

Fisheries
and Oceans

Pêches
et Océans

Pacific Region
Pat Lim
OHEB

October 21, 2008

Mr. Norm Quail
Senior Program Officer
Canadian Environmental Assessment Agency
747 Hastings Street
Vancouver, BC

Dear Mr. Quail:

**Subject: *Review of Application for Environmental Assessment Certificate
Davidson Project***

Fisheries & Oceans Canada (DFO) would like to provide preliminary comments on the application from Blue Pearl, a subsidiary of Thompson Creek Metals Company Inc., to develop a large molybdenum deposit at Hudson's Bay Mountain in Smithers, BC. The application was submitted on September 2, 2008 for a harmonized review between the Canadian Environmental Assessment Agency (CEAA) and the British Columbia Environmental Assessment Office (BCEAO) and is called the Davidson Project.

At present DFO's review has been focused on those sections of the application that address fish and fish habitat topics or whose information could directly impact fish and fish habitat through design, construction, operation or decommissioning. These are specifically:

- Section 3.9.1.3 Stream Crossings
- Section 3.9.1.2 Haul Road Design
- Section 6.7 Aquatic Environment
- Section 11.13 Fish and Fish Habitat
- Section 13.4.7 Fish (Environmental Effect Monitoring)
- Section 14 Summary of Project Commitments and Mitigation
- Appendix G1 Baseline Report 2005 Aquatic Resources
- Appendix G2 Baseline Report 2006 Aquatics, Fish Community
- Appendix Q1 Stream Crossings Memo

As an introduction to this review, DFO would like to note that the Bulkley River that will be receiving mine effluent, supports all five species of Pacific salmon as well as two blue-listed fish species (bull trout *Salvelinus confluentus* and a subspecies of cutthroat trout, *Oncorhynchus clarki clarki*). It is a particularly important watershed for pink, coho, Chinook, sockeye and steelhead salmon and has important established commercial, recreational, and aboriginal fisheries. The protection of this resource will be one of the prime considerations of DFO's comment on the Davidson Project Application.

Diffuser Site

The diffuser planned for discharge of mine effluent is of prime interest to DFO. This is going to be placed in the Bulkley River, where the planned discharges will be regulated by the BC Ministry of Environment and the federal Metal Mining Effluent Regulations. DFO has also determined that the construction and installation of the discharge outfall in the Bulkley River is likely to result in the harmful alteration, disruption, or destruction (HADD) of fish habitat. Therefore, it will be necessary for DFO to assess the project and to issue an Authorization under Section 35 (2) of the Fisheries Act for the impacts related to the construction and installation work. The impacts are anticipated to include removal of riparian habitat adjacent to the diffuser location, the disruption of the river bank and "edge" habitat, and the excavation of river bed material within the river channel.

In our opinion, the Application does not provide enough information on the fish or fish habitat at the diffuser site for DFO to comment on the acceptability of the location. There is also no information in the Application on the proposed methods of installation of the diffuser.

DFO requires more detailed information regarding fish habitat types and habitat use at, and immediately adjacent to, the proposed diffuser site. This information is required both for proper assessment of potential impacts / risks involved with the mine effluent discharge and for determining the significance of the HADD involved with the construction / installation of the diffuser. Detailed information is also required for designing the Fisheries Act Authorization and habitat compensation requirements. Ideally, this information should include analysis of all the factors which will be affected during the construction and operation of the diffuser. This would include description of channel shape (i.e. shape of banks and river channel); description of riparian habitat affected; description/mapping of substrate types, depths and velocities as these relate to fish habitat use; also some indication of actual fish presence/use of the site.

It should be noted also that there is a heavily-utilized steelhead sport-fishing location immediately at the proposed diffuser site (on the opposite bank). This may become a concern for the sport fishing community and also deserves mention in the Application.

Environmental Effects Monitoring

The proponent has proposed conducting *in situ* study of coho incubation and early coho life history in the Bulkley River as a component of an Environmental Effects Monitoring plan. DFO would like to provide the following comments regarding potential Environmental Effects Monitoring.

Relevance of coho spawning as a study subject

Although there is no habitat information for the discharge site, local DFO knowledge predicts it is very unlikely that coho salmon would actually spawn in this area. Coho tend to select smaller tributaries and mainstem spawning is considered to be quite rare. Chinook salmon would be the most likely species which could spawn in the immediate area of the proposed diffuser location. Specific spawning locations are not known, but mainstem spawning does occur and carcasses are observed occasionally in this reach of the Bulkley. Pink salmon spawning occurs along mainstem margins, but is unlikely to occur near the proposed diffuser site due to apparent lack of suitable small gravel substrate.

The most likely species to be inhabiting the site around the diffuser are rainbow trout (steelhead and resident rainbow trout, both juveniles and adults) and bull trout. DFO surmises that the habitat at the site is mainly cobble/boulder and rainbow/steelhead juveniles are known to be very common at these types of mainstem Bulkley River sites. Bull trout are also known to be common, but their life history patterns imply more migration and therefore possibly less relevance as a subject for study. If the proponent is considering conducting additional *in situ* studies, the use of rainbow trout would likely be the most relevant to the location. Rainbow trout juveniles could potentially utilize more or less the same site for up to three years prior to migrating downstream (and so might be the most susceptible to bioaccumulation).

Adult steelhead also overwinter throughout the Bulkley River mainstem including the vicinity of the diffuser. They are likely to be attracted to slightly warmer, oxygenated water "upwelling" from the diffusers. These fish would likely be more or less stationary (possibly in close proximity to the diffusers) for up to eight months (i.e. potentially from September through April).

***In situ* vs. lab study of early life history.**

Our understanding of studies of incubation success is that there can be factors which affect incubation success due to a number of conditions which may be difficult (or impossible) to control in an *in situ* situation (e.g. slight temperature differences, sediment sources, upwelling areas leading to differences in water quality, etc. and also actual "tampering" with the study sites by humans). Given these potential issues and the question of the relevance of coho as a subject, the proposed use of coho eggs *in situ* will be an interesting test of the *in situ* use of this species in this area. In the long run, however, it may provide more solid results to look at the laboratory (i.e. more controlled) procedure using rainbow trout. The rainbow trout lab procedure is a recognized procedure for the early life history impact study.

Although the proponent recognizes the value of the Bulkley River and the surrounding watershed, there is not an accompanying protection of the identified values. This conclusion is reached by looking at Section 14, Summary of Project Commitments and Mitigation. In many cases, the commitment to monitoring is inadequate for DFO.

Haul Road Location and Design

There are a total of nine stream crossings identified for the present haul road alignment. In the Application only very basic information is given and DFO requests more details on the crossings and planned crossing type before commenting on the adequacy of the plans and planned mitigation and monitoring programs.

The haul road option which has been selected (Northern Route Truck Option) involves additional crossings of valuable fish habitat—predominantly in the Toboggan Creek drainage (i.e. 1 crossing of Club Creek and 8 crossings in the Toboggan system). Toboggan Creek is a key coho salmon and steelhead producing system in the Bulkley/Morice watershed. This drainage includes a small hatchery and significant stock assessment facilities (counting fence and monitoring programs) which provide key coho stock assessment information for the Bulkley/Morice.

DFO disagrees with the ranking applied to Fisheries impacts in the Haul Option Report – as we do not agree that this ranking adequately considered the significance of the

fisheries resource present at the various stream crossings. The selection of this haul option therefore significantly increases the risk to valuable fish and fish habitat from this aspect of the project.

The fish and stock assessment value (and therefore the risk) involved with this location makes it more important that all aspects of road location, road and road crossing design, and operational practices meet or exceed the normal standards required to avoid impacts to fish habitat. This would include not only the design of the road and road crossing structures to avoid direct impacts to fish habitat, but also the design of drainage structures and ditchlines, the running surface, and cuts/fills to avoid or minimize any increases in fine sediment input to stream channels. For instance, the Project Description states that:

“Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forests and Lands’ publication Forest Road Engineering, second edition 2002.”

With the haul road being built for vehicles which may exceed highway logging trucks in weight and with the road planned to be used year round (i.e. logging haul roads are normally shut down during spring breakup and during extreme weather events), we question whether this standard is sufficient. If degradation of the road and road surface occur, this will lead to increased maintenance / repair and, potentially, increased fine sediment production. In addition, DFO recommends that additional measures designed to prevent increased sediment delivery to streams be included in the haul road design. In particular:

- Paving or seal-coating bridge or other stream-crossing approaches;
- Use of additional coverage of clean gravel running surface materials in those areas not paved or seal-coated.

Although there is some basic information regarding the stream crossings in Table 3.9-1 (including species present, channel width, wetted width, etc.), more detailed information at these crossing sites will be required in order to assess potential impacts and to plan for mitigation of possible construction effects and other factors required for the “permitting” of the crossings. This should include an assessment of habitat values at each crossing site, including fish utilization, presence of significant features such as important spawning locations, possible off-channel rearing sites, etc. DFO would like to take the opportunity to review stream crossing sites in the field prior to final engineering of crossings.

Mine Water Discharge Pipeline Crossings

DFO assumes that crossings of any fish-bearing streams by the discharge pipeline will be carried out by directional drilling (or pipe-jacking, etc.) rather than by open cut or other instream construction method. If such instream construction methods are contemplated, then additional site specific fish habitat and fish habitat utilization assessments will be required for these crossing sites.

Water Quality and Water Quantity

The responsibility for maintaining water quality under Section 36 of the Fisheries Act lies with Environment Canada. DFO has jurisdiction over sediment in fish-bearing streams under Section 35(2) of the Fisheries Act and will be providing comment on the sediment and erosion measures proposed for all stages of the Project (construction, operation,

decommissioning). As already mentioned, the potential for fine sediments entering fish habitat is high and there isn't enough information on sediment and erosion control in the Application. Section 11.3 references Section 11.10, but that section is devoted solely to Spill and Emergency Response. Section 11.11 is the correct reference.

The management of water is a large part of this mining project. There is a heavy reliance on a water treatment plant to provide protection against water quality and quantity problems associated with construction and operation of the mine. It has been pointed out to the Proponent that the size of the retention ponds may not be adequate if there is heavy, continuous rains or if the water treatment plant fails. In such a situation, DFO would be concerned about untreated mine effluent entering directly into the Bulkley River. Contingency plans for this scenario are not presented in the Application.

DFO would appreciate further opportunity to comment on this project once further information is supplied regarding fish and fish habitat descriptions as outlined in this review. DFO will continue to discuss water quality issues with Environment Canada, BC Ministry of Environment and the proponent.

Thank you for the opportunity to participate in the review of this project. Please contact DFO if you need to discuss by contacting Pat Lim through Pat.lim@dfo-mpo.gc.ca or 604 666 6529

Sincerely yours,

Pat Lim
Habitat Biologist
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cc: Adam Silverstein (DFO)
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