



(Conceptual drawing of the Kemess North Mine, from the Northgate 2004 Annual Report)

***Comments of MiningWatch Canada on the  
Environmental Impact Assessment of the Kemess North Mine  
January 6, 2006***

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***Enclosures:***

- Comments of MiningWatch Canada
- Comments of David Levy: *Review of the Aquatic Environmental Impact Assessment for the Kemess North Project*
- Comments of Pacific Analytics: *Kemess North Mine Expansion: An Economic Review of the Environmental Impact Assessment*
- *No Rock Unturned: Revitalizing the Economies of Mining Dependent Communities*
- *Overburdened: Understanding the Impacts of Mining on Women's Health.*
- *Protecting Fish/Protecting Mines: What is the Real Job of the Department of Fisheries and Oceans?*

***Comments on the Kemess North Mine Project EIA  
Submitted by MiningWatch Canada  
January 6, 2006***

Thank you for this opportunity to comment on the Environmental Impact Assessment for the Kemess North Mine Project.

Founded in 1999, MiningWatch Canada is a coalition of 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 abroad.<sup>1</sup> We provide a coordinated public interest response to the threats to public health, water and air quality, fish and wildlife habitat and community interests posed by irresponsible mineral policies and practices in Canada and by Canadian companies around the world.

The aims of the organization are to:

- ensure that mineral development practices are consistent with the goals of sustainable communities and ecological health;
- strengthen technical and strategic skills within communities and organizations faced with impacts of mineral development;
- impose appropriate terms and conditions on mining and in some cases prevent the development of projects that would adversely affect areas of ecological, economic and cultural significance; and
- advocate policies to improve the efficiency and reduce the risks of mineral development.

These comments are the first part of a package of comments submitted by MiningWatch Canada in respect to the Kemess North Mine EIA, which includes David Levy's Review of the Aquatic Environmental Impact Assessment for the Kemess North Project, and Pacific Analytics' Kemess Mine North Expansion: an Economic Review of the Environmental Impact Assessment. These two documents provide in-depth analysis of the aquatic impact and habitat compensation sections of the EIA and the economic analysis section in the EIA respectively. As a result, we have not gone into the issues raised in those papers in depth.

We have organized this section of the comments as follows:

1. The choice between the Duncan Lake eco-system and jobs
2. Inadequate habitat compensation for Duncan Lake productive capacity
3. No traditional ecological knowledge informing the EIA
4. Inadequate socio-economic analysis in the EIA
5. Inadequacies in the "reclamation" plan
6. Request for site specific exemptions for water quality
7. Inadequacies in the analysis of the environmental effects of energy consumption
8. Inadequacies in the cumulative effects assessment
9. Comments on public participation in this EA
10. Conclusions

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<sup>1</sup> Our members are: Bathurst Sustainable Development, the Canadian Arctic Resources Committee (CARC), the Canadian Auto Workers (CAW) Social Justice Fund, the Canadian Environmental Law Association (CELA), the Canadian Nature Federation (CNF), the Canadian Parks and Wilderness Society (CPAWS), the Citizens' Mining Council of Newfoundland, Development and Peace, the Environmental Mining Council of British Columbia (EMCBC), Friends of the Earth Canada, the Innu Nation, Inter Pares, Kairos (a coalition of churches), Northwatch, the Sierra Club of Canada, the Steelworkers Humanity Fund, SUCO, the Transboundary Watershed Alliance and the Yukon Conservation Society (YCS).

## ***1. The choice between the Duncan Lake eco-system and jobs***

This mine proposal presents a stark choice between

- the Duncan Lake eco-system and the way of life of the 6874<sup>2</sup> Aboriginal peoples for whom the lake is central to their culture, and
- a further 14 years for the jobs and economic benefits that are presently provided by the Kemess South Mine.

By the time the Kemess North Mine closes in 2020, the Kemess Mines will have provided 22 years of employment in the region. From 2006-2021, they will have provided an annual average of 1,589 direct and indirect jobs in northern British Columbia and other parts of Canada.<sup>3</sup> For the company, it will have generated approximately \$799.7 million (CDN) in earnings after taxes (based on a \$400US /oz gold price and Option 1) between 2006-2021.<sup>4</sup>

On the other hand, the price of these jobs and profits are substantial. “Duncan Lake would be impounded by a 90 m high dam and converted into a Tailings Disposal Facility that would cut off discharge into Duncan Creek. Loss of critical fisheries habitat within the project footprint, together with degraded water quality from the disposal of acidic waste rock, would effectively eliminate the Duncan Lake ecosystem”.<sup>5</sup> The Kemess North Mine alone will have permanently destroyed over 600 hectares of virgin land<sup>6</sup>. At least 17.6% of caribou and grizzly habitat in the area will have been destroyed<sup>7</sup>, and two ecological plant communities will have been wiped out<sup>8</sup>. It will have created a mine pit that is 1600 metres in diameter and 345 meters deep<sup>9</sup>, that will take 80-100 years to fill with water<sup>10</sup>, acidified by the pit walls<sup>11</sup>. Upon closure, downstream water quality at the Attycelley Creek confluence would exceed sulphate and cadmium water quality guidelines by factors of 14 and 3, respectively, and its tailings dams will require monitoring forever<sup>12</sup>. This does not include the already enormous footprint from Kemess South Mine.

For the First Nations who have lived on this land since time immemorial, the taking of Duncan Lake (in their language Amazay or Caribou Lake) is not an option. With the support of the BC Assembly of First Nations, they have declared their unwavering opposition to this plan.<sup>13</sup> They

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<sup>2</sup> There are 6874 people registered for the First Nations affected by the mine: Gitxsan, pop. 5499, Takla Lake First Nation, pop. 619, Tsay Keh Dene First Nation, pop. 331, and Kwadacha First Nation, pop. 425.

<sup>3</sup> Pacific Analytics Inc. Kemess Mine North Expansion: an Economic Review of the Environmental Impact Assessment, December 2005, submitted by MiningWatch Canada.

<sup>4</sup> *ibid*

<sup>5</sup> Levy, David. Review of the Aquatic Environmental Impact Assessment for the Kemess North Project, December 2005

<sup>6</sup> EIA, appendix 12, Table 1.1

<sup>7</sup> EIA, page 309-10

<sup>8</sup> EIA, page 100

<sup>9</sup> EIA, page 58

<sup>10</sup> EIA, page 250

<sup>11</sup> EIA, page 250

<sup>12</sup> EIA, page 250

<sup>13</sup> BC Assembly of First Nations’ annual general meeting in Kamloops, October 24, 2005. “Said Grand Chief Edward John, a member of the First Nations Summit political executive. “Clearly, there is nothing environmentally sound about destroying a pristine lake...how can an environmental review process approve the complete destruction of a beautiful lake and its entire ecosystem? It’s unconscionable in this day and age”...said Dave Porter, also a member of the First Nations Summit’s political executive. “The chiefs made it clear that the issue of the lake’s potential destruction is now on the forefront of their minds as it relates to environmental protection throughout BC.”

say that the impacts of taking the lake will destroy their culture and way of life. “Amazay/ Duncan Lake is in an area of shared territory used and managed by the 4 Nations for thousands of years. It is an important fish and wildlife area. The 4 Nations are calling on the federal Department of Fisheries to prevent the destruction of this important fish habitat. However, as Spokesperson Justa Monk observes, ‘If DFO and the ministers won’t do their job to protect the fish and our rights, we’ll do it ourselves. We’re not opposed to mining but we won’t allow our way of life to be sacrificed for the benefit and profit of others.’”<sup>14</sup>

The benefits of the Kemess South Mine have not been shared with the Aboriginal people in the region. In 2004, out of 350 full-time and 125 seasonal employees, only 28 First Nations employees came from the affected communities<sup>15</sup>, and they earned an average of \$15,000 to \$25,000 that year.<sup>16</sup> The Patrick family has been compensated for the damage to their trap line, but the amount is not disclosed.<sup>17</sup> On the other hand, the average wage for mine workers in BC was \$94,700.<sup>18</sup> The company’s Annual Report states: “Northgate began 2004 as a newly independent mid-tier gold producer with approximately \$8 million in cash and \$43.5 million of long-term debt. By the end of the year, we had \$49 million in cash and had reduced our long-term debt to \$22.5 million, generating \$73 million in operating cash flow and net earnings of \$31 million during the year.”<sup>19</sup> The five executive directors of Northgate together earned \$1,401,932 in 2004 not including their stock options.<sup>20</sup>

It is documented from other mining projects that the industrialization of subsistence economies brings with it severe cultural and social problems:<sup>21</sup> loss of Aboriginal culture and destruction of locally-based economies, growing violence against women, intensification of alcohol and drug use, widening gap between the haves and the have-nots, housing crises for the lower income groups. The EIA does not discuss any of these impacts.

***The EIA does present a way out of this terrible choice: Option 2 for tailings disposal – the use of a number of sites on the property – as opposed to the taking of Duncan Lake for a Tailings Impoundment Area.***

If this mine is to go ahead, it makes sense to maximize its contribution to the public good. Tailing Disposal Option 2 creates this opportunity, and shares most of the wind-fall from higher gold prices with the affected First Nations and the surrounding community, instead of with the mine shareholders. As the Pacific Analytics study<sup>22</sup> points out, the difference between the anticipated costs of Option 1 and the anticipated costs of Option 2 multiplies the benefits for affected communities substantially. It transfers the profit from the mining company to Prince George, Kamloops, Kelowna, Smithers and other supply towns, and – most importantly – avoids the destruction of the Duncan lake eco-system.<sup>23</sup> “Due to the substantially larger capital investment under Option 2 (\$757 million vs \$228 million for Option 2) the total impacts are far larger. Total

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<sup>14</sup> August 4, 2005. [4 Nations Vow to Protect Amazay Against Acid Mine Waste](#)

<sup>15</sup> EIA, Page 327

<sup>16</sup> EIA, p 326-7

<sup>17</sup> Appendix 9, page 88

<sup>18</sup> Appendix 9, page 134.

<sup>19</sup> Northgate 2004 Annual Report, page 2

<sup>20</sup> Northgate Minerals Information Circular March 1, 2005, page 11.

<sup>21</sup> Kuyek, Joan and Coumans, Catherine. [No Rock Unturned: Revitalizing the Economies of Mining Dependent Communities](#), MiningWatch Canada, January 2004.

<sup>22</sup> Pacific Analytics Inc. [Kemess Mine North Expansion: an Economic Review of the Environmental Impact Assessment](#), December 2005, submitted by MiningWatch Canada.

<sup>23</sup> Ibid, see pages 11-12.

person years of employment will reach 3,698 in British Columbia while the additional payroll added to the BC economy is estimated to be \$205.9 million. Since Option 2 construction will take place over a longer period (the construction profile is not specified in the EIA), the employment and payroll benefits are also spread over a longer period.”<sup>24</sup>

The Pacific Analytics study is based on company figures as provided in the EIA, and on a \$400/oz gold price. It showed that the company’s return on earnings for the period 2006-2021 would be only \$24.3 million if Option 2 were chosen. At present, gold is trading at well over \$500/oz, and the industry expects that these prices will improve over the next ten years.<sup>25</sup> If gold prices remain at over \$500/oz, then the company earnings over the life of the mine using Option 2 would increase to \$1,347.1 million.<sup>26</sup>

Mining is a waste management industry. At Kemess North, the gold grade is only .307 grams per tonne of ore, and copper is .16 % of the ore. The mine will produce 397 million tonnes of finely ground toxic tailings and 325 million tonnes of acid-leaching waste rock. The storage of this waste in perpetuity requires a sacrifice from some quarter; the question is who makes it?

The choice of Option 2 internalizes the costs of waste disposal where it belongs – on the company’s balance sheet. It removes the subsidy provided by getting the lake – a wet cover – for free. It improves the economics for local communities and the public and protects the culture and way of life of the affected First Nations. Pacific Analytics estimated that the benefit to the company of using Duncan Lake for tailings disposal is approximately C\$295 million. “Effectively then, the C\$295 million value is the implicit value of Duncan lake, or, alternatively, it is the ‘rent’ the government could charge in order that shareholders still earn reasonable rate of return on their investment.”<sup>27</sup>

The proponent has prepared a bankable feasibility study for the mine. Given that a key question is the economic feasibility of Option 2 for tailings disposal, the information in that study about projected costs and income is of material interest to the EA. For example, it is important to know what the company is projecting as the price of gold from now until 2020. The company should be requested to make this study available to the public and the panel.

It should be noted that Northgate does not appear to have included cash compensation to First Nations in any of their cost projections. If Option 1 is selected, the company will have to provide compensation to First Nations for this intrusion on their territory, and the price will have to commensurate with the magnitude of their loss, culturally, socially and economically.

The definition of PAG (Potentially Acid Generating) rock is based on a pH  $\leq 7.5$ . This appears to be a very high standard, and may be over-estimating the dangers of acid-generation from the mine workings, waste rock and tailings. It is our understanding that Environment Canada has been undertaking an analysis of the PAG threats. This is material to any decision to eliminate Option 2 for tailings disposal.

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<sup>24</sup> Ibid, page 12.

<sup>25</sup> See [Newmont predicts \\$1,000 gold by 20qq](http://www.theglobeandmail.com/servlet/story/LAC.20051128.RNEWMONT28/TPStory), By Miriam Steffens and Chia-Peck Wong, November 28, 2005 <http://www.theglobeandmail.com/servlet/story/LAC.20051128.RNEWMONT28/TPStory>

<sup>26</sup> Pacific Analytics, page D2.

<sup>27</sup> Op cit, page iii.

***It is our position that this mine should only go ahead if an alternative to the disposal of tailings and waste rock in Duncan Lake can be found.*** We have come to this position for the following reasons:

- a. The Duncan Lake eco-system will be permanently destroyed. The lake is an eco-system with value in and of itself.<sup>28</sup>
- b. The costs of waste disposal should be totally internalized to the company, and not be allowed to destroy the Duncan Lake eco-system without cost.
- c. There is no viable plan to compensate for the loss of the Lake's productive capacity, except for a fish salvage operation (see Levy study). The EIA does not properly address the productive capacity and value of Duncan Lake, and does not address the requirement of the Fisheries Act to provide equivalent productive capacity. In fact the EIA chooses fish over habitat as a Valued Ecosystem Component contrary to the Fisheries Act.<sup>29</sup> It proposes instead to salvage fish from Duncan Lake and transfer them to fishless lakes.
- d. The four affected First Nations, which have lived on the land for time immemorial, are opposed to the use of the lake as a tailings impoundment, as they believe it will destroy their culture and way of life.
- e. The economic benefits from the mine will not flow to the First Nations affected by it; the cultural/social/economic problems in First Nations communities are likely to increase; and the mine provides for no cash compensation for these increased cultural/social costs.
- f. The economic benefits to surrounding communities and the rest of Canada from the use of Option 2 (not taking Duncan Lake) are much greater than from Option 1.
- g. With gold prices at over \$500/oz, the company can still operate the mine, without taking Duncan Lake for a Tailings Impoundment Area.

## ***2. Inadequate Habitat Compensation for Duncan Lake Productive Capacity***

This concern is dealt with in detail by David Levy in his [Review of the Aquatic Environmental Impact Assessment for the Kemess North Project](#), December 2005, which is submitted with this comment. I have excerpted portions of his review here to highlight them:

*A Fish Habitat Compensation Plan proposes to transfer fish to adjacent fishless lakes, construct a fish ladder on Black Lake, and construct rearing channels and bull trout spawning platforms in Attycelley Creek. This proposal is flawed and incorrectly applies the existing productive capacity of three fishless lakes against the lost productive capacity of Duncan Lake. While fish salvage is a responsible approach to environmental management, it does not replace habitat mitigation designed to meet the DFO No Net Loss Policy. Post-closure restoration commitments for Duncan Lake contained in the EIA are ambiguous and contingent on the results of future studies. In order to protect aquatic biota and productive capacity, it will be necessary to redesign the project with an alternate tailings disposal method. (page 1)*

*Recent research by Dr. Eric Taylor of the Univ. of BC suggests that the Upper Finlay Watershed is unique from a fisheries perspective and forms a contact ("suture") zone between coastal and interior fish lineages. When Dolly Varden and bull trout<sup>30</sup> come into contact (e.g. Thutade Lake), bull trout always adopt a lake-run piscivorous life history, reaching over 1 m in length. In the presence of bull trout, Dolly Varden always adopt a stream-resident insectivorous life history and*

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<sup>28</sup> Levy, op cit.

<sup>29</sup> EIA, page 90

<sup>30</sup> Both bull trout and Dolly Varden are a type of char, genus *Salvelinus*.

rarely exceed 20 cm. In the Duncan Lake watershed, all of the char appear to be Dolly Varden, although hybrid Dolly Varden/bull trout are also present. Hybrids are the progeny of male Dolly Varden which mate successfully with female bull trout by adopting a satellite, or “sneak” spawning behavior. Owing to the absence of bull trout in Duncan Lake, Dolly Varden adopt the lake life history growing up to 40 cm in length. Elsewhere in BC where Dolly Varden are absent, bull trout adopt both stream-resident and lake-run life histories. Such interactions between species are termed “character displacement” by evolutionary biologists. The Finlay River system appears to be a microcosm of the interactions that have shaped the evolution of char over the ranges of these two species.

Duncan Lake is scientifically significant because it represents one of the few, and perhaps the only occurrence of lake-run Dolly Varden in the interior drainage of BC. As such, it provides an opportunity to better understand character displacement in Dolly Varden and bull trout. It is essential that this scientific importance be recognized and factored into the environmental assessment. (page 4)

Development projects in Canada are required to comply with DFO’s Policy for the Management of Fish Habitat. The “No Net Loss” principle guides the policy and seeks to balance unavoidable habitat losses with habitat replacement in order to prevent reductions to Canada’s fisheries resources. One of the metrics under this principle is “productive capacity” which has been defined by DFO as:

“The maximum natural capability of habitats to produce healthy fish, safe for human consumption, or to support or produce aquatic organisms upon which fish depend.”

Evaluations of net gain or net loss in productive capacity are central to the evaluation of the acceptability of a project to Government Agencies, First Nations, NGOs and other stakeholders. Where projects have adverse impacts on productive capacity, proponents are required to undertake mitigation to alleviate such impacts. Mitigation has been defined by DFO as actions taken during the planning, design, construction and operation of works to compensate for potential adverse effects on the productive capacity of fish habitats.

Aquatic impacts from the proposed Kemess North project include:

1. Destruction of Duncan Lake, Inlet Creeks 1, 1A and 2, Upper Duncan Creek; and the fish populations contained within;
  2. Dewatering of Duncan Creek<sup>31</sup> during operations; and,
  3. Reduced flow in Attycelley Creek below the Duncan Creek confluence.
- (page 9)

Statements in the EIA regarding the habitat compensation strategy include:

“Although some people would classify the loss of the lake as a catastrophic failure, it is an impact that can be compensated for within the Fisheries and Oceans Canada risk management framework.”

“This habitat compensation strategy meets or exceeds the Federal No Net Loss requirements as well as the BC requirement to maintain the genetic integrity of the Dolly

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<sup>31</sup> During reservoir construction flows will increase by 2 m<sup>3</sup>/sec. After reservoir filling, dewatering will dry up Duncan Creek and reduce downstream flows in Attycelley Creek by 10% - 30%.

*Varden char stock present in Duncan Lake. The options are of relatively low risk, require low maintenance, and have a high likelihood of success.”*

*To state that these proposed fish transfers are “low risk” is incorrect. When fish are introduced and become established in fishless lakes, they can cause irreversible impacts on existing animal species (e.g., amphibians) in the recipient lakes. These species have evolved in the absence of fish and may be adversely affected via competition or predation and some aquatic species will likely disappear. No information or field data is provided in the EIA to evaluate these ecological interactions and it is unlikely that the fish transfer proposal will be acceptable to the Biodiversity Branch of the BC Ministry of Environment.*

*Even if fish transfers were acceptable, this compensation strategy does not even come close to meeting the No Net Loss requirement and should be rejected outright. The major flaw in the approach is an attempt to balance the elimination of productive capacity in Duncan Lake with existing productive capacity in adjacent fishless lakes. Transplanting fish from Duncan Lake into these lakes is not habitat compensation, it is merely a transfer of the productive capacity of the fishless lakes onto the Kemess North balance sheet for habitat loss. (page 10)*

“No Net Loss” – DFO’s policy objective for fish habitat<sup>32</sup>

Under the federal Fisheries Act, “fish” includes (a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals (Section 2). “Fish habitat” means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes (Section 34).

The policy objective for the management of fish habitats is a net gain of habitat for Canada’s fisheries resources; specifically an increase in the natural productive capacity of habitats for the nation’s fisheries resources to benefit present and future generations of Canadians. This policy is interpreted to apply to all threats to the productive capacity of fish habitats, including water pollution, acid rain, biological agents and any type of physical disruption. The goals and implementation strategies for meeting this objective are set out in the Policy for the Management of Fish Habitat, which was tabled in Parliament in 1986<sup>33</sup>

The first goal of the policy is Fish Habitat Conservation – maintaining the current productive capacity of fish habitats supporting Canada’s fisheries resources, such that fish suitable for human consumption may be produced.

The Guiding Principle to achieve this first goal is “no net loss” whereby the Department strives “to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada’s fisheries resources due to habitat loss or damage may be prevented”. However, this objective is intended as a guide, “not to be interpreted as a statutory requirement to be met at all costs and in all circumstances”<sup>34</sup>. The policy continues that “(p)rofessional judgment and common sense applied in an informed, cooperative environment by

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<sup>32</sup> The following analysis is excerpted from Isaac, Susan. Protecting Fish/Protecting Mines: What is the Real Job of the Department of Fisheries and Oceans? MiningWatch Canada, 2005. The entire paper is available on the MiningWatch Canada website [www.miningwatch.ca](http://www.miningwatch.ca)

<sup>33</sup> Available at [http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index\\_e.asp](http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index_e.asp).

<sup>34</sup> P.7, Policy for the Management of Fish Habitat.



personnel experienced in habitat management, combined with supportive research, will achieve no net loss of productive capacity in the majority of cases”.

As will be elaborated below, common sense is in the eye of the beholder (the community may not have the same common sense as the mining proponent and fisheries officer), solid research does not exist for all environments where fish habitat is impacted by mining projects in Canada and there is not agreement what costs and circumstances justify habitat loss (if any losses are ever to be justified). DFO’s perception is that “all habitat is not created equal” – in assessing the level of protection given to habitats, the social, cultural and economic value of the habitat is considered – how this is determined and who makes the judgment are sources of disagreement and conflict for communities in which fish habitat is threatened by mining development.

In dealing with a project in which the existing habitat's productive capacity cannot be maintained as a result of the works, DFO has an hierarchical approach in dealing with the habitat to be impacted. This hierarchy is presented in order:

- relocation -- attempt to move the project of impact away from the habitat area
- redesign -- try to design the project so the areas of impact are as least intrusive as possible
- mitigation -- undertake the project so the damages are neutralized as a result of implementation or construction approaches
- compensation -- this option should only be used when all others cannot be implemented. It is not an option for critical habitats or the release of deleterious substances.

Compensation of impacts has a hierarchical option list:

- i. create habitat at or near the development site within the same ecological unit
- ii. create similar habitat in a different ecological unit that supports the same stock or species
- iii. increase the productive capacity of existing habitat at or near the development site and within the same ecological unit
- iv. increase the productive capacity of a different ecological unit that supports the same stock or species
- v. increase the productive capacity of existing habitat for a different stock or a different species of fish either on or off site
- vi. financial compensation – although it is stated that habitat compensation does not include financial compensation, in the case of the Ekati diamond mine, financial compensation was accepted. Information on how this was calculated is provided below.
- vii. artificial propagation -- this is the least desirable option and will only happen in rare cases<sup>35</sup>

### *The Effectiveness of Habitat Compensation*

DFO is currently undertaking a major review of compensation compliance and the effectiveness of monitoring programs to achieve the conservation goal of no net loss of productive capacity of fish habitat in Canada. The first of several papers to be published based on this research appears in the February 2005 issue of *Fisheries*<sup>36</sup>. An analysis of 10 studies published between 1986 and

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<sup>35</sup> Freshwater Habitat, Pacific Fisheries Resource Conservation Council.

<http://www.fish.bc.ca/html/fish2162.htm>

<sup>36</sup> See article at <http://www.fisheries.org/html/fisheries/F3002/F3002p18-25.pdf>

2002 revealed that, in the 103 compensation projects reviewed, 493,205 m<sup>2</sup> of fish habitat was restored to offset habitat impacts totaling 1,142,648 m<sup>2</sup>. The compensation projects reviewed represented 4% of those authorized during the period. Most of the compensation projects assessed were the result of impacts to estuarine and riverine in-channel habitats, primarily related to forestry and urban development activities. There is no indication whether any mining projects were included in the study sample.

Findings from this first segment of DFO's research into compensation monitoring shows that:

- half of the compensation projects assessed had compensation areas that were smaller than the HADD areas;
- of the 103 projects assessed, post-construction monitoring of the compensatory habitat was required for 52 of the projects. The mean duration of the monitoring period was 3.6 years. However, research indicates that most compensatory habitats will require 5 to 20 years of monitoring before their long-term functionality and sustainability can be ascertained;
- in the cases where compensation projects were deemed to have achieved no net loss, this assessment was based on qualitative file reviews and compliance assessments; few were based on the quantification of the net change in productive capacity. DFO concludes that this lack of quantitative studies is a cause for concern, as it "unquestionably constrains DFO's ability to adaptively manage its habitat management program.
- There is a lack of scientific studies examining the effectiveness of habitat compensation measures and habitat management decisions taken to conserve fish habitat.

Field workers with DFO contacted for this paper reported that a monitoring plan is part of each Fisheries Authorization. The results of DFO's research contradicts this statement – as noted above. As well, other research being undertaken by DFO shows that only 43% of proponents were compliant in submitting monitoring reports. Of the mining projects reviewed in DFO's research (6 of 124 projects reviewed), there was fairly high compliance with proponents providing quantitative monitoring reports.

### Redefining Lakes as Tailings Impoundments – the MMER

In 2002, Environment Canada added Schedule 2 to the new Metal Mining Effluent Regulations under the Fisheries Act. This schedule "redefines" natural water bodies as tailings impoundment areas (TIAs). Once a natural water body is added to Schedule 2, it ceases to be a lake or a pond. It is defined as an industrial waste dump. However, an Order in Council is required to amend Schedule 2.

During the 2002 debate about the addition of Schedule 2 to the new MMERs, Environment Canada averred that the schedule was needed to deal with operating and "historic" mines that already use natural water bodies as mine waste dumps. NGO representatives were explicitly assured by EC in 2002 that Schedule 2 would not become a common means for the mining industry to "use lakes for waste disposal" as it would take a regulatory amendment of the MMERs, including all associated consultation, publication in Canada Gazette, and approval by Governor-in-Council. This process was presented as forming a serious barrier to new mines looking at "water bodies frequented by fish" as possible tailings impoundments.

Two years later, some seven new mines planned for BC, Nunavut, and NFLD have indicated they plan to use lakes as tailings impoundments. Duncan Lake is one of these. People who care about the environment across the country are in an uproar about this plan, and have organized to oppose the inclusion of these seven lakes.

### The EIA Appendix 4

The EIA attempts to show the taking of lakes for tailings is common practice in Canada. This is not true. Appendix 4 lists a number of instances where tailings have been disposed to natural water bodies in Canada and elsewhere. The purpose of including this Appendix is unclear, as there is no dispute about the effectiveness of keeping acid-generating tailings under a water cover. The Appendix does nothing to allay concerns about the effect of tailings on fish populations. It should be noted that of the 28 mine case studies, only 11 are said to have had fish in them, and in five cases the fish are maintained by stocking. Most of the examples are historic/abandoned mines. Of the recent examples given, Rabbit Lake Mine has not yet breached the dikes in the lake, so the impacts have not yet happened; at Voisey's Bay in late September 2005, a broken tailings slurry pipe killed fish in a river that was supposed to be protected.<sup>37</sup> In almost all cases, there was no testing of fish or biota for contaminants at any of the mine sites.

### **3. No traditional ecological knowledge informing the EIA**

The EIA provides no Traditional Ecological Knowledge about the area to be used for the mine, and instead provides a study done in 1995 for the Kemess South Mine. This later study was undertaken by Archeo Associates and consisted of interviews with five informants.<sup>38</sup> This is not a TEK study and it was not owned and controlled by the First Nations in the area.

This is particularly problematic in light of the acknowledgement that the mine will present a serious threat to woodland caribou, grizzly bears, moose and wolverine, reducing moderate to high quality habitat in the region by 17.6%.<sup>39</sup> The EIA acknowledges that knowledge of caribou in the area is "inadequate"<sup>40</sup> as is any information on amphibians like the Western Toad.<sup>41</sup>

The impact on caribou is likely to be significant. Amongst other impacts described in Appendix 8-B, 85 hectares of *Security/thermal* habitat in the Alpine Tundra would be destroyed by the open pit. Table B in the Appendix shows the percentage changes to caribou habitat during the mine operations. The seasonal changes to moderate and high habitat range from 15% to 3.6% of the original area<sup>42</sup>. It is notable that the company has had to rely on their own consultants' observations and research, as there is little known about these herds.<sup>43</sup> There is no information provided by those indigenous people who subsistence hunt in the area (with the exception of the 1995 study mentioned above)<sup>44</sup>.

Grizzly bear understanding is similarly limited. The study relied on the rating of the ecosystem soil conditions to provide denning sites, a rating of the ability of the ecosystem to provide forage sites. Grizzly bears were not counted, nor actually observed by the researchers, and –by their admission- limited the reliability of the study.<sup>45</sup> They estimated that up to 256 ha of fall feeding

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<sup>37</sup> [http://stjohns.cbc.ca/regional/servlet/View?filename=nf\\_voiseys\\_spill\\_20051012](http://stjohns.cbc.ca/regional/servlet/View?filename=nf_voiseys_spill_20051012)

<sup>38</sup> Appendix 9-E.

<sup>39</sup> Appendix 8, and

<sup>40</sup> EIA, page 315

<sup>41</sup> EIA, page 193

<sup>42</sup> Appendix 8-B, page v.

<sup>43</sup> Ardea Biological Consulting, Smithers, BC.

<sup>44</sup> Appendix 9- pages 63,65 66

<sup>45</sup> Appendix 8-B, appendix A, page 7-8.

sites would be permanently lost and 12.3 ha of denning sites. Consultation with users of the land, such as elders might have made a big difference.

The Western Toad is listed by COSEWIC as a species of special concern, and western toad tadpoles were found in one of the lakes in the lower Attycelley<sup>46</sup>. they were eliminated from the study because “Western toads within the study area are outside of the areas considered to be at risk for this species”.<sup>47</sup>

It also appears that moose may have access to the toxic tailings in Duncan Lake<sup>48</sup>. If other mines are an example, they are likely to drink the water there and compromise their health. This is not discussed in the EIA.

The mine is likely to wipe out two ecological plant communities.<sup>49</sup> The EIA states: “At a regional scale, there are three significant ecological communities, all associated with the atypical geology of the study area... (1) Anthelia-dominated bryophyte ecological communities associated with white precipitate mineral springs arising from the highly mineralized Sovereign Intrusive; (2) Alluvial Ferricrete ecological communities dominated by a species-poor acidophilus and metal-tolerant plant community and located downstream of the large areas of gossan (orange coloured rock) associated with the Sovereign Intrusive. These two ecological communities cove a very small area... and most occurrences will be destroyed either within the ultimate pit or by the impoundment of Duncan Lake.”<sup>50</sup> We are given no idea of the role these plants play in the ecology of the region.

The lack of traditional ecological knowledge informing these studies is most evident in the discussions about “heritage resources” and “traditional uses” in sections 8.12 and 8.13 of the EA. Antiquus Archaeological Consultants Ltd identified four pre-contact sites and two contemporary placer camps within the Duncan lake area.<sup>51</sup> The First Nations say there are many other sites recorded in oral history but not yet acknowledged by the provincial registry. “There are three recorded archaeological sites around the lake, one of which is over 5,000 years old... Northgate’s technical reports have classified the sites as having low archaeological significance... My grandfather is buried at the north end of Amazay”, states Tsay Keh Dene Grand Chief Gordon Pierre. “How can the company decide that the resting places of our ancestors have low significance?”<sup>52</sup>

The proposal should not proceed without a full and complete Traditional Ecological Knowledge Study undertaken by the four affected First Nations.

#### ***4. Inadequate cultural-socio-economic analysis in the EIA***

The Socio-Economic analysis in the EA has not been carried out by experts in the field and is sub-standard. Most importantly, the health analysis is not based on accepted determinants of

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<sup>46</sup> Appendix 8-B, page 53

<sup>47</sup> Appendix 8-B, page 61

<sup>48</sup> EIA, p. 316

<sup>49</sup> EIA page 100.

<sup>50</sup> EIA, page 100

<sup>51</sup> EIA, page 196-7

<sup>52</sup> August 4, 2005. [4 Nations Vow to Protect Amazay Against Acid Mine Waste](#)

health. The World Health Organization (WHO) defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.”<sup>53</sup>

There is nothing in the EIA to address the cultural or social impacts of the mine on First Nations or the staging towns in the region.<sup>54</sup> There is no gender analysis, nor discussion or analysis of cultural impacts on Aboriginal people.

The base case analysis for the EIA is based on the 1993 data collected by Hallam Knight Piesold for the Kemess South Mine. Other information came from the municipalities and towns in the area, and the census. There has been no attempt to do any in-depth cultural, economic or social analysis of the mine’s impacts whatsoever. This is a dated and inadequate approach to the issues.

Communities are much more than job and GDP statistics. The word “economics” comes from two Greek words meaning “to manage the household”. If we were to manage our households solely on the basis of cash inputs, we would miss everything else that matters: community, caring, equality, informal home production, how we spend our money and so on.

An extensive literature review about mining dependent communities was undertaken by MiningWatch Canada in 2003-4.<sup>55</sup> This literature review is being submitted to the panel as evidence to be considered in their deliberations. The No Rock Unturned literature review found:

- 1) A large and growing body of literature establishes a link, on a macro economic level, for national economies in developing countries, between a predominantly resource extraction based economy and economic stagnation – even decline – from prior levels of economic growth. This pattern has been called “Dutch disease”
- 2) Mining tends to displace previous business and industry for one reason or another like destruction of traditional food sources and livelihoods, and raised expectations in terms of wages. There are often problems because community members had elevated expectations about how much money they should receive for their work and will not accept less from other work, no matter how much they needed it. This has been dubbed the Intrusive Rentier Syndrome. Its impacts can be devastating on local entrepreneurs seeking to diversify into other (wage sensitive) sectors, acting as a major impediment to the creation of a diversified export base.”
- 3) Most mining communities until recently were settler communities that displaced the original indigenous population, often causing great harm to that community. Between a Rock and A Hard Place, the report from the MWC/Innu Nation conference in 1999, contains many accounts of the results<sup>56</sup>.
- 4) Since the recognition in the Canadian courts of Indigenous rights and title, mining companies are increasingly being forced to work with indigenous communities as they explore and develop deposits on their traditional territories. This has and will have enormous implications for indigenous people.

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<sup>53</sup> World Health Organization 2003.

<sup>54</sup> EIA, page 337 and Appendix 9

<sup>55</sup> Kuyek, Joan and Coumans, Catherine. No Rock Unturned: Revitalizing the Economies of Mining Dependent Communities, MiningWatch Canada

<sup>56</sup> available at [www.miningwatch.ca](http://www.miningwatch.ca)

In 2004, MiningWatch Canada engaged CCSG Associates to undertake Overburdened: a literature review of the impacts of mining on women's health<sup>57</sup>. We are also submitting this literature review as evidence to the Panel.

In brief, the *Overburdened* review found that mining brings with it an ethic of exploitation that is harmful to women and families in mining communities.<sup>58</sup> Mining is an industry of extraction that intensively uses resources, both human and environmental, at the expense of communities. Many of the health effects of mining on women are linked to the social determinants of health – particularly gender equality and socioeconomic status. The review addressed social determinants of health and the issues of sexual exploitation, migration and displacement, addictions, and family violence, among other non-toxicological consequences of the mining industry. Women whose spouses are miners often have to deal with the stress of living in small, isolated communities, and the worry about the effects of mine contamination on themselves and their families.<sup>59</sup> They often must cope with depression, anxiety, community violence, poverty, addictions, and the uncertain boom-bust economic cycles that can be a reality in such communities. Mining can displace whole communities from their homes, and thus can affect cultural identity, security, subsistence, as well as contribute to malnutrition, poor health, diarrhoea, dysentery, and epidemics of infectious diseases.<sup>60</sup> Sexual violence, including rape, assault, and harassment, are reportedly commonly experienced by women working in and living around mines throughout the world.<sup>61</sup>

The proponent should be instructed to undertake a proper and detailed social/cultural assessment for the project, based on the WHO Determinants of Health, and with reference to the literature documented in the two MiningWatch Canada publications.

### ***5. Inadequacies in the “reclamation” plan***

The restoration plan for Duncan Lake is non-existent and dependent on further study for which no budget has been allocated by the proponent. It is quite clear in other documents that the proponent has no intention of restoring the lake, the road or the power lines to their natural state, as the company wants them available to other projects like Sustut.<sup>62</sup> The reclamation costs are underestimated by at least \$25 million.<sup>63</sup> The long-term impacts of the Kemess North pit lake are “uncertain”<sup>64</sup>. It will take 80-100 years to fill and will be highly acidic.

The company only intends to monitor the mine site for five years after closure, despite serious AMD concerns<sup>65</sup>. The proponent presents no rationale for this position. The proponent also proposes an “independent” monitoring committee, which is dominated by government and the company.<sup>66</sup> This is not independent. A truly independent monitoring agency would be funded by

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<sup>57</sup> CCSG Associates: Overburdened: Understanding the Impacts of Mineral Extraction on Women's Health in Mining Communities, MiningWatch Canada, January 2004.

<sup>58</sup> Cleghorn et al. 2001.

<sup>59</sup> Jiwani 1998; Bhanumathi 2002.

<sup>60</sup> Bhanumathi 2002; Byford 2002.

<sup>61</sup> Mining and Communities 2003; Bhanumathi 2002; Byford 2002; Downing 2002; Northern Secretariat 1999; Jiwani 1998.

<sup>62</sup> Northgate Annual Report 2004, March 2005, page 9

<sup>63</sup> Pacific Analytics, op cit page 19

<sup>64</sup> EIA, page 250

<sup>65</sup> Appendix 12-E

<sup>66</sup> EIA, page 384

the company, but chaired and run by affected First Nations, such as the Ekati Mine Independent Monitoring Agency.<sup>67</sup>

#### **6. Request for site specific exemptions for water quality**

The proponent will be unable to meet BC Water Quality Guidelines even with the use of Duncan Lake and the use of a mixing zone.<sup>68</sup> As a result, the proponent is requesting exceptions – “site specific criteria” – in perpetuity for cadmium and sulphates<sup>69</sup>. This is unacceptable; the proponent should be able to provide zero discharge from any tailings disposal area for metals not included in the MMER (such as aluminium and selenium) and meet MMER levels for the nine metals (including cadmium and sulphates) in the Regulation.

Although there is mention of nitrates in Thutade Lake<sup>70</sup> and problems with sediments<sup>71</sup>, there is not a full discussion of the origins or mitigation measures for these problems.

#### **7. Inadequacies in the analysis of the environmental effects of energy consumption**

The mine will consume energy equivalent to 88,000 residences, and create greenhouse gases (GHGs) equivalent to 4000 homes, but no environmental effects analysis is presented for these impacts.<sup>72</sup> The mine will also store up to 300,000 gallons of diesel fuel on site.<sup>73</sup>

#### **8. Inadequacies in the cumulative effects assessment**

The cumulative effects analysis is incomplete. The 2004 Northgate Annual Report states:

“In July 2004, Northgate acquired an option to purchase the Sustut copper deposit from Doublestar Resources Ltd. This acquisition is consistent with Northgate’s strategy of using the Kemess infrastructure as leverage to develop nearby deposits that are not large enough to support their own infrastructure. Northgate plans to complete a pre-feasibility study on the development of the deposit in 2005.”<sup>74</sup>

The EIA states that Duncan Lake could accept tailings from other mines<sup>75</sup>; that infrastructure such as powerlines and roads could be left in place for other developments<sup>76</sup>; and that the Omenica Resource Road could be used to connect to the Sustut project<sup>77</sup>. However in the cumulative impacts analysis these projects are given only cursory mention. Despite evidence that some of these projects are well on their way to realization, there is no analysis of the potential cumulative effects of increasing the project footprint over time.

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<sup>67</sup> www.monitoringagency.net

<sup>68</sup> EIA, page 145

<sup>69</sup> EIA, page 241

<sup>70</sup> EIA, page 358

<sup>71</sup> ibid

<sup>72</sup> EIA, page 207, analysis based on NRCAN study 1997 of average residential energy consumption and GHG emissions.

<sup>73</sup> EIA, page 64

<sup>74</sup> Northgate Annual Report March 2005, page 9

<sup>75</sup> EIA, page 49

<sup>76</sup> Appendix 12, page 4

<sup>77</sup> ibid

There can be no doubt that the footprint of the Kemess Project will continue to get bigger as the years progress. Having Duncan Lake as a tailings impoundment is central to this plan. The First Nations are concerned about the growing impact of mining on their traditional territory, and need the time and opportunity to decide just how much development they want in the long-term.

### ***9. Comments on public participation in this EA***

Approximately \$101,000 of the participant funding allocated for the above project was not distributed by the panel in Phase 1 or 2.

The participant funding program required potential applicants to apply by September 30, 2005. As this was before the proponent had submitted the Environmental Impact Statement, funding applications had to be based on the Guidelines, and were, therefore, less specific than they might have been. Further, the place, date and duration of the hearings were not announced.

We were not notified until November 7, 2005 that we were to be given funding, and so were unable to contract the experts until that date. In our case, we were given \$31,270, instead of the \$48,540 we requested. This meant that we had to renegotiate with our experts. To make matters more difficult, one of our experts had been contracted in the previous week by DFO to undertake similar work on the Kemess project as an independent expert (for the amount we had originally requested), and was now in a conflict. As the deadline for comment was set at the ridiculously early date of January 6, 2006, finding another expert was not easy and took time.

The date, place and duration of the hearings have still not been announced. As a result, we have no idea of the costs involved in participating in these hearings, and are unable to make arrangements with our experts to appear. With the reduced funding we may not have enough to arrange for our experts to be present.

The CEA Act states in subsection 4(1) that the purpose of participant funding is “to ensure that there be opportunities for timely and meaningful public participation throughout the environment assessment process”. This means participating in the public hearings, as well as submitting comments. We can find no evidence that the jury making the decisions about participant funding took actual attendance during the hearings into consideration.

A letter to the CEAA president on November 29, 2005 about these matters produced no result.

The panel is faced with a loud and vociferous lobby from the mining industry and its suppliers in the region.<sup>78</sup> The submissions from these advocates is extremely self-interested, as they are companies and people that stand to gain directly from the mine. None of their submissions to CEAA (at the date of this comment) address the issues in the EIA, which is to examine and evaluate the environmental consequences of the mine proposal. We urge the panel to treat them with caution.

### ***10. Conclusions***

The Panel will be facing a very tough question in its review of this mine. Who is going to bear the real costs of this mine: First Nations and the Duncan Lake ecosystem? The workers and

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<sup>78</sup> From a review of comments posted to the Public Registry.



communities who have become dependent on direct and indirect jobs from the Kemess South mine? The investors and shareholders who seek to profit from it?

In order to answer these questions, the Panel needs much more information and analysis than the already voluminous EIA provides. We submit that the EIA needs to be completed in the following ways:

- 1) Access to the company bankable feasibility study
- 2) A detailed analysis of impacts based on Option 2
- 3) Development of a proper habitat compensation plan that provides 'No Net Loss' of fish habitat (for both Options 1 and 2)
- 4) A plan for a truly independent monitoring program during and after the mine
- 5) A plan to avoid the requirement for site specific regulation of water quality
- 6) A proper social-cultural-economic assessment based on determinants of health and including gender analysis and a study of Aboriginal cultural impacts (for both Options 1 and 2)
- 7) Traditional Ecological Knowledge studies
- 8) A reclamation plan for Duncan Lake (if Option 1) and a detailed plan for Option 2
- 9) A forthright cumulative impacts assessment that acknowledges plans for mine expansion beyond Kemess North
- 10) An analysis of the impacts of the mine's energy consumption on the environment

Given the significance for all players of these issues, we further ask that the Panel ensure that adequate funding is available to enable all who wish to participate in the hearings to do so.