

May 25, 2001

File: 44100-35

Mr. Derek Griffin
Project Assessment Director
Kwoiek Hydroelectric Project
Environmental Assessment Office
2nd Floor 836 Yates St
Victoria BC V8W 1L8

Dear Derek Griffin:

Re: Ministry of Environment, Lands and Parks' Review of the Kwoiek Creek Hydroelectric Project Application

Representatives of the Ministry of Environment, Lands and parks (the Ministry) have reviewed the Project Application for the Kwoiek Creek Hydroelectric Project submitted to the Environmental Assessment Office (EAO) by the Kanaka Bar Indian Band and Powerhouse Energy Corp. (the proponents).

It is the Ministry's understanding that the scope of this project under review includes the construction of a 80-megawatt hydroelectric powerplant on the Kwoiek River on the west side of the Fraser River at Kanaka Bar (14-km south of Lytton). The scope of the project was considered by the Ministry to be:

- An intake located at elevation 810 m, approximately 10km upstream of the confluence of Kwoiek Creek with Fraser River. The intake will incorporate a settling basin to remove suspended solids.
- A 10 km penstock 2.0 m in diameter, generally following the route of the existing logging road or, alternatively a 10km tunnel leading the water to the powerhouse.
- A powerhouse situated on Kanaka Bar Indian Reserve Number 4, on the west bank of the Fraser River.
- The powerhouse will contain two Pelton turbines each driving a 40 MW generator.
- A switchyard raising the generator voltage to the transmission line voltage.
- A 70 km 138 kV wood pole transmission line to the Highland Valley Copper substation at Spatsum (22 km north of Spenses Bridge) which in turn, is connected to the BC Hydro system.

Review of the Kwoiek Creek Hydroelectric project Application was carried out, with respect to the interests of all potentially affected Ministry programs, by technical staff at the Ministry of Environment, Lands and Parks offices in Kamloops and Victoria and co-ordinated by the Environmental Assessment unit in Victoria.

The issue of instream flows will be addressed jointly by DFO and the Ministry. The Ministry will defer to DFO on the subject of total gas pressure.

The Ministry conducted its review of the Application and has provided comments and information requests to determine whether the project can be constructed, operated and maintained using standard practices and readily available technology required to minimize impacts to an acceptable level.

The comments provided are consistent with requirements for a Stage 1 review. As this project will likely be subject to a Stage 2 review, more precise specifications of Ministry requirements will be identified at that time. It should also be noted that some comments relate to permitting stage requirements. Further clarification will be provided in the project specifications report with respect to information requirements related to the project report and those related to post certification.

It should be further noted that the Ministry's comments on those project components to be located Kanaka Bar Indian Reserve Number 4 are intended to be of an advisory nature only.

1.0 Project Components

1.1 Power Intake Structure

The intake will be located approximately 10 km upstream of the confluence of Kwoiek Creek with the Fraser River. The concept includes a weir which will be notched to facilitate fish passage and the required low flow to pass down the river. The intake will incorporate a settling basin to remove suspended solids.

Additional Information Requirements

- Conduct a full assessment of impacts of this structure and its location, including potential for entrainment of migratory resident fish.
- If an assessment of fish utilization of this section of the stream indicates that fish passage upstream past the weir is an important component of maintaining fish populations, the project report must include a design of the weir and demonstrate that this structure will not present an obstacle to fish movement in either direction at any flow. It must also be demonstrated that the size and design of the notch maintains a flow rate that will allow fish passage upstream through the notch.
- Only a brief reference is made to a distribution service line to the intake structure (page 5-37 of the Application). Additional details about the distribution lines and potential impacts must be identified.
- A more detailed description of the method of construction for the intake will be required upon

submission of design plans to the Ministry.

1.2 Water Conveyance System The Application identifies two options for conveying water between the intake and the powerhouse. These include a buried penstock located along the access road and a 10 km tunnel with a surge shaft. The penstock would cross Kwoiek Creek at several locations with elevated single span structures. The tunnel would require clearing for an access road to an intermediate portal downstream of the intake. Disposal sites for excavated waste rock would be located near the portals.

There are a range of potential impacts that can result from construction of either water conveyance options. These potential impacts were largely not assessed in the Application.

Additional Information Requirements

- The project report must include a comparative assessment of all potential impacts related to both the penstock and tunnel options.

Penstock Option

- The assessment of the penstock option will require more detailed plans showing the location of the penstock within the Kwoiek Creek corridor as well as topographic features, streams, drainages and road alignment. Additional plans showing stream-crossing structures must be included in the report.
- A slope stability analysis of the penstock option must be provided.
- The location of waste rock disposal sites must be assessed and a plan prepared.
- The Application states that a 30-m wide R-O-W will be required if the penstock option is selected. This width will create an encroachment into the floodplain. The impact of this encroachment must be assessed in the project report and a rationale for this width provided.
- The assessment must show how drainage and stream crossings would be designed to avoid impacting water quality and fish passage.
- Mitigation measures to offset impacts from this option must be identified.

Tunnel Option

- The assessment of the tunnel option will require more detailed plans showing the location of the structure within the Kwoiek Creek corridor as well as topographic features, streams, drainages

etc.

- A plan showing how waste rock is to be disposed will be required.
- Prepare a site restoration plan for any disturbed areas including waste disposal sites.
- Identify mitigation measures to offset impacts from this option.

1.3 Powerhouse and Substation

This structure is expected to consist of a reinforced concrete structure. The precise location of the powerhouse will be decided following the completion of an archaeological survey. The substation will be located close to the powerhouse and will contain two step-up transformers. An oil containment sump will be provided as an integral part of the transformer footing. An oil separator will contain any leakage oil.

- Further details on the powerhouse and any related impacts associated with the structure and its location must be identified.

1.4 Tailrace

A 90m tailrace from the power station to the main stream of Kwoiek Creek at a location 70 m above the low flow water shore of the Fraser River has been proposed. The proponent states that the tailrace will be designed to encourage fish use thus increasing habitat availability for salmonid use in the lower reaches of Kwoiek Creek.

Addition Information Requirements

- Provide detailed design plans of the tailrace.
- Provide an assessment of channel stability of the proposed tailrace.
- Provide information demonstrating how and when fish would be able to swim up the tailrace, back into the side channel and thence back into the Kwoiek Creek mainstem.

1.5 Transmission Line

The development of transmission lines can result in a range of potential impacts to fish, wildlife and vegetation resources from stream crossings, clearing, maintenance activities and sedimentation during construction.

Appendix A of the Application describes a "desk study" assessment of three transmission options. Option 1 was identified as the preferred route based on "construction costs and good availability of existing access". Option 1, 70 km in length, largely follows existing R-O-W. Some wildlife assessment work was conducted on a portion of the proposed alignment in 1995. The document states that clearing for the transmission line is not expected to have a significant impact on the wildlife community although the application indicates that bird kills should be monitored following construction. No fisheries information was provided relative to any of the three transmission line options.

The transmission line evaluation includes reference to a 500 kV transmission line in close proximity to the generation site that, if utilized, would have few environmental ramifications. This option was identified in the report as not being practical due to "economics and logistics" although no information is provided supporting this conclusion. In light of the potential for additional hydroelectric projects in the area, the ministry would ideally prefer that less impactful transmission line options could be more fully considered.

Addition Information Requirements

- A comparative assessment of potential environmental impacts of the three corridor options must be conducted and described in the project report.
- A complete impact assessment of the preferred transmission option must be presented in the project report. This should include a description of wildlife, fisheries and vegetation resource values including identification of high wildlife/fish use or critical habitat, analysis of the impact of the transmission line on these resource values and detailed mitigation plans.
- The report must also address the following issues:
 - access management
 - vegetation management and weed management
 - erosion and sediment control during construction and operations
 - rare ecosystems
 - corridor maintenance specifications
 - stream crossing structures

2.0 Water Quality and Related Issues

2.1 Water Licensing

Appendix 1 attached outlines water licensing requirements and comments.

2.2 Hydrology and Discharge Flows

A gauging station upstream of the mouth of Kwoiek Creek was reactivated in October 1999 and is currently continuing to record stream flow data. Data from the Nahatlatch River has been utilized to estimate the Kwoiek Creek discharge between 1974 and 1999.

Stream gauging of flows in Kwoiek Creek should be continued to increase the confidence of the hydrological analysis. The proponent should consult the Ministry with respect to determining if there are more suitable sites for stream gauging and to discuss the continuation of data collection from the Nahatlatch gauge.

A high level of confidence in the hydrological estimates will be critical to calculate the energy production potential, economic feasibility for the project and instream flow requirements in the bypass reaches (10-km). If guidelines such as percent MAD are the basis for determining instream flow releases, accurate hydrology is useful but less critical (i.e. 10 % MAD of a 10 % flow estimate error is not a great variation in flow). If instream flow releases are based on impacts on aquatic habitat then the stream gauging remains important but the hydrology is less so.

The tributary flow contributions from tributaries and groundwater, if any, to Kwoiek Creek below the intake site should be determined in order to evaluate the impact of stream diversion on remaining instream flow.

The Ministry wishes to discuss with the proponent's proposed hydrological assessment objectives (from page 9-1 of the Application) to confirm the applicability to the following estimates to project assessment and operation:

- refine the estimates of average year, wet year and dry year daily flows based on data available from gauging station from autumn 1999 to the present
- on the basis of above, estimate flood flows with a return period of 10, 20, 100 and 500 years
- provide an estimate of the 7, 15 and 30 day mean low flows, with return periods of 2, 5, 10, and 20 years for scenarios with and without project diversion

Additional Information Requirements

- Describe the potential effects of an outage/tripping event on aquatic habitats.

2.3 Temperature

The Ministry agrees that the project has the potential to alter water temperatures in Kwoiek Creek by diverting water through an enclosed conveyance structure and by reducing flows between the intake and the tailrace.

The Ministry concurs with the proponent's commitment to temperature data collection regime identified on page 9-2 of the Application for the purpose of:

- predicting potential changes in water temperatures through modelling studies
- predicting impacts of icing as a result of reduced flow
- predicting potential effects on fish species and life stages

Additional Information Requirements

- Provide a quantitative assessment of the predicted temperature changes due to the project and any biological impact associated with any change.
- Identify and assess potential measures to mitigate temperature affects.
- Provide additional details on the temperature-monitoring program. The program should be described in sufficient detail to provide assurance that the data collected will be adequate to identify the magnitude, frequency and duration of any temperature increase caused by the project, should it be approved. The
- monitoring program is to be conducted for an appropriate number of years prior and during project operation and is to evaluate temperature changes for a period representative of a wide range of flow conditions. The temperature data should be analyzed to determine whether a harmful alteration, destruction or disruption of fish habitat (HADD) has likely occurred as a result of temperature increases. The proponent must contact the fisheries agencies to discuss and confirm the temperature-monitoring program to provide assurance of the ability to prove/disprove a temperature HADD.

2.4 Ice Regime

The Application indicates that no ice was observed in the winter of 2000/01 between the hydrometric station and the mouth of Kwoiek Creek. It is further stated that the potential for icing due to a reduction in flow is considered to be low as the power plant is expected to operate only rarely (very high flow years) when the flow is at or exceeds 1.6m³/S during the coldest months of the year (Page 5-11 of the Application).

The Ministry concurs with the proponent's commitment to the following (page 9-1 of the Application):

- assess potential changes to the occurrence of frazil ice and ice cover downstream of the diversion

- provide an explanation of how a constant flow past the weir will be assured during the winter months

Additional Information Required

- The project report must include additional information on the operation of the plant in winter months in low flows, the potential for ice formation and the potential impacts of changes to aquatic habitat.

2.5 Total Gas Pressure

The Ministry will defer to DFO with respect to this issue.

2.6 Sediment and Bedload

The greatest potential for the release of suspended sediments is through construction related activities and after construction through maintenance of the intake structure. The proponent has identified a number of mitigation techniques to minimize sediment introduction during construction including the scheduling of work in lower flows. Sediment that enters the intake channel during operations will settle out in a sediment chamber and will be flushed back into the creek downstream of the weir through the sluice gate.

The weir and intake structures have been designed to minimize impact on bed load transport in Kwoiek Creek. The low-profile design of the weir will allow bed load material to move over the weir and continue downstream unimpeded. A submerged concrete wall constructed at the entrance to the sedimentation chamber will prevent larger bed load material from entering the channel.

The Ministry supports the commitment of the proponent to assess sediment and bedload transport in Kwoiek Creek prior to final design and site selection for the project structures. The proponent indicates (page 9-3 of the Application) that these investigations will:

- measure suspended solids between April and August near the proposed intake site
- provide additional information concerning the intended use of existing roads and the extent to which upgrading will be required
- identify measures to minimize introduction of sediment into any creek, river or body of water during construction activities
- provide a prediction of what impact, if any, the weir will have on bed load, sediment, nutrient supply to Kwoiek Creek downstream of the weir and provide an outline of monitoring procedures proposed to verify these predictions

Additional Information Requirements

- Additional information on the flushing of the sediment chamber at periods when background sediment is low must be included in the project report.
- A sediment and drainage management plan will be required for all clearing and site preparation work, road building and construction of a water conveyance system. This plan will be a necessary component of an Environmental Management Plan (EMP) which will be a requirement for the management and mitigation of construction impacts.
- Measure NTU in addition to suspended solids. The ministry suggests that a regression be developed for these two measures.
- In addition to that committed to in the Application, provide a prediction of what impact the weir will have on suspended sediment and insect drift.

2.7 Settling Ponds

Additional Information Requirements

- The project report must identify conceptual plans and locations for settling ponds, such as at spoil sites.
- Assess and report on the habitat capability of the site(s), and investigate the site(s) relative to habitat for plants and animals including rare and endangered species.
- Propose measures to mitigate impacts on habitat.

2.8 Blasting

Blasting using nitrate-based explosives will be required during construction of the intake structure, penstock and powerhouse. Blasting activities can present a water quality concern through deposition of residues in the drainage water in the tunnel and in other construction areas subject to blasting. Increased sedimentation can also occur as a result of blasting activities. Sediment control measures must be in place to minimize impacts during blasting and until disturbed areas have been stabilized.

Additional Information Requirements

- As part of an overall water quality-monitoring program, tunnel drainage must be tested for the following parameters: ammonia (NH₃), nitrite (NO₂), nitrate (NO₃) and pH, temperature and turbidity.
- Prepare a sediment and drainage management plan describing measures which will address potential blasting impacts (as part of an EMP).

- Assess impacts from blasting on wildlife and identify mitigation measures to eliminate impacts.

2.9 Acid Rock Drainage (ARD)

The project has the potential to generate significant volumes of waste rock which should be evaluated for acid rock drainage.

The proponent must adhere to the following Ministry of Energy and Mines guidelines: "DRAFT Guidelines for the Identification of Materials with a Potential to Produce Significant Metal Leaching or Acidic Drainage for Non-Mining Activities" and "Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia".

2. 10 Special Waste/Waste Management Act/Spill Reporting Regulations

Special wastes are waste materials, which, because of their toxic or reactive nature must be handled or disposed of properly to prevent harming people or the environment. Special wastes are defined in Section 1 of the *Special Waste Regulation* and include 'dangerous goods' that are no longer used for their original purpose.

The proponent must assess whether the project needs to be in compliance with the following regulations: "CCME Code of Practice of Underground and Above Ground Storage Tank Systems Containing Petroleum and Allied Petroleum Products", the .../10 - 10 - "CSA Standard Practice CAN/CAS-731-M91 Emergency Planning for Industry" or MELP'S "Guidelines for Industry Emergency Response Contingency Plans" and finally, the "Summary of Environmental Standards & Guidelines for Fuel Handling, Transportation and Storage".

There must also be plans in place to deal with spills of petroleum products and other chemicals associated with road construction and daily operations as per the *Spill Reporting Regulations*.

The foregoing should be included in an EMP.

2.11 Water Quality Monitoring Program

The Ministry has reviewed the proposed monitoring program outlined in the project certificate application and concurs with that proposed in section 9.3.

Additional Information Requirements

The following is a draft preliminary monitoring program based on the program proposed in the Application with some modifications proposed by the Ministry. Confirmation of monitoring details is contingent on confirmation on project details and the actual conditions at each proposed monitoring site.

Site specific information is not identified here. The Ministry requires an onsite inspection before the sites are selected. The proponent must consult with the Ministry to finalize the monitoring program.

Potential Monitoring Locations

- Bridge Crossing downstream of Kwoiek Lake
- North Kwoiek Creek upstream of confluence
- Kwoiek Creek upstream of weir site (upstream of all instream work)
- Kwoiek Creek downstream of weir site
- Kwoiek Creek at several road crossing locations
- Kwoiek Creek upstream of CPR flume
- Kwoiek Creek downstream of CPR flume (upstream of tailrace)
- Kwoiek Creek near mouth (downstream of tailrace)
- Tailrace

Not all sites would require monitoring. Site selection would be dependent on actual points of potential impact.

Continuous Automated Monitors

Turbidity, suspended solids, TGP and temperature are most important parameters that would require measurement. Except for suspended solids these three parameters along with dissolved oxygen, pH and conductivity can be measured using continuous multi-parameter instream probes. Several sites should incorporate these .../11 - 11 - monitors along with continuous discharge rate monitoring. Potential sites are Kwoiek Creek upstream of the weir, Kwoiek Creek downstream of the weir and Kwoiek Creek near mouth. Additional sites could be added as required. Monitoring at the high elevation sites may be suspended during the winter months when freezing could result in damage to the instruments.

Parameters

Water chemistry grab samples should be measured for turbidity, suspended solids, pH, temperature, conductance, nutrients and major ions. Some additional monitoring for metals, petroleum hydrocarbons and fecal coliform bacteria could be added where concerns warrant.

Monitoring Frequency

Grab samples should be taken every 4 weeks and every 2 weeks or possibly weekly during periods of high flow (April, May, June) or high temperature (July, August, September). At least one full year (preferably two) of this monitoring should be conducted before construction begins. This program should continue through the construction period and for at least one year after construction is complete. Subsequent monitoring should be determined based upon the results of monitoring up to that point and subject to the approval of the Regional Waste Manager and the Regional Fish and Wildlife Manager.

Discharge monitoring should also be subject to the approval of the Regional Water Management Manager.

Additional monitoring may be required to address specific issues such as instream work, runoff from spoil piles or waste rock dumps, spills, landslides or other unforeseen problems.

Benthic Invertebrates

Kwoiek Creek should also be monitored for benthic invertebrates. One suitable monitoring method is the Index of Biological Integrity or IBI, which incorporates many factors into one index measurement. This method has been used by J. Karr at the University of Washington. This method includes physical habitat metrics along with measurements of biota to provide a sound scientific assessment of a stream site. This monitoring could be included with the fish monitoring program. The IBI was developed to address urban impacts, so may need to be altered somewhat to properly measure the impacts from this hydro development.

3.0 Fish and Fish Habitat

A complete assessment of fish and fish habitat potentially impacted by the proposed project is required to identify those species and habitats present, confirm the identified species' presence through studies and surveys, and assess the significance of any potential negative impacts on those species and habitats.

The Application indicates that various fisheries assessment initiatives have been conducted in the project area: Triton Environmental Consultants 1995; RP Griffith & Associates 1997; AGRA Earth and Environmental 1998 and Carmannah Research 2000. Findings of these studies are referenced in the Application.

The fish impact assessment information provided in Section 5.2 of the Application is considered by the Ministry to be inadequate. Outstanding issues include, but are not limited to the following:

Baseline monitoring for all fish species and life stages, spawning times and locations, barriers to fish, fish utilization of referenced side channels and the impacts of project facilities and flow regime on fish and fish habitat. (An inconsistency was noted in the description of fish habitat down stream of Kwoiek Lake (see paragraph two and three of section 5.2.1.6)).

Section 9 of the application provides greater clarity to the study objectives of the proponent with respect to fisheries related issues. The ministry concurs with the commitment of the proponent to undertake the following assessment components:

a) Fish Abundance and Distribution:

- identify fish species and life stages that could potentially be affected by the proposed project

- determine the abundance and distribution of fish species and life stages in spring and autumn
- identify spawning times and locations
- identify barriers to upstream fish movement

Radiotelemetry studies are planned to track the movements of adult rainbow trout and bull trout in the section of Kwoiek Creek between Kwoiek Lake and the mouth of Kwoiek Creek. The study will assess:

- whether bull trout and rainbow trout from Kwoiek Lake are using habitat in both the lake and the mainstem of Kwoiek Creek
- the limits of adult bull trout distribution
- the seasonal habitats used by adult bull trout and rainbow trout
- the spawning habitats used by adult bull trout and rainbow trout
- the timing and extent of spawning migrations

b) Fish Habitat:

- determine the quality and quantity of fish habitat lost and gained near the proposed weir and intake structures
- assess the impact of the tailrace on the side channel fish habitat as well as impacts to habitat downstream of the proposed tailrace intersection
- assess fish habitat in the side channel around the falls located 3.3 km upstream from the mouth of Kwoiek Creek
- assess the depth and velocity in the flume under the CP Railway and the potential for the structure to act as a barrier to upstream fish movement

Additional Information Requirements

- Undertake a complete assessment of the project structures, construction and operational activities on fish and fish habitat, including the potential for entrainment. Assess the significance of any potential negative impacts on those species and affected habitats.
- Propose mitigation measures to reduce impacts on fish migration including adult and juvenile life stages which may be predicted to occur as a result of the project.
- Prepare life history tables.
- Identify key migration times and pathways to and from critical habitats.
- Undertake a specific assessment of the effects of the project on red or blue listed species and regionally significant species.
- Propose mitigation measures to reduce impacts to fish habitat predicted to occur as a result of the

project. In considering mitigation/compensation opportunities, it should be noted here that the Ministry considers the CNR barrier as a temporary obstruction.

- Prepare a post-construction fisheries monitoring program in consultation with the Ministry.

3.1 Minimum Flows For Fish

Naturalized Hydrograph:

The general accepted strategy for managing fish/aquatic life/channel integrity is to re-create a natural shaped hydrograph in any potentially affected stream or reach. In the interior this is a bell-shaped curve with a peak in early summer followed by gradual reductions to low flow in late summer/fall/winter. Kwoiek Creek may have periodic coastal rainfall influence in the fall/early winter. The shape and timing of the hydrograph are accepted as critical to providing environmental cues. Aquatic species have adjusted their life history traits to coincide with the environmental cues based on natural flow regimes. Magnitude may change under any flow diversion scenario but the timing and shape should be unchanged. There is still a need for periodic flushing flows (sediment cleaning) and even larger channel - shaping events in the post-impoundment hydrograph. Historically, only "minimum flows " were emphasized for hydro facilities.

Flow Setting Methodologies:

BC Fisheries (led by Ron Ptolemy) has developed BC Fish Rules based on empirical data from BC streams including WSC historic data and other sources when available. The method is similar to the Tennant or Modified Tennant that considers mean monthly discharge. Mean monthly (or weekly) can be used to re-create a hydrograph history and establish the MAD. It should be noted that minimum daily or weekly flows are an issue for aquatic life. An example provided by Ron Ptolemy:

Short-term maintenance: (10% MAD) MAD = mean annual discharge as calculated from WSC data or basin hydrology

Juvenile Fish, Rearing/Insect Production (20% MAD)

Spawning/Migration (40% and higher MAD)

Wetland/Side channel Linkage (100% MAD)

These are general guidelines (still under internal review) in the absence of more rigorous flow-setting methods and data but provide a first-cut for consideration in a flow diversion proposal. There are other ecological considerations such as maintaining riparian vegetation and wetland linkages (wildlife) that go beyond fish habitat when considering flow regimes. For fish habitat, in general, 10% MAD is considered a degraded habitat if that flow continues for any duration in a reach.

Note: The current proposal is for a minimum flow of 0.5 cms (17.6 cfs) in the bypass reach, only 5.2% of

estimated MAD.

In concert with flow setting, a periodicity table/life history table is necessary to evaluate the species and life stages that are affected by flow changes. For example, bull trout typically migrate from May to August to spawning tributaries, spawn in September/October and juveniles rear in streams year-round. Migration flows may be an issue in a given project, or adequate winter flows to protect eggs/embryos. The life history table must be validated with watershed specific information for fish species present. Aquatic invertebrates are another component of aquatic life to consider when considering flow proposals. Aquatic invertebrates are critical to maintaining fish growth in a stream.

The Ministry recommends that the proponent seek expert consulting advice with respect to this issue and to also consult with the fisheries agencies for guidance.

Additional Information Requirements

- Provide further information on the selection process for the eight identified transects. Demonstrate that eight transects are adequate for a 10 km section and how these transects relate to the types of physical habitat in the portion of the stream below the intake. The extent to which the transects are representative of the abundance to the various physical habitat types should be estimated.
- In consultation with the fisheries agencies, develop a baseline and post-construction monitoring program for aquatic invertebrates.

3.2 Ramping

Ramping rates are an issue in flow-regulated streams. The general guidelines in place are limiting stream stage reduction in affected reaches to 2.5 cm per hour. There are day/night considerations. Juvenile are often more active at night and less susceptible to stranding in substrates/off-channel areas and mainstem margins. Up-ramping is more relaxed, but should not exceed natural rates or small fish can be displaced.

Additional Information Requirements

- Conduct a full assessment on the potential affects of the project on ramping and stranding. The assessment must consider annual project start-up and shut-down and emergency shut-downs in the event of line outages, mechanical failure or other factors causing outage.
- Identify mitigation measures to reduce ramping and stranding impacts to fish and other aquatic life.

3.3 Entrainment

The Ministry concurs that fish that enter the intake channel can potentially be impacted by impingement on the trash rack and entrainment into the penstock and turbines. The Application does not provide details as to what the impact of the intake structure will be on fish and how any impacts will be mitigated.

The Ministry supports the proponent's commitment (page 9-7 of the Application) to assess the potential impacts associated with entrainment of fish as follows:

- assess species, abundance, and life stages of fish using habitats near the proposed intake
- identify the potential for fish entrainment into the penstock
- identify mitigation measures that can be implemented to minimize entrainment. Successful deterrents to fish entrainment used at other hydroelectric facilities will be documented and evaluated as potential mitigation options.

Additional Information Requirements

- Provide an assessment of potential fish entrainment and opportunities to mitigate entrainment. The assessment should consider factors such as fish species composition, density estimates in the zone of influence of the intake and the seasonal variation, potential entrainment as a function of plant operation, and net annual entrainment rates.
- Identification of opportunities to compensate for fish entrainment.
- Present a combination of mitigative measures (e.g. behavioural barriers) to avoid entrainment and/or compensation measures (at an advanced conceptual level) to offset all entrainment losses.

4.0 Wildlife, Wildlife Habitat and Vegetation

The Application describes the wildlife resources in the Kwoiek Creek watershed and the transmission corridors and the potential impacts of to these species as a result of the project.

4.1 Wildlife – General

The Ministry concurs with the proponent's commitment to conduct surveys to identify the existing wildlife and the significance of wildlife habitats that may be affected by the proposed project both in the Kwoiek Creek watershed and along the transmission line route.

The Ministry supports the commitment of the proponent to undertake monitoring of the impacts of construction on wildlife and to undertake post construction monitoring of project impacts on any rare species that exist in the project area (Page 5–38 of the Application). It is noted that the proponent also commits to monitor bird mortality resulting from the transmission line or distribution line and to implement mitigation measures as required. The proponent should consult with Ministry staff to develop a post construction monitoring program.

Additional Information Requirements

- Conduct and document an assessment of project impacts on wildlife species on the project area. Detailed wildlife monitoring and mitigation plans must be included in the project report following consultation with the Ministry.
- The proponent must provide additional information on inventory methods for the wildlife surveys.
- In order to provide more succinct input to the wildlife assessment of this project, the Ministry requires further detail on facility components and their location. This includes the transmission line, the water conveyance system, and the intake structure etc.

4.2 Mountain Goats

The Application reports that mountain goats winter on the upper slopes along Kwoiek Creek but do not inhabit the valley bottom. It is acknowledged that construction and operational activities associated with the proposed facility could disturb these over-wintering populations.

The Ministry concurs with the proponent's initiative to undertake mountain goats surveys on the south facing slopes of the Kwoiek valley to identify winter access measures that will minimize disturbance to these populations (page 9-7 of the Application).

Additional Information Requirements

- The proponent must conduct a goat habitat use inventory for a full year. The study must be expanded beyond the lower slopes of the Kwoiek valley to better establish goat use patterns in the project area.
- Undertake a goat population inventory so that the long-term impact of the project on goat populations can be assessed.
- The proponent must prepare an environmental monitoring plan for construction which includes measures to eliminate disturbance to mountain goats from winter and summer access/construction

activities including blasting.

- Depending on the results of the goat inventory, there may be a need to undertake post construction monitoring of the goat populations. This should be discussed with MELP personnel. Details of a post-construction monitoring program should be included in the project report.

4.3 Red and Blue Listed Species

Tables 5-12 and 5-13 of the Application identify a list of rare vertebrates that may inhabit the Lillooet, Kamloops and Merritt Forest Districts. The application states that there may be few of these species which utilize habitats within the project area. Those that may potentially inhabit the area are some snake species and tailed frogs.

The ministry agrees with the proponent's commitment to identify the presence of rare and endangered wildlife in the Kwoiek Creek watershed and along the transmission lines route (pages 5-38 and 9-7 of the Application). The proponent should consult with the Ministry's regional rare and endangered specialist to receive guidance on what species should be considered in the assessment and what methodologies should be utilized.

The Ministry supports the commitment of the proponent to undertake monitoring of the impacts of construction on wildlife (page 5-38 of the Application).

The Ministry further supports the commitment of the proponent to conduct post construction surveys on any rare species that exist in the area (page 5-38 of the Application).

Additional Information Requirements

- Undertake and document an assessment of the impacts of the project on rare species in the project area.
- Develop a mitigation plan for any species determined to be potentially impacted by the project.
- Provide a post construction monitoring program as appropriate for any rare species in the project area.

4.4 Spotted Owl (Red Listed)

The intake site and powerhouse site may provide critical habitat for the red-listed spotted owl which

depends on old growth forests habitat. Additionally, traffic and construction activity may have negative impacts on spotted owl in the area, including disruption to the nesting period. The Application states that spotted owls have been observed in the Kwoiek watershed at three locations.

The Ministry concurs with the proponent's commitment to undertake surveys to determine the presence of owl populations in the vicinity of the project structures and the presence of critical habitats. The proponent has committed to conduct call back surveys by qualified personnel in mid-April and mid-May 2001. The surveys will be designed to follow the procedures outlined in the Standard Inventory methodologies for Components of British Columbia's: Raptors (Resource Inventory Committee 1997) (pages 5-35 and 9-7 of the Application).

The Ministry also concurs with the commitment of the proponent to select the site for the weir and intake structures following completion of the spotted owl surveys (pages 9-7 of the Application).

Additional Information Requirements

- A detailed impact assessment of all aspects of the project on spotted owl must be provided in the project report.
- If owls are found to be near any of the project development sites, a detailed mitigation plan must be detailed in the project report. The Ministry encourages the proponent to liaise with MELP to develop an acceptable mitigation plan.
- The Ministry also requires more detailed information on the footprint of the water intake structure and other project structures prior to defining clearing boundaries in this area. The proponent must demonstrate an effort to minimize clearing activities in this area.

4.5 Grizzly Bears

The Application notes that grizzly bear may occasionally use habitats near the proposed intake. It is agreed that increased access to the Kwoiek Creek watershed as a result of road upgrading and maintenance may have a negative effect on the grizzly bear population in the area through increasing illegal harvest, increased human/bear conflicts, habitat displacement and increased human disturbance. The Ministry acknowledges the commitment of the proponent to cooperate with any access management strategies implemented in the project area.

As the Ministry is currently reviewing information requirements for grizzly bear, the following requirements are to be considered draft. Further clarifications with respect to these requirements will be provided in the near future.

Additional Information Requirements

- The Ministry requires further clarification and discussion with respect to the grizzly bear distribution survey in the Kwoiek watershed identified on page 9-7 of the Application.
- The proponent should undertake a rough mapping or habitat assessment for a large area around the project site. This information will provide assistance in identifying areas to avoid and areas that could benefit from access management.
- Undertake a spring survey of habitat use by grizzly bear in the Kwoiek watershed from March 1 to July 1 for a period of years to be decided in consultation with the Ministry.
- Identify mitigation measures to offset negative impacts of the project on grizzly bear populations and habitat. Mitigation measures should specifically identify and address access issues.

4.6 Wildlife Trees Wildlife trees, if present, are a key habitat element and component of provincial biodiversity objectives. The application states that high value wildlife trees may be uncommon in the proposed transmission line corridor options due to previous disturbance or the presence of sagebrush-grassland. It was further noted that no large raptor nests were observed near the powerhouse. Information is lacking in the Application on presence, location, and potential impacts resulting from the project on wildlife trees.

Additional Information Requirements

- Identify wildlife trees in the proposed transmission corridor options, in or near areas to be cleared for construction access, disposal sites for waste rock, constructed features such as the diversion channel, settling ponds etc. Options for protecting wildlife trees should be identified and discussed with MELP. It is recommended the assessments should be conducted by an individual who has completed the "Wildlife/Danger Tree Assessment Course" and the "Stand Level Biodiversity Course".
- Tree falling must be scheduled for a time that does not disturb nesting birds.

4.7 Plant Species and Plant Communities

The Application concludes that disturbance to vegetation is expected to be minimal due to the small footprint of the project structures and the previously disturbed nature of the construction area. Impacts to the vegetation along the transmission corridors are also expected to be minimal given the limited clear requirements and the disturbed characteristic of much of the corridor. There may, however, be some rare vascular plants along the proposed route. The proponent has committed to minimizing disturbances to vegetation by sound design and construction practices and to restoring vegetation wherever possible.

The Ministry concurs with the commitment of the proponent to undertake further vegetation surveys (as per pages 5-44 and 9-8 of the Application) to identify:

- vegetation that may be directly or indirectly affected by the proposed project in the Kwoiek watershed and along the transmission lines
- rare or endangered plants that may be impacted by the proposed project structures in the Kwoiek Creek watershed and along the proposed transmission line

Additional Information Requirements

- Document a general assessment of project development on vegetation resources within the project area (including rare or endangered plant communities).
- Identify mitigation measures as part of the impact assessment. Restoration plans and vegetation management strategies, including weed management must be identified.

4.8 Noise – Potential Wildlife Displacement

Noise from project activities can result in animal displacement or other behavioural responses.

Additional Information Requirements

- Provide documentation on the construction and operations noise abatement measures for the project. Information on construction timing and modes of access must be identified (disturbance must be avoided during nesting period for spotted owl and for grizzly bears in the spring for example).

5.0 Parks/Ecological Reserves

The application makes no mention of either Skihist Provincial Park or Skihist Ecological Reserve, both of which are located a few kilometres east of Lytton.

Skihist Provincial Park straddles Hwy. 1, about 8 km east of Lytton. The Province recently announced an extension of the park to the height of land on the south side of the existing park. The Hwy 1 right-of-way crosses through near the north side of the park, and the entire park lies south of the CN rail line.

Skihist Ecological Reserve is 36 hectares in size and is located about 5 km east of Lytton. It is bounded on the north side by the Thompson River and on the south side by the CN rail line.

No option exists to grant a new right of way through parklands for this power transmission line. Section 8 of the Park Act precludes the possibility of accommodating the transmission line, so a route which does

not involve alienation of parklands must be found.

Additional Information Requirements

- Both the textual description and the mapping of the transmission line route in the application are of insufficient detail to determine its exact location in the Skihist Provincial Park / Skihist Ecological Reserve area. More detailed planning of the route through this area is required by the applicant to ensure that it bypasses both the Park and the Ecological Reserve. Additionally, the Ministry may possibly have concerns over the visual effects of the line from the viewpoints in the park. Additional details are required to allow the Ministry to assess this issue.

6.0 Miscellaneous

6.1 Construction Monitoring Requirements

- A qualified independent environmental monitor must be retained to provide environmental oversight of this project while it is being constructed. The credentials of this individual must be discussed and approved by the Ministry.
- The environmental monitor must submit environmental reports and "incident" reports directly to the Ministry on a bi-weekly basis.
- An Environmental Management Plan must be prepared. The plan must include a Spill Contingency Plan and a Sediment and Drainage Management Plan.

6.2 Post Construction Monitoring Requirements

- The proponent must identify and implement post-construction assessment requirements in consultation with the ministry for each resource issue. This may include monitoring of wildlife, fish and fish habitat, water quality and vegetation resources.
- The proponent must submit, at a schedule agreed upon between the ministry and the proponent, a Compliance Tracking Report. This report will track the proponent's compliance activities with Project Certificate Conditions, permits and other authorizations issued under the auspices of the Ministry.

6.3 Sewage and Refuse For Construction Camp

The Application refers to the possibility for construction contractors to opt for an on-site construction camp because of the distance to commercial accommodation. The following information provides

guidance to the proponent with respect to requirements for sewage and waste disposal for such facilities.

Sewage for Construction Camps

For operations involving **less than 100 persons**, and provided that the sewage facility does not discharge to a surface watercourse, the *Waste Management Act* does not apply. Instead, the sewage facility must be authorized under the *Health Act, Sewage Disposal Regulation*, administered by the local health authority. It is recommended that the proponent, contact the local health authority for more information regarding the requirements of this regulation.

Refuse for Construction Camps

The Ministry's policy for disposal of putrescible refuse (i.e. food waste) at industrial, residential, exploration and construction camps is incineration in a properly designed, auxiliary fuel-fired refuse incinerator. Burial or landfilling of refuse is not permitted, except for combustion residue from the incinerator. Alternately, waste may be stored in animal-proof containers and hauled to a municipal landfill for disposal. A prime concern with putrescible waste is bear and wildlife nuisance.

Non-putrescible waste is to be hauled to a municipal landfill. Landfill permits for camps will rarely be issued and only for remote areas where transportation to a municipal landfill is impractical.

For operations involving **less than 100 persons**, a Waste Management Permit is not required for refuse disposal; however, the following conditions must be adhered to:

All putrescible refuse shall be stored in an animal proof container and:
incinerated on a daily basis, or,
regularly hauled to a municipal landfill.

The **incinerator** must have a refractory lining, incorporate an auxiliary fuel system and shall be equipped with a combustion control system and effective spark arrestor. Simple burning barrels are not acceptable.

Only putrescible refuse (i.e. food waste) may be incinerated. No other materials shall be incinerated including waste oil, oily rags, filters, paint cans, solvents etc.

Combusted residue (ash) must be removed from the incinerator regularly and may be disposed of on the site, in a manner acceptable to the Regional Waste Manager. Ash shall be buried with a minimum of 0.2 metres (8") of soil cover applied at least once every 2 months. The Regional Waste Manager may vary the frequency of covering when adverse freezing weather conditions make covering impractical. The final soil cover shall be 0.6 metres (24") and graded to promote runoff.

Incinerator operation shall be restricted to specific personnel selected to perform these duties. The Regional Waste Manager shall be notified when normal incineration operations are interrupted due to

equipment malfunction or other unforeseen circumstances.

APPENDIX 1

KWOIEK CREEK HYDROELECTRIC PROJECT PROJECT APPROVAL CERTIFICATE APPLICATION

Comments Water Allocation Section Water Management Branch

Kanaka Bar Band (KBB) has applied under the *Water Act* for a water licence to construct works for the diversion of water for power purpose. The proposed works are on the Kwoiek Creek which flows from the west into the Fraser River approximately 14 km south of Lytton, BC.

The Environmental Assessment Office has advised that KBB with their partner/consultant, Powerhouse Energy Corp. (PHE) has applied for a project approval certificate (PAC) for the project set out in the water licence application (WLA). A concurrent review of the WLA with the environmental assessment of the PAC application is under discussion and assumed. The provisions of the *Environmental Assessment Act* for a concurrent review require Water Management Branch to:

- proceed expeditiously with the consideration and review of the water licence application, in accordance with the *Water Act*.
- inform the proponent and the project committee, before the referral to Ministers of the project report(i.e. stage 2), whether the water licence will be issued(if a project approval certificate is approved), refused or a decision postponed to a later date; and
- within 30 days of issuance of a project approval certificate (if approved), to issue, refuse to issue or specify a later date on which the decision would be made with respect to the WLA.

WLA Adjudication Requirements

1. Referral of WLA to Persons with Right to Object

- The *Water Regulation* provides for notice of an application to be given to any licensee or applicant for a water licence, any riparian owner, and any owner whose property may be physically affected by the proposed works.
- Notice will be given as follows:
 - to land owners that may be affected by the works, which are generally described as an intake, penstock, tunnel, powerhouse, tailrace and transmission line, if the line is made part of the works.
- The notice will provide for the right to object to the application, which will have to be filed with the Comptroller within 30 days of the notice. The grounds for any objection must be supported by evidence of the adverse affects of the project on the rights of the objector.

- The decision by the Comptroller on any objections is made in conjunction with the decision on the application. This decision can not be made until the application for the PAC is decided. The objections would be considered by the Comptroller during the concurrent review to ensure that the decision on the PAC application does not conflict with the Comptroller's decision on an objection. A decision to grant the application for a PAC must set conditions for the project that will allow the Comptroller to deal with the objections and issue a water licence. Any objections would be brought to the Project Committee for consideration.
- Any owner whose land may be affected by the project, and a licensee, riparian owner or applicant for a licence may appeal the decision on the WLA to the Environmental Appeal Board within 30 days of the notice of the decision. The applicant for the water licence may also appeal the decision.
- On notice of the application, the persons with the right to object may also raise issues that are in the nature of public interest, i.e. not based on impacts that affect the specific rights of the person. Such issues would be addressed by the Project Committee in dealing with issues raised during public consultation in the review of the PAC application.

2. Referral of WLA for Additional Input

- The *Water Regulation* provides for notice of the application to be given to any person, agency or minister of the Crown whose input the Comptroller considers advisable.
- At this time, the members of the Project Committee are considered to represent the persons, agencies and ministers of the Crown whose input is considered advisable as set out in the *Water Regulation*.
- The Project Committee members should ensure that their deliberations not only consider the application for the PAC, but also the application for the water licence. If the *Environmental Assessment Act* is unable to address specific concerns of the members of the Project Committee, these concerns should be directed to the Comptroller for consideration in the decision on the WLA.
- The WLA will be referred to the members of the Project committee for concurrent review with the PAC application.
- As the WLA and PAC application are likely to be reviewed concurrently, and to ensure that the deliberations of the Project Committee is valid input to the Comptroller's decision on the WLA, the Environmental Assessment Office may wish to discuss input to the Comptroller with the office of the Comptroller.
- The *Water Act* does not provide a person, agency or minister of the Crown, who has been given notice of the WLA, with the right of appeal from the decision on the WLA. However, they may be given third party standing in any valid appeal that is filed with the Environmental Appeal Board.

3. Consultation with First Nations on WLA

- As the WLA and PAC application may be reviewed concurrently, the consultation with First Nations should be undertaken such that it satisfies the obligations of the decision makers on both applications. These obligations include impacts of the project on traditional use, and infringement on aboriginal title to the lands affected and to the water diverted and beneficially used by the proposed project.
- The Environmental Assessment Office and the Comptroller should discuss with First Nations the process for consultation that ensures the obligations of the decision makers are met, and allows for meaningful input from First Nations.
- On completion of the review of the PAC application, the consultation with First Nations should be such that further consultation by the Comptroller is not required for a decision on the WLA, if a PAC is approved.

4. Information Requirements on WLA

- Sec. 12 of the *Water Act* provides that the Comptroller may require additional plans or other information from the applicant on its WLA.
- As any additional requirements are identified in the review of the PAC application filed by KBB they will be discussed with the project committee.
- Any concurrent review should ensure that all information required for the decision on the WLA is provided before the referral to ministers of the project report.

5. Technical Review of WLA

- Concurrently with the preparation of the recommendations report by the Environmental Assessment Office on the PAC application, staff from the office of the Comptroller intend to complete a report on the WLA with a recommendation for a decision by the Comptroller.

6. Decision on WLA

- The decision to issue, refuse to issue or specify a later date on which the decision would be made on the WLA is made within 30 days of the decision on the PAC application.

II. Comments on PAC Application

1. General

Current water licences for hydroelectric projects usually contain a number of clauses that authorize and regulate the design, construction, operation and regulation of the project. It is not clear at this time whether these requirements will be contained in any project approval certificate, any water licence or both that may issue. Regardless these requirements are expected to apply to this project. For reference in

review of this project these requirements include:

a) The construction of works authorized shall not be started until:

1. the proponent completes an archaeological impact assessment and prepares a satisfactory environmental management plan for the management and mitigation of construction impacts;
2. the proponent funds the services of an independent environmental monitor for the construction of the project;
3. the proponent completes an analysis of the stability of the penstock and penstock route; and
4. design plans, prepared by a professional engineer registered in the Province of British Columbia, have been submitted, and leave to commence construction is given in writing.

b) The proponent must:

1. prepare a monitoring program suitable to determine the nature of any impacts on fish and Harlequin ducks;
2. implement the program;
3. continue the program for five years following the commencement of operation of the works; and
4. at the completion of the monitoring program, prepare a report that identifies the nature of any impacts on fish and Harlequin ducks and implements the appropriate mitigation and/or compensation.

c) Before commencing operation of the works, the proponent shall:

1. submit a report on the parameters and procedures for the operation of the works authorized. These parameters and procedures shall be based on information on the generation of electricity and on social and environmental values considered in the issuance of the project approval certificate.
2. receive leave to commence the diversion and use of water authorized in the water licence, in writing, from the Comptroller of Water Rights.

d) The proponent must operate the works in accordance with:

1. procedures ordered, including any order for the regulation of the diversion, rate of diversion and use of water as may be required for the preservation of fish and Harlequin ducks,
2. any amendment of the procedures ordered.

e) As-built plans must be submitted within one year of commencing operation of the works.

The following comments are not intended to limit the application of the foregoing requirements.

2. Project Components

Any decision made under the *Water Act* including the clauses and details of the water licence are appealable to the Environmental Appeal Board. This includes the works authorized by the water licence and any decision made regarding their construction and maintenance.

- **Power Intake Structure:** A more detailed description of the method of construction for the intake will be required when design plans are received.
- **Fish Screens:** If fish screens become part of the licensed works, a detailed rationale supporting their necessity will be required. If the proponent is not proposing fish screens then a detailed rationale for not including fish screens should be provided.
- **Penstock Option:** Assessment of this option will require detailed plans showing the location of the penstock within the Kwoiek Creek corridor and all streams, drainages, roads and mountainside constraints. Plans are required showing how the penstock will cross Kwoiek Creek. A slope stability analysis for the penstock route is required. A plan for the disposal of large rock removed from and rehabilitation for the penstock route will also be required. The extent that the crest of the penstock and penstock cover be below or above natural ground level must be identified to determine how will upslope drainage and streams be accommodated and the extent of rehabilitation?
- **High Pressure Conduit:** Plans for the passage of the HPC past the railway are required for referral to the railway and to ensure public safety.
- **Powerhouse Site:** The owner and the final legal description of the powerhouse site are required for appurtenancy of any water licence to be issued.
- **Tailrace Channel:** Plans for the tailrace channel are required to assess channel stability, access by fish and ramping details to be included in operating procedures.
- **Transmission Line:** A reasonably accurate alignment for the various options for the transmission line are required together with land statusing for all properties, tenures and land use reserves that will be crossed. Confirmation of any agreements with landowners or easement holders should be provided. Whether or not the transmission line is covered as licensed works under the *Water Act*, an environmental management plan must apply to its construction. Hook up to the BC Hydro transmission line near the powerhouse is the preferred option. The rationale for not pursuing that option should be provided by both the proponent and BC Hydro.

3. Construction Considerations

- It is expected that the requirements contained in the GENERAL section above will be part of either the project approval certificate or the water licence or both.
- All project components to be licensed as works under any water licence to issue under the *Water Act* may not be constructed until the licensee receives from the Comptroller of Water Rights leave to commence construction. Design plans prepared by a professional engineer and satisfactory to the Comptroller for any such works must be submitted to the Comptroller prior to receiving any such leave. A satisfactory environmental management plan for the management and mitigation of construction impacts will be a requirement of any project approval certificate and/or water licence to issue and must be in place prior to granting any leave to construct works.
- The owner of the project may be required to provide engineering services for the checking of

plans prior to the Comptroller of Water Rights granting leave to commence construction.

4. Operational Considerations

Instream Flow Releases: It must be determined whether instream flow releases and any adaptive management amendments to IFR will part the PAC or water licence. Any procedures that may be ordered by the Comptroller for the operation of the project may include an adaptive management approach to assess and minimize impacts of the project. This will require an ongoing monitoring program. The assessment of instream flow releases will require information on the physical habitat types in the various stream reaches between the intake and the mouth of the creek. For adaptive management, the changes (positive or negative) on the nature and amount of the physical habitat at various flows and the factors that currently and ultimately limit the fish population in Kwoiek Creek must be generally understood. An understanding is needed of life histories for the species of fish and Harlequin ducks, if present, in Kwoiek Creek.

- Ramping of flows: Ramping rates and procedures will be required in the operational procedures.
- Impacts on any significant use of Kwoiek Creek by kayakers should be identified. Any accommodations to be included in the operational procedures ordered by the Comptroller must be determined.

5. Aboriginal Consultation

- First Nations consultation by the Environmental Assessment Office is expected to meet the requirements of the Water Management Branch provided it addresses the traditional use of Kwoiek Creek by all the bands in the area.

6. Other Water Licensing Considerations

- There are no other water licences on Kwoiek Creek. The only other application on Kwoiek Creek is for domestic, irrigation and storage purpose by the Kanaka Bar Band.
- The water licence application for hydropower by the Kanaka Bar Band is currently noted as the diversion of 15 cubic meters per second to produce 60 MW of electricity. The records will be updated to show the diversion of 15 cubic meters per second to produce 80 MW of electricity.
- The current water licence application includes the storage of water as part of the project. The Comptroller cannot consider granting a water licence that will include storage purpose if it is not included in the EAA application review.
- It is expected that the applicant will obtain all necessary land tenures for the intake, intake flooding above the highwater mark, penstock, tunnel, access roads and construction areas from BC Assets and Land Corporation.
- The intent of this application is to generate electricity to be sold to other parties. The Water Management Branch will be assessing annual water licence rental fees for power (general) purpose.

Yours truly,

"original signed by"

Barbara Archer

Project Review Manager

Environmental Assessment Unit,

Ministry of Environment, Lands and Parks