

**Bulkley Valley  
Community Resources Board  
Box 577  
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November 6, 2008

Kathy Eichenberger  
Project Assessment Officer  
BC Environmental Assessment Office  
PO Box 9426 Stn Prov Govt  
Victoria BC V8W 9V1

**Re: Blue Pearl Mining Inc.'s Davidson Project, Environmental Assessment Application**

Dear Ms Eichenberger:

The Bulkley Valley Community Resources Board (BVCRB) wishes to offer the following comments regarding Blue Pearl Mining Inc.'s Environmental Assessment Application (EAA) for the Davidson Project located in the Glacier Gulch area at the base of Hudson Bay Mountain.

The BVCRB was formed in the mid 1990's to develop the Consensus Management Direction that was the basis for the implementation of the Bulkley Land and Resource Management Plan (LRMP). This plan was approved by the B.C. Government in April, 1998, and signed by the B.C. Minister of Forests; B.C. Minister of Energy and Mines; and B.C. Minister of Environment, Lands and Parks of the time.

The 12 BVCRB members, who represent a broad range of resource value perspectives, undertake the role of monitoring the implementation of the LRMP. In fulfilling this role the BVCRB offers the following comments regarding the Davidson Project EAA.

The Davidson Project falls within a Special Management 2 Zone under the LRMP. These zones were established to identify areas in the Bulkley Timber Supply Area (TSA) "where industrial activities will be carried out sensitively to ensure impacts on identified values are minimized." The project is also located in planning unit 10-1 (Hudson Bay Mountain) which outlines the identified values for this area along with the management direction associated with these values. A list of the identified values that directly relate to the Davidson Project, and the associated management direction, follows:

- Access**
  - Retain existing roads.
  - New road development must take into account the extreme visual sensitivity of the area.
- Fish and Wildlife Habitat**
  - Protect water source for fish hatcheries and Lake Kathlyn.
- Visual Quality**
  - Development plans must maintain visual quality.
- Outdoor Recreation and Tourism**
  - Encourage a network of hiking trails.
  - Toboggan Glacier Road will remain in its present state, subject to subsurface exploration and development.
  - Review and approval processes will ensure reclamation will occur, following any industrial activity.
- Water Quality**
  - Maintain water quality.
- Subsurface Resources**
  - Visual quality is a high priority. Address visual quality maintenance in review of developments, and minimize impacts to the greatest possible extent.

The BVCRB will focus on the above values in commenting on Blue Pearl's EAA for the Davidson Project. In addition the BVCRB will comment on the proposed Public Advisory Group. Please consider the following comments from the BVCRB regarding this project.

### **Access**

The proposed haul road runs through areas with Retention and Partial Retention Visual Quality Objectives. As the road will generally run along the contour at the base of Hudson Bay Mountain, its visual impact from the viewpoints along Highway 16 is expected to be minimal. In addition the road crosses and parallels Toboggan Creek, a regionally significant stream for salmonid spawning. All efforts must be taken to minimize impacts to Toboggan Creek as a result of road construction and maintenance, and measures to be undertaken should be specifically noted in the EAA. This would include adequate drainage structures and sediment control during construction and operations, with consideration of impacts of flood events on integrity of the road.

Recreational access disruptions and increased traffic within residential areas, especially along Glacier Gulch Road (which is not suitable for heavy industrial traffic), during the construction phase of the project is another concern noted by the BVCRB. These disruptions could be significantly minimized if the proposed haul road for the mine site was constructed prior to construction at the site itself. As a mitigation measure, the BVCRB requests that the proponent commit to building the new road prior to mine site construction in order to minimize access disruptions to existing recreational features and to reduce traffic volumes in residential areas.

## **Fish and Fish Habitat**

The Bulkley River attracts an international clientele who fish from July to January each year. This activity generates a significant portion of the area's tourism dollars. Stores, hotels, B&B's, guide outfitters, airport services and restaurants all rely on this valuable resource (the fish and the longevity of healthy fish habitat).

Downstream, the Wet'suwet'en, Gitksan and other First Nations have maintained a healthy fishery for thousands of years. Relying on each year's salmon returns, these First Nations maintain a sustenance fishery each year.

As proposed, effluent meeting Metal Mining Liquid Effluent Regulations (MMLER), Metal Mining Liquid Effluent Guidelines (MMLEG) and Metal Mining Effluent Regulations (MMER) should not alter the health of aquatic ecosystems, however, in order to meet these guidelines during critical times of the year for spawning and rearing of salmonids, it is necessary to properly characterize low-flow of the Bulkley River (see 'Receiving Environment' below). In order for the BVCRB to assess compatibility of the proposed effluent chemical levels with the LRMP objective of protecting fish habitat, we require detailed characterization of low-flow values, taking into account both community well draw-down and climate variability impacts.

Additionally, it is understood that dilution is the primary form of protection between fish and lethal levels of effluent. The foremost concern with this approach is cumulative effects to the environment as toxins settle out into the benthic layers of aquatic ecosystems downstream of the discharge location. Although river form and function change from year to year, the series of eddies downstream of the discharge location will likely accumulate a significant amount of toxins in the benthic layers. It is these same eddies that steelhead and salmon use to ascend the river; there they are exposed to cumulative effects. Therefore, in order to determine whether the proposed project will adequately protect fish habitat, we require detailed cumulative impacts modeling, along with sampling locations and methods used, to characterize toxin loading of downstream benthic zones, particularly in bedrock-controlled eddies.

Another high-valued salmon-bearing stream within the scope of this project is Toboggan Creek. As planned, the haul route will cross two feeder streams to Toboggan Lake as well as Toboggan Creek. Given the significance of hauling across these streams, and the possible associated habitat destruction, we are surprised that the proponent has not provided a detailed plan proposing how fish habitat will be maintained; specifically pertaining to the crossings that will be installed and mitigation measures during construction. In order for the BVCRB to properly assess this project for its compatibility with the LRMP, the proponent needs to provide a detailed plan for the road construction, fish-bearing structures that will be installed, and mitigation measures that will be undertaken during their installation.

## **Wildlife Habitat**

The proposed mine location and haul route fall within identified moose habitat. To date, the combination of power line right-of-ways backed by crown land has provided quiet summer browsing habitat along with undisturbed winter shelter for many resident moose. No mitigation measures were noted in the EAA to address the displacement of moose. As such, we request that the proponent provide a description of the measures being considered.

## **Visual Quality**

As noted previously, visual quality is a key resource value in the area where the Davidson Project is located. The expectation is that developments of this nature are planned so that they have a very minimal impact on the visual landscape and impacts they do have appear to be natural.

The Visual Quality Objective for the area of the proposed mine site is “Retention” which means that “resource management activities may not be visible to the average viewer, although discernible. Disturbances should appear to be from natural causes.”

The Visual Quality Assessment portion of the EAA is missing a key element that would enable the BVCRB to accurately assess the impact of the project on visual quality: A true representation of what the project will look like from the viewpoints. Models produced and displayed at the open house show what the cleared area for the project would look like from some of the viewpoints. These models do not include a representation of the buildings, rock piles, utility corridor and other developments associated with the project. Given the importance of visual quality in the area of the project, the BVCRB requires more comprehensive Digital Terrain Models for the development (including buildings, rock piles, lighting, etc.) from the various viewpoints in order to assess the impacts on this LRMP value. Furthermore, these should be made available for further public review and comment.

Appendix C1 addresses the possibility of mining-induced subsidence. The consultant’s review suggests that such an event is very unlikely, as long as primary stopes are backfilled, spans are limited to 75 metres and distance from top of stopes to surface remains as planned. It did note that “geotechnical knowledge of the rock overlying the ore zone is limited” and “long-term behaviour of recommended (ground) support beyond the expected life of the mine is unknown”. Any subsidence, even occurring long after mining is concluded, would permanently alter the appearance of Hudson Bay Mountain. The BVCRB needs to know what additional geotechnical mapping or studies will be undertaken to ensure subsidence will not occur.

## **Outdoor Recreation and Tourism**

The eastern face of Hudson Bay Mountain has numerous established recreational features. The two features that appear to be most impacted by the Davidson Project are the Twin Falls Recreation Site and the Silvern Lakes Trail (also known as Toboggan Creek Road).

The Twin Falls Recreation Site is used by local residents and tourists for day use activities such as picnicking and hiking. It is frequently recommended as a principal attraction for first time visitors. At the open house for the Davidson Project it was noted that the proponent was committing to enhancing this facility as a mitigation measure. However, in the EAA itself no such commitment is noted. The BVCRB requests that the proponent affirm its commitment to enhancing this important local recreational facility in order to meet the Outdoor Recreation and Tourism objectives of the LRMP. In addition, we suggest that the proponent consider enhancing the quality of the access to this facility by resurfacing the road as a further mitigation measure.

The Silvern Lakes Trail (Toboggan Creek Road) is used predominately by local residents for hiking and ATV use. The proposed location of the haul road crosses this trail in the vicinity of Toboggan Creek. Access to this trail from the Glacier Gulch Road may be disrupted by the

mine development. The BVCRB requests that the proponent consider establishing public access on the haul road to Toboggan Creek and establish a parking area at this location to improve recreational access to the Silvern Lake Trail (Toboggan Creek Road), as a mitigation measure.

Any possibility of mining-induced subsidence would necessitate that subsiding, or potentially subsiding areas be cordoned off from any public access. This would make the approach to Kathlyn Glacier and area inaccessible to mountaineering. The BVCRB needs assurance from the proponent that all measures will be utilized to eliminate subsidence due to mining.

## **Water Quality**

### **1. Receiving Environment - Bulkley River**

In order to understand an appropriate dilution factor for the receiving environment, low-flow estimates were made by Rescan using data from the Bulkley River gauge at the Quick Station Road. Two pertinent factors arise from this approach.

First, the reach between Quick and Smithers is known to be a 'losing environment' during winter months – irrespective of the input of the Telkwa River – due to an abundance of community wells in the area resulting in significant drawdown of the water. This reduces low-flow estimates from the Quick gauge and renders the approach taken by the proponent inappropriate.

Second, research conducted through the B.C. Ministry of Forests Climate Change Branch in 2006 on hydro-climate relationships of low-flow indicated several key items relevant to this proposal. For instance, low-flows in the Bulkley River, Telkwa River, Goathorn Creek, Simpsons Creek and Kathlyn Creek are strongly controlled by long term climate change. This leads to the conclusion that each of these drainages responds not only distinctly to climate change (El Nino and La Nina events) but each also responds quite differently to one another thus complicating low-flow estimates.

Therefore, the BVCRB is of the opinion that the conceptual low-flow estimates used by the proponent are inadequate, and requests that the proponent conduct appropriate modeling to properly characterize low-flow for the discharge location. We require detailed characterization of low-flow values, taking into account both community well draw-down and climate driven anomalies, to assure adequate protection of community water and fish habitat.

### **2. Treatment Capacity**

The scale of treatment capacity will depend on the quantity of water from all sources (snow, precipitation, groundwater, operational water from both adits). Originally proposed was a holding capacity of 24 hours. Keeping in mind that our current hydrologic regime has been forecast to increase (IPCC, 2007), and considering that the hydrologic regime shifted in 1950, it is fair to suggest that the surface water and ground water hydrology in this area is not stationary. In order to ensure adequate holding capacity it is necessary to properly characterize several components of the surface and subsurface hydrology. In reviewing the flow path assessments and groundwater modeling it was evident that the proponent was using a conceptual approach to model surface and groundwater return.

The BVCRB requires a physical groundwater model with methods and sampling points used in its development noted in order to determine whether water quality objectives outlined in the LRMP will be met by the proposed development. Groundwater returns from fractures and faults as well as near-surface and sub-glacial fabric should be incorporated into the model.

A further note, on section 4.4.6 “BP will leave water treatment in place until it is no longer necessary”

The BVCRB requests clarification on: 1) how is the decision made on “until it is no longer necessary” and by which government agencies (provincial and federal); 2) who monitors and how; 3) who pays for monitoring; 4) what happens when the company disbands; 5) will these monitoring costs be included in the bond?

### **3. Community Water Supply**

In reviewing the salt dilution trial results, it was not clear where the community water supply (KC 4) originated. In order to ensure the long-term protection of clean drinking water for the community adjacent to this tenure, and to comment on this application’s compatibility with the LRMP, the BVCRB must be provided with a definitive characterization and flow path assessment of the surface-subsurface interactions, indicating the origin of KC4.

The application also notes several instances involving debris flows and snow avalanches in conjunction with the road to 1066 Adit. These events occurred with the road in its present condition. However, should this road be modified, as may be required by standards for haul roads, resulting siltation or mass flow may impact domestic water (KC4). Measures to mitigate hazards should be included in the EAA and until the origin of KC4 is determined this is not possible. In order for the BVCRB to properly assess this plan for compatibility with the LRMP we request proper characterization of the community drinking water, as serviced by KC4.

Another geotechnical issue noted is that the treated water pipeline crosses several alluvial fans where deposition or erosion may be significant during flood events. As above, predictions for hydrology in this area include increased severity and frequency of extreme events. The BVCRB requests that the proponent provide sufficient detail about mitigation of hazards associated with pipeline rupture and location in order to assess the project for impacts on community water supply.

With the possibility of mining-induced subsidence or fracturing at any scale, drainage from the mountain peak or the basin of Kathlyn Glacier may be partly diverted into the underground workings. In such a situation, groundwater characteristics may be negatively affected by contact with the exposed rock in the workings before this water reports to the aquifers on the eastern face of the mountain. This possibility should be considered when modeling groundwater flow path and therefore the BVCRB requests that this scenario be included in the groundwater characterization.

Protection of the community water supply is a key issue for residents living close to the proposed mine development and within the LRMP area. The proponent should commit to compensation, or water source replacement, if contamination of domestic water supply(s) occurs as a result of the development. On behalf of the community the BVCRB requests that this be specifically included in the application.

#### **4. Closure Plan**

As stated, the closure plan is to fill the drifts and stopes with developed rock and then to allow the mine to flood. It has been suggested that flooding could take up to 30 years. Geology results and schematics show this region to be directly uphill of two community aquifers (575 & 578). Springs and seeps throughout the hillside indicate a likelihood of fractured rock allowing groundwater to reach the surface. Collectively, this and the presence of the aquifers themselves, suggests that flooded water within the mine will report to the aquifers through fractures, faults and through the Skeena sediments. Although Metal Leaching/Acid Rock Drainage (ML/ARD) is currently not an issue there is a distinct possibility that this project could mine into acid generating rock. A contingency closure plan to ensure long-term protection of the community aquifers 575 and 578 in the event of ML/ARD should be provided by the proponent. The BVCRB requests that the proponent properly characterize groundwater flow paths and return periods to better address the closure plan both for water reporting to the aquifers and for ML/ARD issues, should they arise in the future. In the absence of this the BVCRB is not able to properly assess this project for its compatibility with the LRMP in terms of protecting clean water.

An additional concern to water quality involves the closure plugs. The consultant states water pressures anticipated at locations considered for plug installation are such that achieving satisfactory factors of safety against hydrojacking “could be problematic” at 1066 Adit plug, elevation of phreatic surface is assumed to be 1300m in calculations. But if it is 1400m, as suggested by Rescan, the hydrojacking factor of safety falls below 1. In the possibility of stopes breaking through to surface, phreatic surface could be higher still, with surface water draining directly into mine workings. As such, there is a distinct possibility of leakage of mine water around plugs. The BVCRB requests that contingency planning to address this possibility be included in the EAA so that the LRMP objective of water quality is protected.

#### **Subsurface Resources**

The General Management direction for subsurface resources in the LRMP is to “provide opportunity for the safe, efficient and environmentally sound development and use of the energy and mineral resources for the economic benefit of the plan area and the Province. Subsurface resource exploration and mine development may take place, according to provincial regulations and the LRMP, in all areas except in protected areas.”

With regard to the Davidson Project, the BVCRB recognizes the significant economic benefits that this development will bring to the community for the life of the project, including employment, support to businesses and economic diversification. At this stage, however, a significant portion of the community, including the BVCRB, is not convinced that all aspects of this project are both safe and environmentally sound. The proponent and the Government must convince the BVCRB and the community that all aspects of the General Management direction for subsurface resources under the LRMP have been adequately addressed.

## **Public Advisory Committee**

Blue Pearl's commitment to form and support a Public Advisory Committee is considered a positive step in providing a forum for the public to keep informed about the mine's development, and in providing an avenue for the public to bring concerns forward. This forum will only work, however, if both the public and Blue Pearl attend this committee with a willingness to listen to each other's concerns and act upon them.

Having had members of the BVCRB on the Public Liaison Committee, the board is aware that there hasn't always been this willingness displayed by Blue Pearl in the past. This may be a contributing reason to a strong negative opinion of this project by a significant portion of the public.

## **Conclusion**

The Hudson Bay Mountain Special Management Zone was designated in the LRMP by the local community because of the importance of resource values contained within it. In reviewing Blue Pearl's Davidson Project EAA, the BVCRB expects Government's reviewing bodies to keep this "**special**" status in mind and insure that the highest degree of management is in place to provide for protection of the many important resource values that may be impacted by the mine.

Should approval be granted, the BVCRB expects that Blue Pearl and the Government will manage and monitor this development to the highest degree possible, respecting the community's desires for this area, as expressed by its designation as a Special Management Zone under the LRMP.

Yours truly,

Greg Storie  
Chair, Bulkley Valley Community Resources Board

cc: Norm Quail, Senior Program Officer, Canadian Environmental Assessment Agency  
Dennis Mackay, MLA for Bulkley Valley – Stikine  
Honourable Nathan Cullen, Member of Parliament for Bulkley-Stikine  
Honourable Jim Davidson, Mayor, Town of Smithers