Proposed Information Requests on the Sufficiency and Technical Merit of the Grassy Mountain Coal Project's Environmental Impact Assessment - Addendum 11				
Submitted by: Ktunaxa Nation Council				
Submitted to: Joint Review Panel Grassy Mountain Coal Project (IAAC.GrassyMountain.AEIC@canada.ca) on May 4, 2020				
ID #	**nc**	**Section of EA** (i.e., 6.1.2)	**Subject** (i.e., Surface Water Quality)	**Comment**
1	Christopher Burns (KNC)	Addendum 11 Fish and Fish Habitat Information Request 6.14	Fish and Fish Habitat	The IR response states that "Figure 6.14-1 displays the water management infrastructure discharge locations and observed spawning habitat only." However, according to Section 4.1.4 WSCT Spawner Survey in the Fisheries and Aquatics Technical Baseline Report (Hatfield 2016) it is not clear from the spawning survey whether all mature fish in Blairmore Creek and Gold Creek were actually observed spawning or just observed. Observations of fish does not confirm spawning. Were redds observed? Please clarify. In addition, how do the distribution of observed mature fish correlate with the habitat data in the reaches/segments they were observed in? For example, were the mature fish observed in areas determined to be of high spawning habitat quality? Please clarify.
2	Christopher Burns (KNC)	Addendum 11 Fish and Fish Habitat Information Request 6.15	Fish and Fish Habitat	There are several references throughout this IR response rationalizing that the predicted changes in water temperature are well below the Westslope Cutthroat Trout incipient lethal temperatures and therefore there are no predicted project related effects. While this is true, water temperatures changes are also known to have sub-lethal effects on trout, such as growth, reproduction, feeding, prey availability, etc. However, these potential impacts were not discussed. The proponent should discuss these sub-lethal/prey impacts in relation to the proposed temperature changes that supported with appropriate scientific references.
3	Christopher Burns (KNC)	Addendum 11 Surface Water Quality Information Request 6.23	Surface Water Quality	The IR response states that "The AMP's mitigation effectiveness evaluation and adaptive management approach will focus on establishing indicators and thresholds according to baseline characterization, improved practices based on research and monitoring results, and input from the public engagement and Indigenous consultation programs." The development of an effective and adaptive management approach requires that sufficient data is gathered to support a BACI design and that applicable sampling/analysis standards are followed. KNC has previously identified numerous data deficiencies and gaps in the proponent's baseline data. These concerns were commented upon; however, KNC has not received responses to date regarding those concerns. Responses to these comments would have led to greater project understanding and communication with the proponent to resolve those concerns. The high-level concerns are related to: - Lack of clearly identified near-field, mid-field, far-field exposure sites and reference sites which are critical to study objectives. There is no rationale provided for their selection (e.g., downstream of discharge), which is important for designing the sampling program. The site designation (i.e., near, mid, far, reference) should be tied to the mine plan and potential project effects. - Lack of appropriate fish species selection. Multiple different species were collected at a site(s) to form composite samples which is not standard practice as different species can accumulate metals at varying rates. - Lack of recognizing the importance of collecting all biological information (e.g., liver size, gonad size, age structures) from lethally sampled fish to support baseline characterization and EEM development. The lack of this data can have a significant impact on the EEM programs ability to detect change. - Inadequate fish and aquatic sampling (periphyton, benthic invertebrates) in the Crowsnest River to monitor potential project related effects. - Periphyton and benthic macroinvertebrate sampling at the wrong time of year. - Limited temporal sampling which was largely restricted to one year. While the proposed AMP does attempt to provide greater clarity on the AMP components. Many of the specifics are largely left out, which will be developed at a further date. The lack of sufficient baseline data has serious implications on the proponent's ability to detect change (if any) and the overall mine construction plan. Multiple years of baseline data are required to develop a statistically robust AMP which must be factored into the overall mine construction plan.
4	Christopher Burns (KNC)	Addendum 11 Aquatic Monitoring Plan	Aquatic Monitoring Plan	The AMP states that "Indigenous consultation to date has focused on identifying traditional knowledge and VCs related to fisheries, aquatic environment and water itself. This has been used as input into the EIS and the development of the Project." This statement is incorrect. KNC has not been engaged by the proponent to inform the development of the EIS, development of the project, nor the AMP.

5	Christopher Burns (KNC)	Addendum 11 Aquatic Monitoring Plan	Aquatic Monitoring Plan	The proposed AMP requires further improvement. The monitoring metrics listed in Table 6.2-1 Aquatic Effects Monitoring Locations and Activities lack key monitoring metrics (e.g., benthic tissue sampling, etc) and the sampling locations are vague. The AMP goes on to state that "Going forward, Benga has committed to developing an Indigenous monitoring program in cooperation with Indigenous groups to work in parallel with other western science-based monitoring programs. In addition, Benga will consult with Indigenous groups in developing the final AMP through a series of workshops." KNC welcomes the oppotunity to refining the AMP so that it can accurately monitor potential project related effects.
6	Katrina Caley (KNC)	6.17	Surface Water Quality	In the response a), the proponent states that flows in Blairmore Creek will not be impacted if water from the SBZ needs to be retained on site because flows in Blairmore Creek are expected to be higher than current baseline flows. Addendum 1, Appendix A3, Section 2.2, Figure 2-3 only shows average hydrological conditions for Blairmore Creek. It would be helpful to see 95% CIs around those values to see the potential variability of hydrological conditions. What percentage of flows would the SBZ contribute to the total instream flow of Blairmore Creek? Under below average hydrological conditions, would instream flows still be met if water quality objectives were not being met and water had to be retained on site? Have climate scenarios been factored into these calculations? If not, please evaluate instream flows under the different climate change scenarios, taking into account the above scenario of on site water retention due to water quality objectives not being met.
7	Katrina Caley (KNC)	6.18	Surface Water Quality	I am concerned about the timeline for surface water quality treatment with respect to when treatment strategies come online, as well as redudancies or contingency plans. It would be helpful to see a figure indicating when: i) construction for each strategy will begin, ii) they will come online, and iii) be at full capacity, as well as any contigency plans for each step all within in the context of the mine plan.
8	Craig Candler (KNC)	Addendum 11, Response to IR 6.7	Significance determination: Ktunaxa current use of lands and resources	Based on CEAA practitioner guidance, characterization of effects and significance determination are distinct steps in the EA process. As indicated by the Panel in IR 6.7, " Benga did not provide an explanation of how the significance criteria were applied to the residual effects nor did Benga provide a rationale for how the conclusion of “not significant” was made." Benga's response to IR 6.7 provides additional information regarding how Benga characterized residual effects on current use of lands and resources by the Ktunaxa Nation and other Indigenous groups. The proponent indicates that "significance criteria used to characterize significant effects were described in Table 3.3-1 in Appendix 4.1-1 (Addendum 10, CIAR#251) and are provided below for reference as Table 6.7-1." However, table 6.7-1 includes criteria for characterizing residual effects, not determining significance. The proponent then goes on in Table 6.7-7b (original table 9.4.4-1) to provide a summary of the proponent's characterization of effects, but regardless of characterization, all Project effects on the Ktunaxa Nation are identified as 'not significant'. The proponent provides no clarity regarding what criteria or thresholds were used in order determine if Project effects on the Ktunaxa Nation are 'significant' or 'not significant'. Per standard CEAA practice, please clearly identify the threshold of significance used for determination, and how residual effects, especially those characterized by the proponents as at least moderate magnitude, permanent, irreversible, and occuring within an already vulnerable or sensitive context, were deemed to be 'not significant'.
9	Craig Candler (KNC)	Addendum 11, Response to IR 6.7	Characterization of effects Ktunaxa current use of lands and resources	Table 6.7-1 provides the criteria used by the proponent to characterize Project effects on an Indigenous Nation's current use of lands and resources. The criteria of magnitude is divided into negligable- low-moderate-high and involve characterization of effects as within our outside 'normal annual variability' and whether effects may extend to the RSA or not. From the baseline and information provided , it is difficult to understand if, or how, the proponent identified the bounds of a 'normal annual variability' in order to determine Magnitude. It is also unclear why the Proponent blended a criteria for extent (within the LSA or RSA) with the criteria of magnitude - based on CEAA practice standards, magnitude and extent are required to be independent parameters for characterizing residual effect. Please clarify how the proponent determined the magnitude of Project effects on the Ktunaxa Nation and other Indigenous Nations.
10	Craig Candler (KNC)	addendum 11, Response to IR 6.7	Trails and Travelways: magnitude and context	Table 6.7-7a, under hunting: use or access to hunting locations and hunting methods, 3rd bullet, indicates "residual effects on trails and travelways was assessed as moderate magnitude". Further in the table, under Trails and Travelways, the proponent indicates magnitude to be low, and the context is 'resilient' because the Ktunaxa Nation does not "currently actively use" the trails and travelways. This is incorrect in several regards 1) Ktunaxa use of trails and travelways is not limited to actual travel, but includes their use in teaching, conveying oral histories and as commemorative features that are known and pointed out as people travel through the area. This use is current, ongoing, and consistent with definitions under CEAA 2012 practitioner guidance. 2) A major ancestral Ktunaxa travel route follows the Crowsnest Pass and approzimately follows the current route of the Crowsnest highway - despite impacts and upgrading of this route for motorized use, this route is still in very active use by Ktunaxa citizens as a modern travelway. Please correct the characterization of effects on Trails and Travelways. Ktunaxa use is active and ongoing - magnitude should be moderate at least. Please also consider that creation of modern routes and roadways has had a very serious impact on the overall ability of Ktunaxa citizens to use ancestral trails and travel routes. As such, context should be considerd seriously impacted and vulnerable rather than resilient.

11	Craig Candler (KNC)	addendum 11, Response to IR 6.7	Fishing and Plant Gathering: magnitude and context	Table 6.7-7a, under fishing and plant gathering, states that Ktunaxa harvesting in the area is not currently active. This is incorrect. Ongoing Ktunaxa practice of oral histories include accounts of the full suite of Ktunaxa rights practiced in the area, including subsistence and governance rights. Given the importance of the area, and known Ktunaxa village sites in the nearby vicinity, it is likely that Ktunaxa citizens relied on the Project area, to the extent possible, for fishing and plant harvesting, as well as a full suite of other practices prior to colonial constraints. As Ktunaxa citizens increasingly participate in the area again, it is reasonable to expect that Ktunaxa access to plant and fish, as well as other resources, will return and be a critical component of Ktunaxa use of lands and resources in the area into the future. This is consistent with current use as defined in CEAA practioner documents.
12	Craig Candler (KNC)	addendum 11, Response to IR 6.7	Subsistence use and reversibility	Table 6.7-7a and 6.7-7b indicate that impacts on Ktunaxa subsistence use (hunting, fishing, plant gathering) is anticipated to be reversible. Generally, an interuption of Indigenous practice for more than one generation (approx. 23 yrs) is considered permanent. Rationale in 6.7-7a indicates that the proponent assumes that following reclamation, Indigenous harvesting practice will return. Given performance of past mines in the area, it does not seem precautionary to assume that Project disruption of Ktunaxa subsistence use in the Project area will be less than 23 years. It also seems likely that reclamation will not be of sufficient quality to reliably anticipate that Ktunaxa subsistence use will return following reclamation.
13	Craig Candler (KNC)	addendum 11, Response to IR 6.8	Cumulative effects and determination of significance	IR 6.8 asks the proponent to consider cumulative effects of the Project on Indigenous Nation's current use of lands and resources and cultural and physical heritage of Indigenous people. Part B of the IR indicates that the proponent should " Use the Canadian Environmental Assessment Agency's interim Technical Guidance for "Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012" to guide the cumulative effects assessment." Within that document, Step 4, significance determination, states "An EA must consider the significance of any cumulative environmental effects that are likely to result from a designated project in combination with other physical activities, taking into account the implementation of mitigation measures. Significance predictions in relation to cumulative environmental effects should be clearly presented and rationalized against defined criteria consistent with the Canadian Environmental Assessment Agency's reference guide Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects (November 1994), or any future updates to this document." The proponent's response to IR 6.8 appears to provide a partial characterization of cumulative effects that does not consider contex (as required under CEAA guidance), and provides no determination of significance, and no defined criteria for significance determination (again, as required) . The proponent also appears to have generalized the cumulative effects assessment across all Indigenous groups resulting in a blended assessment. Where the Project has residual effects, please provide a clear characteriztion of cumulative effects that includes consideration of context, and provide a clear significance determination, with accompanying rationale, that is customized to the anticipated cumulative effects on each Indigenous Nation separately. In particular, please consider the destruction of bison herds and alienation of Indigenous practice in surrounding areas, including private land and national Parks, as well as other cummulative impacts on Ktunaxa and other Indigenous use in the area.
14	Craig Candler (KNC)	addendum 11, Response to IR 6.4- 6.8	Assessment of Impacts to Ktunaxa Rights	While related to assessing impact to factors under 5(1)c of CEAA 2012, consideration of the importance of Project impacts on Indigenous Rights under CEAA 2012 is broader than and separate from an assessment of issues related to current use of lands and resources and Indigenous heritage. The CEA Agency has an established example of Indigenous rights assessment based on work with the Mikisew Cree First Nation for the Teck Frontier JRP. The terms of reference for the Grassy Mountain panel clearly indicate that the Panel must include consideration of Project impacts on Indigenous rights. Please provide clarity regarding whether the Proponent or the Crown will undertake a fullsome assessment of impacts on Ktunaxa rights themselves, as well as those of other Indigenous Nations, and how this work will be undertaken.
15	Jesse Sinclair (KNC)	Addendum 11 - IR 6.16 Response	Surface Water Quality	The response to the IR (6.16) references the bioaccumulation model used to infer that westslope cutthroat trout reproduction would be protected (i.e., egg tissue concentrations below the EC10 of approximately 24 mg/kg dw). Please provide a reference to the model derivation documentation for review.
16	Jesse Sinclair (KNC)	Addendum 11 - IR 6.17 Response	Surface Water Quality	The IR (6.17) refers to an estimated 3 years to develop a selenium treatment plant. Work in the Elk Valley has demonstrated a period of 5 years to develop a plant with an additional year of ramp-up to operational efficiency. The company should provide rationale for a 3 year commission, construction, and ramp-up time. In addition, the company should demonstrate sufficient sufficient storage should a treatment plant take 5-6 years, similar to other sites (i.e., the Elk valley).
17	Jesse Sinclair (KNC)	Addendum 11 - IR 6.18 (j)	Surface Water Quality	IR 6.18 (j) speaks to some of the key factors that may drive variations in selenium efficacy in the gravel-bead reactors, including: seasonal changes in temperature, water flow rates, influent selenium concentrations, and operational limitations (termed restriction points in the IR). Could the company speak to the longevity of the gravel-bed reactor as a factor that may control selenium (and nitrate) removal efficacy? That is, over time, will efficacy decrease?

18	Jesse Sinclair (KNC)	Addendum 11 - IR 6.19	Surface Water Quality	IR 6.19 speaks to the efficacy of selenium removal via the saturated backfills. The company has previously assumed removal of 99% of influent selenium (response to IR 5.5). In this addendum, the company has conducted a sensitivity analysis that demonstrates approximately 95% removal is needed to achieve selenium guidelines for the first 20 years from the onset of construction; after which selenium guidelines would be exceeded. If only 90% efficacy could be achieved, the selenium guideline would be exceeded after year 10. The company should demonstrate contingency planning in the event that the saturated backfills do not operate to the assumed efficacy. In January of 2019, KNC submitted the following comment: *Considering that it is concluded within the EIA that "highly effective selenium attenuation will be required for the Grassy Mountain Project in order to present [sic] water quality effects in the local creeks." (Page C-151), the EIA is lacking in a description of contingency planning (e.g., active water treatment) to deal with selenium and nitrate in the event that the semi-passive saturation zone treatment is not effective. This becomes important as it is of the reviewer's understanding that no saturated rock fills have been approved by regulatory agencies as a treatment method in either British Columbia or Alberta.* *Any contingency plan should include adaptive management measured that ensure that siting, commissioning, and optimization of any alternative treatment technologies can occur prior to the realization of water quality effects in the receiving environment.* To date, no response has been issued to our comment.
19	Jesse Sinclair (KNC)	Aquatic Monitoring Plan	Sublethal Toxicity	I recommend that a non-salmonid (e.g., fathead minnow) be included in the suite of species for sublethal toxicity testing to represent non salmonid (specifically cyprinids) that are in the watershed.
20	Jesse Sinclair (KNC)	Aquatic Monitoring Plan	Benthic Invertebrate Community Structure and Tissue Chemistry	I recommend that benthic invertebrate community structure and tissue chemistry be monitored annually as tissue chemistry has been demonstrated (in the Elk Valley) to be a sensitive indicator of selenium loading and/or variations in selenium speciation. In addition, selenium burden in benthic invertebrates can be used to validate the bioaccumulation models.