



# MiningWatch Canada

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*Suite 508, 250 City Centre Avenue, Ottawa, Ontario, Canada K1R 6K7  
tel. (613) 569-3439 — fax: (613) 569-5138 — info@miningwatch.ca — www.miningwatch.ca*

### **MiningWatch Canada's Comments on the Proposed Amendment to the Metal Mining Effluent Regulations, adding King Richard Creek and Alpine Creek to Schedule 2 for the proposed Mount Milligan Gold-Copper Project**

Submitted to:

Chris Doiron, [chris.doiron@ec.gc.ca](mailto:chris.doiron@ec.gc.ca)  
Chief, Mining Section  
Mining and Processing Division  
Environment Canada

CC:

Daniel Casselman, [daniel@cen-rce.org](mailto:daniel@cen-rce.org)  
Canadian Environment Network

From:

Ramsey Hart, [ramsey@miningwatch.ca](mailto:ramsey@miningwatch.ca)  
Canada Program Coordinator  
MiningWatch Canada

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#### **1.0 Introduction**

MiningWatch Canada is a coalition of 18 labour, Aboriginal, environmental, social justice and development organizations from across Canada with a mandate to support communities affected by mining in Canada, and affected by Canadian mining companies around the world. We respond to the issues of public health, water and air quality, fish and wildlife habitat and community interests posed by irresponsible mineral policies and practices. MiningWatch is an active member of the Canadian Environment Network, chairs the Mining Caucus and is a member of the Environmental Assessment Caucus.

MiningWatch Canada has been tracking the use of Schedule 2 since it was created in 2002. We are very concerned that what we understood was meant to be an amendment to address existing projects is now being considered for many new projects, in particular in B.C., where aquatic and marine ecosystems are already under significant stress.

Through participant funding provided by the Canadian Environmental Assessment Agency, MiningWatch contracted fisheries biologist Dr. David Levy (Levy Research Services Ltd.) to provide technical assistance for this review of the Mt. Milligan Environmental Impact Statement (EIS). Dr. Levy's comments and concerns have been incorporated into this submission.

Our comments below focus on specific requirements for a Schedule 2 amendment as described by Environment Canada and the Department of Fisheries and Oceans, namely: the alternatives assessment and a fish habitat compensation plan. We also provide brief comments on Aboriginal Consultation and the Schedule 2 amendment process consultations.

## **2.0 Alternatives Assessment**

### **2.1 Narrow Selection of Alternatives**

The most important consideration in examining the various alternatives for the mine plan is the management of waste rock and tailings. Three of the four alternatives selected for examination in the Alternatives Assessment are only differentiated by their location, rather than by any attempt to explore different methods of managing the wastes. The fourth option considers separation of potential acid-generating (PAG) wastes from non-acid generating wastes (NAG), however as with the other options both the facilities would be conventional impoundments.

All of the options presented would result in the destruction of productive fish habitats. Given that this is a significant ecological impact and requires a federal regulatory amendment, a full evaluation of possibilities should have included at least one option that does not require the destruction of fish habitat.

Given the estimates of the relatively small percentage of PAG in the total waste stream from the mine, there is reason to consider a variety of waste disposal options other than the ecologically intrusive destruction of fish-bearing waters and construction of extensive impoundments that require long-term maintenance and monitoring.

In the alternatives assessment the option of using multiple facilities is discriminated against based on an assumption that more facilities equal a greater likelihood of failure. There is, however, no consideration that a single large facility to contain all tailings and PAG waste rock may have a greater potential of failure than an alternative that included a smaller impoundment for PAG tailings and waste rock and separate permanent dry storage of NAG wastes.

There is no mention, let alone an assessment of the full range of alternatives for tailings management that could further reduce environmental impacts of the project. Alternative methods of tailings management that are being implemented in a variety of regions and conditions include co-disposal, dry, thickened and paste tailings disposal. In addition to possible environmental benefits, these alternatives could have economic advantages over conventional impoundments, especially when life cycle costs and liabilities are considered.

## **2.2 Assessment Should Consider Lifecycle Costs and Longterm Liabilities**

This project proposes to leave behind infrastructure requiring ongoing care and maintenance in perpetuity, thus it cannot be considered to be a temporary use of the land. Significant costs, and liabilities will be incurred after the mine ceases operation, during the closure and post-closure phases. Despite the importance of these phases no alternatives were provided that differ in their closure requirements or long-term liabilities.

A recent study of tailings management alternatives using “Lifecycle Costs Assessment” has shown that when projected forward 20 years beyond mine life, relative costs and impacts of tailings management options can actually reverse their relative environmental and economic rankings (ie. options that are costly upfront may reduce medium and long-term economic and ecological costs).<sup>1</sup> While closure costs are considered in this assessment the reliance on a single method of disposal (impoundments) and the consideration of costs only to closure, have resulted in biased and narrow assessment.

## **2.3 Wildlife and Vegetation Impacts**

The Proponent’s alternatives assessment has made a huge and inappropriate assumption regarding the impacts of the 4 options on terrestrial habitats and species at risk. Despite the fact that different elements of the various plans are several kilometres apart, it is assumed that simply examining the footprint of each option can assess the relative impacts on wildlife and vegetation.

While limiting the footprint is an important goal, this approach ignores any differences in wildlife use, presence of rare plants, and the presence of species of interest to local communities. Such factors could significantly effect the assessment of the options and must be included in a robust alternatives assessment. Consultation with Aboriginal communities can often highlight differing ecological and cultural values of areas with a relatively close proximity. These perspectives need to be considered in an alternatives assessment

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<sup>1</sup> C. Reid, V. Becaert, Michel Aubertin, R.K. Rosenbaum, L. Deschênes. 2009. Life cycle assessment of mine tailings management in Canada. *Journal of Cleaner Production*. 17 (2009): 471-479.

### **3.0 Fisheries and Aquatic Ecosystems - Impacts and Habitat Compensation**

#### **3.1 Flow Reductions in Rainbow Creek**

In the CSR, the RAs recognise that the project, if approved, would have “unavoidable harmful alteration, disruption or destruction of fish habitat in Meadows Creek, Alpine Creek and King Richard Creek”, but state these can be addressed through the proposed mitigation and compensation measures. We have concerns that impacts will extend beyond these sub-watersheds into Rainbow Creek and question the ability of the compensation options to achieve the goal of No Net Loss (NNL) of fish habitat.

The impacts of flow reductions to Rainbow Creek resulting from capturing and diverting the surface flows from upstream drainage basins have not been adequately addressed. Predicted flow reductions are up to 27% during the spring freshet<sup>2</sup>. We are aware that this issue was also of concern to provincial and federal agencies but has not been adequately addressed in the current EIS<sup>3</sup>. In justifying their determination of the non-significant nature of the flow reductions to Rainbow Creek, the proponent has selectively used models dismissing results that show a potential impact. Further, the predicted flow reduction will result in a significant decrease of fish habitat (relative to the BC Instream Flow Threshold Guidelines) and this reduction has not been incorporated into the Fish Habitat Compensation Plan.

Reductions in peak flows are of particular concern as the freshet provides an important expansion of habitat during a critical time of year for a variety of fish species. High flows in Rainbow Creek are also important to provide access to habitat for species otherwise resident in the Nation River and that are of particular interest to local communities.

The CSR erroneously accepts the proponent’s assertion that negative impacts will not occur to habitat in Rainbow Creek. These impacts need to be more carefully assessed and addressed in the habitat compensation plan.

#### **3.3 Elimination of Fen Ecosystems**

The CSR states that 48% of the fish habitat in King Richard Creek that will be lost can be classified as fen, making this the dominant habitat type in the watershed. The ecological role of these fens is only considered with regard to the direct provision of marginal fish habitat. The compensation of the fen habitat is then lumped into the general habitat pool. No consideration is given to the unique contribution the fen habitat is likely playing in the downstream productivity of the watershed. Fens can be an important source of organic carbon and in downstream systems<sup>4</sup>. These exports of carbon, in turn can play important roles in productivity and bioavailability of metals downstream.<sup>5</sup> Given the high background concentrations of some metals

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<sup>2</sup> Station 5, 2 km downstream of the Meadows Creek confluence.

<sup>3</sup> Memo from Brad Horne, AMEC to Elizabeth Miller, BC MOE. December 12, 2008

<sup>4</sup> Urban, N.R., S.E. Bayley and S.J. Eisenreich. 1989. Export of dissolved organic carbon and acidity from peatlands. *Water Resour. Res.*, 25(7), 1619–1628.

<sup>5</sup> D.R.J Moore. 1998. Ambient Water Quality Criteria for Organic Carbon in British Columbia. Government of B.C.

in the watershed, the role of DOC and any potential changes in its supply from the project activities need to be assessed.

In response to questions from participants at the Gatineau consultation session on October 26, the proponent has commented that the total net area of wetlands will increase post closure. Neither in their response<sup>6</sup>, nor in the EIS is there adequate consideration of the type of wetland to be established, the functional role the new wetlands are likely to contribute or the length of time it will take to become established and functional.

### **3.3 Adequate Ratios and Timely Compensation**

There have been a number of retrospective studies to evaluate the effectiveness of Canadian fish habitat compensation projects in achieving the conservation goal of no net loss of productive capacity.<sup>7</sup> Increasing compensation ratio (compensation area: impacted area) requirements to 2:1 was insufficient to achieve NNL for all projects, suggesting that the ability to replicate ecosystem function is clearly limited. It is evident that Canada has had a mixed track record with achieving NNL. It cannot be assumed that mining project mitigation and compensation projects will function as designed and so, to be conservative, it is necessary to apply a compensation ratio of 2:1 (minimum) and where practical, to develop compensation projects in advance of mining activities.

The February 2009 habitat compensation plan offers a compensation ratio of only 1.2:1. Given the above, this is clearly inadequate to have confidence in the proponent achieving NNL. In the EIS and during the Gatineau consultation meeting<sup>8</sup>, the proponent has identified additional compensation measures including the restoration of stream flow under culverts and the restoration of habitat in the Meadow Creek watershed after mine closure and the filling of the pit. We have concerns about both these approaches.

While culvert restoration is a valid and useful habitat rehabilitation and compensation activity, we do not feel that adequate information has been provided to fully judge the potential for compensation of habitat units. The proponent should be required to complete a full assessment of the available habitat upstream of the culverts prior to any permitting for the destruction of fish

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Environment and Resource Management Department Ministry of Environment, Lands and Parks. Available online: <http://www.env.gov.bc.ca/wat/wq/BCguidelines/orgcarbon/index.html>

<sup>6</sup> Terrane Metals Corp. Mount Milligan Gold-Copper Mine Project, MMER Meeting Questions and Answers. Distributed by Environment Canada on November 6, 2009.

<sup>7</sup> a) Harper, D.J. and J.T. Quigley. 2005A. A comparison of the areal extent of fish habitat gains and losses associated with selected compensation projects in Canada. *Fisheries* 30: 18-25.

b) Harper, D.J. and J.T. Quigley. 2005B. No net loss of fish habitat: a review and analysis of habitat compensation in Canada. *Env. Mgmt.* 36: 343-355.

c) Minns, C.K. 2006. Compensation ratios needed to offset timing effects of losses and gains and achieve no net loss of productive capacity of fish habitat. *Can. J. Fish. Aquat. Sci.* 63: 1172-1182.

d) Quigley, J.T. and D.J. Harper. 2006. Effectiveness of fish habitat compensation in Canada in achieving no net loss. *Env. Mgmt.* 37: 351-366.

<sup>8</sup> MMER Amendment Consultation Meeting, hosted by Environment Canada. Government Conference Centre, Ottawa. October 26, 2009.

habitat or the granting of an EA certificate. This form of habitat compensation should not be quantified, as “like-for-like” as the habitat upstream of the culverts presently exists independently from the proposed mining development.

The use of Meadows Creek as part of their NNL compensation equation is inappropriate given the long time delay for implementation. If, the mine achieves the lifespan predicted by the proponent’s recent press release, this habitat would not be available for at least 42 years. This delay does not include time for the habitat to re-gain productivity after being re-submerged. Such a long time delay is problematic for a number of reasons.

A delay of 42 plus years represents a significant loss of productive capacity in the Local Study Area and an increased risk that the compensation will not occur. Given the turbulent nature of the metal sector, the further in the future the proposed compensation occurs, the higher the potential for the failure of the company and subsequent inability to meet its obligations. While the province will require reclamation bonds, reviews of the amounts of bonds required by governments in other jurisdictions have shown these amounts are often inadequate.

We support Terrane’s intent to rehabilitate the Meadow’s Creek watershed post-closure, and suggest it remain as a commitment for permitting. Given the long delay before implementation it should not, however, be included in the calculation of an appropriate (2:1 minimum) compensation ratio.

### **3.4 Longevity of Habitat Complexing for Compensation of Permanently Lost Habitat**

The majority (56%) of the proponent’s habitat compensation would be achieved through habitat complexing using boulder clusters and large woody debris (LWD) in Rainbow Creek. While references are provided to indicate the effectiveness of the proposed techniques, there is no indication of the expected functional life span of these “improvements”.

LWD is a dynamic aspect of stream morphology as logs can be washed away, broken up or at best will eventually rot in the stream. Boulders, though less ephemeral, can be moved off station, be buried in sediment or even removed from the stream channel by ice and extreme flow events. Compensating for permanent loss of habitat with relatively temporary habitat enhancement elsewhere is not appropriate for achieving NNL.

### **3.5 Monitoring and Enforcement**

Terrane outlines a vague and conceptual monitoring plan for the compensation options. Given the lack of success in past compensation projects, it is critical that new projects include rigorous and scientifically valid monitoring programs. The monitoring program as described is too vague to provide legal or financial assurances that such a program will be implemented. Prior to any federal permitting a detailed monitoring plan should be completed (which requires completion of a detailed compensation plan). The type, frequency and extent of sampling should be described and an estimation of annual costs provided.

Given the limited resources of both provincial and federal regulators, if this project should proceed, it is unlikely that adequate monitoring by regulators will occur. A permit condition should be the formation and funding of a community monitoring agency to review and report on the implementation and success of compensation and other environmental management practices. The funding to this group must be guaranteed as a permit requirement to prevent any undue influence from the proponent being able to unilaterally withdraw its support.

#### **4.0 Aboriginal Consultation and Accommodation**

It is not our intent to provide a full critique of the adequacy of Aboriginal consultation during this amendment process. We understand that there may be legal action taken by the Nak'azdli Nation to address this question and we feel it is the Aboriginal nations and organizations who can best speak to this. Nevertheless, we would like to express our concern that there has not been a clear and transparent process for the Federal Government to engage the affected First Nations. A process that reflects recent court decisions and at minimum adheres to existing Government of Canada Guidelines is clearly needed.<sup>9</sup>

This situation, is of course, complicated by the overlapping claims of the Nak'azdli and McLeod Lake Indian Band. The proponent rightly states that it is not their responsibility to address this situation, however their willingness to push a project through without this issue being resolved is worrisome.

We are also concerned that the proponent has not been fully transparent when describing the extent of agreement with the project. For example during the Gatineau session, it was not until we pointed it out, that participants were made aware of the fact that the Nak'azdli have decided not to support the project, and that Terrane had not yet reached an agreement with McLeod Lake.

#### **5.0 ENGO Consultation Process**

As a member of the Canadian Environment Network, MiningWatch has been a regular participant in Schedule 2 consultations. Throughout the various consultation processes we have expressed concerns regarding the processes and the challenges and inadequacies we have found with them. While some improvements have been made, we are still concerned about the effectiveness of this consultation. In particular, the format of the meeting, the time allotted for questions and discussion, and the timing of the meeting relative to the deadline for submissions were particularly problematic.

While adequate time was provided prior to the consultation to review relevant documents, the time afforded for the in-person consultation was inadequate. Given that DFO and Environment Canada's presentations took up a large portion of the agenda, the time to hear from the proponent and to engage in questions and discussions was extremely limited for the number of participants at the consultation.

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<sup>9</sup> Government of Canada. 2008. *Aboriginal Consultation and Accommodation. Interim Guidelines for Federal Officials to Fulfill the Legal Duty to Consult.*

The consultation session was also hampered by the main presenter for the proponent having to leave the consultation early. Given that other participants went to great efforts to participate it is unfortunate that the proponent's primary contact person could not find the time to be present for the full session. This risks sending a message to participants that Terrane's commitment to the consultation process is less than it should be.

Following the session, participants were afforded an opportunity to submit additional questions, however these were not answered until November 12; the original deadline for submitting comments to Environment Canada. A short extension of 4 days was provided to allow participants to incorporate Terrane's response into their submissions. Given all of this it is clear that the timing at the back end of the consultation has been far too tight to allow for meaningful consultation and analysis by participants and is not in accord with the Treasury Board's *Guidelines for Effective Regulatory Consultations* which state that "Sufficient time should be allowed for groups and individuals to become informed, examine the issues, debate/dialogue/consult within their organizations, and develop a response."<sup>10</sup>

It is not clear if Environment Canada intends to follow the Guidelines requirements for post consultation feedback, and we would encourage that they do. These include that a "final consultation report should be distributed to participants in a timely manner and posted on a website."

We would appreciate the opportunity to discuss the format and timing of future Schedule 2 consultations prior the next one being arranged. Such a discussion is entirely consistent with the Guidelines, which encourage stakeholder engagement in the design of consultation processes.

## **6.0 Conclusion**

From our selective and targeted review and participation in the consultation process we have identified significant problems that should be addressed before the proposed Mt. Milligan Mine can be permitted. The selection of the proposed mine plan has been done without adequate consideration of the full range of waste management alternatives available and without considering long-term costs and liabilities. No options were presented that could avoid the destruction of productive fish habitats. It is our assessment that the proposed fish habitat compensation plan is unlikely to achieve the requirement of No Net Loss for the identified impacts. We further note that an important impact on Rainbow Creek has not been included in current calculation of the proposed projects impacts on fish habitat.

The consultation process thus far has been problematic, most notably with regard to Environment Canada's "duty to consult" affected Aboriginal communities. We continue to have concerns about the consultation process for ENGOs and hope to address these issues prior to the next consultation.

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<sup>10</sup> Treasury Board of Canada Secretariat. 2007. Guidelines for Effective Regulatory Consultations