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From: H. McGregor [mailto:hmcgregor@syilx.org]

Sent: Monday, October 26, 2009 9:26 AM

To: Leatherbarrow, Kate EAO:EX

Subject: RE: Mica Units 5 and 6: follow up to Sept. 9 working group meeting

Hello Kate.

I have attached the Okanagan Nation Alliance technical comments on the Mica Unit 5 and 6 EACA.

Thank you.

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October 24, 2009

Without Prejudice to Aboriginal Title and Rights

Brian Murphy
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Re: ONA Technical Review Comments on the Mica Generation Station Unit 5 and Mica Generation Station Unit 6 Project Environmental Assessment Certificate Application (EACA) Report as part of the EACA for the Mica 5 and Mica 6 Project

Overview

The Okanagan Nation Alliance (ONA) review of the EACA Report is part of the application assessment work associated with the intended Environmental Assessment Certificate Application for the Mica 5 and Mica 6 project. This document is a follow up of past correspondence with BC Hydro on the project. This correspondence intends to build on the beneficial working relationship with BC Hydro established in past projects within the ONA traditional territory.

The Okanagan Nation has a long established and recognized territorial and cultural claim to this region and as a result takes its responsibility to the environment and its aboriginal rights, title and interests very seriously. The governments and corporations operating within traditional territory have a legal responsibility to consult and accommodate the Nations who exercise their rights on the traditional lands in question that are slated for development or augmentation.

This project clearly is located within the territory of the Okanagan Nation. The Okanagan National Alliance (ONA) is the national organization that exercises the collective interests, title and rights on the land for seven Indian Bands throughout the region.

Highlights of ONA concerns regarding the EACA Report of the Mica 5 and Mica 6 project and the maintenance and protection of the fish populations and the aquatic ecosystem are listed below. Comments provided are based on the information included in the EACA Report for Mica 5 and Mica 6 project published by BC Hydro, July 14 2009.

The Okanagan Nation Alliance is pleased to respond to the Mica Unit 5 and Unit 6 EACA Report. It is important to state at the outset that the addition of these new generating units would be an infringement to the Okanagan Nation's title and rights. This proposed infringement is additional to the existing and unresolved infringements by the current dam facilities, upon which the new generating units are wholly dependent. The ONA has repeatedly expressed our long-standing concerns in respect to BC Hydro's broad operations within Okanagan Territory which have separately and accumulatively infringed the ONA's Title and Rights and impacted the ONA's way of life. The analysis set out below is not exhaustive nor does it represent all the interests of the Nation but is a technical examination of some aspects of the draft TOR and Core Committee Report by the ONA. It does not condone the past, present or future activity of BC Hydro in the ONA's Territory. The goal of the ONA in providing these technical comments is to help avoid and minimize environmental impacts within the ONA Territory, and in that regard, to assist the ONA in addressing the Nation's collective interests.

Any engagement of the ONA with the Province through the EAO's office or otherwise, including the drafting and implementation of the EACA Report, shall not be interpreted or relied upon as an admission, agreement or acknowledgement by the ONA of Provincial jurisdiction over, or ownership of, the lands and resources within the Okanagan Territory. The scope of this feedback is limited to a cursory analysis of the ONA's technical terms and does not allow for the inclusion of the critically important Syilx Ecological Knowledge held by many of the Okanagan Elders and knowledge keepers within the nation's communities.

There are both general and specific issues that concern the ONA with the EACA Report. The ONA has concerns with the continual usage of the term "*consultation*" throughout the document. The ONA wants to establish a genuine accommodation process of Okanagan interests based on shared decision making, collaborative land and resource planning and revenue and benefit sharing. The EACA does not reflect these goals, which are now the principles of the New Relationship adopted by the Premier. Similarly, the term First Nations appears vague and undefined. The unique and distinct nature of the Okanagan Nation must be specifically recognized, and the interests of the ONA addressed in an inclusive and transparent manner.

It is of concern to the ONA that the approved Terms of Reference fail to require the EACA to include a meaningful Okanagan Nation engagement and review regarding the existing infrastructure, such as dams, reservoirs and transmission lines, although they facilitate the proposed Mica 5 and 6 project. Including a meaningful Okanagan Nation engagement and review will require amendments in the First Nations' Consultation, and the definition of Project to require a review of past and ongoing impacts and resulting concerns. Furthermore, the EACA does not adequately review cumulative impacts of the existing infrastructure and the proposed Mica 5 and 6 project. The BC EAO is largely silent on the notion of cumulative impacts, but in the ONA's opinion, it is insufficient to simply attempt to investigate the individual impact of an "incremental" change to an existing system in isolation of all related operations in the watershed.

The scope of assessment in the EACA Report need to be expanded to properly consider all potential impacts and infringements to Okanagan Nation Title and Rights. This is imperative if the Crown intends to rely upon the EAO process to satisfy their lawful obligations to consult and accommodate First Nations.

The Okanagan Nations' Chief Executive Council (CEC) has recently ratified and implemented the ONA's Impact Assessment and Decision-Making Process for all major proposed development, such as Mica units 5 and 6, on the territory. This process articulates the different stages of analysis and the roles and responsibilities for all proponents and crown actors for a specific project. The EAO and the proponent must become familiar with this process and ensure that it is respected during the EA review.

There are particular sections of the EACA that raise questions for the ONA.

- **Entrainment**

The ONA would like the MICA Unit 5 and Unit 6 project's potential for increased fish entrainment to be included in the EACA. Section 6.5.2.1.2 identifies a lack of entrainment baseline information and a "concern" regarding phytoplankton and zooplankton at the Mica Generating station, and states that entrainment will likely increase as a result of Mica units 5 and 6. What monitoring is proposed to address this gap? The ONA is interested in the program design and outcome of this study.

Aspects of the Entrainment Strategy Detailed Assessment Phase (DAP) fulfill requirements of the Mica 5 and Mica 6 EACA. The EACA states BC Hydro will address uncertainties with bull trout entrainment risk at Kinbasket, population risk to bull trout, burbot and rainbow trout. The Application also states that BC Hydro will use information regarding kokanee behaviour response to Revelstoke operations to inform risks at Mica Generating Station. The ONA would like for the Commitment Table to include references to all studies assessing the incremental and cumulative entrainment impacts of Mica 5 and Mica 6.

In addition to the executive summary in the Appendix the Commitment Table should include methods of updating the Mica 5 and Mica 6 working group on all aspects of the Entrainment Strategy. The ONA is particularly interested in assisting in the development of the upcoming studies associated with entrainment risk.

- **References to other BC Hydro Columbia Programs**

Any reference to another BC Hydro process such as the Entrainment Strategy or the Columbia River WUP program needs to include an overview of how this mechanism fulfills a requirement of the EACA. The EACA should include both an overview of the methodology and projected outcome of these programs, and a reference to how these processes are linked to the requirements of the EACA / Terms of Reference.

The ONA is also concerned that there will be undue reliance on Columbia River Water Use Plans with regards to operations and flow constraints. These WUP's have not been

developed with adequate consultation and accommodation of Okanagan Nation title, rights and interests to be utilized as part of the Mica 5 and 6 or any other EACA.

- **Study area boundaries**

The ONA continues to have concerns on the proposed study area boundaries. Impact assessment zones are often beyond an immediate footprint area specific to the different needs being assessed (e.g. wildlife, etc.). The ONA is concerned that the EAO is contemplating developing territorial boundaries relevant to this review given that the proposed development is located in areas where various Nations have claims. The issues of spatial boundaries must be addressed.

- **First Nations participation and hiring provisions**

The ONA is concerned with the terminology and commitments for First Nations participation in the Projects. Section 9.3.2.1.4 states that BC Hydro will set employment targets for First Nations who are BC residents including establishing outreach programs to facilitate training to assist in qualifying for employment. This project clearly is located within the territory of the Okanagan Nation. The Okanagan National Alliance is the national organization that exercises the collective interests, title and rights on the land for seven Indian Bands throughout the region. The employment commitments to the Okanagan Nation need to be developed specifically with the Nation and workable for the ONA.

In the sections outlining Labour Force and Skills Requirements, the ONA would like to be involved in subcontracting opportunities and bids as well as the labour force. Furthermore, successful bidders should engage directly with interested Okanagan Nation members to ensure employment and training opportunities are provided. The Okanagan Nation Alliance has the professional fisheries and aquatics capacity to be involved in monitoring and evaluating different components of the project. The ONA would like to explore these opportunities with the proponent. It is also imperative that the Nation continues to be involved in all EAO approval processes and that BC Hydro facilitates this requirement.

- **First Nations Specific Interests**

Section 8.2.3.1 states the Columbia River was likely an important water transportation and access route to traditional harvesting areas for wildlife, fish and plants.

There is sufficient ethnohistoric literature to support claim that the Columbia was important to First Nations for the purposes outlined.

Section 8.1.2.1 states historically the Okanagan people were semi-nomadic hunters and gatherers whose staple diet consisted of deer, salmon, rabbit and other wild game. Roots, berries and various other plants were also gathered.

It is important to note that hunting, fishing, and gathering are still important forms of subsistence and integral to Syilx culture.

- **Assessment of Potential Effects**

Section 8.2.4 states project studies found that there would be no significant residual effects in any areas assessed. Where any potential residual effects were noted, monitoring or management.

This Section also states programs are in place to enable BC Hydro to learn more about the interactions of the specific environmental features and the Projects. This will help ensure that the Projects will not negatively affect First Nations participation in hunting, fishing or gathering activities.

This is vaguely stated. Please provide documentation on effects assessment methodologies. In the absence of Okanagan Nation Alliance approved assessment methodologies, the assessment of impacts is questionable, because the members of Okanagan cultural are the determiners of effects on their own cultural history, practices and activities. This highlights the inherent problem with the decision making process of the Environmental Assessment process.

- **Mitigation Measures**

In Section 8.2.5 there is no discussion of lost opportunities resulting from the project development (i.e. forgone First Nation economic/development/resource opportunities that will be lost as a result of the project). How would these be assessed and mitigated/compensated?

- **Cumulative Effects**

The Okanagan Nation Alliance has previously requested Mica Unit 5 and Unit 6 project to include a federal review incorporating the requirements in the *Canadian Environmental Assessment Act SC 1992, C.37* (CEAA) along with the provincial requirements of the *BC Environmental Assessment Act* (BCEAA). The project is not undergoing a federal review, but BC EAO order under Section 13 states that BC Hydro is required to undertake a cumulative environmental effects assessment consistent with Section 16(1) (a) of the Canadian Environmental Assessment Act (CEAA), and include an evaluation of the potential effects of the Project in combination with other projects or activities that have been or will be carried out. This process should include a pre impact component. The Approved Terms of Reference for the Environmental Assessment Certificate Application (2008) commits to provide a full assessment of cumulative environmental effects of the Project's identified residual effects.

The ONA is concerned the proposed amount of baseline data will not be adequate to outline background characteristics in both the aquatic environment and hydrology, and the terrestrial environment and wildlife components of the assessment. The detailed descriptions of the study design, and statistical techniques that will be employed to assess impacts in all stages of the project are of interest to the ONA. Please include a commitment to include the ONA in all aspects of the on-going studies.

The proponent should focus on net environmental ‘gain’ rather than simply a ‘no net loss’ policy as a more advantageous goal for the project.

- **Rare or Endangered Species**

Section 6.5.2.2.1.1 provides an overview of the sturgeon observations and sampling programs. A commitment to continue a seasonal sampling program for white sturgeon beyond the 2009 should be included in the commitment table.

Section 6.5.2.4.1.1 states that the results of the sturgeon surveys support an assumption of a low population abundance of this species in Revelstoke Reservoir. The frequency of monitoring does merit conclusions of low, high, or an absent population. Sturgeon use of tailrace areas and Revelstoke Reservoir for spawning and feeding should continue to be monitored. Additional methods and higher sampling frequency should be considered for upcoming years, because the one 4 day set line period in 2008 does not provide enough data, i.e., the sample size is inadequate, to analyze population trends.

- **Habitat**

Section 6.5.2.2.2 states the extreme annual fluctuations in the Kinbasket reservoir water level, 29 m, severely reduce the benthic productivity in the littoral drawdown zone and directly limit fish production. This section also states that the habitat and resident fish use have not been quantitatively surveyed, thus not allowing for evaluating the effects of Mica 5 and 6 on them. Descriptions that link the objectives and study design to the EACA assessment are required in the report. The ONA would like to be involved in the Kinbasket Reservoir Ecological Productivity studies.

- **Mica Tailrace whitefish spawning**

The 2008 Mica Dam Tailrace Fish Indexing Program provided information leading to the assumption that mountain whitefish use the tailrace for spawning. The incremental and cumulative impacts from Mica Dam operations on mountain whitefish should be included in the EACA. The findings and recommendations from studies requested by the Fisheries and Oceans Canada (DFO) to investigate whitefish spawning and stranding associated with Mica Dam operations need to be integrated into the main body of the EACA.

- **Aquatic vegetation inventory and mapping**

Limited information is available on aquatic vegetation in the Kinbasket Reservoir. Please provide details on the study design, objectives, status, preliminary findings and recommendations of the WUP Kinbasket Reservoir Inventory of Vegetation Resources in the EACA, and integrate present and future findings into the Mica 5 and Mica 6 assessment. A Traditional Ecological Knowledge component should be added to these studies in collaboration with the ONA.

- **Productivity Mica Tailrace**

The EACA states there is limited productivity data for the Mica Tailrace. The high demand to frequently service the filters along with other questions of productivity warrant further investigation. If the Reservoirs Ecological Productivity study is designed to fill this information gap, then the study design, status, preliminary findings, and recommendations should be integrated into the EACA.

- **Fish Species Status**

What are the commitments to continue to expand the fish species status monitoring programs? Section 6.5.2.5.1 states that the results of past and future Large River Fish Indexing Programs (LRFIP) will provide baseline data and assist in the development of monitoring tools to determine the effects of operational changes resulting from the installation Mica Unit 5 and 6 on downstream aquatic ecosystems. Please provide the details of the Large River Fish Indexing Programs (LRFIP) to the ONA. The study design for the Kinbasket Reservoir and Tailrace are of particular interest to us.

The dates of the fisheries inventories indicate there are uncertainties in the fish population status for a number of species. Most of the data sets rely on information gathered before 1999. The dates and amount of information provided raise concern that this information is not reflective of 2009 fish abundance and population status.

- **White sturgeon use of the Revelstoke Dam Tailrace**

Section 6.5.2.5.1.2 states white sturgeon warrant a more detailed summary of the current status to provide a basis to review impacts of Mica 5 and 6 within the Revelstoke Dam Tailrace. The complexity of the numerous WUP white sturgeon studies in the area combined with the organized recovery plan and commitments through SARA raise questions how the information will be reviewed and integrated into the EACA. Please provide an overview of the objectives, study designs, preliminary findings, and recommendations from these programs in the EACA.

- **Alterations to the temperature in the Mica Tailrace**

Section 6.5.3.2.2.1.1 states that the effects of increased daily maximum flows on water temperatures in the Mica Dam tailrace as a result of increased generating capacity are unknown. The ONA is concerned how the changes in temperature will affect spawning, incubation, feeding, and rearing habitats of resident fish species. Please include in the EACA the study design, data, data analysis and preliminary findings from the WUP Reservoirs Ecological Productivity study's and the Fish Community Indexing program's assessments of tailrace temperatures, as they pertain to current and proposed operations.

- **Effect of flow fluctuations on stranding**

The ONA is concerned fish stranding will result from the Mica operational flow regime. A quantification of the risk to fish and fish eggs/ larvae should be conducted in the Mica Tailrace study area. The 2008/2009 Mica Dam Tailrace Mountain Whitefish Spawning and Stranding Assessment did not monitor the timing, distribution and abundance of mountain whitefish prior to mid January. The ONA requests BC Hydro to conduct a multi-year study commencing in November continuing through to February in collaboration with the ONA.

The whitefish spawning and stranding assessment findings should be reported to the ONA, Core Committee and the EACA technical committee.

- **Mitigation and compensation measures**

Multiple aspects of the assessment are not able to quantify the effects of current and proposed operations due to lack of information. Many programs will be able to provide preliminary results in 2009 and 2010. A commitment to update the EACA with these findings is required to evaluate the significance of these elements in the assessment.

- **Hydrology models and aquatic quantitative standards**

The ONA is interested in the proposed application of the hydrology models. In past correspondence the ONA requested further details on the application of the models used to define the baseline and complete the follow up assessment. Please ensure quality assurance/ quality control measures are included in this description as well. Also, please continue to outline the quantity and techniques of ground truthing the models.

- **Aquatic Ecosystem mitigation and impact assessment**

Aquatic ecosystem mitigation should include efforts to enhance habitat, and outline measures proposed to achieve net environmental gain. The ONA is interested in the outcomes of the sedimentation assessments and predictions, because the project may increase shear stresses on riverbanks resulting in increased rates of bank erosion. The changes in flow could cause loss of fish habitat due to the increase of fine sediment erosion/ deposition processes or stranding. The connection between changes in flows, bank erosion and fish and habitat loss need to be assessed. All areas that have an increase in shear stress during construction or project implementation should apply successional reclamation and biotechnical slope stabilization methods to mitigate the risk. Works must focus on ensuring a best fit is achieved to enhance riparian habitat that will strengthen the fish populations and aquatic community structure

The ONA is interested in additional information on current and proposed fish and aquatic habitat impact assessment techniques, such as the proposed data sets and statistical analysis methods. The ONA would like to discuss the assessment techniques and mitigation and compensation monitoring with BC Hydro, and independently review the long term study design.

The Reservoir Ecological Productivity studies are referenced throughout the assessment with regard to fish and aquatic habitat baseline. Please integrate information from this work into the EACA, and include provincial and federal standards to better describe the baseline populations of aquatic macrophytes and invertebrates, and the benthic substrate within the aquatic study area. Any reduction in littoral habitat productivity through loss of macrophytes is considered a residual impact, and will decrease the complexity of littoral habitat. Loss of macrophytes will also reduce foraging habitat and predation refuges for the aquatic community. Therefore, mitigation and monitoring should be staged to ensure that critical habitat is not lost. The sampling design for assessing aquatic vegetation during construction and post construction monitoring should be included in the EACA.

- **Cumulative Effects Assessment**

It is important to ensure that the effects of the past actions are recognized instead of ignored in Cumulative Effects Assessments. This principle is clearly stated in the Cumulative Environmental Assessment Practitioners Guide (CEA Agency 1999).

In the case of the Mica 5/6 project, past actions include but are not limited to the environmental impacts associated with the construction of the existing Mica dam where they overlap the environmental impacts associated with Mica 5/6 project spatially and/or temporally. The impacts associated with construction and presence of Mica dam were not properly mitigated for in the past. Therefore, all the environmental impacts of past actions evident today should be considered as residual impacts, and should be taken into consideration in the Mica 5/6 Cumulative Effects Assessment. These impacts of past actions will be compounded with the impacts of the proposed Mica 5/6 project. In the Mica 5/6 project Cumulative Effects Assessment, past has essentially not been included

in the analysis at all, i.e., the temporal boundary of the assessment is set at present time. The past boundary for the Cumulative Effects Assessment should be the point in time at which *effects similar to those of concern first occurred* (Cumulative Environmental Assessment Practitioners Guide, CEA Agency 1999). This would be the construction of the Mica dam.

While there is more than one way to conduct a CEA, we are asking why was the past temporal boundary of the CEA set to present day, when the CEA Practitioners Guide clearly states that a CEA should include past, present and future actions, and emphasizes the importance of recognizing the effects of past actions. It may be logical to set the past temporal boundary to present time in situations where the effects of past actions are entirely different from the anticipated new effects. However, the environmental effects of the Mica 5/6 will be similar to the effects that resulted from the construction and operation of the original Mica dam. Therefore, they will be readily compounded with the additional effects of the Mica 5/6. With this in mind, in case of the Mica 5/6 project, the logical option for establishing the past boundary is the point in time at which effects similar to those of concern first occurred.

The following is a direct quote from the CEA Practitioners Guide:

Options for establishing the past boundary.

Each of the following options progresses further back in time:

- *when impacts associated with the proposed action first occurred;*
- *existing conditions;*
- *the time at which a certain land use designation was made (e.g., lease of crown land for the action, establishment of a park);*
- *the point in time at which effects similar to those of concern first occurred; or*
- *a past point in time representative of desired regional land use conditions or pre-disturbance conditions (i.e., the "historical baseline"), especially if the assessment includes determining to what degree later actions have affected the environment.*

The CEA Practitioners Guide also states that “*The boundary in the past ideally begins before the effects associated with the action under review and possibly before the effects of most major actions were present.* It would seem that construction of the Mica dam was the most major past action in the Mica 5/6 project area.

The CEA for the Mica 5/6 follows a common practice to disregard effects of past actions. This does not make it the right course of action. As far as the province as a whole goes, this practice may be acceptable in situations where proposed developments and their effects, and the effects of past actions have little to do with each other, i.e. do not interact and compound very effectively. In the case of the Mica 5/6, however, the new development and its effects closely resemble the effects of the Mica dam. It is difficult see how these effects could not be cumulative. The following quote from the CEA Practitioners Guide describes the process how to determine whether there is potential for cumulative effects.

Step 1: Scoping. A series of questions are first asked:

- *Are the potential impacts of the action, as well as other existing stressors, occurring so closely over time that the recovery of the system is being exceeded?* (answer is yes).
- *Are the potential impacts of the action, along with other stressors from other sources, occurring within a geographical area so close together that their effects overlap?* (answer is yes).
- *Could the impacts from the action interact among themselves, or interact with other existing or known future stressors, either additively or synergistically?* (answer is yes).
- *Do the potential impacts of the action affect key components of the environment? Have those components already been affected by other stressors from the same or other actions, either directly, indirectly or through some complex pathway?* (answer is yes).
- *Is the action one of many of the same type, producing impacts which are individually insignificant but which affect the environment in such a similar way that they can become collectively important over the longer term (i.e., nibbling effect)?* (answer is yes).

If the answer to any of these questions is yes, there is a potential for cumulative effects.

In the Mica 5/6, the answer to all of the above questions is yes.

The CEA Practitioners Guide also states that in cases where an existing action is found to already be contributing most to cumulative effects in a region, the reviewing agency may consider mitigation of effects from existing actions as a condition of approval for the action under review (section 3.4). It seems that the BC EAO may not be utilizing all the means at its disposal to compel the proponent to strive for highest standards in environmental assessment and mitigation.

The CEA Practitioners Guide also states the following:

The boundary in the future typically ends when pre-action conditions become re-established (i.e., VECs have recovered and effects become trivial).

With regard to the Mica dam, the pre-action conditions have not been re-established, i.e., VECs have not recovered and effects have not become trivial. On the contrary, the effects have become less trivial for the communities affected by Mica dam. Hypothetically speaking, if a CEA had been undertaken when Mica dam constructed, and there was a known possibility of an expansion in the future (Mica 5/6), those future interactions would have to have been considered in the CEA. Yet now, those very same residual effects of past actions are not being considered in the Mica 5/6 CEA. It would seem that the effects of past actions, evident in today's landscape, ecosystems and communities, should be considered as residual cumulative effects and included in the CEA, because they will be fully compounded with the new effects of Mica 5/6. We are concerned that the effects of past actions are considered to have become part of a new baseline, i.e., a clean slate upon which new impacts may be imposed without considering cumulative effects, although there are residual environmental effects from the

construction of Mica dam present in the landscape. The pre-action conditions have not been re-established, VECs have not recovered and effects have not become trivial. These significant residual effects will be compounded with the effects of the Mica 5 /6, and should therefore be included in the CEA. Examples of potential cumulative residual effects of past actions include:

Erosion, and it's effects on watercourses, water quality and fish habitat

Erosion will continue in the reservoirs, and will act cumulatively with the effects caused by Mica 5 /6 project.

Migration routes and wildlife habitat

Migration routes and wildlife habitat continue being affected by the dams and reservoirs. Effects of Mica 5 /6 will be added on top of these.

Rare ecosystems and rare plants

For example, Kinbasket reservoir may have destroyed 95% of a rare species habitat, and the remaining 5% area in the Mica 5 / 6 project study area (this includes Kinbasket reservoir) is too insignificant to warrant mitigation measures. The entire habitat will be destroyed.

Noxious weeds

Noxious weeds have spread into the area as a result of construction and maintenance of Mica dam. Mica 5 /6 will likely introduce more weeds and spread the existing ones into new areas. There will be more seed production and weeds will invade new areas more efficiently.

In all of the above instances, mitigation (or compensation) for effects from existing actions could be considered as a condition of approval for the action under review. By choosing to set the temporal boundary to present time, none of the above examples of cumulative effects will be addressed, yet they may be significant.

To summarize, a Cumulative Effects Assessment should include past, present and future actions (CEA Agency 1999). The effects of the Mica dam that should be part of the cumulative effects analysis include but are not limited to impacts on the following:

- Aboriginal Interest and Use, including plants used for medicine, food and materials
- Wildlife, including rare or endangered animals and their habitats
- Archaeological sites
- Rare or endangered plants their habitats
- Noxious weeds
- Old forest
- First Nations communities' health and socio-economic issues

- **Kinbasket Reservoir**

The proposal states that not much is known about the species composition, distribution, and location of wildlife inhabiting the wet meadows and wetland ecosystem in the drawdown zones of Kinbasket and Revelstoke Reservoirs. A reconnaissance survey was conducted over two days during the summer. The Proponent acknowledges that this is only a snapshot of bird nesting and amphibian habitat. Further information was extracted from a literature review of previous studies.

Hydrological modeling identified the potential for an increase in 0.6m elevation in July during construction and operation phases. Five ground nesters have been identified in the Kinbasket Reservoir drawdown zone. The Proponent states there will be an unknown effect on these ground nesters. Furthermore, they state there could be a positive or negative effect due to the inundation of amphibian habitat. It seems organisms with such a close connection and proximity to water that a sudden increase in water levels could significantly impact those organisms. The Proponent should attempt to quantify the probability that inundation will occur with hydrological modeling. The potential window of impact needs to be identified to determine if sudden inundation will affect the five ground nesting birds. Although data on amphibian response to this type of impact is likely sparse, a literature review should be conducted to determine if and how amphibian species will be impacted.

No specific mitigation measures for the possible change in reservoir elevation were identified. The only measure was an additional three years of monitoring. The probability of increased water level from the hydrological model should be quantified and presented. With this information, it will be possible to gauge the level of uncertainty or conduct a risk management analysis. It will provide better insight on the need to draft a contingency plan if there is a high probability of detrimental changes in water level.

- **Mica Dam Tailrace**

The baseline information for wildlife resources in the Mica Dam Tailrace area was satisfactory and comprehensive. The data was collected through a database search, literature review, and establishment of transects and listening stations within the study area below Mica Dam.

A tailrace wetland approximately 500m north of Blue Bridge has the potential of being inundated during the spring. It is likely this impact will improve cover and the general suitability for migrating waterfowl, which the Proponent states. From June 20 to July 31, the reservoir level will be drawn down, which will reduce shoreline and cover for waterfowl. The drawdown period will be short (six weeks) which the Proponent states, “is expected to be of little consequence.” This may be the case; however, it is imperative that this drawdown does not affect nesting waterfowl in the area. The Proponent proposes conducting a scoping study, and with discussion with the Ministry of Environment, will determine the elevation of this wetland and the probability dam activities will affect wetland species. This scoping study should be a high priority, and needs to identify species composition of the wetland (specifically Blue/ Red listed and SARA listed), critical life history stages, and potential adverse effects. The study needs

to be completed in a timely fashion so contingency plans to mitigate the effect can be drafted.

In general, mitigation measures have been drafted that seem to be adequate. Measures to protect sensitive and species at risk are similar to other wildlife. This is acceptable, unless a listed species is positively confirmed within the impact zone. If this occurs, extra measures to address listed species should be instigated. Other measures, such as raptor nesting platforms and 30m riparian buffer zones are a satisfactory way to avoid impacts on wildlife.

- **Seymour Arm Capacitor (SYA)**

The Proponent identified three potential sites for the location of the SYA. The area has been highly impacted by timber harvest, and there are numerous existing ROW's and logging roads. The Proponent has indicated that impact to vegetation and wildlife would be minimized by constructing at least part of the station and reflector in areas of previously cleared forest. They state that of the three identified sites (76, 100, 103), all would be equally acceptable for construction. Given this, site 76 should be avoided. Although no critical habitat exists (based on the mapped ungulate winter range), at least 10 wildlife trees on the site, plus an additional strip of trees (< 1 ha area) containing numerous class 1 wildlife trees used by cavity nesters could potentially be removed to provide a clear line of site to the reflector. Removing this strip could further fragment an already impacted habitat. Site 100 would be the preferred location, because site 103 has and ephemeral drainage. Although this drainage occurs in disturbed forest along the ROW, there is an undocumented potential impact on amphibian and fish habitat.

A winter ungulate track survey was conducted in late March. The Proponent has described the area as low-value, no critical habitat, and that the use of the site as ungulate winter range in late winter appears minimal. These are rather broad statements based on a limited winter wildlife survey. The survey occurred from March 24-26, during sub-optimal snow and temperature conditions. This is effectively a one-time snapshot of conditions in late winter. A more representative sampling program over the course of the entire winter should be conducted. There is published methodology (e.g. within a certain number of days after the last snowfall, specific weather conditions) which should be incorporated. Furthermore, available browse should be systematically documented (e.g. every 10m the closest vegetation recorded along the transect) during the track surveys. In addition, browse activity should be quantified and documented according to published methodology. The Proponent did provide a photo of representative browse activity, but a better method to compare this needs to be incorporated.

Based on anecdotal evidence and the limited winter feeding or refuge habitat available, the Proponent states that the Red-listed mountain caribou was not present in the area. This is likely to be true, but continued diligence should be used and if any evidence of caribou use or occurrence is found, appropriate changes in procedures and/or mitigation should occur.

Generally, the area has been significantly impacted by timber harvesting (20.5% equivalent clear-cut area). The Proponent will attempt to minimize loss of wildlife

habitat trees, avoid loss by locating construction activities in adjacent cut blocks and ROW's, and by using existing forestry roads. These are acceptable measures and will ensure a relatively minimal impact on an already altered ecosystem.

- **Cumulative/ Residual Effects - Wildlife**

The Proponent does not address any cumulative wildlife effects due to the project. Construction of the Unit 5 and 6 facilities will occur in the currently operational Mica Dam, so any long term impact will have already occurred. A residual effects matrix was presented (Section 6.7, Tables 6.46 and 6.47), where all potential residual effects were identified as insignificant with a high level of confidence. The effects should be quantified (possibly through probabilities) and summarized to support their argument of insignificance and reinforce the level of confidence. No mitigation measures were identified. If the significance and probability of potential residual effects were quantified, the necessity for mitigation measures could be determined.

- **Archaeological and Cultural Resources**

The ONA requires a high level of participation in the protection of archaeological resources. The ONA has a long-standing policy that “requires” the participation of its qualified members in any archaeological works being conducted on its territory. Input and recommendations from the ONA should be included in the selection of the archaeologist and the assessment methods and techniques. All archaeological assessed impacts should be communicated to the ONA. Alternative strategies, mitigation methods and/or restoration works should be agreed upon by the ONA. The proponent must make itself aware of and respect the detailed archaeological protocols of the Okanagan Nation.

- **Traditional Land Use and Knowledge**

The Okanagan Nation would like to ensure that any Aboriginal Interest and Use Studies (AIUS) and Traditional Ecological Knowledge (TEK) be included more broadly within the technical review and impact assessment process. TEK specifically, has been an information gap in the current EAO project review process that the ONA has been trying to address for sometime.

Please note that there are instances with the collection of TEK where culturally sensitive information will not be disclosed. This issue is significant and must be addressed and resolved more acutely and directly with the Okanagan Nation.

- **Climate Change**

The ONA is interested in the potential effects of long-term climatic fluctuations on hydroelectric power generation in the study area. Any available information on hydrologic forecasts is of interest to the ONA and should be incorporated in the EACA. The ONA would like to see the meteorological data synthesized with hydrometric data to assist in forecasting the effects of climate change on the project, and thus the environment. It is unclear whether results from ongoing climate research will be added to the existing dataset. We request a commitment from BC Hydro to integrate current and future data as

it pertains to climate change within the region. The findings from this component of the study should be linked with all elements of the EACA.

Final Remarks

Given the importance of both our general and specific concerns with the Mica Generation Station Unit 5 Project and Mica Generating Station Unit 6 Project, we require an opportunity to engage in further discussions with the EAO.

The Okanagan Nation Alliance has the professional fisheries and aquatics capacity to be involved in monitoring and evaluating different components of the project. The ONA would like to explore these opportunities with the proponent. It is also imperative that the Nation continues to be involved in any post EAO approval processes and that BC Hydro facilitates this requirement. Additionally, the ONA requires that all related communications regarding this project between any of the parties be made available and accessible to the Nation's technical staff.

We are pleased to be involved in the MICA Unit 5 and Unit 6 Project Environmental Assessment Certificate Application process and look forward to continuing to participate throughout the project. Please contact us if you have any questions or need further clarification on any element of ONA participation in the process.