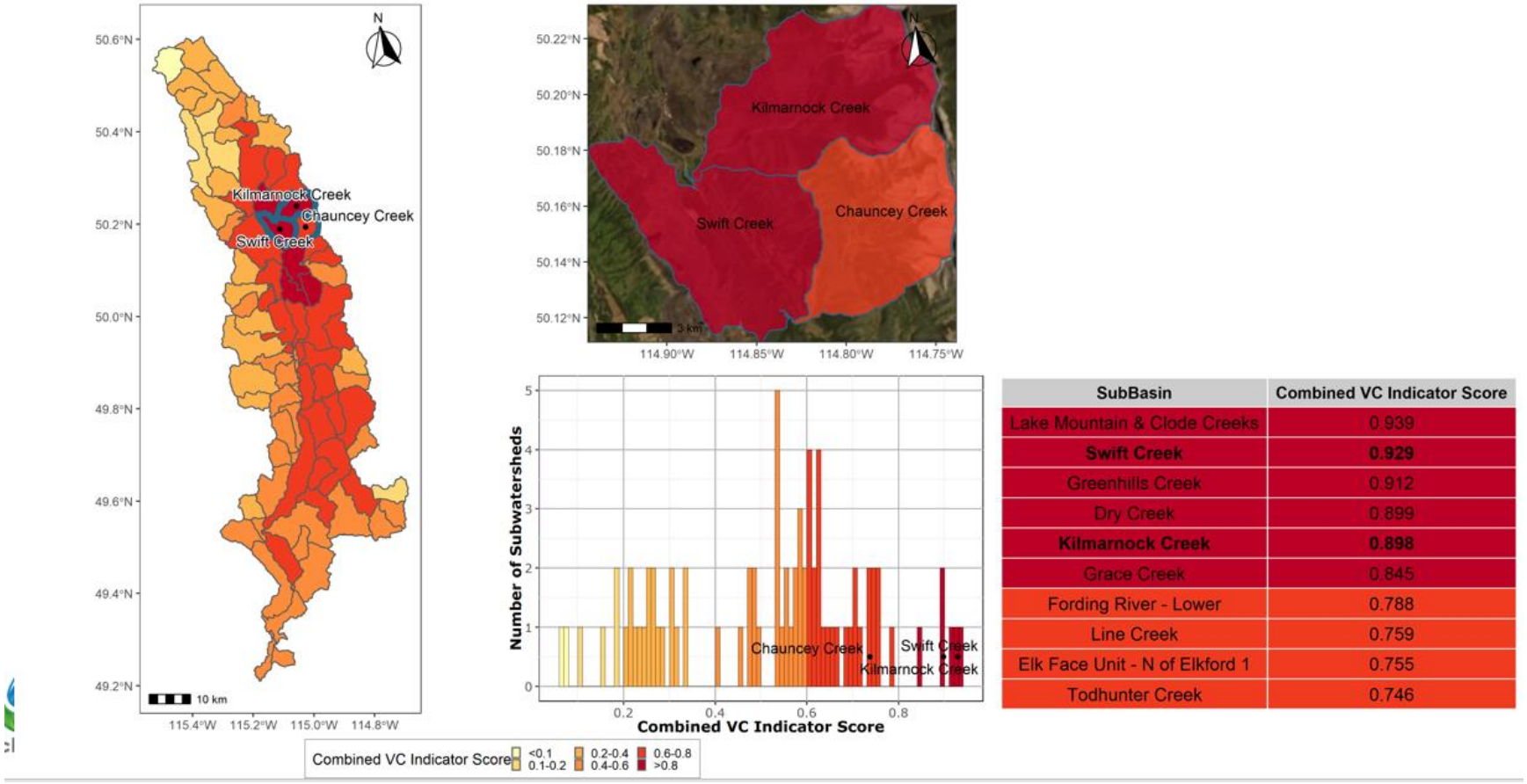


Figure 28. A combined indicator of all VCs for 78 AWs in the Elk Valley. No thresholds of hazard are available for this combined indicator.

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Figure 4: Combined Indicator for all VCs (MacHydro July, 2022)

Combined VC – Current Condition



SubBasin	Combined VC Indicator Score
Lake Mountain & Clode Creeks	0.939
Swift Creek	**0.929**
Greenhills Creek	0.912
Dry Creek	0.899
Kilmarnock Creek	**0.898**
Grace Creek	0.845
Fording River - Lower	0.788
Line Creek	0.759
Elk Face Unit - N of Elkford 1	0.755
Todhunter Creek	0.746

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Appendix 3: Summary of Unmitigable Effects to Ktunaxa Culture from Existing Coal Mines and Contribution of the Fording River Extension Project

Impact	Existing Condition/Cumulative Effects	Contribution of FRX	References
Unmitigable Impacts to preferred Ktunaxa transportation routes, hunting areas, and documented habitation areas on Castle Mountain along Chauncey and Kilmarnock creeks, including hunting trails and long-distance trail connectivity from Whiteswan Lake to the Eastern Slopes (tangible cultural heritage).	As noted in the FRO Swift application, a unique density of preferred Ktunaxa transportation routes exist on Castle Mountain, and along Chauncey and Kilmarnock creeks, including hunting trails and long-distance trails from Qa'intak (Whiteswan Lake) to the Eastern Slopes, and associated cultural use and harvesting areas. Other values in the watershed have already been heavily impacted, including destruction of Ktunaxa places and trails though mining and valley in-fill. Impacts in the upper Fording have been ongoing for more than 50 years (2 generations) and are considered permanent. Trails have been relocated higher up on the south side of Kilmarnock, and require Teck escort. Pre-existing trails, camp areas, and harvesting areas along Chauncey and on Castle are of increased importance as a result. Chauncey trails are largely intact, with some sense of place (sound, visual, and contextual) impacts related to logging regrowth, but with limited sensory impact from coal mining. Use values in the area were reported by multiple Ktunaxa knowledge holders from multiple Ktunaxa First Nations.	The FRX project will lead to elimination of 2330 hectares (2D) of additional habitat and will include destruction or disturbance of more than 10 linear km of existing documented Ktunaxa trail and travel route. Preferred camp and harvest locations along Chauncey, one of the few remaining largely intact watersheds in the upper Fording, will be subject to adjacent blasting and industrialization with sensory impacts extending throughout the valley. Sensory disruption from operational FRX activities (blasting and heavy machinery operation) will impact both sides of the Chauncey drainage. Teck has not demonstrated an ability to reclaim and restore to a culturally and ecologically effective standard where Ktunaxa use can be considered likely to return, equivalent to pre-disturbance, after mining. Impact duration will be greater than 50 years and should be considered permanent. Due to the level of existing impacts and absence of similar habitat in the upper Fording, like for like offsetting is not a feasible option.	2014 FRO Swift Application, Section C3
Unmitigable impacts to Ktunaxa Knowledge and Language, including transmission of place-specific knowledge and future Ktunaxa relationships with the land (intangible cultural heritage)	The FRO Swift application found that additional mining impacts in the FRO area would have serious and significant adverse effects on transmission of knowledge and cultural practice of rights in the surrounding area: "Considering the already significantly impacted context within which Project effects will take place, and absent expressed Ktunaxa free, prior and informed consent, the residual effects of the Project on Ktunaxa rights and interests… including tangible and intangible cultural resources and relationship to lands and waters are anticipated to be adverse and significant. If the Project is built, Ktunaxa citizens will be less likely to hunt, fish, visit and practice rights in areas near the Project and downstream along the Fording and Elk Rivers."	The FRX project will lead to destruction of an important and largely intact high elevation cultural landscape, loss of which will impair or eliminate the ability of Ktunaxa knowledge holders to maintain, build, and pass on place and resource specific knowledge, including knowledge of high elevation hunting and travel, harvest and processing of sheep, and associated cultural practice. Ktunaxa knowledge holders from Yaq̓it ʔa·knuqƛi 'it and other Ktunaxa First Nations have indicated that impacts in the Elk Valley have already been so extensive that maintaining Ktunaxa knowledge and relationships related to the area, which are fundamental to Ktunaxa identity and governance, is already severely challenged. Remaining relatively intact areas, including the FRX Project area, are extremely important as a result. Much of the upper Fording River area as already been lost due to mining: "we cannot do what makes us Ktunaxa in the Fording River Valley anymore, not hunting, no berry harvesting, no fishing." Loss of the Project area will eliminate one of the last and best places for practice of Ktunaxa high-elevation rights in the	2014 FRO Swift Application, Section C3
Unmitigable impacts to Ktunaxa ability to harvest and practice rights dependent on high elevation grasslands (HEG)	Castle mountain provides high-value high elevation grasslands (HEG) that provide unique and preferred hunting areas for Ktunaxa harvest, including sheep, deer and elk. Castle mountain provides a unique combination of accessible and high-quality habitat that sustains reliable densities of animals. Alternative equivalent and preferred hunting areas do not exist nearby. According to MLWRS's exceptions mapping, an estimated 1644 ha of HEG ecosystems in the Elk Valley have already been permanently lost, including large areas that were once part of the FRO mine. Little or none of this habitat has been restored to an equivalent standard of cultural and ecological effectiveness.	The Project would permanently destroy unique and preferred high elevation hunting and harvesting areas that are not replaceable and cannot be feasibly restored.	Cameron, 2022. FRX Readiness Decision – Concerns related to historic loss and present condition of high elevation grasslands in the Elk Valley. EMLI April 22, 2022 letter to Teck RE: Fording Extension Notice of Departure – CX-5-022 2014 FRO Swift Application, Section C3 and C6

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Unmitigable Impacts to Ktunaxa confidence in wild foods, including fish and surface drinking water.	As noted in the FRO Swift Application, as well as other recent EA records, selenium and other metal levels in surface water in the Elk Valley is already beyond safe drinking water standards, and displacement of Ktunaxa practice of harvesting and livelihood rights, including reliance on surface water, is already taking place for many land users. The FRO Swift Application, Section C, found significant adverse residual effects and that Ktunaxa "practices reliant on fish and fishing downstream of the Project are likely to be particularly impacted." C2.2 of the FRO Swift Application indicates: Water in the Elk Valley is understood by Ktunaxa knowledge holders and experts to already be passed a threshold of significant effect to cultural rights and interests as a result of current and past mining activities. As such, anthropogenic changes to water and water flow are of critical concern … and any incremental adverse Project-related residual effect post-mitigation should be considered significant." (c2-8)	The Project will intensify already serious impacts on Ktunaxa confidence in harvesting and eating culturally important ʔa·kpiƛis (Ktunaxa "favourite food") in the Elk Valley, and will result in an additional 50+ years of direct project effects, as well as long term contaminant loading from an extraordinary amount of waste rock, into an already heavily contaminated watershed. Given limited success of existing efforts at mitigation, Project impacts to the confidence of Ktunaxa families in ʔa·kpiƛis, and reliance on the upper Fording and Elk Valley for water while on the land, and Sukiɬ ʔiknaɬa (eating good) , consistent with Ktunaxa cultural practices, are considered un-mitigable.	2014 FRO Swift Application, Section C3 and C5
Unmitigable impacts to commercially valuable and non-renewable subsurface Ktunaxa resources (marketable coal)	Ktunaxa nations maintain commercial rights associated with subsurface resources, including coal in the Elk Valley.	Project would permanently remove large quantities of non-renewable commercial coal from Ktunaxa lands.	FRO Swift Application, section C4; BRE Application, section C.

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Appendix 4: Summary of Unmitigable Effects to the Terrestrial Environment from Existing Coal Mines and Contribution of the Fording River Extension Project

Impact	Existing Condition/Cumulative Effects	Contribution of FRX	References
Unmitigable loss of terrestrial habitat and biodiversity overall	Notwithstanding KNC's concerns on Teck's approach to managing biodiversity, Teck's 2019 Biodiversity Management Plan Workbooks document that an equivalent total of ~14,000 "quality hectares" have inherently been lost to Teck's coal mines. Of this, ~1000 quality hectares are considered (by Teck) as reclaimed, which represents only 7% of the total impacted area. This demonstrates to Ktunaxa that even in Teck's view, reclamation has either yet to occur or be successful for over 90% of the area impacted by mining to date. The 2019 Workbooks also documents the specific ecosystem types that have been impacted and any reclamation done to offset impacts. Of the 25 ecosystem types identified, Teck has only reclaimed 8 of the ecosystem types. For example, no alpine, avalanche, krummholz or wetlands ecosystems have been successfully reclaimed. This demonstrates a lack of feasibility to reclaim areas that are reflective of the original habitats that were destroyed and maintain biodiversity.	The FRX project will lead to an additional 2330 hectares (2D) of additional habitat and temporally delay reclamation of previously disturbed areas of the Fording River Operation (up to 2320 hectares of existing disturbance will be part of the FRX project). Addition of FRX Project will contribute to Teck's current inability to reclaim impacts from their mining operations and mitigate for the loss of biodiversity.	2019 Teck Biodiversity Management Plan Workbooks
Unmitigable loss of red and blue listed high elevation grasslands (HEG)	There are 5 high elevation grassland (HEG) types in the Elk Valley that are red- or blue-listed within British Columbia due to their rarity and high threats from permanent conversion to coal mines and mine infrastructure. The rough fescue type (Gg16, red-listed in 2021, 1280 ha in 2021) and the Idaho fescue type (Gg14, red-listed in 2021, 420 ha in 2021) are restricted to the Kootenays and cover less than 0.01% of British Columbia's land base and 0.5% of the Elk Valley CEMF area. They are not known to occur elsewhere in British Columbia. Almost all significantly sized occurrences of the rough fescue type (Gg16) occur within the east side of the Elk Valley. According to MLWRS's exceptions mapping, an estimated 1644 ha of HEG ecosystems in the Elk Valley have already been permanently lost as a direct result of mine construction at five Teck mining operations. Since 1950, approximately 32% of Gg16 area (~591ha) has been permanently lost to mining developments at Fording River, Line Creek, Elkview, and Greenhills coal mines and 15% of Gg14 area (~72.92ha) has been permanently lost to the same projects. These losses do not include mining exploration roads, which are additional permanent losses of Gg14 and Gg16, which account for an additional approximate 2% loss of Gg16 and 14. These very significant losses, coupled with degradation and overgrazing have resulted in HEG ecosystems approaching and/or exceeding established thresholds for ecological sustainability, irrespective of which risk framework is applied (for example, ≥50% impacted is cited by the IUCN as a threshold for unsustainable ecosystem loss/impact). These HEGs represent critical habitat and winter range for a variety of Species at Risk (SAR), including Bighorn sheep (provincially blue-listed), Grizzly bear (COSEWIC Special Concern; SARA Schedule 1; provincially blue-listed), Wolverine (COSEWIC Special Concern; SARA Schedule 1), Mountain goat (provincially blue-listed), Whitebark pine (COSEWIC Endangered; SARA Schedule 1; provincially blue-listed), and Limber pine (COSEWIC Endangered; provincially blue-listed). These	If extirpated Gg16 is excluded from area calculations, 18% of remaining Gg16 is located on FRX. Proceeding with FRX is forecasted to result in permanent loss of 44% of the total Gg16 from the 1950's baseline. This total loss does not include mining exploration roads, or any other permitted or planned mining projects in the Elk Valley, so permanent losses will be higher. When comparing these losses to draft CEMF objectives, development of FRX would result in Gg16 exceeding the 40% loss benchmark and moving from high hazard to very high hazard. Five percent of the total remaining Gg14 area is within the proposed FRX, representing a forecasted permanent loss of 20% from 1950's baselines. This total loss does not include mining exploration roads, or any other permitted or planned mining projects in the Elk Valley, and so permanent losses will be higher. When comparing these losses to draft CEMF objectives, development of FRX would result in Gg14 impacts moving from a low to medium hazard. Losses of HEGs resulting from mountaintop removal are considered permanent and irreplaceable. Cameron has noted that reclamation of mining exploration roads within Gg16 habitats has proven to be unsuccessful. Unavoidable site/soil alterations coupled with simplified reclamation prescriptions have contributed to resulting "homogenized" vegetation communities that lack the structure, diversity, and functionality of native HEGs. The MLWRS has deemed these "reclaimed" sites as fundamentally different from the HEGs sites lost, and hence not "countable" as reclaimed HEG ecosystems. Based on the massive reclamation deficit in the Elk Valley, even if major technological advances in reclamation science and effectiveness were developed in the future (making it possible to partially reclaim some HEG sites in the very long term), the protracted duration and prohibitive effort and expense required to do so would accrue too late for dependent SAR populations already of high conservation concern and in steep decline at present. Due to accelerating climate change impacts, the feasibility to successfully reclaim HEG ecosystems in future is considered to be even more unlikely, because of increases and/or extremes in seasonal temperature, drought, wildfires, flooding, windstorms, etc. Unpredictable weather events will further reduce the probability of successful vegetation regeneration and/or reclamation success in a more uncertain future, due to predicted broad scale changes to drainage/seepage patterns, with increases in terrain instability, sloughing, wind, erosion, sedimentation, compaction, rutting, riling, and invasive weed establishment and spread.	Cameron, 2022. FRX Readiness Decision – Concerns related to historic loss and present condition of high elevation grasslands in the Elk Valley. Historic HEG Ecosystem Mapping in the Elk Valley (see MLWRS power point presentation provided to KNC); EMLI April 22, 2022 letter to Teck RE: Fording Extension Notice of Departure – CX-5-022 Draft CEMF High Elevation Grassland

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	species, in addition to a range of other animal and plant SAR and biodiversity components, are of high cultural significance to Ktunaxa and are integral components of All Living Things (ʔa·kxaʔmis ɑ̓api qapsin) for which Ktunaxa hold a stewardship responsibility. BC and KNC have been working on draft objectives for HEG ecosystems under the CEMF framework. One draft objective for each grassland community is for loss to not exceed 40% of historic area. With hazard benchmarks of low for >10%, medium for >20%, high for >30% and very high for >40%. That puts the existing condition for Gg16 and Gg14 at a high hazard and low hazard respectively.	The inability to successful reclaim HEG is further supported by EMLI recently rejecting a Notice of Departure for the Multi-Year Area Based FRX Exploration Permit. Teck proposed additional impacts to HEG and information provided by KNC and Cameron informed the decision to not approve the departure due to not being consistent with Condition 13.c. regarding Reclamation Standards. Given the lack of feasibility to recreate HEG (particularly Gg16 & Gg14), one may question if offsets are a viable mitigation option. Unfortunately, due to the rarity of the HEG ecosystems (particularly Gg16 & Gg14), offsets such as conservation of remaining HEG would not result in a net gain of HEG and are hence are not a viable offset to keep losses below the draft CEMF objective of remaining below 40% loss.	Objectives (July 2022)
Unmitigable impacts to blue listed Bighorn Sheep	Winter range is the most important habitat type for blue-listed bighorn sheep in the Elk Valley. Coal mining activity results in permanent loss of natural high elevation winter ranges for bighorn sheep. Properly functioning high quality winter ranges are vitally important for continued survival of bighorn sheep in the Elk Valley. High quality winter ranges comprise only 2.7% of the Elk Valley from Henretta to Elkview, which emphasizes the limited amount of occupied winter ranges in the area. Cumulative effects analysis has provided data on habitat loss. From 1980s to 2015, Rank 4 (highly preferred – natural grasslands) bighorn sheep winter range habitat declined overall by 30% due to loss or alteration along the East side of the Elk Valley. Loss was most severe in the Fording and Ewin Creek subpopulations resulting in a High Hazard rating. Rank 4 habitat is irreplaceable.	Large scale removal of native winter ranges would likely result in a bighorn sheep population decline as this grassland ecosystem is irreplaceable and highly selected by sheep. Sheep wintering on Castle, Todhunter, and Imperial Ridges move mainly among these 3 ranges. Castle comprises approximately 18% of the prime high elevation grassland winter range within the east side of the Elk Valley and 60% of the Castle-Todhunter-Imperial complex. Therefore, permanent loss of Castle winter range due to coal mining activities would result in sheep being displaced and concentrated on the 2 smaller remaining ridges. This would ultimately result in decreased habitat condition due to overgrazing by both bighorn sheep and elk. Portions of this complex are currently experiencing overgrazing habitat conditions. An update and scenario analysis was conducted to assess hazard of bighorn sheep in the Elk Valley in 2021. Rank 3 and 4 winter range habitat was assessed as very high hazard in the Fording and Ewin Creek subpopulations. All rank winter range habitat went from a current condition of moderate hazard for Fording subpopulation and low hazard for Ewin to very high and moderate hazard, respectively, with the proposed FRX included in the modelling. Irreplaceable losses to winter range and rank 4 habitat will lead to unmitigable impacts to big horn sheep that currently utilize Castle Mountain.	Teske, 2022. FRX Readiness Decision – Concerns related to bighorn sheep high elevation grassland winter range loss due to proposed coal mining development.
Unmitigable impacts to Grizzly Bear	Grizzly bear habitat indicator (avalanche chutes, alpine habitat) declines since 1950 are most apparent in the Fording and east Elk LUs. Overall habitat suitability is most impacted by road density (particularly at lower elevations) and associated impacts on connectivity and human-bear encounters. It is notable that this same unit also has the highest female/total mortality of any unit in the Kootenay region, which have exceeded policy thresholds (1.8% of the female population/ and 6% of total population) for the past decade. This apparent elevated risk to Grizzly bears in the Elk Valley associated with elevated road densities, habitat fragmentation, and increased human-bear encounters is linked to cumulative resource development activities such as mining, forestry, recreation, linear corridors, etc.).	FRX will further exacerbate apparent elevated population mortality risks in the Elk Valley. Grizzly Bear collar data collected since 2015 shows activity on and adjacent to the proposed FRX. Since 2015 hair sample data has identified 29 individuals within the Upper Fording area. Hair sample data above Chauncey Creek shows use by 25 individual bears. Data confirms relatively high GB density around the proposed FRX footprint, suggesting that habitat suitability is high. However, some of the bears detected in that area were located further north over that time period, suggesting that they are currently finding their way around the current Fording footprint, as opposed to moving directly through it. The Fording mine represents an obvious current blockage to connectivity on the east side of the EV. The mine footprint extends almost to the “green zone” along the foot of the Rockies, leaving negligible undisturbed area for animals to move north-south. FRX mine expansion will remove a significant amount of highly suitable habitat, and further compromise grizzly bear movement and connectivity depending on how far further east the footprint extends.	Elk Valley CEMF Report 2018 https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/cumulative-effects-framework/regional-assessments/kootenay-boundary/elk-valley-cemf
Extraordinarily high Waste Rock Volumes	Decades of mountain top removal and valley infilling has removed large areas of the Elk Valley, especially in the upper Fording. Teck mines in the Elk Valley have generated approximately 8 billion banked cubic meters (bcm) of waste rock and are permitted and projected (without FRX) to produce a total of 11 billion bcm by 2040. In addition to habitat loss, waste rock is the main source and cause of impact to surface and ground water quality (including high levels of selenium, nitrate, and sulphate)	FRX is expected to produce 4.1 billion cubic meters of waste rock over the life of the Project (Teck DPD, 2021) – which will be more than ¼ of the total permitted waste rock. If FRX is approved and developed and the existing operations continue development as planned, deposited waste rock volumes will approximately double the current volumes. Additional waste rock from FRX will result in additional habitat loss and increased loadings of selenium and nitrate (and other constituents) in the Fording River and downstream watersheds.	Teck Detailed Project Description (2021). Section 3.4 pg 3-67 – 3-68 2022 IPA Appendix A Site Conditions

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Extraordinarily high bonding requirements	The Elk Valley Coal Mines have an estimated liability of $1,708,810,000. Teck currently has a bond of $1,193,310,000 in place (a shortcoming and liability of $515,500,000 remains outstanding). Compared to the other 96 bonded mine sites in BC, the Elk Valley Coal Mines represent 50% of the total liability of mines in BC and are responsible for 45% of BC's provincial short fall in bonding requirements.	Given FRX's significant footprint and waste rock volumes (largest proposed coal mine Project in the history of the Elk Valley), it is reasonable to expect that FRX would significantly increase the liability estimate and bond requirement.	Chief Inspector of Mines 2020/2021 Annual Report

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Appendix 5: Summary of Unmitigable Effects to the Aquatic Environment from Existing Coal Mines and Contribution of the Fording River Extension Project

Impact	Existing Condition/Cumulative Effects	Contribution of FRX	References
Unmitigable Impacts to Surface and Ground Water Quality – Contaminant Loadings	<u>Selenium Loadings</u> According to the National Pollutant Release Inventory (NPRI) for 2021, Teck Coal's Elk Valley Mines release the 1st, 2nd, 4th, 7th and 16th highest selenium pollutant releases to water in Canada (out of 110 operations that release to water). The operational mines are the highest releases, with the 16th attributed to the recently closed (but still leaching selenium) operation. Fording River Operations is the #1 highest selenium release to water in Canada at 5388 kg in 2021 – with Teck Coal's Elk Valley mines totalling approximately 10,000 kg Se/year to Elk Valley waters. Since 2016, approximately 500 to 1000 kg/year (5-10%) is removed by treatment. This proves that Teck has yet to demonstrate the successful removal of selenium loadings that are released each year. <u>Nitrate Loadings</u> According to the National Pollutant Release Inventory (NPRI) for 2021, Teck Coal's Elk Valley Mines released 1,964 tonnes (1,964,000 kg) of nitrate to water in 2021. During this same time period, Teck Coal reports the removal of approximately 91,000 kg (5%) through treatment. Fording River Operations contributed 1,057,000 kg of the nitrate to Elk Valley waters in 2021. <u>Unaccounted for selenium and nitrate loads from current Elk Valley waste rock</u> Teck's 2022 Regional Water Quality Model (RWQM) removes 15% of the load at three respective locations above FRX – one in the Clode aquifer and two in the Kilmarnock aquifer (both located within the area impacted by Fording River Operations). Both of these aquifers are recognized to be contributing to degraded water quality in the Fording River. Should the instream sinks investigations prove that loads are being delayed (through groundwater) rather than naturally attenuated, an additional 45% increase in load may result (beyond predictions of Teck's model) in the Fording River. Teck does not currently capture or treat groundwater and is relying on surface water improvements to diffuse to and dilute current mine impacted groundwater. <u>Unmitigable effects</u> To date, Teck has only proven that they can remove approximately 5 to 10% of the selenium and nitrate released a year. This demonstrates that the loadings from the waste rock are unmitigable. The recent Grassy Mountain federal Environmental Assessment resulted in the rejection of the project due to significant adverse environmental effects (including to water quality). The Joint Review Panel noted the "Experience in the nearby Elk Valley in British Columbia illustrates the challenges and potential costs of dealing with the water quality issues that this project may face." The report also noted that "Members of the public drew similarities between the project and mining operations in the Elk Valley, particularly with respect to the potential for downstream selenium contamination and uncertainty regarding the effectiveness of Benga's proposed mitigation measures."	Waste rock is the main source of contaminant loading from coal mining. FRX is expected to produce 4.1 billion cubic meters of waste rock over the life of the Project, which represents approximately half of the amount of waste rock that is currently placed in the Elk Valley and approximately one quarter of the total permitted waste rock (Elk Valley wide) if FRX is approved. This significant increase in waste rock would be a major source of additional loading of constituents (including selenium and nitrate) and will cause additional impacts to both surface water and ground water quality. The placement of waste rock within the Kilmarnock watershed will contribute more load to the Kilmarnock ground water aquifer which is already carrying high contaminant load and is unconfined (high surface water ground water interactions leading to further contaminate loading of the Fording River).	https://pollution-waste.canada.ca/national-release-inventory/?fromYear=2021&toYear=2021&substance=14207&direction=descending&order=releaseToWater&length=10&page=1 March 31 2022 Annual Water Treatment Performance Report July 31 2022 IPA https://iaac-aeic.gc.ca/050/documents/p80101/139408E.pdf
Unmitigable Impacts to Water Quality - Aquatic Biota	Water quality in the Elk Valley has exceeded provincial and federal water quality guidelines for decades. The recognition of the continually increasing trends of selenium, nitrate, sulphate and calcite led to the issuing of a Ministerial Order to require the stabilization and reduction of these mine related contaminants. This led to an Area Based Management Plan (ABMP) which was developed, approved and made BC policy. This plan, the province's first and only ABMP, was the basis for the valley wide permit which authorized water quality limits at certain locations over time. Recognition of decades of unmitigated mine impacts in water quality required the setting of "protection goals" for aquatic health that were essentially the formal requirements to move from the moderate or high-level impacts down to low level impacts and to reverse the increasing trends. Under the ABMP the permit authorized these effect levels with the goal of stabilizing and reducing levels of contaminants down to a less than or equal to 10% effect (at the population level) within the mainstem Fording and Elk Rivers. The overwhelming number of water quality non-compliances since the permit was issued in November 2014 have led to subsequent ecological thresholds exceedances, as specified in the ABMP ("benchmarks" developed during the EVWQP). For selenium, the ABMP anticipated protection of aquatic life at 4/7 of the Order stations immediately (2014) and 3/7 by Dec 31, 2023. It was anticipated that under the ABMP Level 1 benchmarks (low level 10% effects) would be achieved, with a few places at certain times approaching Level 2 (moderate level 20% effects). This has not been the case, and the Fording River above Josephine Falls (Management Unit 1 of the ABMP) has exceeded Level 2 benchmarks (translating to an expected 20% effect	The significant increase in waste rock is a major source of additional loadings of constituents (including selenium) and would cause additional impacts to aquatic biota.	Environment and Climate Change Canada, Published March 26, 2021 <https://www.canada.ca/en/environment-climate-change/news/2021/03/teck-coal-limited-to-pay-60-million-under-the-fisheries-act-and-must-comply-with-a-direction-requiring-pollution-reduction-measures.html> 2014 BC Ambient Water Quality Guidelines for Selenium Teck Resources Limited 2020 "Annual Information Form"

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	on sensitive aquatic species at the population level) for selenium on multiple occasions and nitrate exceedance have also exceeded Level 2 benchmarks for fish and Level 3 (which translates to an expected ~50% effect on sensitive aquatic species at the population level) for benthic invertebrates. Selenium toxicity in fish results in many adverse effects including reductions in growth; behavioural changes; increased deformity; and increased mortality in early life stages. In the aquatic environment, selenium accumulates in sediments and biota, and can continue to cycle and persist for many years. For birds that feed in aquatic environments, the most sensitive toxicity endpoint is reduced egg hatchability followed by deformity in offspring. As is often the case in selenium toxicity, the adult organism may appear unaffected; however, overall reproductive success and productivity may be negatively impacted. On March 26, 2021, Teck pleaded guilty to charges by Canada (ECCC) under the *Fisheries Act* that waste rock from the Fording River and Greenhills mines have, and continue to, leach deleterious substances, selenium and calcite, into the upper Fording River and its tributaries, and that all reasonable measures consistent with public safety and with the conservation and protection of fish and fish habitat had not been taken. Emphasis on the failure of the ABMP to be appropriately conservative in the protection of the Westslope Cutthroat Trout population through the permitted levels was noted by expert witnesses from both the prosecution and the defense through the released public documents. Teck was ordered to pay a total of $60 million in fines and monetary orders, the largest monetary penalty in Canadian history. This penalty was applied to a single year (2012) and only a portion of the watershed (the Fording River above LCO Dry creek) of Teck's mining operations and their resulting impacts. Teck has publicly reported to their shareholders that they "cannot operate the Elk Valley Mines in compliance with the *Fisheries Act* and its current associated regulations" and has recognized that the ABMP may not be protective of the environment. In their 2020 Annual Information form they reported: "The Elk Valley Water Quality Plan is intended to provide a regulatory framework for permitting current and future projects and for managing the cumulative effects of new projects. The plan contemplates ongoing monitoring of the receiving environment, and adjustment of water quality targets if unacceptable environmental impacts are identified. There can be no assurance that the water quality targets set out in our valley-wide water quality management plan will prove to be suitably protective of the environment, that our planned mitigation efforts will be sufficient to meet those targets or that ongoing monitoring will not disclose unanticipated environmental effects of our operations that will require additional mitigation."		
Unmitigable Physical Impacts to Tributaries	**<u>Physical Destruction and/or Degradation</u>** The Elk Valley Coal Mines rely on a "mountain top removal" or "valley fill" mining method which has resulted in significant and unmitigable impacts to tributaries and aquatic habitat through infilling of valleys with waste rock. It is not feasible to remove waste rock once a valley has been infilled/buried – so any tributary habitat infilled is irrevocably destroyed. Mountain top mining/valley fill began in the early 1970s, and by 2011, 4.5 bcm had already been placed when it was recognized by the province, the federal government (DFO), and Teck that the majority of destroyed or damaged fish habitat had not been appropriately assessed or offset, leading to the signing of the 2011 MOA. The infilling of tributaries has resulted in more than 114 km of tributaries being buried in the Fording River system, and has isolated or disconnected from the Fording River a further estimated 100 km. Teck's Westslope Cutthroat Trout Evaluation of Cause report indicates that only approximately 100 km of fish habitat (1/3 of what was historically available) remains in the Fording River tributaries to support the recovery of the high conservation value WCT. Currently, 10 of 12 (83%) of the tributaries connected to the Fording River above Josephine Falls (MU1) have been destroyed by infill or seriously compromised due to mining. • 6 of 12 tributaries infilled • 10 of 12 tributaries have impacted water quality due to partial infilling or contact with waste rock • 2 of 12 tributaries are unimpacted by mining (Chauncey and Ewin) Under the conditionally accepted Tributary Management Plan (2017 TMP) the top 2 tributaries ranked for permanent protection of their existing state (i.e., reference condition) at both the management unit (Fording River) and the regional level were Ewin and Chauncey. These rankings were determined based on biological merits by technical staff at the province (ENV, FLNRORD), KNC, Teck, and an independent scientist through the Environmental Monitoring Committee. The protection and management of tributaries was an accommodation made to the Ktunaxa nation through EMA permit 107517 and the approval of the ABMP. The province has since identified that this permit condition is unenforceable and the intent of the condition cannot be met. **<u>Physical Deposits – Calcite</u>**	The FRX project proposes to spoil in the Kilmarnock drainage which would impact the current Kilmarnock Clean Water Diversion (mitigation requirement of the ABMP) by further infilling the 57 km of remaining isolated tributary headwaters that is still considered fish habitat despite the recent extirpation of the isolated WCT population in Upper Kilmarnock. FRX will contribute to more calcite formation. FRX will impact the Chauncey drainage and impact 1 of the last 2 remaining tributaries that have not been impacted by mining. Chauncey was identified for protection and developing a mine on top of it in the adjacent watershed will not maintain its current condition. Impacts to Chauncey include fly rock into the Chauncey drainage and a decreased the catchment area/height of land. The FRX pit will go below the Fording River elevation and will divert base flows away from the	Memorandum of Agreement for the Management of Select Coal Mining Impacts on Fish and Fish Habitat within the Elk Valley, BC. March 2011. 2017 Tributary Management Plan (March 2018) EMA permit 107517 DPD – Section 7.1.2 FRX Readiness Decision – Concerns related to existing fish habitat conditions in the Upper Fording River watershed. Josef MacLeod, 2022 Teck WCRT Evaluation of Cause Reports, 2021. https://www.teck.com/media/Upper-Fording-River-Evaluation-of-Cause-Report-December-2021.pdf Administrative Penalty 2018-17 package

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	Calcite precipitation is another mine related contaminant that has led to physical impacts to streambeds that are unmitigable. The deposit of calcite downstream of waste rock leads to the precipitation and accumulation of calcium carbonate on substrates, which in many cases has led to a concretion of the streambed. Recent studies show that even at low levels, calcite concretion negatively impacts benthic invertebrate community structure (reducing sensitive taxa and high value prey items) and fish spawning (where low levels of calcite reduces spawning by more than 10%). In their Opportunity to be Heard (OTBH) submission on toxicity failures (permit 107517 non-compliances) related to calcite deposition, Teck acknowledged impairments to aquatic habitats from calcite. Also in the OTBH, Teck acknowledges that calcite has been observed and investigated since 2004. That there is no current management plan to meet 2024 and 2029 SPOs after 18 years of investigations is of great concern and suggests calcite is not mitigatable. The 2021 Calcite Monitoring Program reported 31.5km of total stream length that exceed the 2024 Site Performance Objective (SPO). Concerns raised by provincial scientists are echoed by KNC, where "Teck's only proposed calcite removal strategy (physical excavation) has not been piloted in field studies and remains unproven as an effective remediation option. Prevention techniques exist but have not been fully implemented to halt new calcite deposition. The scale of the need is already significant; to meet the 2024 SPOs, Teck may need to implement remediation works for approximately 90 km of affected stream (as of 2019 measures). These remediation efforts require temporarily disruptive works such as tributary diversion, dewatering, and salvaging that, if performed in a compressed timeline on the scale required, will likely further destabilize already impaired habitats and pose an elevated risk to a fish. Risks both from currently impaired habitat, future changes and with remediation required are especially high in the upper Fording River where adult WCT populations have shown significant declines, and recovery without additional effects could take 10-15 years. Current level of impacts to fish habitat in the Upper Fording River valley are already significant." (MacLeod, 2022)	Fording River and/or Chauncey Creek. Water quality will degrade due to direct (fly rock) or indirect (road building, groundwater pathways) impacts of FRX.	2021 Calcite Monitoring Program
Unmitigable Impacts to Westslope Cutthroat Trout	Abundances of SARA listed high conservation value (genetically pure) Westslope Cutthroat Trout declined significantly between fall 2017 and fall 2019 in both the Upper Fording River and in Harmer Creek. For the Upper Fording, the Evaluation of Cause (EoC) concluded "the interaction of extreme ice conditions (due to extreme, prolonged, cold air temperatures; seasonal, winter low flows; and low winter snowpack), sparse overwintering habitats and restrictive fish passage conditions during the preceding migration period in fall 2018. While stressors such as cold weather are natural, mining development has altered the availability of overwintering habitats in portions of the river and has exacerbated the challenges to fish passage through water use, channel widening and aggradation." In summary, the aquatic habitat in the Upper Fording is so deteriorated from multiple stressors and cumulative effects, that it caused the collapse of the high conservation value WCT population. "This collapse demonstrates that this population's ability to persist in this landscape has been severely compromised by mining activity." MacLeod Teck is also about to be out of compliance on their Regional Fish and Fish Habitat Management Plan (one of the WCT mitigations that Teck points to in the DPD). The plan was an EoC condition of LCO Phase II EAC. The plan remained in draft since 2015. The condition required the plan to be updated every 5 years (I.e. in 2020) but it has not been. EAO has an issued an order to address this non-compliance. MacLeod has noted that the Provincial Management Plan for West Slope Cutthroat Trout objectives are not currently met within the Upper Fording River and that currently, recreational fishing has been prohibited due to concerns with the low population size of west slope cutthroat Trout in the Upper Fording River. BC and KNC are currently working on an Upper Fording River WCT Recovery Plan that has yet to be finalized.	Existing cumulative effects on West Slope Cutthroat Trout are currently significant and there is a risk that the Project (FRX) may result in increased significant environmental impacts (MacLeod). The effects from the project do not support WCT recovery and will further exasperate the already poor habitat conditions, including impacts to water quality, decreasing flow further (decreased catchment area of the Chauncey drainage and groundwater diversions into the pit) and likely affect one of the core overwintering areas for this population (the S6 oxbow pools, directly adjacent to Castle Mountain and Chauncey Creek).	Teck Evaluation of Cause Reports, 2021. EAO inspection report LCO https://www.projects.eao.gov.bc.ca/api/public/document/62bdd23f1fc84600227e566d/download/LCO-Phase%202%20-%202021-04-27%20Inspection%20Record%20IR2021-017_FINAL.pdf FRX Readiness Decision – Concerns related to existing fish habitat conditions in the Upper Fording River watershed. Josef MacLeod, 2022
Unmitigable Impacts to water flows/water quantity	The EoC determined that the decline to WCT "was caused by the interaction of extreme ice conditions (due to extreme, prolonged, cold air temperatures; seasonal, winter low flows; and low winter snowpack), sparse overwintering habitats and restrictive fish passage conditions during the preceding migration period in fall 2018. While stressors such as cold weather are natural, mining development has altered the availability of overwintering habitats in portions of the river and has exacerbated the challenges to fish passage through water use, channel widening and aggradation". Pits intercept, redirect, and accumulate groundwater and surface water thereby reducing the base flow of the receiving surface waters. The EoC states, "the cumulative effects of water withdrawals and pit development on groundwater flows and down gradient surface water flows are a key uncertainty ". Teck does not have an understanding of how their pit development and other water management structures affect localized flows and fish passage in the Fording River and does not manage the water diverted into pits (pit seepage), ditches, or sediment ponds to ensure that clean water is returned to the Fording River immediately upstream of the diversions.	Impacts to Chauncey catchment area and Kilmarnock (via additional waste rock placement) – will likely alter flows – potential mitigation measures also impact water The FRX pit will go below the Fording River and Chauncey Creek elevation and will divert base flows away from the Fording River and/or Chauncey Creek.	WCT EoC; Cope et al. 2016; 2020 and 2021 FRO Annual Hydrology and Flow Compliance Monitoring Reports.

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	The loss of flow is further exacerbated by water use in the system. The Fording River is already over-allocated for water during flow sensitive months. Flows in the Fording River are close to (or below the) Environmental Flow Needs flows in the FRO consumptive water use licenses and FRO continues to use water for consumptive use during those periods of extreme low flow from shallow groundwater wells in the Fording floodplain or "non-EFN" points of diversions. These non-EFN points of diversion were not thoroughly reviewed by hydrogeologists or specialists during the water license setting process. The authorized points of diversion were set based on operational needs, not environmental ones and are not scientifically defensible. Any diversions from groundwater that is upstream of overwintering habitat will impact the habitat as groundwater inputs drive winter base flows. Similar to the lack of control of effluent for water quality is the lack of protection of environmental flow needs for water quantity.	The project lies along extremely important overwintering and spawning habitat in the Upper Fording that is known to be influenced by groundwater. This is one of the last remaining intact overwintering habitats in the Upper Fording River. Any impacts to groundwater through loss of flows or declining groundwater quality will impact the population. Further deposit of waste rock in Kilmarnock will increase groundwater loading and planned excavation for the project is below the elevation of the Fording River, which will alter groundwater flows and may lead to groundwater inputs into Chauncey Creek, the Fording River, or loss of base flows in Chauncey creek as the surrounding geography is changed. Teck is also proposing an offsetting project for the loss of Swift Creek (an impact from the operation of the AWTF-S) in the Fording River floodplain upstream of Chauncey Creek, immediately adjacent to the FRX project. The proposed offsetting project relies solely on groundwater flow to create additional wetland/tributary habitat. The system also does not have any capacity for additional water use from the project. There is simply not enough flow in the Fording River.	
Unmitigable Impacts to surface and ground Water Quality - Human Health	Impacts to both surface water and ground water quality from coal mining have resulted in surface and ground water that exceeds various drinking water quality guidelines – including the BC selenium drinking water quality guideline (10 ug/L). For selenium, surface water exceedances span from the Upper Fording River down the Fording River to the Elk River and all the way down to Fernie ranging from 208 ug/L at FR4 Fording River compliance point in February 2021 to 10 ug/L in the Elk River at Elko Reservoir. Household drinking water systems in the Elk Valley depend on groundwater wells, not surface water. Teck conducts a Regional Drinking Water Monitoring Program through which Elk Valley residents can volunteer to have their water tested. There have been exceedances of drinking water quality guidelines in several private wells over time, which is concerning given the underestimation of understanding due to the voluntary nature of the program. Given that uncertainty, proximity of impacted wells to other wells is not inferred and only impacted wells are tracked. The District of Sparwood had to decommission and replace their Town Well 3 in the Elk River valley bottom aquifer downstream of Michel Creek due to seasonal exceedances of the BC DWQG for selenium due to mine impacted water quality in the Elk River. In 2021 the Selenium concentrations in the Fernie James White Park wells ranged from 4.9 to 9.9 ug/L Se. (1). Any further increase in the selenium loading to the Elk River valley bottom aquifer may put the Fernie water supply at risk. Current Se concentration in the Elkford water supply well is also above 5 ug/L, higher than the surface water concentration in the Elk and downstream of a large (in terms of percentage of load) sink in the RWQM which may indicate a impacted groundwater pathway.	The increase in waste rock is a major source of additional loadings of constituents (including selenium) and will undoubtedly cause additional impacts to both surface water and ground water quality.	Ramboll, 2021. Draft Human Health Risk Assessment Supporting the Elk Valley Water Quality Plan. Prepared for Teck Coal. October 2021. Appendix C, Table C-2b Teck Detailed Project Description (2021). Section 3.4 pg 3-67 – 3-68 2022 IPA Appendix A Site Conditions

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Unmitigatable impacts to ʔa·kpiɬis (Ktunaxa "favourite food") - Human Health	The draft 2022 human health risk assessment concluded that ʔa·kpiɬis (Ktunaxa "favourite food") from the elk valley is higher than "market basket" and reference area foods. Sukiɬ ʔiknaɬa (eating good) is unique to the Ktunaxa People, consistent with Ktunaxa cultural practices. Preferred consumption rates are estimated quantities required to enable sukiɬ ʔiknaɬa. At preferred rates the HHRA concluded that Ktunaxa are at an increased risk in the Elk Valley due to selenium exposure with cumulative selenium Hazard Indices that are up to 4x higher than reference condition.	The increase in waste rock is a major source of additional loadings of constituents (including selenium) and will undoubtedly cause additional risks to human health caused by selenium (and other contaminant) exposure.	2022 Ramboll, (draft) Human Health Risk Assessment for Permit 107517 Teck Detailed Project Description (2021). Section 3.4 pg 3-67 – 3-68
Unmitigable Impacts to Water Quality - Failure of effective regulatory oversight	**Failure to regulate effluent** The practice of authorizing infilling valleys and tributaries and the use of entire watersheds as "waste rock storage facilities" has led to uncontrolled leaching of contaminants and an inability to control effluent. The scale, volume and placement of waste rock from coal mining activities has led to unmitigable impacts to water quality due to the inability to control mine effluent through a final point of control, as is the standard practice for mine operations nationally. Evidence of this exceptional situation is the Elk Valley Mines being held to a lesser standard than other mines within British Columbia through the ABMP/EVWQP the only Area Based Management Plan in BC and it's subsequent EMA permit 107517) as well as Canada's proposed "Alternative Approach" (vs. the "General Approach" for all other coal mines in Canada) under the draft Coal Mining Effluent Regulations). Both BC and Canada acknowledge that there is no feasible way to control the effluent from the Elk Valley Coal Mines by regulating coal mine effluent through "non-point sources" vs. final discharge points/points of control. Not only do both of these approaches regulate in the receiving environment, they also allow "pollute up to" thresholds that represent effect levels, not environmental protection. This regulatory approach suggests that while other proponents and industries are required to meet water quality guidelines (ecologically protective standards that often have a safety factor applied to ensure protection) the Elk Valley Mines are authorized to release contaminants at rates as high as 65 times that (which they have been unable to comply with). For example, the Elk Valley Coal Mines do not meet the ENV Technical guidance document - Development and Use of Initial Dilution Zones in Effluent Discharge Authorizations and Teck has publicly reported to their shareholders that they "cannot operate the Elk Valley Mines in compliance with the *Fisheries Act* and its current associated regulations" and has recognized that the ABMP may not be protective of the environment. Rather than the compliance being measured at "end of pipe" final points of control as is typically required in effluent management, the ABMP's compliance points (and Order stations) are locations within the receiving environment that captures "all or most of the point and non-point discharges from the mine site" upstream. By setting limits in the receiving environment, non-compliances are of high ecological significance; however, the regulatory regime is not set up to enforce these non-compliances in a timely and effective way to protect the environment. Administrative penalties by BC ENV on non-compliances for selenium and nitrate exceedances, and multiyear delays on required mitigations are still underway (since January 2019 deadlines). **Failure to meet intent of accommodations made to the Ktunaxa Nation** The conditional acceptance of the ABMP and the subsequent EMA permit 107517 (as well as the EMLI C permits) included accommodations such as the inclusion of tributary protection and management condition, the requirement for a human health risk assessment, the requirement to assess a site-specific protective standard for Koocanusa, and dual regulator approach (ENV and EMLI) to ensure that water quality mitigations were implemented and that the intent to stabilize and reduce contaminant trends was stabilized and reversed. As Teck has failed to meet these permit requirements, so has BC failed to enforce their own conditions. Since the approval of the ABMP 8 years ago, Teck has not been appropriately regulated, bonded, and government has not demonstrated the ability to protect the environment through this plan. Both ENV and EMLI are actively updating permits to reduce their liability with ensuring compliance with mitigation plans. Penalties have been to date a cost savings to Teck Coal -(i.e. paying 1 million for being late vs 33+ million plus to run for three years). Required mitigations (EMLI) such as the Kilmarnock clean water diversion was destroyed in 2013, was required as part of the approved mitigation plan in 2014, but Teck chose not to conduct any repairs or additional work until 2019. EMLI issued their first administrative penalty to Teck Coal (ever) in 2021, with a second in 2022 (total of $360K) - both related to safety. Prior to 2015, the maximum penalty issues from BC ENV to Teck Coal was $575. Since the issuance of the valley wide permit, Teck Coal has paid $670.4K to BC ENV C&E.	FRX would fall under the ABMP/EVWQP and permit 107517 and would likely be held to the "Alternative Approach" under CMER due to the fact that some waste rock will be deposited within the existing FRO footprint. Therefore, even though FRX will be a "new development" it will still likely be held to the lesser standard of the "Alternative Approach". Extending mining 50 years, extends the amount of time until reclamation several decades beyond that, and extends the amount of time that the water requires treatment for hundreds of years.	https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/guidance-documents/tg11_development_and_use_of_idz.pdf https://www.canada.ca/content/dam/ecc/documents/pdf/managing-pollution/sources-industry/cmer-remc/CMER-Discussion-Document.pdf https://mines.nrs.gov.bc.ca/enforcement-actions/administrative-penalties Elk Valley Water Quality Compliance Summary 2022 Q1 (June 21, 2022) Teck Resources Limited 2020 "Annual Information Form"
Unmitigable Impacts to Water Quality – Non-Compliances	**Provincial Non-Compliances (Environmental Management Act Permit 107517)** Teck has failed to meet the Permit 107517 limits for selenium and nitrate since 2015 at the Fording River Compliance Point and the Line Creek Compliance Point. These failures have, over time, culminated in exceedances of the Fording River Order station and the Koocanusa Reservoir Order station (the most downstream location in the Area Based Management Plan). Since the Permit was issued the FRO Compliance Point has been out of compliance 25-75% of the year (depending on year):	Waste rock is the main source of contaminant loading from coal mining. FRX is expected to produce 4.1 billion cubic meters of waste rock over the life of the Project, which represents approximately half of the amount of waste rock that is	Draft 2022 IPA April 7, 2022 Teck letter to KNC – update on Readiness.

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	FORDING RIVER COMPLIANCE POINT NON-COMPLIANCES In addition to the compliance point exceedances, in 2021 the Fording River Order Station had 6 monthly average selenium exceedances and 5 monthly average nitrate exceedances. The Koocanusa Order station had 2 monthly average selenium exceedances. Order stations were set in the permit with the intent of protecting the aquatic ecosystem units in the long term (Dec 31, 2023 for Fording River and 2014 for Koocanusa) and the compliance limits were back calculated to ensure that the Order Station SPOs would be met while the ABMP was implemented. In addition to projecting non-compliance with the provincial permit for selenium concentrations at the Koocanusa Reservoir Order Station until 2028 (at the currently permitted limit of 2 ug/L.), Teck is aware that the province and KNC have a draft selenium water quality objective of 0.85 ug/L, and the release of this objective will require the reassessment/reduction of the Koocanusa permit limit. This objective is based on the most sensitive use of the waterbody, which in this case is the protection of Ktunaxa fish consumption. The regional nature of non-compliance with the valley wide permit is significant. In their 2021 Annual Water Quality Report, Teck Coal reports 142 exceedances of discharge limits and site performance objectives at nine locations. The 2022 IPA reports that 20 mitigations (treatment facilities) will be required to meet existing permit requirements to 2053. Since the Initial Implementation Plan was approved in 2014, the required mine impacted water to be treated has increased from 130 million liters per day to 206 million liters per day (in order to achieve compliance with the current permit limits). While Teck currently has 47.5 million liters/day of treatment capacity with the addition of FRO-S AWTF, average treatment volumes in 2022 have been 20-27 million liters/day (January to July). According to Teck, “this is the largest water quality management program of its kind anywhere in the world” with more than $1.2 billion spent (so far) to implement the EVWQP and plans to invest a further $750 million.	currently placed in the Elk Valley and approximately one quarter of the total permitted waste rock (Elk Valley wide) if FRX is approved. This significant increase in waste rock would be a major source of additional loading of mine contaminants (including selenium and nitrate) and will cause additional impacts to both surface water and ground water quality, further limiting Teck’s ability to meet existing and future permit limits. Recognizing that water quality at the international boundary is currently resulting in Canada violating the 1909 Boundary Waters Treaty (based on 8 billion cubic meters of placed waste rock) and Teck cannot currently meet this criteria (nor indicate when they could achieve it by) the approval of FRX would increase the magnitude and duration of the Boundary Waters Treaty violation.	https://www.teck.com/media/Q4-Financial-Report-2022.pdf BC ENV PAF 2019-06 and 2019-22 and 2021-25 107517 Annual Water Quality Report (2019-2021) Teck Q4 2021 Financial Report *EMA* permit 107517

Year	Number of Monthly Average Selenium Exceedances	Number of Monthly Average Nitrate Exceedances	Number of Monthly Average Sulphate Exceedances
2015	3		2
2016	3	2	2
2017	5		2
2018	7	3	6
2019	4	2	4
2020	7	2	1
2021	9	10	

Unmitigable Impacts to Water Quality – Boundary Waters Treaty Violations	**<u>International exceedances and implications</u>** A site-specific water quality criterion of 0.8 ug/L selenium for Koocanusa Reservoir was set for Montana by US EPA at the International Boundary in February 2021. Current selenium concentrations indicate that Canada is in violation of the Boundary Waters Treaty of 1909, which states that “waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other.” This violation has led to the transboundary Ktunaxa Nation requesting a federal referral to the International Joint Commission in 2021. Teck has publicly stated that the Montana water quality standard may not be achievable with existing technology. This suggests that despite the massive cost and size of the current and planned mitigation measures (the largest in the world to Teck’s knowledge), Teck’s current authorization will not meet the US EPA standard with existing technology and Canada will be in violation of the 1909 Boundary Waters Treaty. The current selenium concentrations in the Kootenai River in Idaho (downstream of Koocanusa Reservoir) have also triggered impairment listings from the Idaho Department of Environmental Quality. The Kootenai River from the Idaho/Montana border to Deep Creek has data been listed as ‘impaired for selenium’ based on recent data. Based on the current data for selenium in both fish tissue and water column concentrations in Koocanusa Reservoir at the international boundary, “The CSKT and KTOI firmly believe the approval of the Fording River Extension Project will cause irreparable harm to the Kootenai Basin ecosystem.” Increasing selenium trends persist more than 300 km downstream in the Kootenay River at Creston.	This significant increase in waste rock would be a major source of additional loading of mine contaminants (including selenium and nitrate) and will cause additional impacts to both surface water and ground water quality. Recognizing that water quality at the international boundary is currently resulting in Canada violating the 1909 Boundary Waters Treaty (based on 8 billion cubic meters of placed waste rock) and Teck cannot currently meet this criterion (nor indicate when they could achieve it by) the approval of FRX would increase the magnitude and duration of the Boundary Waters Treaty violation.	CSKT/KTOI Readiness Report Letter. 2022 April 7, 2022 Teck letter to KNC – update on Readiness.