



# MiningWatch Canada

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## Mines Alerte

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November 13, 2007

Ms. Sheila Fraser, Auditor General of Canada

and to:

Mr. Ron Thompson, Interim Commissioner of the Environment and Sustainable Development

Attention: Petitions, 240 Sparks Street, Ottawa, Ontario K1A 0G6

Dear Commissioner:

Please accept the attached Environmental Petition, which I am submitting under the *Auditor General Act*.

This petition follows on petition number 219 that has already been accepted and sent for response to various departments. The background information for both petitions is the same, relating the history of the addition of Schedule 2 to the *Metal Mining Effluent Regulations* making it possible for entire fish-bearing lakes and other natural water bodies to be re-defined as Tailings Impoundment Areas and so slated for permanent elimination or partial destruction by mine waste.

Petition 219 focuses on the addition of Schedule 2 to the *Metal Mining Effluent Regulations* in 2002 without public consultation and on failures of Environment Canada, as the administrator of the *Metal Mining Effluent Regulations* and its amendments, to assure public consultation and, ultimately, “[t]he preservation and enhancement of the natural environment, including water...”.

**This petition focuses on the permanent destruction of entire freshwater habitats for the sake of mine tailings disposal as authorized by the Department of Fisheries and Oceans (DFO).** By authorizing the elimination and partial destruction of natural water bodies by mine waste DFO is failing in its mandate of “*conserving the ecological integrity*” of Canada’s “*freshwater resources.*” DFO is failing to: prioritize the protection of entire in-tact freshwater habitats; adequately assess the value of these habitats; and, assure “no net loss” of fish habitat, as there is no evidence that there has ever been successful compensation for the destruction of an entire fish-bearing lake.

Both petitions call for a parliamentary review of the implications for Canadian fish-bearing natural water bodies of the addition of Schedule 2 to the *Metal Mining Effluent Regulations*.

Both petitions also call for assurances that Environment Canada will not be allowed to deprive Canadian stakeholders, including Aboriginal peoples, of the right (as per *Cabinet Directive on Streamlining Regulation of April 2007*) to be consulted on future amendments to the *Regulations*. Environment Canada has indicated that in an upcoming amendment, which will propose the elimination and partial destruction of two lakes in Nunavut through their inclusion on Schedule 2, project-level consultation completed through the EA process and the comment period post-Gazette One will be considered adequate public consultation.

Accountable mining is mining that does not externalize costs onto the environment, the public purse, and future generations. To allow our natural water bodies to be destroyed by mine waste is to provide a perverse public subsidy to the industry. To the extent that we have provided this subsidy in the past, and continue to do so, this should be recognized as a *subsidy* to the industry and calculated as a *cost* to Canadians.

The *Regulatory Impact Assessment Statement* should document the full natural-capital costs, for current and future generations, of the loss of a natural water body. Canadians also need to know the public *liability* associated with the rehabilitation of surface water contaminated by mining. For this, there needs to be an inventory made of all waterways that have been degraded by mining. And Canadians need to be sure that they will not be expected to cover future costs of failing mine waste impoundments structures containing toxic mine waste in critical watersheds. Each mine should have an independent actuarial review of the amount of its bond to assure it will cover the costs of maintenance of mine waste structures “in perpetuity.”

It is the opinion of this petitioner that mine waste containment is not the highest and best use of a lake or a river. Furthermore, as the full value of a destroyed natural water body has never been successfully compensated for in Canada, elimination or partial destruction of natural water bodies cannot be reconciled with Sustainable Development.

Recently, the Joint Review Panel for the Kemess North project, which proposed the destruction by mine waste of Duncan (Amazay) Lake, determined that “*the Project in its current form would not be in the public interest*” (Joint Review Panel Report, September 17, 2007). Grand Chief Gordon Pierre of the Tse Keh Nay First Nation welcomed the ruling and noted: “*This is not just about protecting this lake for First Nations people; this is about protecting all lakes for all Canadians. There are currently over 20 lakes in Canada facing similar mining proposals and we are happy that a precedent has been set in Tse Keh Nay territory: killing lakes is unacceptable.*”

I trust the Canadian government will come to the same conclusion.

Sincerely,



Catherine Coumans, Ph.D.

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# Federal Departments Approve Destruction Of Canadian Lakes and Rivers by Global Mining Industry: Part II

Environmental Petition presented to the Office of the Auditor General

Catherine Coumans, Ph.D., MiningWatch Canada

November 13, 2007

## Summary

In 2002, a regulatory amendment opened a new avenue for the destruction of Canadian lakes and rivers, their associated aquatic and terrestrial habitats and reserves of fresh water. In 2002, Schedule 2 was added to the *Metal Mining Effluent Regulations*. Water bodies approved for listing on Schedule 2 by Fisheries and Oceans Canada and Environment Canada are effectively *redefined* as “Tailings Impoundment Areas” permitting their elimination or partial destruction by environmentally toxic mine waste. There was no public consultation on Schedule 2 prior to its addition to the *Metal Mining Effluent Regulations*. There has been inadequate public consultation for subsequent proposed applications of Schedule 2 turning healthy lakes and rivers across Canada, including on indigenous land, into industrial waste dumps. The needless destruction of healthy Canadian water bodies amounts to a perverse public subsidy to the global mining industry. The authorized and permanent destruction of Canadian water bodies does not meet the Canadian Government’s commitments to sustainable development.

## **HOW THE METAL MINING LIQUID EFFLUENT REGULATIONS AND ITS AMENDMENTS HAVE BECOME A REGULATORY VEHICLE FOR THE DESTRUCTION OF NATURAL WATER BODIES**

***In most countries around the world, it has become extremely difficult if not impossible to dispose of tailings in a lake or wetland. (...) This trend is being driven by regulatory, technical and sustainability issues and also the Equator Principles that lending agencies now adhere to. Project financing is linked to sustainable development.***

Don Welch, P.Eng and Frank Palkovits, P.Eng. Golder Associates Ltd. Pressures Force Changes in Disposal Practices. In *Canadian Mining Journal*, August 2007.

***The elimination of lakes is escalating in relation to the needs of the mining sector in Canada.***

I.K. Birtwell, S.C. Samis and N.Y. Khan. 2005. Fisheries and Oceans Canada. p. iii.<sup>1</sup>

***Our fresh water is one of Canada's greatest natural resources.... We are committed to protecting water in its natural state and to preserving the integrity of our ecosystems. (...) In the last budget we invested \$93 million in a national strategy to clean up and preserve our lakes and rivers. We will not allow them to be threatened by bulk exports.***<sup>2</sup>

John Baird, Minister of the Environment, in *The Ottawa Citizen*, August 23, 2007. p.A 13.

### ➤ ***1977 – The Metal Mining Liquid Effluent Regulations***

The *Metal Mining Liquid Effluent Regulations* (MMLER) were promulgated on February 24, 1977 as a Section 36 regulation pursuant to Sections 33 and 34 of the *Fisheries Act* as it stood at that time.<sup>3</sup> While the Department of Fisheries and Oceans (DFO) is legally responsible to parliament for all sections of the *Fisheries Act*, Environment Canada (EC) administers those aspects of the *Act* in Sections 36 and 42<sup>4</sup> dealing with pollutants affecting fish as set out in a Memorandum of Understanding between DFO and EC.<sup>5</sup>

Section 36 (3) of the *Fisheries Act* states that "*no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.*"

However, Governor in Council may pass regulations that authorize the deposition of a deleterious substance into waters frequented by fish under section 36(4). In 1977 Governor in Council passed the *Metal Mining Liquid Effluent Regulations* (MMLER). In 2002 the MMLER were amended and became the *Metal Mining Effluent Regulations* (MMER) pursuant to subsections 34(2), 36(5) and 38(9) of the *Fisheries Act*. In 2006 the MMER was again amended.

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<sup>1</sup> Birtwell, I.K. et al. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2607*. Fisheries and Oceans. p. iii

<sup>2</sup> Minister Baird denies that Canadian water will be sold to the U.S. but gives it away to U.S. investors in Canadian mines.

<sup>3</sup> *Metal Mining Effluent Regulations*. Regulatory Impact Analysis Statement. Canada Gazette Vol. 135, No. 30, July 28, 2001.

<sup>4</sup> Section 42 (subsections 1 and 2) details penalties for "unauthorized" depositions of deleterious substances in waters frequented by fish. [http://www-heb.pac.dfo-mpo.gc.ca/habitat\\_policy/hab\\_law\\_article/hablaw\\_partb\\_e.htm](http://www-heb.pac.dfo-mpo.gc.ca/habitat_policy/hab_law_article/hablaw_partb_e.htm)

<sup>5</sup> Isaac, Susan 2005. *Protecting Fish/Protecting Mines: What is the real job of the Department of Fisheries and Oceans?* MiningWatch Canada: Ottawa. P.9.

**The MMLER and its amended versions, MMER (2002,2006), constitute a regulatory authorization for metal mines in Canada to deposit mine effluent containing deleterious substances into waters frequented by fish, and they set out authorized limits on a limited number of deleterious substances.**

The MMLER applied to new, expanded and reopened metal mines. It did not apply to mines that commenced operations prior to 1977, to mines that had stopped operating, were orphaned or abandoned, to placer mining operations, or to mines that used cyanide in the milling process (gold mines).<sup>6</sup> As such, the MMLER applied to approximately 1/3 of Canada's metal mines.<sup>7</sup> Authorized effluent concentration limits were set for arsenic, copper, lead, nickel, radium-226, total suspended solids (TSS) and zinc, and minimum levels were set for pH. One of the key limits set in the 1977 MMLER was a limit on Total Suspended Solids (TSS). The limit on TSS was set at 25 mg/L for monthly mean concentrations. The concentration of TSS in tailings (typically 200,000-600,000 mg/L) greatly exceeds this limit. **This MMLER limit on total suspended solids is significant as it effectively ruled out the deposition of mine tailings into natural water bodies frequented by fish without a ministerial authorization to overrule the regulation.**

➤ ***1992 – 2002 - The Amended Metal Mining Effluent Regulations –  
No Public Consultation on Schedule 2***

A workshop on the MMLER convened by Environment Canada in November 1992 led, in 1993, to a multi-stakeholder review process to “update and strengthen” the MMLER. This process was initiated and headed up by Environment Canada under a program called the Assessment of the Aquatic Effects of Mining in Canada (AQUAMIN).<sup>8</sup> The AQUAMIN process (1993-1996) involved approximately 100 representatives from federal, provincial, and territorial governments, the mining industry, First Nations organizations,<sup>9</sup> and environmental Non-Government Organizations (ENGOS). During that time, over 700 reports related to more than 95 Canadian mining sites were reviewed, and detailed case studies were conducted for 18 of these sites. In 1996, results of the AQUAMIN process were released in a report titled, *AQUAMIN: Assessment of the Aquatic Effects of Mining in Canada*. This final report proposed more than 50 recommendations in three key areas: specific amendments to the MMLER, the design of a national Environmental Effects Monitoring (EEM) program, and information gaps and research needs.

A subsequent multi-stakeholder advisory process was established and involved another multi-stakeholder advisory group and several technical working groups to prepare amendments to the MMLER based on recommendations made by AQUAMIN. The groups met on a regular basis, coordinated by Environment Canada, between 1997 and 1999. Many of the same participants who had taken part in the AQUAMIN process also took part in this follow-up process. A number of members of the Mining Caucus of the Canadian Environmental Network (CEN) were involved in the entire review process from 1992 through Gazette One of the *Metal Mining Effluent Regulations* (MMER) on July 28,

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<sup>6</sup> Mines not covered by the MMLER were asked to conform with the Metal Mining Liquid Effluent Guidelines (MMLEG), which set out standards, but required only voluntary compliance.

<sup>7</sup> Gold mines were included in the amended *Metal Mining Effluent Regulations* (MMER) of 2002, as were mines predating 1977, but not placer mines, or mines that had stopped operating, or orphaned and abandoned mines.

<sup>8</sup> *AQUAMIN: Assessment of the Aquatic Effects of Mining in Canada: Final Report*. April 30 1996. AQUAMIN Steering Group. P.xvii

<sup>9</sup> Inuit Tapirisat of Canada and the Cree Regional Authority.

2001, as well as in formal and informal meetings on the MMER between Gazette One and Gazette Two on June 19, 2002.

From 1999 till 2002, the author of this Environmental Petition took part in formal meetings and informal discussions with Environment Canada officials regarding the MMLER review and proposed *Metal Mining Effluent Regulations* (MMER) as a Canadian Environmental Network (CEN) delegate and as an NGO stakeholder.<sup>10</sup> Among the key issues of concern for CEN stakeholders of the Advisory Group was the fact that the allowable levels for metals would remain unchanged from the levels that were established in 1977. The allowable metal levels are still frozen at 1977 levels even though they have been steadily reduced in other countries and Canada's allowable levels are now higher than those in countries such as Sweden, Japan, the U.S.A, Papua New Guinea, Ghana and Indonesia. For details on this and other ongoing issues of concern related to the MMER see Appendix 1. Another concern that was raised during the review period that remains troubling is the lack of enforcement of the MMER.

**When the proposed MMER went to Gazette I on July 28, 2001, Schedule 2 was added to the regulations. Schedule 2 had never been discussed in seven years of Environment Canada-led multi-stakeholder review of the MMLER.<sup>11</sup> There was no public consultation on Schedule 2 prior to the MMER going to Gazette I.**

**Schedule 2 lists "Tailings Impoundment Areas."** In the MMER (2002), a "tailings impoundment area" is defined as:

"(a) a water or place set out in Schedule 2; or  
( b) a disposal area that is confined by anthropogenic or natural structures or by both, but does not include a disposal area that is, or is part of, a natural water body that is frequented by fish."<sup>12</sup>

Under the heading "*Authority to Deposit*" sections 4 (1) and (2) of the Regulation set out the conditions under which an effluent may be deposited into "...any water or place referred to in subsection 36(3) of the Act..." **These conditions do not allow for the deposition of mine tailings into waters frequented by fish, as the limit for Total Suspended Solids is set at 15 mg/L for monthly mean concentrations.**<sup>13</sup> The concentration of TSS in tailings (typically 200,000-600,000 mg/L) greatly exceeds this limit.

However, the following section "*Authority to Deposit in Tailings Impoundment Areas*" sub-section 5. (1) states that: "Despite section 4, the owner or operator of a mine may deposit or permit the deposit of waste rock or an effluent that contains any concentration of a deleterious substance and that is of any pH into a tailings impoundment area."

**Through the addition of Schedule 2 to the MMER, ministerial authority to designate fish-bearing waters for deleterious tailings disposal (providing a site specific exemption with respect to the substance of the Regulations) was formalized to a regulatory standard for listing, and thereby**

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<sup>10</sup> MiningWatch Canada (MWC) started operations in April of 1999. The author of this Petition was asked to participate in the MMLER review process shortly after the start of MiningWatch Canada.

<sup>11</sup> The possible addition of Schedule 2 to the MMER was also not brought up between 1999 and Gazette One (July 28, 2001) in informal discussions that the author of this Environmental Petition had with EC officials who headed up this file.

<sup>12</sup> In the 2006 MMER this definition is very slightly reworded to read: "(a) a water or place set out in Schedule 2; or ( b) a disposal area that is confined by anthropogenic or natural structures or by both, *other than* a disposal area that is, or is part of, a natural water body that is frequented by fish." (italics in "other than" added).

<sup>13</sup> The limit on TSS was reduced from the limit of 25 mg/L for monthly mean concentrations set in the MMLER. Even a limit of 25 mg/L for monthly mean concentrations rules out the deposition of tailings into waters frequented by fish.

## **redefining, natural water bodies as “Tailings Impoundment Areas” on Schedule 2 of the Regulations.**<sup>14</sup>

When Schedule 2 first appeared in the proposed MMER at Gazette I, it already contained 4 lakes and a valley with streams, all of which were already in use as tailings impoundments (presumably through ministerial authorization), some of which were associated with active mines.<sup>15</sup>

Following Gazette I, the author of this petition and a fellow CEN delegate, who had participated in the MMLER review process since 1992, met with one of the EC officials who had headed up the MMLER review process. We questioned the EC official on the sudden appearance and the purpose of Schedule 2. We were told that this Schedule had been added in the final drafting process of the amended Regulations following legal advice that operating mines using natural water bodies for tailings impoundments would be out of compliance once the Regulations came of force unless these were covered by Schedule 2 as the Regulations were not “grandfathering” any mines.

We queried whether it was conceivable that any new, as yet uncontaminated, water bodies could possibly be added to Schedule 2 in the future. In response, we were asked to examine the likelihood of that proposition. The EC official reminded us that the MMLER were not amended at all for 25 years between 1977-2002 and that the multi-stakeholder amendment process itself had taken nearly 10 years from start to Gazette II. We were asked to consider whether it was at all likely that a mining company would be willing to subject a project to the necessity of a lengthy regulatory review and amendment process, including all associated consultation, and the need to get approval from Governor in Council, just to secure a tailings impoundment in a natural water body. This seemed to us, at the time, a reasonable assurance that Schedule 2 was not designed to facilitate the partial destruction and elimination of healthy Canadian lakes in the future.

EC held another multi-stakeholder meeting to discuss the MMER after it went to Gazette One, and there were further informal discussions between CEN members and EC officials about various aspects of the proposed MMER. However, the current and accelerating application of Schedule 2 to destroy new healthy water bodies was not anticipated by NGO stakeholders based on these post-Gazette One formal and informal exchanges with EC officials.

The lack of clarity regarding the implications of Schedule 2 is best evidenced in the submissions by NGOs and CEN delegates to the multi-stakeholder review process during the 60 day public review period. While detailed comments were submitted relating to issues that had been discussed and had been the subject of studies during the years leading up to Gazette I (see Appendix 1), not one of the 7 submissions by NGOs (one of which was signed by 17 organizations) mentions Schedule 2.

**The failure to consult on Schedule 2 prior to Gazette One constitutes a breach of the Government of Canada Regulatory Policy of November 1999.**<sup>16</sup> *“When regulating, regulatory authorities must ensure that: Canadians are consulted, and that they have an opportunity to participate in developing or modifying regulations and regulatory programs...”*<sup>17</sup>

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<sup>14</sup> Note: Listing natural water bodies on Schedule 2 still requires prior approval of both the Minister of DFO and of EC.

<sup>15</sup> Anderson Lake, Manitoba; Garrow Lake, Northwest Territories; South Kemess Creek, British Columbia; Albino Lake, British Columbia; Tom MacKay Lake, British Columbia.

<sup>16</sup> <http://www.tbs-sct.gc.ca/ri-qr/ra-ar/default.asp@language=e&page=publications&sub=governmentofcanadaregula.htm>

<sup>17</sup> <http://www.tbs-sct.gc.ca/ri-qr/ra-ar/default.asp@language=e&page=publications&sub=governmentofcanadaregula.htm>

There was no communication with stakeholders about the addition of Schedule 2 to the MMER and no explanation, prior to Gazette One, as to why Schedule 2 was necessary. The question of what “the problem” was that needed to be solved remains unanswered.<sup>18</sup> Stakeholders were not consulted on “alternative ways to solve the problem.”<sup>19</sup> Stakeholders were not provided an overview of “alternative regulatory solutions.”<sup>20</sup> There is no evidence that regulatory authorities considered the relative and absolute, “health, safety and environmental risks” involved in the Regulation.<sup>21</sup>

It is the contention of this petitioner that had the intended use of Schedule 2 been discussed and debated in the years of multi-stakeholder review prior to Gazette I, as other proposed changes to the MMLER were, it would have proven to be a highly contentious issue. This is evidenced by a growing alarm over Schedule 2, since 2002, by members of civil society, including Aboriginal peoples, as we witness the accelerating application of Schedule 2 to destroy new, healthy, sustainable lakes and other water bodies by mine tailings (see Figure 1 below).

As this Petition was being finalized the Joint Review Panel for the Kemess North project, which proposed the destruction by mine waste of Duncan (Amazay) Lake, determined the “*the Project in its current form would not be in the public interest*” (Joint Review Panel Report, September 17, 2007). Grand Chief Gordon Pierre of the Tse Keh Nay First Nation welcomed the ruling and noted: “*This is not just about protecting this lake for First Nations people; this is about protecting all lakes for all Canadians. There are currently over 20 lakes in Canada facing similar mining proposals and we are happy that a precedent has been set in Tse Keh Nay territory: killing lakes is unacceptable.*”

Furthermore, the **Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals** notes that the “*analysis of the environmental considerations should be undertaken on an iterative basis throughout the policy development process*” taking into consideration “[p]ublic and stakeholder concerns”: *The analysis should identify for decision makers, where appropriate, concerns about the environmental effects among those likely to be most affected, and among other stakeholders and members of the public.*<sup>22</sup> As Schedule 2 was added to the MMER without consultation with the stakeholder group that had been assembled for that purpose, it is unclear how the objectives of this Cabinet Directive were achieved.

The **Guidelines for Effective Regulatory Consultations of the Regulatory Affairs Division of the Privy Council Office** note that: “*The relationship between the department and stakeholders should be transparent. (...) Officials should ensure transparency of: ...pertinent, non-sensitive information...*” Again, there was no transparency about the addition of Schedule 2 before Gazette One.

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<sup>18</sup> “Regulatory authorities proposing new regulatory requirements or regulatory changes must have evidence that a problem has arisen, that government intervention is required and that new regulatory requirements are necessary.” Government of Canada Regulatory Policy, Nov. 1999

<sup>19</sup> “Interested parties must be consulted on alternative ways to solve the problem.” Government of Canada Regulatory Policy, Nov. 1999.

<sup>20</sup> “It must be demonstrated that new regulatory requirements will help solve the problem. Alternative regulatory solutions must also be analyzed to ensure the most effective and efficient is chosen.” Government of Canada Regulatory Policy, Nov. 1999

<sup>21</sup> “When health, safety and environmental risks are involved, regulatory authorities must consider whether the relative and absolute risks posed are such that intervention is required at this time.” Government of Canada Regulatory Policy, Nov. 1999.

<sup>22</sup> Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals. 1999 [http://www.ceaa-acee.gc.ca/016/directive\\_e.htm](http://www.ceaa-acee.gc.ca/016/directive_e.htm)



Schedule 2 has potential ramifications for natural water bodies on the lands and territories of Aboriginal peoples. According to the **Guidelines for Effective Regulatory Consultations of the Regulatory Affairs Division of the Privy Council Office**:

*Consulting with Aboriginal groups requires special considerations. A fiduciary relationship exists between the Government of Canada and Aboriginal peoples arising out of the historic relationship between these two groups. The government therefore has an obligation not to unnecessarily infringe on Aboriginal or treaty rights. Consultations are an important factor that courts consider in determining whether or not infringements of Aboriginal groups can be justified.*<sup>23</sup>

To the best knowledge of this petitioner there was no consultation with Aboriginal groups with respect to the addition of Schedule 2 to the MMER before Gazette One in 2001.

➤ ***The Metal Mining Effluent Regulations –***

***No Impact Assessment of the Lost Value of Destroyed Natural Water Bodies***

**The Regulatory Impact Assessment Statement (RIAS) of July 28, 2001 does not mention, or evaluate, the potential impact of Schedule 2 as a new schedule that was introduced in the MMER. As a result, this RIAS is both incomplete and misleading in its information and in some of its conclusions.**

There is a striking discussion in the RIAS, under “*Summary of Benefits*,” of the improvement achieved by the reduction of permitted Total Suspended Solids (TSS) from 25 mg/L to 15 mg/L for monthly mean concentrations. The reduced TSS limit is credited with improving “*ecosystem productivity*” as “*TSS can reduce light penetration in streams and lakes.*”<sup>24</sup> There is no mention of the massive increase in overall TSS load in the aquatic environment as a result of providing regulatory permission to dump hundreds of thousands of tons of mine tailings into lakes and streams by redefining them as Tailing Impoundment Areas on Schedule 2.

The RIAS discusses “benefits” to aquatic ecosystems as a result of the Regulations for “Users of Watercourses” such as: *improvement in commercial and sport fishing, as well as in recreational use; protection of aboriginal fisheries; an increase in the value of properties located in close proximity to affected watercourses; a reduction in future costs of restoring polluted water courses and remediation altered fish habitat; and – a general improvement in the quality of local ecosystems.*<sup>25</sup>

The RIAS also recognizes wider societal and long-term benefits of healthy aquatic eco-systems in accordance with principles of sustainable development. The “*intrinsic benefits*” referred to in the RIAS as associated with in-tact ecosystems include:

--- *the "existence value" society places on preserving water resources for their own sake and passing improved environmental conditions on to future generations;*

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<sup>23</sup> Guidelines for Effective Regulatory Consultations by the Regulatory Affairs Division of the Privy Council Office. No Date. P. 4

<sup>24</sup> *Metal Mining Effluent Regulations – Regulatory Impact Analysis Statement*. Vol. 135, No. 30 – July 28, 2001. p. 12. <http://canadagazette.gc.ca/partI/2001/20010728/html/regle-e.html#i1>

<sup>25</sup> Ibid.

- the "assurance value" society places on preserving the option to use water resources in the future; and
- the value placed on knowing that the water quality has been improved.<sup>26</sup>

The RIAS could have expanded on other widely recognized uses and services of in-tact natural capital. Other values associated with in-tact water courses including their landscape value, ability to clean contaminants out of the environment, and their potential future scientific value.

**A discussion of the “full-costs” of the lost natural capital value of a lake or river ecosystem, which is slated for elimination or partial destruction by mine tailings is missing in the RIAS, as the RIAS does not discuss Schedule 2 or its the potential impacts on natural water bodies.**

Certainly, creating a regulatory vehicle, such as Schedule 2, to permit the permanent destruction of productive and healthy natural water bodies runs counter to the sustainability principles outlined in Environment Canada’s first (1997-2000) and second (2001-2003) **Sustainable Development Strategies** of the time.

In discussing concerns expressed by environmental NGOs (ENGOS), the RIAS reviews many of the issues that were extensively discussed during the 7 year review period, but does not mention Schedule 2 as an ENGO concern. This is itself potentially misleading as the only reason Schedule 2, and the potential future destruction of natural water bodies by inclusion on Schedule 2, was not discussed as a concern by ENGOS is because ENGOS were not consulted on Schedule 2, which was added at the time that the MMER went to Gazette One.

➤ ***2004 – 2006 – Another MMER review and the addition of two trout and salmon bearing lakes in Newfoundland to Schedule Two– Setting a Precedent***

Just two years after the 2002 MMER went to Gazette Two, EC brought stakeholders together again for a workshop in November 2004 in Ottawa to initiate another MMER review. In spite of an unofficial assurance from an Environment Canada (EC) official, in 2001, that Schedule 2 was very unlikely to become a vehicle for the destruction of healthy Canadian lakes by mine waste, the new MMER review resulted, on October 18, 2006, in the addition of two more lakes to Schedule 2. This time, the lakes that were added were healthy, productive, brook trout and Atlantic salmon-bearing lakes in the Exploits River system in Newfoundland. **These two additions to Schedule 2 constitute the first time healthy lakes were condemned to destruction by mine waste by inclusion on Schedule 2 and redefinition as Tailings Impoundment Areas.**

The new review process was slated to begin early in 2005 and run until roughly March 2007.<sup>27</sup> Four NGO representatives took part as Canadian Environmental Network (CEN) delegates, including the author of this Environmental Petition. Two Aboriginal organizations participated: Cree Regional Authority and Inuit Tapiriit Kanatami. Officials of the Federal Government, provincial and territorial governments, and industry also participated. The goals for the review that were set out at the November

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<sup>26</sup> Ibid.

<sup>27</sup> Canadian Environmental Network (CEN) work plan for CEN representatives to the MMER review process.

2004 workshop were to adjust some aspects of the MMER to “*improve clarity and address technical problems.*”<sup>28</sup>

During a conference call of the Multi-stakeholder Advisory Group (MAG) on April 26, 2005, the group was told that Aur Resources (now Teck Cominco)<sup>29</sup> planned to use a lake in Newfoundland for tailings from its proposed Duck Pond copper-zinc mine and that this lake’s addition to Schedule 2 would now be part of the ongoing review process.<sup>30</sup> The MAG was told that EC’s Minerals and Metals Branch became aware of Aur Resources intention to use a lake as a tailings impoundment in February of 2005. We were further told that the “[c]urrent schedule for amendment process is being driven by an Aur Resources project in Newfoundland ... with operations scheduled to commence in the summer of 2006.”<sup>31</sup> “With this timeline in mind, EC is planning...” a revised timeline leading to publication of MMER amendments in Canada Gazette II in Spring of 2006.<sup>32</sup> CEN participants protested the accelerated regulatory review schedule based on a mining company’s timeline.<sup>33</sup>

As the public record of the MMER review details, from April 2005 until the MMER went to Gazette Two in October 2006, CEN participants to the review process made use of all official multi-stakeholder conference calls and face-to-face meetings to raise detailed oral and written concerns about Schedule Two in general and about the addition of two healthy lakes in Newfoundland to Schedule 2.<sup>34</sup> CEN advisory group members raised questions regarding the “rationale” for Schedule 2 beyond dealing with historic deposition of tailings in lakes, about the “extraordinary circumstances” that would lead EC and DFO to consider Aur Resources’ request to destroy two lakes, about other mines that may be considering a similar request to use lakes as tailings impoundments,<sup>35</sup> and about whether using lakes as tailings impoundments could ever be considered “the best and highest use of these natural water resources.”<sup>36</sup>

CEN advisory group members requested copies of all pertinent documents related to the environmental review of Aur Resources proposed mining project. EC provided some of these documents; others were requested through the Canadian Environmental Assessment Registry.

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<sup>28</sup> Presentation by Chris Doiron, EC, in *Workshop Report* prepared for Environment Canada by Intersol. *Workshop on Possible Amendments to the Metal Mining Effluent Regulations*. November 3-4, 2004. P. 11.

<sup>29</sup> In August 2007, Teck Cominco purchased 93% of Aur Resources.

<sup>30</sup> Summary Notes of 1<sup>st</sup> Conference Call, April 26, 2005. Prepared by Charles Dumaesque of EC. P. 2 Note: It later became clear that two lakes, not one, were to be destroyed by the Aur Resources project.

<sup>31</sup> Summary Notes of 1<sup>st</sup> Conference Call, April 26, 2005. Prepared by Charles Dumaesque of EC. P. 2

<sup>32</sup> Ibid.

<sup>33</sup> *Compilation of Stakeholder Comments on Proposed Amendments to the MMER*. June 14, 2005. Prepared by Environment Canada.

<sup>34</sup> *Summary Notes of 2<sup>nd</sup> Conference Call*, May 24<sup>th</sup>, 2005. Prepared by Charles Dumaesque of EC; *Compilation of Stakeholder Comments on Proposed Amendments to the MMER*. June 14, 2005. Prepared by Environment Canada.; *Metal Mining Effluent Regulations, Multi-Stakeholder Advisory Group, Meeting on Proposed Amendments to the MMER*, June 16-17, 2005. Meeting Report Prepared by Intersol for Environment Canada.; Coumans, Catherine. May 7, 2006. *Comments submitted on the MMER following Gazette One*, plus appendixes.; *Metal Mining Effluent Regulations, Multi-stakeholder advisory group (MMER\_MAG) Meeting on Proposed Amendments to the MMER*, May 18, 2006, Saskatoon, Meeting Report, Prepared by Intersol for Environment Canada. Final Report August 22, 2006; Paquet, M, Judy Parkman, Catherine Coumans, Randy Fleming. 2006. *ENGO Perspective Report: In respect of the Environment Canada-Sponsored Review Process On amendments to the Metal Mining Effluent Regulations (MMER)*. May 18, 2006.

<sup>35</sup> Upon the request of CEN delegates, EC provided a list of mines that were already considering using lakes as tailings impoundments for new or expanding mines. (See Figure 1 below)

<sup>36</sup> *Compilation of Stakeholder Comments on Proposed Amendments to the MMER*. June 14, 2005. Prepared by Environment Canada.

A review of some 2000 pages of documentation related to Aur Resources' project led the author of this Petition to conclude that:

- There is no evidence in the public record that the obligation on the proponent and on local Environment Canada and Natural Resources Canada authorities to explore alternative mine waste disposal options, other than the destruction of lakes, was taken seriously;
- “compensation” plans for “alteration, disruption or destruction of lacustrine [lake/pond] and riverine fish habitat” were based on inadequate and deficient data. The compensation plan review process shows a cavalier attitude towards the natural resources that are being sacrificed;<sup>37</sup>
- There was a lack of meaningful local consultation on the destruction of two lakes (the project was scoped as a Screening level Environmental Assessment);<sup>38</sup>
- After a predicted 6.2 years of operations, the destruction of two lakes and the anticipated (by regulatory officials) degradation of river/aquatic habitat, this mine will become a “perpetual care and maintenance” mine with a high probability of becoming a public liability. This mine’s potentially acid-generating waste that could leach out toxic levels of metals will be in the middle of a critical watershed for Newfoundland. The tailings will need to be kept under water behind a number of dams that will need to be maintained “in perpetuity.”<sup>39</sup> (For a full discussion see Appendix 1)

Even as CEN members and citizens in Newfoundland raised concerns based on a review of the public documentation related to the Aur Resources project, Aur Resources was raising concern with Government officials about potential delays related to the requirement to have the two Newfoundland lakes included on Schedule 2.<sup>40</sup>

On April 8, 2006 the amended MMER went to Gazette One. A 30 day comment period was provided. In this period, 64 comments were received, of which 62 came from civil society groups and individuals from 5 provinces, the Yukon and Australia. Four of these 62 comments came from Aboriginal peoples and their organizations.<sup>41</sup> All 62 comments received from civil society groups and individuals expressed concern about the purpose of Schedule 2 and its use to destroy lakes in Newfoundland.

Three of the four submissions from First Nations specifically noted that they had not been adequately consulted on Schedule Two and its proposed amendment. The submission from the Takla First Nation is significant as this First Nation is facing a similar threat to Amazay (Duncan) Lake of destruction by mine tailings from the proposed Kemess North Mine:

*The federal government, by adding Trout Pond in Newfoundland and Labrador to Schedule 2 of the MMER, has not engaged in the meaningful consultation required for such a decision.*

*The addition of Trout Pond to Schedule 2 is a threat to the protection of water throughout Canada. Any threat to fish-bearing water bodies is a threat to our drinking water, our fish, our wildlife and our*

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<sup>37</sup> See comments to this effect submitted by fisheries experts Dr.'s J. Gibson, Dr. J. Rasmussen and Dr. G.F. Hartman (Appendix 1).

<sup>38</sup> Public involvement in a screening is at the discretion of the responsible authority and depends on factors such as the nature of the project, its environmental setting and public concerns. In this case there was minimal public “consultation”: in the form of a couple of public meetings that were held. Given the severity of the environmental impacts this project should have been scoped as a Comprehensive Study.

<sup>39</sup> Coumans, Catherine. May 7, 2006. *Comments submitted on the MMER following Gazette One*, plus appendixes. On behalf of MiningWatch Canada

<sup>40</sup> Department of Fisheries and Oceans, *Memorandum for the Minister*. Nov. 2, 2005. Obtained through ATI

<sup>41</sup> Steve Lawson, First Nations Environmental Network of Canada; Takla Lake First Nation, Prince George, B.C.; Alan Penn, Cree Regional Authority; First Nations Leadership Council, British Columbia.

*Aboriginal rights.*

*This decision should be immediately reversed and a complete and thorough review process should be undertaken. The Tse Keh Nay require full involvement in such a process, as we may be impacted by the precedent set by the decision.(...)*

*Re-defining Amazay Lake as a TIA, like Duck and Trout Pond, will also require an amendment to Schedule 2 of the MMER. Therefore, the precedent created by the current decision directly affects the Tse Keh Nay and demands full consultation with us. (...)*

*Please inform us of when a new process to study amendments to the Metal Mining Effluent Regulations will begin. We look forward to a thorough consultation process to address the broad implications of destroying fish-bearing lakes.<sup>42</sup>*

The First Nations Leadership Council of B.C. also noted the lack of adequate consultation with First Nations, in particular in areas that may be affected by Schedule Two amendments in the future:

*The First Nations Leadership Council has recently become aware of proposed amendments to the Metal Mining Effluent Regulations (MMER) after being notified of the Canada Gazette, Part I, Vol. 140, No. 14, April 8, 2006. (...)*

*The First Nations Leadership Council is comprised of the political executives of the First Nations Summit, Union of BC Indian Chiefs and the BC Assembly of First Nations. (...)*

*However, First Nations and First Nations organizations in British Columbia received little to no information on this matter, nor has the Government of Canada consulted with First Nations on the proposed amendments. The Supreme Court of Canada has confirmed that the Crown has a legal duty to meaningfully consult specifically with First Nations, beyond usual public processes, with regard to Crown decisions, including proposed upstream legislative or regulatory changes that may impact First Nations' Aboriginal rights. The Government of Canada has not fulfilled this duty with respect to the proposed amendments to the MMER and their potential impacts on the Aboriginal title and rights of First Nations in British Columbia.*

*While the First Nations Leadership Council has not had sufficient time to thoroughly review the proposed amendments, or to engage on the matter with our constituents, there is one matter of particular concern with respect to Schedule 2. (...)*

*It also sets a potentially serious precedent in that other new mines may be added to the Schedule, which will have significant impacts on Aboriginal title and rights. This is of particular concern in British Columbia, where most of the land is subject to treaty and other negotiations between First Nations and the Crown to reconcile pre-existing Aboriginal title and the inherent right of self-government with the assertion of Crown sovereignty.(...)*

*Serious consideration must be given to adding any new fresh water bodies to Schedule 2 for use as TIAs, informed by meaningful consultation with First Nations. We understand there are other mines in BC that may want to avail themselves of this potential precedent, including Huckleberry, Red Chris, and Kemess North.*

*Meaningful consultation, at the earliest opportunity, with First Nations is required before any amendments are enacted by the Government of Canada. The honour of the Crown requires the Government of Canada to fulfill this duty. **We do not believe that this duty has been met with respect to***

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<sup>42</sup> Takla Lake First Nation, Prince George, British Columbia. Comments provided in response to Canada Gazette Part I, Vol. 140, No.14, published April 8, 2006.

*the proposed amendments to the MMER. The First Nations Leadership Council specifically requests a suspension of the amendment process to allow for the Government of Canada to meaningfully consult with First Nations in British Columbia, including providing all relevant information and discussing the implications and potential impacts.*<sup>43</sup> (emphasis added)

**These comments from First Nations raise serious questions about the adequacy of the MMER consultation process with respect to Aboriginal peoples as set out in the Guidelines for Effective Regulatory Consultations of the Regulatory Affairs Division of the Privy Council Office.**

In the **Regulatory Impact Analysis Statement of April 8, 2006**, under the heading “*Alternatives*” it is stated that not amending Schedule Two “would have significant implications for the implementation of the Aur Resources Inc. Duck Pond Project” as well as for “employment and other economic benefits to the local and provincial economies.” **However, there is absolutely no evidence provided to support this statement.** Mines proceed and are profitable all over Canada, and the world, without the “benefit” of using natural water bodies for their tailings disposal. Copper and Zinc prices are at an all time high. There is no reason to assume, and certainly no evidence provided, that Aur would abandon this project if the company had to seek alternative waste disposal options. **In other words, there is no evidence provided that the destruction of two lakes was a necessary condition for the mine to proceed.**

In fact, Aur Resources has received praise for having created a “*fully man-made sub-aqueous tailings disposal facility*”<sup>44</sup> at its Louvicourt Mine in Val d’Or, Quebec. Importantly, Aur Resources was driven to use “*best available technology*” as “*disposal in a natural lake was ruled out up front for obvious reasons related to loss of natural habitat*”<sup>45</sup> and as Quebec’s Directive No. 19<sup>46</sup> rules out the use of lakes for tailings disposal. According to Golder Associates, “*Overall, the use of the man-made structure to control acid generation of tailings has proven to be a successful endeavour*”<sup>47</sup>

On page four under “*Benefits and Costs*” the RIAS states that “*environmental costs*” related to additions of water bodies to Schedule 2 will be offset by the “*habitat compensation plan.*” The flaws in the assessment of the fish resource and in the compensation plan itself have received extensive attention (see Appendix 1). The RIAS does not include a **discussion of the costs of perpetual care and maintenance of the tailings impoundments or a discussion of how these costs will be met.**

While the 2002 RIAS recognized a range of values and services provided by healthy water bodies (see discussion above), there is **no discussion in this RIAS of the lost value of the full range of uses and services provided by the two lakes slated for destruction** by the Aur Resources project. These uses, services and values that are being eliminated are not compensated for in the “No Net Loss” provisions. Page six in the RIAS responds to ENGO concerns by noting that Environment Canada “*clarified*” that “*the economic and technical viability of alternatives to the use of a natural water body as a TIA*” were considered. As noted above, there is very little evidence of this in the public record. This point was acknowledged by EC, but only after the amended Regulations went to Gazette One on April 8, 2006.

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<sup>43</sup> First Nations Leadership Council, British Columbia. Comments provided in response to Canada Gazette Part I, Vol. 140, No.14, published April 8, 2006.

<sup>44</sup> *Performance and Monitoring of the Louvicourt Mine Tailings Disposal Area*, M.R. Julien, et al, Golder Associates, and Jean Cayouette, et al, Aur Resources (no date), pp. 21.

<sup>45</sup> Ibid.

<sup>46</sup> *Directive 019 Sur L’Industrie Minière*. April 2005. Développement durable Environnement et Parcs, Québec. “Le rejet de résidus minières en milieu lacustre naturel ou en milieu marin est interdit a moins d’être assujetti a la section IV ainsi qu’au chapitre II de al Loi.”

<sup>47</sup> *Performance and Monitoring of the Louvicourt Mine Tailings Disposal Area*, M.R. Julien, et al, Golder Associates, and Jean Cayouette, et al, Aur Resources (no date). p. 19

During the final meeting of the multi-stakeholder advisory group on May 18, 2006, Environment Canada presented a power point presentation. Under the heading “Lessons Learned” the following points were made:

- *The proposed addition of TIA’s to Schedule 2 is viewed as a matter of significant concern to many stakeholders and early consultations in this regard are important.*
- *Future proposals for TIA additions must be supported by a thorough analysis of possible alternatives to the use of fish bearing waters.*
- *Regional staff need to fully understand the significance of TIA decision making and advise project proponents of the importance of early stakeholder engagement in the process.*<sup>48</sup>

Environment Canada’s Chris Doiron also “*acknowledged the concerns regarding the level of consultation around the Aur Resources request to add a TIA to Schedule 2.*” He noted that: “*Based on this feedback, the “bar had been raised” in terms of consultation that will be required on future proposed additions. In this regard, the MAG [multi-stakeholder Advisory Group] is a useful forum for stakeholders to express views openly.*”<sup>49</sup>

There were implicit acknowledgements in the May 18, 2006 multi-stakeholder meeting that in regard to Aur Resources’ proposed project in Newfoundland there were inadequacies with respect to the assessment of fish resources in the lakes, with respect to a review of alternatives to using lakes as waste dumps, and with respect to consultation. Nonetheless, on October 18, 2006 the amended MMER went to Gazette Two and a precedent was set as the Regulation was used for the first time to redefine healthy Canadian lakes as industrial waste dumps.

➤ ***2007 – Two New Lakes Proposed for Addition to Schedule Two – “We will Not Consult – We Will Inform You”<sup>50</sup>***

In Spring of 2007, an official at EC called the Canadian Environmental Network (CEN) to indicate that there would be another amendment of the MMER this year and that two more natural water bodies would be proposed for addition to Schedule 2. These water bodies are Tail Lake (Doris North Project) and the northwest arm of Second Portage Lake (Meadowbank Project), both in Nunavut. Both of these projects were scoped for a screening level Environmental Assessment (EA) under the Canadian Environmental Assessment Agency (CEAA). Public involvement in a screening is at the discretion of the responsible authority.<sup>51</sup> The scoping of these projects as a screening level EA is a concern as these are mining projects that propose to eliminate and partially destroy fish-bearing lakes. These projects should, minimally, have been scoped for a Comprehensive Study level Environmental Assessment under CEAA. Projects requiring Comprehensive Study “*tend to be large projects having the potential for significant adverse environmental effects. They may also generate public concerns.*”<sup>52</sup>

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<sup>48</sup> *Metal Mining Effluent Regulations, Multi-stakeholder advisory group (MMER\_MAG) Meeting on Proposed Amendments to the MMER*, May 18, 2006, Saskatoon, Meeting Report, Prepared by Intersol for Environment Canada. Final Report August 22, 2006. Appendix 1.

<sup>49</sup> *Metal Mining Effluent Regulations, Multi-stakeholder advisory group (MMER\_MAG) Meeting on Proposed Amendments to the MMER*, May 18, 2006, Saskatoon, Meeting Report, Prepared by Intersol for Environment Canada. Final Report August 22, 2006. p. 12.

<sup>50</sup> Personal Communication with an EC official. August 27, 2007.

<sup>51</sup> [http://www.ceaa.gc.ca/010/basics\\_e.htm#15](http://www.ceaa.gc.ca/010/basics_e.htm#15)

<sup>52</sup> [http://www.ceaa.gc.ca/010/basics\\_e.htm#15](http://www.ceaa.gc.ca/010/basics_e.htm#15)

**Given the “significant adverse environmental effects” related to destroying natural water bodies, the scientific uncertainty related to assessing the full value of, and compensating for the elimination of, entire eco-systems,<sup>53</sup> and given broad public concern over these projects among Canadians nation-wide, including Aboriginal peoples, mining projects proposing to eliminate or partially destroy natural water bodies should be assessed through a Review Panel, or a Joint Panel Review under CEAA given the involvement of two levels of government.<sup>54</sup>**

Personal communications with the EC official, in Spring 2007, by the author of this Environmental Petition, clarified that EC has no intention to “consult” Canadians, including Aboriginal peoples, over the upcoming MMER amendment that will propose the addition of two more lakes to Schedule 2. Rather, EC plans to “inform” these stakeholders of the intention to add water bodies to Schedule 2 shortly before the amended Regulation is sent to Gazette One. This EC official noted that consultation had already taken place at the project-level through the EA process and was now finished.

A follow up conversation with the same official on August 27, 2007 is summarized below<sup>55</sup>:

- In the case of the upcoming MMER amendment that will see the proposed addition of a lake and a section of another lake in Nunavut to Schedule 2 for, respectively, the Doris North and Meadowbank mine projects, there will be no multi-stakeholder public consultation process headed by Environment Canada, as there was for the previous MMER amendment (2006) that saw the addition of two lakes in Newfoundland added to Schedule 2 for Aur Resources’ Duck Pond mine project.
- Environment Canada (EC) will not be "consulting" on the regulatory amendment to Schedule 2 that will propose the addition of these Nunavut water bodies, rather stakeholders, including Aboriginal peoples, will be "informed" of the intention of EC to add these lakes to Schedule 2.
- EC views "consultation" on this MMER amendment as having been “front loaded” as part of project-level Environmental Assessment (EA) process which is already completed.
- Broader "consultation" on the upcoming Schedule 2 amendments will now only occur following Gazette One when the public has the opportunity to submit comments.
- EC intends future "consultation" on MMER amendments of Schedule 2 to follow this new model in which consultation that is required at the project level through the EA process, and consultation that is required for a regulatory amendment to add water bodies to Schedule 2 will happen at the same time during the project-level EA.
- There might be a recommendation from EC that companies post their intentions to use natural fish bearing waters for tailings impoundments in national newspapers, as this official advised Crowflight Minerals to do with respect to their intention to use Bucko Lake in Manitoba for mine tailings (these posting apparently appeared in national newspapers earlier this year).
- EC’s goal is to complete future processes of amending the MMER by adding natural water bodies to Schedule 2 in eight months from the time EC receives authorization from the Department of Fisheries and Oceans to add a lake to Schedule 2 through to Gazette 2.

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<sup>53</sup> See, for example, S.C. Samis, I.K. Birtwell, and N.Y Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. Fisheries and Oceans.

<sup>54</sup> “A review panel is a group of experts selected on the basis of their knowledge and expertise and appointed by the Minister of the Environment. The Minister also appoints one of the panel members as chairperson.” [http://www.ceaa.gc.ca/010/basics\\_e.htm#15](http://www.ceaa.gc.ca/010/basics_e.htm#15)

<sup>55</sup> Shortly after this conversation the author of this Environmental Petition sent a similar summary of the conversation to the EC official to confirm that this is indeed an accurate summary of the conversation. This official has since sought a legal opinion on the key issue regarding consultation requirements on future amendments to Schedule 2 and has committed to responding to the author of this Petition, but as of the date of filing this petition a response has not been received.



- While EC recognizes the value of the input provided by CEN representatives involved in the EC-headed multi-stakeholder regulatory review consultation process that led to the addition of two lakes in Newfoundland to Schedule 2 (2005-2006), and has responded to concerns raised by CEN representatives regarding, among others, the need for better local and nation-wide consultation, including with Aboriginal peoples, and better assessment of tailings impoundment alternatives, EC does not see any value in following this regulatory review multi-stakeholder consultation process model in this or future MMER Schedule 2 amendment processes.

This same official also spoke of intense pressure being experienced by EC officials over this issue, including from U.S.-based investors in Canadian projects who see the need for regulatory inclusion of natural water bodies on Schedule 2 as a time-consuming and costly risk.<sup>56</sup>

**It appears from this conversation that EC considers consultation that may be required as part of a project-level EA process to simultaneously meet the department's requirement for consultation on a regulatory amendment prior to Gazette One (as per the Cabinet Directive on Streamlining Regulation of April 2007). This assumption by EC is all the more troubling as EC did not inform the Canadian Environmental Network of its change in procedure until after the EA-related consultations on the Doris North and Meadowbank mine projects were finished, effectively assuring that stakeholders who expected to participate in a consultation on the proposed destruction of two lakes in Nunavut during a regulatory amendment review process were denied this opportunity.**

If it is indeed EC's intention to forgo broad stakeholder consultation on this and future MMER Schedule 2 amendments then this decision directly contradicts earlier public assurances made by EC and DFO officials regarding the need for two levels of consultation, one at the project-level through the EA process, and one involving broader national stakeholders because additions to Schedule 2 constitute a regulatory amendment.<sup>57</sup>

The fact that an EC official asked Crowflight Minerals to publish its intentions to use Bucko Lake for tailings in national newspapers would indicate awareness on the part of EC for the need for broad national-level stakeholder consultation on a proposed regulatory amendment that has national significance. However, it is questionable whether asking mine proponents to post their intentions to turn lakes into tailings impoundments in national newspapers can be construed as "national consultation." Certainly many stakeholders, including Aboriginal peoples, may not receive these national newspapers.

Furthermore, EC is very well aware of the intense and broad public interest that exists over the issue of eliminating and partially destroying natural water bodies. Following the last MMER review (2005-2006), in considering "lessons learned," Environment Canada's Chris Doiron *"acknowledged the concerns regarding the level of consultation around the Aur Resources request to add a TIA to Schedule 2."* He noted that: *"Based on this feedback, the "bar had been raised" in terms of*

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<sup>56</sup> There is a certain irony in the fact that U.S.-based investors are complaining about delays in accessing Canadian lakes for tailings impoundments when in the U.S. the Clean Water Act effectively prohibits the destruction of lakes by tailings.

<sup>57</sup> *Meeting on Proposed Amendments to the MMER, June 16-17, 2005.* Meeting Report prepared by Intersol for Environment Canada. P.28; Samis, Steve, DFO, in *Summary Notes of 2<sup>nd</sup> Conference Call*, May 24<sup>th</sup>, 2005. Prepared by Charles Dumaresque of EC.; *Metal Mining Effluent Regulations, Multi-stakeholder advisory group (MMER\_MAG) Meeting on Proposed Amendments to the MMER*, May 18, 2006, Saskatoon, Meeting Report, Prepared by Intersol for Environment Canada. Final Report August 22, 2006. p. 12.

*consultation that will be required on future proposed additions. In this regard, the MAG [multi-stakeholder Advisory Group] is a useful forum for stakeholders to express views openly.”*<sup>58</sup>

The “lessons learned” regarding consultation and the value EC said it placed on input from the Multi-stakeholder Advisory Group in 2006, seem now to have been forgotten.<sup>59</sup> Environment Canada knows that the Canadian Environmental Network participants of the last MMER review, including the author of this Environmental Petition, remain intensely interested in the issue of natural water bodies being added to Schedule 2. EC also knows that a large number of Canadians from across Canada are concerned about additions to Schedule 2 based on the comments received in the last MMER review (2005-2006), and EC knows that there is concern from Aboriginal peoples over Schedule 2 amendments.

**At least one First Nation in its comments on the MMER amendment of 2006 specifically asked to be consulted on any further Schedule 2 amendments: “Please inform us of when a new process to study amendments to the Metal Mining Effluent Regulations will begin. We look forward to a thorough consultation process to address the broad implications of destroying fish-bearing lakes”.**<sup>60</sup> **This has not occurred.**

It is clear that if EC is planning to forgo broad consultation with interested stakeholders on future MMER amendments, the department is contravening the **Cabinet Directive on Streamlining Regulation of April 2007:**

#### ***4.1 Regulatory consultation***

*Departments and agencies are responsible for identifying interested and affected parties, and for providing them with opportunities to take part in open, meaningful, and balanced consultations at all stages of the regulatory process.*

*When undertaking consultations, departments and agencies are to:*

*inform and engage Canadians on the nature and implications of the public policy issue based on available evidence, science, or knowledge;*

- include Canadians in developing policy objectives;*
- set out the process and timelines in a clear manner so that affected parties can organize and provide input; and*
- provide timely feedback to Canadians and affected parties on the outcome of the consultations and on the priorities considered in decision making.*

*Departments and agencies are also to work with First Nations, Inuit, and Métis communities and peoples; national, regional, and local Aboriginal organizations; and Aboriginal governments and*

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<sup>58</sup> *Metal Mining Effluent Regulations, Multi-stakeholder advisory group (MMER\_MAG) Meeting on Proposed Amendments to the MMER*, May 18, 2006, Saskatoon, Meeting Report, Prepared by Intersol for Environment Canada. Final Report August 22, 2006. p. 12.

<sup>59</sup> *Metal Mining Effluent Regulations, Multi-stakeholder advisory group (MMER\_MAG) Meeting on Proposed Amendments to the MMER*, May 18, 2006, Saskatoon, Meeting Report, Prepared by Intersol for Environment Canada. Final Report August 22, 2006. p. 12.

<sup>60</sup> Takla Lake First Nation, Prince George, British Columbia. Comments provided in response to Canada Gazette Part I, Vol. 140, No.14, published April 8, 2006.

ensure that they meet all obligations that may exist in relation to rights protected by section 35 of the Constitution Act, 1982.

*Departments and agencies are to publish proposals in the Canada Gazette, Part I, to allow for a public comment period and to then take the comments received into consideration. The standard comment period is 30 days, but it can vary based on legislative requirements, international obligations, and other considerations. A minimum comment period of 75 days is required for proposals for new and changed technical regulations that may affect international trade.*

***Departments and agencies should note that publishing proposed regulations in the Canada Gazette is not a substitute for meaningful consultations on the development of regulatory proposals. Cabinet may exempt proposals from publication in Part I of the Canada Gazette.***<sup>61</sup> (Emphasis added)

Finally, as Aboriginal peoples indicated, in their comments on the 2006 MMER amendments, that they have a strong interest in being consulted with respect to future Schedule 2 amendments, it would seem that EC is also risking breaching the **Guidelines for Effective Regulatory Consultations of the Regulatory Affairs Division of the Privy Council Office** with respect to the need to consult with Aboriginal peoples.

➤ ***Into the Future: Projects Seeking to Include Natural Water Bodies on Schedule 2***

The following was received from Environment Canada in August of 2007. It does not contain all projects that have indicated an interest in using natural fish-bearing water bodies as tailings impoundments, only those that are currently undergoing environmental assessment (EA) or are close to starting the EA process. Since this information was received, the Joint Review Panel for the Kemess North project has determined that “*the Project in its current form would not be in the public interest*” (September 17, 2007) noting in particular that the “[*k*]ey adverse effects include the loss of a natural lake with important spiritual values for Aboriginal people....”<sup>62</sup> Additionally, the Honourable Mr. Justice Martineau in a Federal Court decision on September 25, 2007 ruled that the Department of Fisheries and Oceans (DFO) and Natural Resources Canada have unlawfully evaded a comprehensive study environmental assessment of the Red Chris Mine, and unlawfully preventing the public from participating in the federal assessment.<sup>63</sup>

FIGURE I

Project Name	Proponent	Province/Territory	Water Body	Status
<b>Projects for which the Government of Canada intends to proceed with proposed amendments to the MMER, designating water bodies as TIAs</b>				
Doris North Project	Miramar Mining Corp. <a href="http://www.miramarmining.com/s/Home.asp">http://www.miramarmining.com/s/Home.asp</a>	Nunavut	Tail Lake	<ul style="list-style-type: none"> <li>EAs have been completed under the terms of the <i>Nunavut Land Claims Agreement</i> and the <i>Canadian Environment</i></li> </ul>

<sup>61</sup> [www.regulation.gc.ca/default.asp@language=e&page=thegovernmentdirectiveon.htm](http://www.regulation.gc.ca/default.asp@language=e&page=thegovernmentdirectiveon.htm)

<sup>62</sup> *Kemess North Copper-Gold Mine Project: Joint Review Panel Report*, September 17, 2007. p.xi.

<sup>63</sup> Docket: T-954-06; Citation 2007 FC 955; September 25, 2007.

				<p><i>Canadian Environment Assessment Act (CEAA).</i></p> <ul style="list-style-type: none"> <li>• EAs included consultation and an assessment of alternatives to the use of Tail Lake as a tailings impoundment area (TIA).</li> <li>• Project is located on Inuit land and the Inuit have strongly supported the use of the lake as a TIA.</li> <li>• A habitat compensation plan has been developed, and the Department of Fisheries and Oceans (DFO) has formally recommended that Environment Canada (EC) proceed with Amendments to the <i>Metal Mining Effluent Regulations</i> (MMER) to designate Tail Lake as a TIA.</li> <li>• For further information: <a href="http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/PREVIOUS_REVIEW/05MN047-DORIS_NORTH_2006/">http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/PREVIOUS_REVIEW/05MN047-DORIS_NORTH_2006/</a></li> </ul>
Meadowbank Project	Agnico-Eagle Mines Ltd. (formerly Cumberland Resources) <a href="http://www.agnico-eagle.com/">http://www.agnico-eagle.com/</a>	Nunavut	northwest arm of Second Portage Lake	<ul style="list-style-type: none"> <li>• EAs have been completed under the terms of the <i>Nunavut Land Claims Agreement</i> and CEAA.</li> <li>• EAs included consultation and an assessment of alternatives to the use of the northwest arm of Second Portage Lake as a TIA.</li> <li>• Project is located on Inuit land, and the Inuit have provided technical comments to ensure that the proposed TIA is designed, operated and decommissioned in an environmentally responsible manner. All issues raised by the Inuit during the EA have been resolved sufficiently that, in their view, the Project can proceed.</li> <li>• A habitat compensation plan has been developed, and DFO has formally recommended that EC proceed with Amendments to the MMER to designate the arm of the lake as a TIA.</li> <li>• For further information: <a href="http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/PREVIOUS_REVIEW/03MN107-MEADOWBANK_GOLD_PROJECT/">http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/PREVIOUS_REVIEW/03MN107-MEADOWBANK_GOLD_PROJECT/</a></li> </ul>
<p><b>Projects for which the Government of Canada expects to proceed with proposed amendments to the MMER, designating water bodies as TIAs</b></p>				

Carol Mine	Iron Ore Company of Canada <a href="http://www.ironore.ca">http://www.ironore.ca</a>	Newfoundland and Labrador	Wabush Lake	<ul style="list-style-type: none"> <li>• This is an existing project, and the proponent has been depositing tailings into the lake since the early 1960s.</li> <li>• A screening level EA was carried out on the proposed designation of the lake as a TIA, and there has been local public consultation.</li> <li>• DFO, with support from EC, is currently consulting with Aboriginal communities potentially affected by the designation of the lake as a TIA, and the associated habitat compensation plan.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=20422">http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=20422</a></li> </ul>
Wabush Mine	Cleveland Cliffs Inc. <a href="http://www.cleveland-cliffs.com">http://www.cleveland-cliffs.com</a>	Newfoundland and Labrador	Flora Lake	<ul style="list-style-type: none"> <li>• This is an existing project, and the proponent has been depositing tailings into the lake since the early 1960s.</li> <li>• DFO, with support from EC, is currently consulting with Aboriginal communities potentially affected by the designation of the lake as a TIA, and the associated habitat compensation plan.</li> </ul>

### Projects for which the outcome of EAs is not yet known

Kemess North	Northgate Minerals Corp. <a href="http://www.northgateexploration.com">http://www.northgateexploration.com</a>	British Columbia	Duncan Lake	<ul style="list-style-type: none"> <li>• A Panel EA is being conducted jointly under provincial EA legislation and CEAA.</li> <li>• The EA process is nearing completion and a decision is expected in the coming months.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=3394">http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=3394</a> <a href="http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_project_home_226.html">http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_project_home_226.html</a></li> </ul>
Kutcho Creek	Western Keltic Mines Inc. <a href="http://www.westernkeltic.com">http://www.westernkeltic.com</a>	British Columbia	Andrea Creek watershed	<ul style="list-style-type: none"> <li>• An EA has been initiated under provincial EA legislation. An EA under CEAA has not yet been initiated.</li> <li>• For further information: <a href="http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_project_home_264.html">http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_project_home_264.html</a></li> </ul>
Ruby Creek	Adanac Molybdenum Corp. <a href="http://www.adanacmoly.com">http://www.adanacmoly.com</a>	British Columbia	Ruby Creek watershed	<ul style="list-style-type: none"> <li>• An EA has been initiated under provincial EA legislation and a screening EA has been initiated under CEAA.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View">http://www.ceaa.gc.ca/050/View</a></li> </ul>

				<a href="http://www.eao.gov.bc.ca/epic/ouput/html/deploy/epic_project_home_258.html">er_e.cfm?CEAR_ID=23875 http://www.eao.gov.bc.ca/epic/ou tput/html/deploy/epic_project_ho me_258.html</a>
Prosperity	Taseko Mines Ltd. <a href="http://www.tasekomines.com">http://www.tasekomines.com</a>	British Columbia	Fish Lake	<ul style="list-style-type: none"> <li>• An EA has been initiated under provincial EA legislation. An EA under CEAA has not yet been formally initiated, but a Panel EA has been recommended.</li> <li>• For further information: <a href="http://www.eao.gov.bc.ca/epic/ouput/html/deploy/epic_project_home_6.html">http://www.eao.gov.bc.ca/epic/ou tput/html/deploy/epic_project_ho me_6.html</a></li> </ul>
Bucko Lake	Crowflight Minerals Inc. <a href="http://www.crowflight.com">http://www.crowflight.com</a>	Manitoba	Bucko Lake	<ul style="list-style-type: none"> <li>• A screening level EA has been initiated under CEAA.</li> <li>• The project has been reviewed under provincial legislation, and the province has indicated its intention to grant an Environmental Act License for the project once the CEAA EA is complete.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=30013&amp;ForceNOC=Y">http://www.ceaa.gc.ca/050/View er_e.cfm?CEAR_ID=30013&amp;For ceNOC=Y</a></li> </ul>
Yellowknife Gold	Tyhee NWT Corp. <a href="http://www.tyhee.com">http://www.tyhee.com</a>	Northwest Territories	Winter Lake	<ul style="list-style-type: none"> <li>• EA has been initiated under the terms of the Mackenzie Valley Resources Management Act.</li> <li>• EA is not proceeding at this time, pending further input from the project proponent.</li> <li>• For further information: <a href="http://www.mveirb.nt.ca/registry/project.php?project_id=25">http://www.mveirb.nt.ca/registry/ project.php?project_id=25</a></li> </ul>
High Lake	Zinifex Ltd. (formerly Wolfden Resources Inc.) <a href="http://www.zinifex.com">http://www.zinifex.com</a> <a href="http://www.wolfdenresources.com">http://www.wolfdenresources.com</a>	Nunavut	High Lake	<ul style="list-style-type: none"> <li>• EAs have been initiated under the terms of the Nunavut Land Claims Agreement and CEAA.</li> <li>• The proponent is proposing to use a lake for tailings disposal, but contends that the lake is not fish-bearing.</li> <li>• The presence or absence of fish in the lake is to be confirmed by DFO. If the lake is not fish-bearing then designation as a TIA would not be required for use of the lake for tailings disposal.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=30107">http://www.ceaa.gc.ca/050/View er_e.cfm?CEAR_ID=30107</a> <a href="http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/CURRENT_REVIEWS/06MN082-WOLFDEN_HIGH_LAKE/">http://ftp.nunavut.ca/nirb/NIRB REVIEWS/CURRENT REVIE WS/06MN082- WOLFDEN_HIGH_LAKE/</a></li> </ul>
Long Harbour Commercial	Voisey's Bay Nickel Company (CVRD-	Newfoundland and Labrador	Sandy Pond	<ul style="list-style-type: none"> <li>• The company is proposing to establish a hydrometallurgical</li> </ul>

Processing Plant	INCO(formerly INCO) <a href="http://www.vbnc.com/">http://www.vbnc.com/</a>			<p>facility in Long Harbour, NF. This facility would process concentrate to produce nickel, copper and cobalt for the commercial market.</p> <ul style="list-style-type: none"> <li>• This type of facility is not currently subject to the MMER. However, the company has proposed that the waste material generated by the facility be deposited in a natural, fish-bearing water body.</li> <li>• An EA has been initiated under provincial EA legislation and a screening EA has been initiated under CEAA.</li> <li>• If the EA recommends that the pond be used for waste disposal, then an amendment to the MMER to include this type of facility will be considered.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=23173">http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=23173</a> <a href="http://www.env.gov.nl.ca/env/Env/EA%202001/Project%20Info/1243.htm">http://www.env.gov.nl.ca/env/Env/EA%202001/Project%20Info/1243.htm</a></li> </ul>
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**Other Projects**

Red Chris	Imperial Metals Corp. (formerly BcMetals Corp.) <a href="http://www.imperialmetals.com">http://www.imperialmetals.com</a>	British Columbia	Quarry Creek? (to be confirmed)	<ul style="list-style-type: none"> <li>• An EA was completed under provincial EA legislation and a screening level EA was completed under CEAA. Both EAs concluded that the project may proceed.</li> <li>• The outcome of the CEAA screening EA has been challenged in Federal Court.</li> <li>• No decision will be made regarding the proposed use of the stream as a TIA until the court challenge has been resolved.</li> <li>• For further information: <a href="http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=3181">http://www.ceaa.gc.ca/050/View_e.cfm?CEAR_ID=3181</a> <a href="http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_project_home_238.html">http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_project_home_238.html</a></li> </ul>
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## ISSUES AND QUESTIONS

### **I Failure to adhere to the Canadian Government's commitment to Sustainable Development and to protect water and freshwater habitats as critical and finite resources**

*“Considering its importance to life on Earth, it is strange that fresh water has been our most mistreated and ignored natural resource (...) [a]s we have less water to work with, we're trying to squeeze more pollutants into it. (...) The overall effect will be the degradation of Canadian fresh water on a scale that was not comprehensible to the average Canadian at the end of the 20<sup>th</sup> century.”*

David Schindler Canadian Journal of Fisheries and Aquatic Sciences, January 2001. Quoted in Ottawa Citizen, Jan. 5 2001.

*"All the water that will ever be is, right now."* - National Geographic 1993

- The federal government has made a commitment to Sustainable Development that is meant to be reflected in sustainable development strategies of all government departments and agencies. Environment Canada has developed Sustainable Development Strategies since 1997.
- *“As the lead federal department for the environment, Environment Canada has clear responsibility for supporting the environmental "pillar" of sustainable development. This is recognized in the Department's management framework, which focuses on three key outcomes: Environmental Protection, Weather and Environmental Services, and Ecosystem Sustainability.”*<sup>64</sup>
- Environment Canada's mandate includes: *“The preservation and enhancement of the natural environment, including water, air and soil quality”*<sup>65</sup>
- A goal of Environment Canada is: *“Ecosystem Sustainability: Canada's natural capital is restored, conserved, and enhanced.”*
- The Department of Fisheries and Oceans (DFO) sustainable development strategy of 2005-2006 was titled *“Ours Waters, Our Future: Striking a Better Balance.”*<sup>66</sup> This report states: *“The Department works in partnership to derive economic and social benefits from Canada's oceans and freshwater resources while conserving the ecological integrity of those resources.”*<sup>67</sup>
- DFO's report notes that: *“As a sustainable development department, DFO works to protect and conserve Canada's aquatic resources, while supporting the development and use of these resources.”*<sup>68</sup>

### **QUESTIONS:**

- 1) **Can Environment Canada please explain how the permanent elimination or partial destruction of an in-tact natural water body, its water resources and all its associated habitats and species, by authorizing its use as a Tailings Impoundment Areas, can be compatible with Environment Canada's commitment to uphold *“the preservation and***

<sup>64</sup> [http://www.ec.gc.ca/sd-dd\\_consult/SDS2007/c2\\_e.htm](http://www.ec.gc.ca/sd-dd_consult/SDS2007/c2_e.htm)

<sup>65</sup> [http://www.ec.gc.ca/sd-dd\\_consult/SDS2007/c1\\_e.htm#s1\\_1](http://www.ec.gc.ca/sd-dd_consult/SDS2007/c1_e.htm#s1_1)

<sup>66</sup> [http://www.dfo-mpo.gc.ca/sds-sdd2005-06/Index\\_e.htm](http://www.dfo-mpo.gc.ca/sds-sdd2005-06/Index_e.htm)

<sup>67</sup> [http://www.dfo-mpo.gc.ca/sds-sdd2005-06/sds0506\\_e.htm#summary](http://www.dfo-mpo.gc.ca/sds-sdd2005-06/sds0506_e.htm#summary)

<sup>68</sup> Ibid..



*enhancement of the natural environment” and with restoring, conserving and enhancing Canada’s “natural capital”?*

- 2) **Can Environment Canada please explain how the department justified the permanent destruction of two lakes in Newfoundland by including them on Schedule 2 of the MMERs in the light of Environment Canada’s Sustainable Development Strategy of the time?**
- 3) **Can DFO please explain how the permanent elimination or partial destruction of an intact natural water body, its water resources and all its associated habitats and species, by authorizing its use as a Tailings Impoundment Areas, can be compatible DFO’s commitment to “*conserving the ecological integrity*” of Canada’s “*oceans and freshwater resources*” and with DFO’s mandate to “*protect and conserve Canada’s aquatic resources, while supporting the development and use of these resources*”?**
- 4) **Can DFO please explain how the department justified the permanent destruction of two lakes in Newfoundland by including them on Schedule 2 of the MMERs in the light of DFO’s Sustainable Development Strategy of the time?**
- 5) **How is the authorization of the unnecessary contamination of fresh water, a finite and critical resource for human life, compatible with Environment Canada, Department of Fisheries and Oceans and Natural Resources Canada’s sustainable development strategies, as these are predicated on not “*compromising the ability of future generations to meet their own needs*”?**

## **II Failure to assess alternatives that may have prevented the addition, in 2006, of two healthy lakes in Newfoundland to Schedule 2**

- Based on documents in the public record, Aur Resources Duck Pond (copper-zinc) Mine, with an expected lifetime of 6.2 years, will significantly and permanently affect two main tributaries entering the stem of the Exploits River, Newfoundland’s largest river system: Harpoon Brook (Trout Pond, Trout Pond Brook, Gill’s Pond Brook) and Noel Paul’s Brook (Tally Pond, Tally Pond Brook) (DFO Oct 17, 2001). This project will also leave behind a large volume of environmentally toxic waste that will have to be maintained under water and behind dams “in perpetuity.”
- Trout Pond and a second unnamed pond (lacustrine habitat) were chosen by Aur Resources as mine waste disposal areas to be added to Schedule 2 of the *Metal Mining Effluent Regulations* (MMER). Both ponds contained brook trout and Atlantic salmon (ouananiche). Trout Pond also contained threespine stickleback, otter, along with other species. This area of the watershed contains trout and both landlocked (ouananiche) and sea run Atlantic salmon, as well as waterfowl under an international treaty, and other species, at least one of which is listed by COSEWIC as a “species of concern.”
- Loss of riverine habitat was also anticipated in “elements of the Harpoon Brook and Noel Paul’s Brook watersheds:” (Trout Pond Brook, Gill’s Pond Brook, Tally Pond Brook, East Pond Brook) (EIS 2001:236). Riverine degradation was expected as a result of complete loss of flow, flow alterations, and toxic seepage from mine waste through dams, among others (EIS 2001:260; EIS Deficiency List October 2001). The waterways that will be affected contain brook trout, sea run and land-locked Atlantic salmon, Arctic char, American eel, threespine stickleback, among others.
- **The obligation on the proponent and on local regulatory authorities to explore alternative mine waste disposal options was not taken seriously.** To address the requirement to discuss alternatives to the destruction of two fish bearing lakes by mine waste, the proponent’s 2001 Environmental Impact Statement provides 11 lines of text, one map, and one chart based on a

Multiple Account Analysis to conclude that the destruction of Trout Pond and the unnamed pond was the best alternative for mine waste disposal (EIS 2001:23-25). This conclusion by the company was not assessed in any of the government reviews of the 2001 EIS (reviews by local branches of Federal Departments and by Provincial Departments), nor was it addressed in subsequent environmental reviews even though the project changed hands and further studies were conducted. There is no evidence in the public record that federal or provincial authorities assessed alternatives to the destruction of these two natural water bodies.

- The above information was provided to EC and other stakeholders by CEN representatives in the course of the MMER multi-stakeholder review (2005-2006) but did not lead to a proper assessment of alternatives to the destruction of the two lakes. For more detailed information see Appendix 1.

## QUESTIONS:

- 6) **Will EC, DFO or Natural Resources Canada please provide evidence that their federal or provincial departments conducted a systematic review of alternative tailing impoundment areas for the Duck Pond project – in particular impoundment possibilities that would not entail the destruction of natural water bodies – including a detailed discussion of environmental, social and economic criteria as required by the Environmental Assessment Division of the Department of Environment and Labour of Newfoundland and Labrador (Guidelines Dec. 2000:3.3; 7.2)?**
- 7) **Why did federal or provincial authorities tasked with this obligation not review, address and comment on the proponent’s very limited information regarding alternatives to the proposed destruction of two lakes by mine waste?**
- 8) **Why was this failure of federal or provincial authorities to address the issue of alternatives to the destruction of two lakes by mine waste not remedied when it was pointed out as a concern by Canadian Environmental Network delegates to the multi-stakeholder MMER review process?**
- 9) **Why were two lakes in Newfoundland placed on Schedule 2 when alternatives to their destruction by mine waste had not been adequately assessed?**

## **III Failure to require an adequate assessment of affected fish resources upon which to base a “compensation plan” and future monitoring regarding two Newfoundland lakes added to Schedule 2.**

- **“Compensation” plans for “alteration, disruption or destruction of lacustrine [lake/pond] and riverine fish habitat” by the Duck Pond Mine were based on inadequate and deficient data and did not seek optimum compensation for lost lake habitat.** The compensation plan review process showed a cavalier attitude towards the natural resources to be sacrificed. The history of the interactions between the mine proponents and the Department of Fisheries and Oceans (DFO) is provided in Appendix 1. This history clearly details the fundamental inadequacy of the fish sampling done by the proponent’s consultants (EIS Deficiency List October 2001). Although DFO officials pointed out these deficiencies, and noted how they should be remedied by further sampling (Snow: May 19, 2004), there is no evidence in the public record that this work was done. This means that there was never an adequate baseline upon which to base compensation plans for Trout Pond and the unnamed pond proposed to be added to Schedule 2. Furthermore, following comments by consultants of Aur Resources on “difficulty in providing compensation for lost pond habitat” and suggestions by the consultants that they would compensate with additional riverine habitat units (Jacques

Whitford: 8 April, 2004), DFO agreed to this plan even though a DFO official argued that compensating for habitat with “**unlike habitat**” [bold in original] is the “*second option within the hierarchy*” (Snow: May 19, 2004).

- For a further **critique of the compensation plan as it was developed for the two lakes see the independent assessments of fisheries experts Dr. John Gibson, Dr. Joseph Rasmussen and Dr. G. F. Hartman in Appendix 1.** In 2005, DFO asked Aur Resources to assess the impacts on fish and fish habitat of a jetty that was to be put into yet another pond – Tally Pond – from which water would be drawn for the mine. Aur’s consultants conclude: “As no standing stock estimate has been determined for Tally Pond, data from Trout Pond has been used to produce surrogate standing stock estimates.” DFO accepted this “solution.” In other words, an estimate based on inadequate field studies from Trout Pond, which is quite different in proportions and other characteristics, was considered an acceptable means to determine the impacts on fish and fish habitat in Tally Pond.
- The above information was provided to EC and other stakeholders by CEN representatives in the course of the MMER multi-stakeholder review (2005-2006) but did not lead to additional fish sampling in the affected lakes to assist in the determination of an appropriate compensation plan.

#### QUESTIONS:

- 10) **How does DFO establish fish resources and fish habitat for a lake or river?**
- 11) **Does DFO carry out, or request that a proponent carry out, hydrogeological studies on lakes that are proposed for tailings impoundments to determine possible transmission of effluent to other water bodies?**
- 12) **What advice was given to the mine proponent of the Duck Pond Project with respect to establishing fish resources and fish habitat for Trout Pond and the unnamed lake in the headwaters of a tributary to Gill’s Pond Brook included on Schedule 2 of the MMER (2006)?**
- 13) **Why was Aur Resources not requested to comply with DFO advice (Snow: May 19, 2004) for the sampling of fish resources in Trout Pond and the unnamed lake in the headwaters of a tributary to Gill’s Pond Brook included on Schedule 2 of the MMER (2006)?**
- 14) **Why was Aur Resources allowed to compensate riverine habitat for lake habitat?**
- 15) **How did Aur Resources compensate for the lost fish habitat in Trout Pond and the unnamed lake in the headwaters of a tributary to Gill’s Pond Brook included on Schedule 2 of the MMER (2006)?**
- 16) **What were the difficulties in compensating for pond/lake habitat that the consultants of Aur Resources encountered? Are these difficulties inherent in compensating for the loss of an entire lake eco-system?**
- 17) **What evidence is there that the compensation of riverine habitat carried out by Aur Resources adequately compensates for lost lake habitat for brook trout, Atlantic salmon (ouananiche), and threespine stickleback in Trout Pond and the unnamed lake in the headwaters of a tributary to Gill’s Pond Brook that have since been turned into Tailings Impoundment Areas?**
- 18) **What is the monitoring process in place to establish the success of the compensation plan for the Duck Pond Project?**
- 19) **What efforts were made to assess, and compensate for, the full value of the natural capital lost in the elimination of two entire lake eco-systems for the Duck Pond Project?**

#### **IV Failure to prioritize the protection of fish habitat over the timelines and interests of the mining proponent and investors**

- The schedule for the multi-stakeholder MMER review process was revised in an attempt to accommodate Aur Resources proposed schedule for start up of operations.<sup>69</sup> Documentation received under Access to Information provides a clear picture of the pressure Aur Resources was placing on regulatory authorities, together with the Mining Association of Canada, in order to stay on track with its construction plans for the Duck Pond project. DFO officials briefed the Minister that: “[u]nnecessary delays to the project caused by governmental process may result in legal proceedings by the proponent.”<sup>70</sup>
- DFO issued a *Fisheries Act* s. 35 authorization for the harmful alteration disruption or destruction (HADD) of fish habitat in February of 2005 “to allow Aur to commence construction of dams related to the proposed TIAs”<sup>71</sup> even though the approval by Governor in Council to use the two lakes for Tailings Impoundment Areas would not come until October of 2006. These dams sealed off the lakes from waterways entering and leaving them, effectively preparing them to contain tailings.

#### **QUESTIONS:**

- 20) **Please provide the reasons why Aur Resources was given a s. 35 authorization in February 2005 to construct dams on two lakes that were proposed for inclusion on Schedule 2 as Tailings Impoundment Areas, pre-empting the decision by Governor in Council in October 2006 and risking unnecessary impacts on fish habitat in these lakes?**
- 21) **How can Canadians be assured that DFO made the decision - to allow Aur Resources to proceed with the destruction of fish habitat by building dams for a tailings impoundment that might not be approved - for reasons other than accommodating a mining company that was threatening legal action?**

#### **V Failure to assure “No Net Loss” of fish habitat and failure to assess, and compensate for, the full value of the natural capital lost through the elimination or partial destruction of a lake or river eco-system as authorized by inclusion on Schedule 2 of the MMER**

*“...the importance in achieving “no net loss” of productive capacity of fish habitat was emphasized through the Auditor General’s Report to the House of Commons in 1997 (Government of Canada 1997).”<sup>72</sup>*

*“”There has been no ‘like-for-like’ fish habitat compensation for those lakes that have been destroyed.”<sup>73</sup>*

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<sup>69</sup> Summary Notes of 1<sup>st</sup> Conference Call, April 26, 2005. Prepared by Charles Dumaresque of EC. P. 2.

<sup>70</sup> Department of Fisheries and Oceans, *Memorandum for the Minister*. Nov. 2, 2005. Obtained through ATI

<sup>71</sup> Department of Fisheries and Oceans, *Memorandum for the Minister*. Nov. 2, 2005. Obtained through ATI

<sup>72</sup> I.K. Birtwell, S.C. Samis, and N.Y. Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2607*. p.15.

<sup>73</sup> I.K. Birtwell, S.C. Samis, and N.Y. Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2607*. p.19

***“As far as I am aware there has been no successful compensation undertaken for the loss of a fish-bearing lake.”***<sup>74</sup>

***“...no examples of whole lake restoration and compensation to guide developments forecasts irreparable harm.”***<sup>75</sup>

***“If DFO approves [whole lake destruction] at that point then it is clearly not based on any technical or science-based arguments”***<sup>76</sup>

- Section 35 (1) of the *Fisheries Act* sets out that no person shall cause the “*harmful alteration, disruption or destruction of fish habitat.*” And Section 35 (2) says subsection (1) applies unless the alteration, disruption or destruction of fish habitat is “*authorized by the Minister or under regulations made by the Governor in Council under this Act.*” The Department of Fisheries and Ocean’s (DFO) *Policy for the Management of Fish Habitat* (the “Policy”) was implemented in 1986. The conservation goal of the Policy requires that the current productive capacity of existing habitats is maintained, and even increased, by applying the *no net loss* guiding principle. HADD is the abbreviation for “harmful alteration, disruption or destruction” of fish habitat. HADD is any meaningful change in one or more habitat components that can reasonably be expected to cause a real reduction in the capacity of the habitat to support the life requisites of fish (HADD Decision Framework 1998). When DFO authorizes a HADD, the department expects the appropriate measures can be applied to compensate for loss of fish habitat.<sup>77</sup>
- There is a small army of fisheries experts, many of them current and former DFO staff, that have expressed strong skepticism with regard to DFO’s ability to assure “No Net Loss” of fish habitat. Golder Associates has identified some of the reasons for this: “...*the intent of the Policy is admirable, (...) the policy is based on the concept of maintaining and ultimately enhancing the productive capacity of fish habitat in Canada. However, there is no direction or consensus even among DFO practitioners on how to achieve this goal.(...)The decision on the appropriateness of compensation/restoration actions is simply that of the DFO practitioner involved. (...) There is a dire need for a standardized, transparent, defensible method to address the harmful alteration, disruption or destruction of fish habitat,...*”<sup>78</sup>
- DFO specialists themselves note: “*Much of the uncertainty that staff have ... is that DFO and most resource agencies do not have a good tool by which to define what the existing fishery is, and then a good tool to measure how much of an impact will be felt in that fishery if a part is removed. And then further, we have no good tools to measure the effectiveness of the compensation to offset the loss of something for which we had no definitive number for in the first place.*”<sup>79</sup> ; “*There are no DFO policies that guide practitioners in assessing the value of habitat. We are using Habitat Units as a surrogate for productive capacity. Is that appropriate? What performance measures can be used to evaluate compensation success and ecosystem integrity?*”<sup>80</sup>

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<sup>74</sup> Johansen, Jeff. Chief Major Projects Review Unit, DFO, Vancouver. In S.C. Samis, I.K. Birtwell, and N.Y Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. Fisheries and Oceans. P. 35.

<sup>75</sup> I.K. Birtwell, S.C. Samis, and N.Y. Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2607*. p.x.

<sup>76</sup> Ibid

<sup>77</sup> [www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/management-gestion\\_e.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/management-gestion_e.asp)

<sup>78</sup> Gulley, John R. and David A. Fernet. Golder Associates. In S.C. Samis, I.K. Birtwell, and NY Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. p. 23, 25.

<sup>79</sup> Rudolph, Richard and Ed DeBruyn. DFO Ontario. In S.C. Samis, I.K. Birtwell, and NY Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. p. 64

<sup>80</sup> Shamess, J. and D. Majewski. DFO Alberta and Manitoba. In S.C. Samis, I.K. Birtwell, and NY Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. p. 52.

- Given the lack of a scientifically defensible methodology to assess fish resources and establish compensation criteria, as well as the lack of monitoring of compensation plans, it is not surprising that results of compensation for HADD have been extremely disappointing. Quigley and Harper’s well-known review of compensation compliance and monitoring effectiveness for HADDs, which was commissioned by DFO, paints a dismal picture. Only 10 studies were conducted between 1986-2002 to evaluate 103 HADDs (only one study was scientific).<sup>81</sup> More than a third of these compensation projects reviewed had not achieved No Net Loss (NNL). These projects only represent about 4% of projects authorized under the *Fisheries Act*.<sup>82</sup> Of additional authorization files reviewed by Quigley and Harper, 10% achieved No Net Loss (NNL), 4 % did not, and for the remaining 86% the results are not known. Some of the reasons for this were “*low proponent compliance rate with monitoring requirements*” and “*failure of DFO/proponent to establish a proper baseline in pre-impact monitoring prior to the development*” Additionally, of 52 field audits conducted between 1994-1997, destroyed habitat was, on average, “*389% larger than authorized*.”<sup>83</sup>
- **The overall “low level of achievement”<sup>84</sup> in compensating for loss of fish habitat, raises serious questions about the government’s ability to assess the full value of natural capital, and compensate for, or restore, entire in-tact eco-systems, such as lakes and rivers, including water and its quality:**

***“The inadequacy of even basic ecological knowledge, the absence of validations of habitat compensatory and restorative measures regarding habitat linkages to fish productivity, and no examples of whole lake restoration and compensation to guide developments forecasts irreparable harm.”<sup>85</sup>***

- There was no evaluation made of the full ecological value of the two in-tact lakes in Newfoundland, whose destruction was authorized and whose inclusion as Tailings Impoundment Areas on Schedule 2, in 2006, was precedent-setting. The assessment of the fish resources was shoddy at best, and the compensation plan has been thoroughly critiqued by fisheries experts (See Appendix 1).
- There has also been no attempt made to evaluate the full value of the lake eco-systems that are currently proposed for inclusion on Schedule 2 for the Doris North and Meadowbank mining projects.
- DFO experts are clear that they do not have the tools to evaluate or compensate for loss of entire in-tact eco-systems: “***Consideration of compensation for whole ecosystems is certainly beyond the scope of any assessment process or habitat biologist’s expertise. Even with a very comprehensive habitat inventory and fish utilization study it would likely be impossible to recreate a lake eco-***

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<sup>81</sup> Quigley, J. and David Harper. DFO. In S.C. Samis. I.K. Birtwell, and NY Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. p.79.

<sup>82</sup> Isaac, Susan 2005. *Protecting Fish/Protecting Mines: What is the real job of the Department of Fisheries and Oceans?* MiningWatch Canada: Ottawa. P.11.

<sup>83</sup> Quigley, J. and David Harper. DFO. In S.C. Samis. I.K. Birtwell, and NY Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. p.80.

<sup>84</sup> I.K. Birtwell, S.C. Samis, and N.Y. Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2607*. p.34

<sup>85</sup> I.K. Birtwell, S.C. Samis, and N.Y. Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2607*. p.x.

*system with all of the associated interactions and contributions to the surrounding environment. And if it were possible it would likely be prohibitively expensive.”* (emphasis added)<sup>86</sup>

- **Authorizing the destruction of entire in-tact water bodies, lakes or rivers, runs counter to DFO’s mandate, policies and guidelines.**
  - Section 4.1 of the **Practitioners Guide to Habitat Compensation** sets out a Hierarchy of Compensation Options. Highest in the hierarchy is the creation or increased capacity of “like-for-like” habitat. Lowest in the hierarchy and as a “last resort” is “deferred compensation or restoration of chemically contaminated sites.” Lakes or rivers eliminated or partially destroyed by mine waste are “contaminated sites.” According to the Guide: **“Habitat Management practitioners should first consider not issuing an Authorization for the HADD before using a measure of last resort as compensation. (For more information on Measures of Last Resort see section 5.7).”**<sup>87</sup>
  - Following the **C&P Guidelines (1998)** should also result in no authorization to destroy a lake or river as: *“it results in the loss of critical habitat that can only be authorized in rare circumstances and is required to be compensated for at or near the site of loss (C&P Guidelines 1998 p. 12).”*<sup>88</sup> As noted above credible “compensation” for a lake has never been achieved. .
  - Following the **HADD Decision Framework (1998)** should result in no authorization to destroy a lake or river because of: *“the unavailability of technically-feasible compensation options for lakes (HADD Decision Framework 1998 p. 15).”*<sup>89</sup>
- Section 4.1 of the **Practitioners Guide to Habitat Compensation** sets out in definitive language that: **“Cash in lieu of compensation is not acceptable - habitat compensation does not include financial means for compensating for tangible economic losses but deals only with actions intended to maintain the net production potential of fish habitat”**<sup>90</sup> (emphasis in original). **However**, the BHP-Billiton Ekati diamond mine is eliminating **12 lakes**. BHP was authorized to pay approximately **\$2 Million** into a Habitat Compensation Plan.
- Section 4.1 of the **Practitioners Guide to Habitat Compensation** sets out in definitive language that: **“It should be emphasized that DFO has the discretion to not issue an Authorization in situations where adverse impacts to fish habitat are deemed unacceptable”**<sup>91</sup> (emphasis in original). **However**, when DFO officials in Saskatchewan could not find “suitable compensation” for the destruction of Triangle Lake by mine waste from Claude Resources Inc.’s Gold mine, *“it was decided to defer compensation for the destruction of Triangle Lake, but that a financial guarantee would be put in place as part of the agreement.”*<sup>92</sup> There is no indication that DFO ever considered not issuing an authorization to destroy a lake, even though no suitable compensation could be found.

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<sup>86</sup> Johansen, Jeff. Chief Major Projects Review Unit, DFO, Vancouver. In S.C. Samis, I.K. Birtwell, and N.Y Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. Fisheries and Oceans. P. 30.

<sup>87</sup> [http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05\\_e.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05_e.asp)

<sup>88</sup> Johansen, Jeff. Chief Major Projects Review Unit, DFO, Vancouver. S.C. Samis, I.K. Birtwell, and NY Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*, p.35

<sup>89</sup> Ibid.

<sup>90</sup> [http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05\\_e.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05_e.asp)

<sup>91</sup> Ibid.

<sup>92</sup> Alan Merkowsky, DFO, 2005. In S.C. Samis, I.K. Birtwell, and N.Y Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. Fisheries and Oceans. P.55.

- In the light of all of the above, this petitioner has to concur with one DFO official: *“My recommendation is that DFO take the position that we are generally not supportive of whole lake destruction. Otherwise DFO will continue to get proposals of this type and continue to struggle with them at the technical level.”*<sup>93</sup>

## QUESTIONS:

- 22) **Has DFO, or Environment Canada, ever conducted a full assessment of all natural capital values associated with an in-tact lake or river that was being authorized for destruction by mining? If not, why not? If so, please provide details of the methodology and outcomes of this assessment.**
- 23) **Why was there not a full-costs assessment done for the RIAS of the 2006 MMER with respect to the lost natural value of two lakes proposed for destruction in Newfoundland for the Aur Resources mine?**
- 24) **Will DFO, or Environment Canada, conduct a full-costs assessment of all natural capital values associated with the lakes proposed for elimination and partial destruction by mine waste from the Doris North and Meadowbank mining projects in Nunavut?**
- 25) **Will the RIAS for the upcoming MMER amendment, in which lakes associated with the Doris North and Meadowbank mining projects are proposed for addition to Schedule 2, include a discussion of the full-costs of all lost natural capital values associated with the elimination and partial destruction of the lakes added to Schedule 2?**
- 26) **Why did DFO accept *“Cash in lieu of compensation”*<sup>94</sup> at the Ekati mine in contradiction of its policy as set out in the Practitioners Guide to Habitat Compensation?**
- 27) **How was the determination made that the value of 12 lakes destroyed by the Ekati mine was \$2 million dollars, please provide a detailed analysis?**
- 28) **Why did DFO not withhold an authorization to destroy Triangle Lake in Saskatchewan, as according to DFO policy, set out in the Practitioners Guide to Habitat Compensation, it was impossible to find suitable compensation for the destruction of the lake?**<sup>95</sup>
- 29) **Please explain why it was impossible to find suitable compensation for Triangle Lake.**
- 30) **Has DFO ever exercised its *“discretion to not issue an Authorization in situations where adverse impacts to fish habitat are deemed unacceptable”*<sup>96</sup> leading to the preservation of a natural water body that was threatened by a mining project? If so, please provide examples.**
- 31) **Has DFO ever achieved a like-for-like compensation for fish habitat for those lakes that have been destroyed by mining?**
- 32) **Can DFO, or Environment Canada, provide any examples of whole lake restoration and/or compensation for all natural capital values of lakes that have been destroyed by mining?**
- 33) **Does DFO, or Environment Canada, provide regulatory authorizations (such as Schedule 2) to any industry other than mining to destroy entire in-tact natural water bodies (lakes or rivers) with industrial waste?**

<sup>93</sup> Johansen, Jeff. Chief Major Projects Review Unit, DFO, Vancouver. In S.C. Samis, I.K. Birtwell, and N.Y Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. Fisheries and Oceans. P. 35

<sup>94</sup> [http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05\\_e.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05_e.asp)

<sup>95</sup> Alan Merkowsky, DFO, 2005. In S.C. Samis, I.K. Birtwell, and N.Y Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences 2608*. Fisheries and Oceans. P.56-57.

<sup>96</sup> [http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05\\_e.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/compensation/page05_e.asp)



- 34) **Can DFO, or Environment Canada, provide an estimate of the monetary value of natural capital associated with all natural water bodies that have been destroyed by mining since 1977 as a result of the authorized deposition of mine waste?**
- 35) **Can DFO, or Environment Canada, provide a monetary value for the natural capital associated with all natural water bodies that have been authorized for destruction by mining: metal mining, diamond mining, oil sands and placer mining?**
- 36) **Why does DFO, or Environment Canada, not require any form of compensation for the destruction by mine waste of a lake in which there is said to be no fish (such as Albino Lake or Tom McKay Lake)?**
- 37) **Does DFO, or Environment Canada, recognize natural capital values, and the value of fresh water, inherent in an in-tact lacustrine or riverine eco-system that are not directly or indirectly associated with fish?**
- 38) **Would DFO please identify 5 mining projects that have been authorized to eliminate an entire lake by mine waste and detail the specifics of the replacement habitat providing evidence from peer reviewed studies of the success of the compensation plan?**

## **VI Failure by DFO to uphold its role as regulator in the face of pressure from resource industry associations**

- In 2004 Fisheries and Oceans Canada (DFO) signed an agreement with the National Resource Industry Associations (NRIA) -- including the Mining Association of Canada and the Prospectors and Developers Association of Canada -- with the intent to “*allow industry to self-manage low-risk activities according to agreed operational statements.*”<sup>97</sup> “*NRIA’s purpose is to negotiate with DFO and streamline the approval process for straightforward projects.*”<sup>98</sup>
- According to the Prospectors and Developer Association of Canada (PDAC), it has “*now drafted four operational statements for low-risk exploration activities: dock construction and removal; bridge construction and removal; camp setup and teardown; and trenching. These have been submitted to Fisheries and Oceans Canada (DFO) and once they have been approved, there will be no need for explorationists to seek approval from DFO for these particular activities. A fifth statement covering drilling is being developed and will be posted here when it becomes available.*”<sup>99</sup>
- By allowing industry associations engaging in activities that are currently regulated by DFO to write the protocols for their own self-regulation of these activities, DFO is not only abdicating responsibility for regulating these activities, but even for writing the operational statements to define how private sector industries should self-regulate.
- In its sustainability policy DFO states: “*Good Governance and Enhanced Partnerships – In delivering its mandate, DFO works in partnership with various levels of government, industry, Aboriginal groups and non-governmental organizations*”<sup>100</sup> While DFO is clearly working in partnership with the sector whose activities it should be regulating, it is unclear if DFO is seeking advice in this discussion from other stakeholders, in particular Aboriginal groups and non-governmental organizations.

<sup>97</sup> [http://www.pdac.ca/pdac/advocacy/land-use/index.html#Department\\_of\\_Fisheries](http://www.pdac.ca/pdac/advocacy/land-use/index.html#Department_of_Fisheries)

<sup>98</sup> Ibid.

<sup>99</sup> Ibid

<sup>100</sup> [http://www.dfo-mpo.gc.ca/sds-sdd2005-06/sds0506\\_e.htm#summary](http://www.dfo-mpo.gc.ca/sds-sdd2005-06/sds0506_e.htm#summary)

## QUESTIONS:

- 39) Why is DFO negotiating away its responsibility to regulate certain activities at the request of industries who seek to self-regulate these activities?
- 40) As Aboriginal groups and non-governmental organizations are not party to the 2004 agreement DFO signed with NRIA can DFO please clarify which, if any, non-governmental organizations or Aboriginal groups DFO is consulting in this process?
- 41) If DFO is not consulting with relevant non-governmental organizations or Aboriginal groups in the process initiated by the 2004 DFO-NRIA agreement then why not?
- 42) What mandate does DFO have to devolve responsibility for regulation to private sector parties it currently regulates?

## **VII Failure to provide Canadians with an inventory of all natural water bodies that have been eliminated or partially destroyed by mining related activities and the associated public liability related to reclamation of these aquatic eco-systems.**

*“The average amount the federal government received a year in royalties from 1966 to 2002 from mining companies operating in the North: about \$4.16 million (for a total of \$150 million) (...) Estimated cost of cleaning up and closing northern abandoned mines: \$555 million”*<sup>101</sup>

Report of the Commissioner of the Environment and Sustainable Development. Office of the Auditor General. 2002.

*“Seventy lakes or parts of lakes, plus numerous streams, mostly in northern Canada, have been, or are proposed to be, eliminated for use as TIAs, pit water managements basins, or to enable access to ore.”*<sup>102</sup>

*According to the U.S. Bureau of Mines, mining has contaminated more than 12,000 miles of rivers and streams and 180,000 acres of lakes in the United States.”*<sup>103</sup>

- This Environmental Petition has focused on the destruction of natural water bodies by inclusion on Schedule 2 of the MMER. But in addition to the destruction of natural water bodies by metal mines, there are natural water bodies that are being destroyed by, among others, diamond mining, oil sands and placer mining.
- For mines not covered under the MMER, DFO provides authorizations to destroy fish habitat under section 35 (2) of the *Fisheries Act*.
- The Ekati diamond mine alone needed to destroy 12 lakes to proceed.

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<sup>101</sup> <http://www.oag-bvg.gc.ca/domino/reports.nsf/html/c20021003ce.html>

<sup>102</sup> I.K. Birtwell, S.C. Samis, and N.Y. Khan. 2005. *Canadian Technical Report of Fisheries and Aquatic Sciences* 2607. p.19.

<sup>103</sup> Mineral Policy Center. 1997. *Golden Dreams, Poisoned Streams: How Reckless Mining Pollutes America's Waters and How We Can Stop It*. Washington. P. 4.

## QUESTIONS:

- 43) **Will DFO, EC or NRCan provide an inventory of all natural water bodies (surface water) in Canada that have been eliminated, partially destroyed, or degraded by all forms of mining?**
- 44) **Please detail how many kilometers of rivers and streams and hectares of lakes have been contaminated or eliminated as a result of mining.**
- 45) **Please provide an estimate of the public liability associated with the reclamation of these degraded waterways?**

## CONCLUSIONS AND REQUESTS

The history of the *Metal Mining Effluent Regulations*, and its amendments, has been one of facilitating access by mining companies and investors to shared Canadian natural capital in the form of natural water bodies; first by authorizing the release of deleterious effluent into waterways and now by permitting the use of natural water bodies as mine tailing impoundments. At the same time, the history of the MMER is the history of decisions by regulatory authorities that have served to thwart efforts by Canadian civil society, including Aboriginal peoples, to effectively participate and intervene in MMER amendments that increasingly put natural water bodies at risk. The current undertaking by Environment Canada to avoid public consultation prior to Gazette One on an upcoming regulatory amendment that will see lakes in Nunavut added to Schedule 2 is the latest example of this trend.

The *Fisheries Act* is an ineffective tool to regulate the potential elimination or partial destruction of natural water bodies as its narrow focus on fish and fish habitat does not require the assessment of the full eco-system value of a healthy natural water body, its natural capital values to current and future generations. These values could be assessed through a thorough Review Panel exploring *all* impacts related to the elimination or partial destruction of a natural water body, however, under CEAA, most mining projects seeking Schedule 2 inclusions of water bodies are being scoped as screening level Environmental Assessments. Amendments to the *Act*, or specific directives to officials who are interpreting the *Act* in these cases, should assure that projects that will eliminate or partially destroy a natural water body are scoped as Review Panels.

Evidence of the value of a Review Panel approach came while this Petition was being finalized in the form of the final report of the Joint Review Panel for the Kemess North Copper-Gold Mine Project. Following a two and a half year review process the panel has concluded that the “*the Project in its current form would not be in the public interest*” (Joint Review Panel Report, September 17, 2007). The comprehensive final report reflects a level of detailed investigation that is unlikely under other forms of Environmental Assessment and it supports an outcome that itself is evidence that projects that plan to eliminate or partially destroy natural water bodies warrant the highest level of scrutiny.

Accountable mining is mining that does not externalize costs onto the environment, the public purse, and future generations. Mining is already a practice that depletes precious finite resources, it should not, at the same time, be allowed to deplete and pollute additional precious resources - our water and related eco-systems. To allow our water bodies to be used to store mine waste is to provide a perverse public subsidy to the industry. To the extent that we have provided this subsidy, and continue to do so, this should be accounted for as a *subsidy* to the industry and as a *cost* to Canadians. These costs should

be made public as part of the review process of a project. The *Regulatory Impact Assessment Statement* should also document what the full-costs are, for current as well as future generations, of the loss of a natural water body. Canadians also need to know the level of the *public liability* related to rehabilitation costs that have accrued over years of mining and contamination of surface water. For this, there needs to be an inventory made of all waterways that have been degraded by mining for which no bond exists or for which the bond is inadequate. And Canadians need to be sure that they will not be expected to cover future costs of failing mine waste impoundment structures containing toxic mine waste in critical watersheds. Each mine should have an independent actuarial review of the amount of its bond to assure it will cover costs of maintenance of dams and structures “in perpetuity.”

It is the opinion of this petitioner that mine waste containment is not the highest and best use of a lake or a river. And as the full value of a destroyed water body has not yet been successfully compensated for, elimination or partial destruction of natural water bodies cannot be reconciled with Sustainable Development.

Requests based on the above are the following:

1. There should be no further amendments to Schedule 2 of the MMER, no further authorized destruction of natural water bodies for mine waste through inclusion on Schedule 2, until a parliamentary committee has had a chance to review the application of this Schedule, which was not subject to public consultation before the MMER went to Gazette One in 2001.
2. All Environmental Assessments under CEAA that review a mining proponent’s proposal to eliminate or partially destroy healthy natural water bodies should be scoped as a Review Panel or Joint Panel Review under CEAA in order to assure that independent expertise can be accessed to evaluate *all* costs related to the serious environmental impacts associated with the destruction of a natural water body and to assure broad public participation.
3. The full value of the natural capital, the renewable goods, uses, and services, of an in-tact healthy water body should be independently assessed and made public each time Canadian government departments consider the elimination or partial destruction of a natural water body by the mining industry, so that an account can be made to Canadians of the full value of the public subsidy the government is granting the mining industry.
4. Regulatory Impact Assessment Statements should always include an assessment of the full natural capital value of any water bodies that will be destroyed by mining projects and assess the costs to society of this loss.
5. Environment Canada should not be allowed to omit public consultation, including participation by Aboriginal Peoples, in regulatory amendments that have wide-reaching effects. Therefore, EC should not be allowed to consider consultation that may have taken place at the project-level through the Environmental Assessment process as meeting the requirement for consultation prior to Gazette One with broader stakeholders, including Aboriginal peoples, on a regulatory amendment that will result in the elimination or partial destruction of natural water bodies. This refers particularly to the upcoming proposed amendment of Schedule 2 of the MMER to add Tail Lake and a portion of Second Portage Lake to Schedule 2.
6. Bonds for the perpetual care and maintenance of mine waste containment structures and the management of environmentally toxic mine waste need to be subjected to an independent actuarial review to assure that these bonds will cover current and future costs associated with the maintenance of these structures.

**Appendix 1**      **Civil Society Concerns with the MMER and critiques by Catherine Coumans and fisheries experts of the decision by DFO and EC to place two lakes in Newfoundland on Schedule 2 in 2006.**



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May 7, 2006  
Ottawa

Mr. Patrick Finlay  
Director, Minerals and Metals, Pollution Prevention Directorate  
Environment Canada  
351 Saint-Joseph Boulevard  
Gatineau, Quebec K1A 0H3

**RE: Response to Canada Gazette Part 1, Vol. 140, No. 14, published April 8, 2006. Regulations Amending the *Metal Mining Effluent Regulations***

Dear Mr. Finlay:

Please accept the following comments with associated appendixes (A and B) from MiningWatch Canada on the proposed Regulations Amending the *Metal Mining Effluent Regulations* that were sent to Gazette One on April 8, 2006. We look forward to your response both to the text of this letter and to the details provided in Appendix A and the independent comments of scientist emeritus John Gibson in Appendix B.

**Introduction:**

These comments have been prepared by Catherine Coumans (MiningWatch Canada) who is currently participating as a representative for the Canadian Environmental Network (CEN) on the *Metal Mining Effluent Regulations* – Multi-stakeholder Advisory Group together with Maggie Paquet (Citizens' Stewardship Coalition, Port Alberni, BC), Judy Parkman (Recycling Organization Against Rubbish, Richmond, BC) and Randy Fleming (InterChurch Uranium Committee, Saskatoon, SK). Dr. Coumans also participated in the previous review of the *Metal Mining Liquid Effluent Regulations* (concluded in 2002) with these and other CEN representatives. The comments to follow benefit from interactions with these CEN colleagues over many years.

Environment Canada's recognition of the valuable contribution that can be made by non-governmental organizations (NGOs) in the regulatory review process is to be commended. However, as the following comments will make clear, much of our input to date is not reflected in the current regulations, nor in the proposed regulatory amendments. The current regulations and the proposed regulatory amendments do not adequately protect the environment and the health of Canadians. In particular the late addition of Schedule 2 to the *Metal Mining Effluent Regulations* (MMERS) that came into effect in 2002 is proving, in these amendments, to be a license to destroy – unnecessarily - valuable fish, fish habitat and associated watersheds.

The following comments:

- review shortcomings in the current MMERs that are not addressed in this regulatory amendment;
- review an unacceptable amendment to Schedule Two of the current regulations that is particularly detrimental to the protection of Canada's environment and the health of Canadians;
- respond to misleading information regarding these regulatory amendments in the Regulatory Impact Analysis Statement (RIAS);
- provide recommendations based on conclusions drawn from the comments provided.

### **1) Shortcomings in current *Metal Mining Effluent Regulations* that are not addressed in this Regulatory Amendment:**

***Allowable levels of metals in effluent are too high:*** The proposed limits on metal levels in effluent are too high and do not guarantee protection of fish, fish habitat, water and human health. Allowable limits for arsenic, copper, lead, nickel, and zinc have remained exactly the same since 1977. These metal levels are higher than allowable limits for these metals in countries such as Sweden, Vietnam, Finland, U.S.A., Italy, Papua New Guinea, Ghana, South Africa, Indonesia, Japan, Tasmania and the Philippines (Final Report, March 1999 by SENES Consultants Ltd & Lakefield Research Ltd, page S-3 and Table 4.2.1 on pages 54-56).

***Best Available Technology Economically Achievable (BATEA) has not been applied:*** According to independent consultants hired by Environment Canada in preparation for the 2002 MMERs, lower metal levels are both technically (based on existing technology) and economically feasible. By once again maintaining the status quo on metal levels Environment Canada is missing an opportunity to show leadership, to set standards that would promote innovation and force technology, and to aim for the highest possible protection of fish, fish habitat, water and human health from harmful metals in mine effluent

***Cadmium and Mercury are not included:*** Cadmium and Mercury should be included as metals to be regulated under the MMER. Cadmium and Mercury are metals that are frequently associated with mine effluent and known to threaten fish and fish habitat. Both are listed as toxics under the *Canadian Environmental Protection Act* (CEPA) regulations, both were identified as substances of concern during AQUAMIN, and both have control technologies available. Both Cadmium and Mercury are currently regulated in mine effluent by the US-EPA. Additionally, other metals and substances commonly associated with mine effluent and known to be environmentally toxic should be regulated such as: ammonia, selenium, antimony, cobalt, aluminium, nitrates, thiosalts, iron.

***Proposed limits should be concentration and loading based:*** Concentration-based limits ignore the overall impacts on the environment. That is, a mining operation can meet all the regulatory limits, but still be discharging tons of metals into the environment if it has a high discharge volume. Loading-based standards are a much better reflection and offer a much better control of toxic substances entering the environment.

***Non-Acute Lethality testing should include testing of Water Fleas (Daphnia Magna):*** Invertebrate *Daphnia Magna* and Rainbow trout provide different information about lethal effects of effluent, and the acute lethality of effluent cannot be assessed with any confidence if only Rainbow trout are used in the test. Environment Canada has implicitly acknowledged the importance of testing effluent toxicity on *Daphnia Magna*, by requiring that such testing be conducted each time effluent is tested for acute lethality to Rainbow trout. However, Environment Canada has stopped short of requiring that effluent be non-acutely toxic to *Daphnia Magna*. [Note: the definition of acute lethality is that more than 50% of Rainbow trout subjected to effluent at 100% concentration for 96 hours must die. In other words, if 50 of 100 trout die the effluent is not considered acutely lethal.]

***Environmental Effects Monitoring lacks requirement to implement changes based on results:*** Data acquired through required Environmental Effects Monitoring (EEM) provides the opportunity to test effluent toxicity in real, complex and site specific situations. However, the EEM program continues to fall short as there is still no link between EEM results that may show toxicity and mandatory site-specific corrective actions or remedies. Nor is there a link between the results of EEM Environment Canada has been gathering and a possible amendment of the MMERs based on these results.

***No requirement to provide public information on EEM data, no national toxic registry:*** There is no requirement to provide monitoring, inspection, and prosecution data, and EEM results to the public in a comprehensive way and no requirement in the regulations themselves to establish a national toxic registry.

***There should be no more Transitional Authorizations at this time:*** All mines should be in compliance with the MMERs by now. This is not the case. The original MMLER review process, ending in 2002, was a lengthy one and mines had a lot of opportunity to prepare themselves to meet MMER requirements. Nonetheless, Transitional Authorizations (TAs) were required by 17 mines that were not yet in compliance with the MMERs in 2002. Currently, three facilities have applied for an extension of TAs for Total Suspended Solids (the Iron Ore Company and Wabush Mines facilities located in Labrador, which dump mine tailings into lakes, and the Konuto Mine (Hudson Bay Mining and Smelting) located in Saskatchewan). It is unacceptable that these mines are still not in compliance with the 2002 MMERs.

***An ongoing failure to build on existing and recognized principles:***

The CEN Mining Caucus and AQUAMIN Reference Group participants to the MMLER review process rooted their recommendations on how to modernize the MMLERs on principles that they outlined in comments to Environment Canada in 1999 (March 1999; June 1999). These principles have already been recognized as being key to protecting environmental and human health in precursor processes, such as AQUAMIN, and in the Whitehorse Mining Initiative. These principles also reflect current thought in the federal regime, and indicate what are now accepted as reasonable expectations in standards and rule-making.

These principles are:

- The precautionary principle
- The principle of pollution prevention
- Sustainable Development
- The principle of zero discharge (rooted in Canadian policy since the 1978 Great Lakes Water Quality Agreement)
- An eco-system based approach to environmental protection.

The current regulatory amendments do not improve the lack of compliance with these principles in the MMERs.

*The planned destruction of two new fish bearing water bodies through their inclusion on Schedule Two is the strongest possible indication that the current Regulatory Amendments take the MMERs further away from all of these key principles.*

## **2) Unnecessary and unjustified destruction of two natural fish bearing water bodies through inclusion on Schedule Two represents an unacceptable amendment to the MMERs**

The single most unacceptable regulatory amendment to the MMERs that is being proposed is the inclusion on Schedule Two of two trout and Atlantic salmon bearing water bodies in west-central Newfoundland. Inclusion on Schedule Two redefines these unspoiled natural water bodies as Tailings Impoundments allowing them to be destroyed through environmentally toxic mine waste from Aur Resources Inc.'s Duck Pond copper-zinc mine project.

It is simply inexcusable in the 21<sup>st</sup> century for Canadian regulatory authorities to treat precious, healthy, water resources and fish habitat in the cavalier manner represented by this regulatory amendment. Environment Canada and the Department of Fisheries and Oceans must understand that this is not an acceptable use of a resource that, if protected, has the capacity to sustain food and clean water security, as well as economic activity for generations of Canadians to come.

Based on my review of more than 2000 pages of public documents available through the public registry, dating back to 1988, the following conclusions are inescapable (see Appendix 1 for further detail):

- The regulatory amendment of Schedule Two to include Trout Pond and a second trout and salmon bearing pond to be used as mine waste impoundments will cause **the destruction of two ponds and associated habitats and significantly and permanently affect two main tributaries entering the stem of the Exploits River, Newfoundland's largest river system:** Harpoon Brook (Trout Pond, Trout Pond Brook, Gill's Pond Brook) and Noel Paul's Brook (Tally Pond, Tally Pond Brook) (DFO Oct 17, 2001). Riverine degradation is expected as a result of complete loss of flow, flow alterations, and toxic seepage from mine waste through dams, among others (EIS 2001:260; EIS Deficiency List October 2001).
- **The legal obligation on the proponent and on local Environment Canada authorities to explore alternative mine waste disposal options was not taken seriously.** With respect to alternatives to the



destruction of two fish bearing ponds by mine waste, the 2001 EIS provides 11 lines of text, one map, and one chart based on a Multiple Account Analysis to conclude that the destruction of Trout Pond is the best alternative for mine waste disposal (pp. 23-25). This conclusion does not appear to be challenged in any of the government reviews of the 2001 EIS (reviews by local branches of Federal Departments and by Provincial Departments), nor is this issue ever addressed again in subsequent environmental reviews even though the project changed hands once again and further studies were conducted. There is no indication in the public record that Aur Resources or Environment Canada explored the option of creating a **man-made sub-aqueous tailings disposal facility** placed outside the natural river system. This technology was in fact pioneered by Aur Resources at its Louvicourt Mine, located near Val d'Or, Quebec.

- **“Compensation” plans for “alteration, disruption or destruction of lacustrine [lake/pond] and riverine fish habitat” are based on inadequate and deficient data. The compensation plan review process shows a cavalier attitude towards the natural resources that are being sacrificed.** Appendix 1 provides a brief history of the interactions between the mine’s proponents and the Department of Fisheries and Oceans (DFO). This history clearly details the inadequacies of the sampling done by Aur Resources as pointed out by DFO. These inadequacies were never remedied. Furthermore, the compensation plan, which calls for compensating for habitat with “unlike habitat” [bold in original], is the called by the local DFO official the “second option within the hierarchy” (Snow: May 19). **For a further critique of the compensation plan see the independent assessment of scientist emeritus John Gibson in Appendix B below. See also the independent assessments of Dr. Joseph Rasmussen and Dr. G. F. Hartman prepared for the CEN and appended to the CEN submission to Gazette One.**
- **After a predicted 6.2 years of operations, the destruction of two ponds and the degradation of river/aquatic habitat, this mine will become a “perpetual care and maintenance” mine. In the middle of a critical watershed for Newfoundland, this mine’s highly acidic waste has the potential to leach out metals and will need to be kept under water behind a number of dams that will need to be maintained “in perpetuity.”** While submissions by Aur provide some information on closure plans, there is no evidence that a bond has been posted adequate to cover costs of perpetual monitoring of ground and surface waters around the mine and perpetual maintenance of the dams that will keep the toxic mine waste from contaminating the Exploits River system.
- **The regulated destruction of two healthy water bodies to accommodate mine waste by inclusion of these water bodies on Schedule Two of the MMERs is precedent setting and unacceptable.** While there may be legal rationale for including contained natural water bodies that have already been altered by mine waste on Schedule Two so that they are in compliance with the MMERs, it is unacceptable for Schedule Two to become a regulatory vehicle to perpetuate the unacceptable practice of sacrificing new healthy water bodies for mine waste. In this case, the destruction of two ponds is not an “unavoidable habitat loss,” alternatives exist and have not been adequately explored. Furthermore, compensation plans based on “no net loss” provisions have been shown time and again to be flawed - see "Protecting Fish/Protecting Mines-- What is the real job of the Department of Fisheries and Oceans?" ([http://www.miningwatch.ca/cms/index.php?/pesca/Protecting\\_Fish](http://www.miningwatch.ca/cms/index.php?/pesca/Protecting_Fish) ) There are better alternatives for mine waste disposal and the costs of mining should not be externalized onto the environment and onto future generations of citizens and tax payers.

### 3) Misleading information regarding these regulatory amendments in the Regulatory Impact Analysis Statement (RIAS)

- On page 4 of the RIAS under the heading “Status Quo,” a comment is made to the effect that withholding the regulatory amendment to Schedule Two “would have significant implications for the implementation of the Aur Resources Inc. Duck Pond Project” as well as to “employment and other economic benefits to the local and provincial economies.” **However, there is absolutely no evidence provided to support this statement.** Mines proceed and are profitable all over Canada without the “benefit” of using natural water bodies for their tailings disposal. Copper and Zinc prices are at an all time high. There is no reason to assume, and no evidence provided, that Aur would abandon this project if the company had to seek alternative waste disposal options.
- On page 4 under “Benefits and Costs” the RIAS state that “environmental costs” related to additions of water bodies to Schedule 2 will be offset by the “habitat compensation plan.” The flaws in the assessment of the resource and in the compensation plan have been noted above and are further detailed in Appendix 1 and B. **However, what is completely missing here is a discussion of the true costs of perpetual care and maintenance of the tailings impoundments and a discussion of how these will be met.**
- There is also no discussion in any part of the RIAS of the true value of the full range of uses and services provided by an “in tact” Exploits River watershed with all its associated tributaries and ponds functioning naturally. A value that the Aur Resources project is diminishing in ways not compensated for in the “no net loss” provisions.
- On page 6, in response to ENGO concerns, there is a statement that Environment Canada “clarified” that “the economic and technical viability of alternatives to the use of a natural water body as a TIA” were considered. Pointing to the points made above, it must be reiterated that there is very little evidence in the public record to this effect.

### Recommendations:

In addition to addressing the range of issues raised under points one and two above, the following recommendations should be considered:

- The regulatory amendment to Schedule Two with regard to the addition of two natural water bodies should be cancelled. Furthermore, no new natural water bodies that have been unaffected by mining should be considered for future inclusions.
- No natural water bodies should be added to Schedule Two before a compensation plan has been approved.
- Compensation plans should take into account the true value of the full range of uses and services provided by “in tact” ecosystems – not just units of fish and fish habitat.
- There should be a discussion in the RIAS of proposed changes to *Fisheries Act* sections 35 and 36 that are currently under discussion and how these changes may impact on the MMERs and the proposed amendments that have been gazetted.

- For any future MMER amendments there should be 60 days to respond to Gazette One. In this case, the 30 day limit for submissions was particularly unacceptable as the Compensation Plan for lost fish habitat was not released until 10 days after the MMER amendments were gazetted.
- With respect to the Multistakeholder review process, should any future additions to Schedule Two be considered, participants in the amendment review should be immediately provided all requested documentation pertaining to the Schedule Two amendment.

In closing, I thank you for the opportunity to participate in the process of amending the MMERs. Please do not hesitate to contact me if you would like any clarification of the comments contained in this submission.

Sincerely,



Catherine Coumans, Ph.D., MiningWatch Canada  
Canadian Environmental Network - *Metal Mining Effluent Regulations* - Multistakeholder Advisory Group

cc. Georgette Mueller, PCO  
Canadian Environmental Network

## Appendix A

### ISSUES OF CONCERN REGARDING AUR RESOURCES' PROPOSED DUCK POND MINE IN CENTRAL NEWFOUNDLAND

**Catherine Coumans, PhD**  
**MiningWatch Canada**  
Canadian Environmental Network representative to the *Metal Mining Effluent Regulations* -  
**Multistakeholder Advisory Group**

**March 29, 2006**

Aur Resources plans to destroy two ponds in central Newfoundland (natural water bodies that are vitally important habitat for trout, salmon, waterfowl, and other species) by using them for the disposal of mine waste that will be acid-generating and toxic. Aur has argued that the destruction of these lakes for its "Duck Pond" copper-zinc mine is the best alternative for disposal of its mine wastes.

Canadian regulatory authorities have not challenged this assertion and are now prepared to recommend that the Metal Mining Effluent Regulation (MMER, under the *Fisheries Act*) be amended by the Government of Canada to add these ponds to Schedule 2 of the MMER. Inclusion on Schedule 2 allows for the redefinition of any water body in Canada as a waste dump and subsequently exempts companies from the limitations set by the MMERs on effluent that enters the natural environment. Currently under the regulation, this method of disposal of mine wastes is illegal.

Aur Resources and Canadian regulatory authorities (EC, DFO) are statutorily obligated to seek alternatives to the destruction of fresh water bodies for industrial purposes. In the case of this “Duck Pond” mine, there is an alternative to the destruction of the ponds and surrounding wetlands, but government and the company have ignored it. At the Louvicourt mine (also copper-zinc) in Quebec, where Aur Resources is 30% owner as well as mine manager, the decision was made to not destroy natural water bodies for mine waste disposal, but to create manmade structures. The following quotes from a report published by the mine companies clearly indicate that Aur Resources and Canadian regulatory authorities do have a viable alternative to the destruction of fresh water bodies at this mine.

“The Louvicourt Mine, located near Val d’Or, Quebec, has been in operation since 1994. It produces copper and zinc concentrates. The tailings generated from the ore processing operations have a strong net acid generating potential. Louvicourt Mine, a grassroots project, was designed for closure with the best available technology at the time of design. In order to inhibit short and long term acid generation potential, sub-aqueous disposal was selected at the design stage. Given the fact that disposal in a natural lake was ruled out up front for obvious reasons related to loss of natural habitat and risks to permitting delays, a man made facility built with dams was planned. The mine includes, therefore, the first fully man-made sub-aqueous tailings disposal facility built in Canada. The requirement of using sub-aqueous disposal had serious implications on the placement of tailings. The tailings facility, located about 9 km from the mine site, has been selected based on the available natural confinement, the favourable foundation, and hydrogeologic conditions” (Abstract, p. 2, emphasis added). “Overall, the use of the man-made structure to control acid generation of tailings has proven to be a successful endeavour” (Conclusion, p. 19, emphasis added).

Source: Performance and Monitoring of the Louvicourt Mine Tailings Disposal Area, M.R. Julien, et al, Golder Associates, and Jean Cayouette, et al, Aur Resources (no date), pp. 21.

## **FACTS FROM THE PUBLIC RECORD PERTAINING TO THE AUR RESOURCES DUCK POND PROJECT**

### **1) Sacrificing ponds, rivers, wetlands—all important fish and wildlife habitat—for a mine with a predicted life span of 6.2 years.**

- The Duck Pond (copper-zinc) Mine will significantly and permanently affect two main tributaries entering the stem of the **Exploits River, Newfoundland’s largest river system**: Harpoon Brook (Trout Pond, Trout Pond Brook, Gill’s Pond Brook) and Noel Paul’s Brook (Tally Pond, Tally Pond Brook) (DFO Oct 17, 2001)
- Two ponds will be permanently buried in mine waste. Trout Pond and another pond (lacustrine habitat) in the headwaters of a tributary to Gill’s Pond Brook will be destroyed by environmentally toxic mine waste exceeding Metal Mining Effluent Regulation (MMER) limits. Both ponds contain brook trout and Atlantic salmon (ouananiche). Trout Pond also contains threespine stickleback, otters, and other species. This area of the watershed contains trout and both landlocked (ouananiche) and sea run Atlantic salmon, as well as waterfowl under an international treaty, and other species, at least one of which is listed by COSEWIC as a “species of concern.”
- Degradation of riverine habitat. Loss of riverine habitat is expected in “elements of the Harpoon Brook and Noel Paul’s Brook watersheds:” (Trout Pond Brook, Gill’s Pond Brook, Tally Pond Brook, East Pond Brook) (EIS 2001:236). Riverine degradation is as a result of complete loss of flow, flow alterations, and toxic seepage from mine waste through dams, among others (EIS 2001:260; EIS Deficiency List October 2001). These waterways contain brook trout, sea run and land-locked Atlantic salmon, Arctic char, American eel, threespine stickleback, among others.
- The Exploits River is a scheduled salmon river and has been part of a major Atlantic salmon enhancement program funded by the Department of Fisheries and Oceans since 1978. **This project has cost upwards of \$30 million public dollars** and was scheduled to become self-sufficient in 1990 and expected to produce 100,000 salmon in full production.

2) **The legal obligation on the proponent and on local Environment Canada authorities to explore alternative mine waste disposal options was not taken seriously.**

- Aur Resources, local Environment Canada – Environmental Protection Branch, the Newfoundland Department of Environment and Labour, and the Department of Fisheries and Oceans did not do all they could to explore alternatives to the destruction of two ponds and significant river/aquatic habitat for mine waste disposal. Environment Canada in Ottawa only found out about the planned destruction of fish habitat in February 2005 (personal communication: Chris Doiron, EC).
- The plan to use Trout Pond as a mine waste impoundment dates back to an EIS prepared by Noranda Minerals Inc. in 1991.
- A review of the public record shows that the Environmental Assessment Division of the Department of Environment and Labour of Newfoundland and Labrador provided Guidelines for a new EIS, after Thundermin Resources and Queenston Mining took over the project in 2000, and requested that the proponents provide “alternatives” to individual project components based on a detailed discussion of environmental, social and economic criteria (Guidelines Dec. 2000:3.3; 7.2). With respect to alternatives to the destruction of two fish bearing ponds by mine waste, the 2001 EIS provides 11 lines of text, one map, and one chart based on a Multiple Account Analysis to conclude that the destruction of Trout Pond is the best alternative for mine waste disposal (pp. 23-25). This conclusion does not appear to be challenged in any of the government reviews of the 2001 EIS (reviews by local branches of Federal Departments and by Provincial Departments), nor is this issue ever addressed again in subsequent environmental reviews even though the project changed hands once again and further studies were conducted.

3) **“Compensation” plans for “alteration, disruption or destruction of lacustrine [lake/pond] and riverine fish habitat” are based on inadequate and deficient data. The compensation plan review process shows a cavalier attitude towards the natural resources that are being sacrificed.**

- In 1989, initial fish sampling was done between September 21 and October 3, when Brook trout are known to spawn and leave ponds, rendering the results of this sampling unreliable (EIS Deficiency List October 2001).
- The 2001 EIS was rejected by Fisheries and Oceans Canada as it contained “insufficient information...to allow the quantification of fish habitat potentially impacted by the proposed project” (DFO Feb 1, 2002). Additional information was requested for Trout Pond Brook, Gill’s Pond Brook tributary, and Tally Pond Brook systems.
- In 2003, DFO provided new proponent Aur Resources with information on how to conduct field work to establish fish and fish habitat baselines and asked Aur to determine the “productive capacity” of Trout Pond and Gill’s Brook tributary (“Sedimentation Pond”) (Snow, May 22). **Aur was warned that ten days may not be enough time and that sampling should not be done late in the summer when “fish (particularly brook trout) restrict their movements”** (Snow, June 13). **Nonetheless, Aur’s consultants undertook the sampling of Trout Pond and Sedimentation Pond in ten days during the heat of summer.**
- In 2004, the consultants for Aur Resources comment on “difficulty in providing compensation for lost pond habitat” for the two ponds that will be destroyed and suggest that they will compensate with additional riverine habitat units (Jacques Whitford: 8 April). DFO agrees to this plan even though compensating for habitat with “unlike habitat” [bold in original] is the “second option within the hierarchy” (Snow: May 19).
- In 2004, DFO commented on Aur’s habitat compensation strategy by noting: 1) it is unfortunate that the sampling during high water temperatures led to the necessary abandonment of using individually numbered tags because of high risk of mortality; 2) Aur cannot claim to have determined the “productive capacity” of the two ponds based on a “single estimate of standing stock for each species in each pond” [underline in original]; 3) Aur can consider undertaking “additional fieldwork during the 2004 field season to reassess efforts undertaken in 2003...” (Snow: May 19). We have seen no evidence that Aur

followed DFO's suggestion and undertook any more field studies to better determine fish and fish habitat affected by the mine.

- In 2005, DFO asked Aur to assess the impacts on fish and fish habitat of a jetty that is to be put into yet another pond – Tally Pond – from which water will be drawn for the mine. Aur's consultants conclude: “As no standing stock estimate has been determined for Tally Pond, data from Trout Pond has been used to produce surrogate standing stock estimates.” DFO accepted this. In other words, an estimate based on minimal field studies from Trout Pond, which is quite different in proportions and other characteristics, was considered an acceptable means to determine the impacts on fish and fish habitat in Tally Pond.

**4) After a predicted 6.2 years of operations, the destruction of two ponds and the degradation of river/aquatic habitat, this mine will become a “perpetual care and maintenance” mine. In the middle of a critical watershed for Newfoundland, this mine's highly acidic waste has the potential to leach out metals and will need to be kept under water behind a number of dams that will need to be maintained “in perpetuity.”**

- In 2001, Environment Canada responded to the 2001 EIS by noting “a concern on the high rate of cyanide use” for the Copper/Lead Separation Circuit. The concern was for finding ways to minimize releases of cyanide to the tailings management area (Env Can: Sept 25). However, in 2005, Aur's consultants struck cyanide from the substances that need to be monitored under the “Effluents Monitoring Requirement.” (Jacques Whitford: 11 Feb). The precautionary principle would dictate that Aur should monitor for cyanide to provide maximum protection to the Exploits River watershed.
- Aur has established that groundwater is high in its project area. In 2001, Environment Canada identified that “possible contamination of groundwater by ARD [Acid Rock Drainage] is an issue of concern not further addressed in the EIS” (Env Can, September 25).
- In 2001, The Department of Mines and Energy – Mineral Development Division noted that “[f]inancial assurance for mine rehabilitation and closure must also be addressed” (EIS Deficiency List October 2001). While subsequent submissions by Aur provide some information on closure plans, there is no evidence that a bond has been posted adequate to cover costs of perpetual monitoring of ground and surface waters around the mine and perpetual maintenance of the dams that will keep the toxic mine waste from contaminating the Exploits River system.

## **Appendix B:**

### **Comments on the Environmental Impact Statement for Aur Resources' Duck Pond project**

*by R. John Gibson*

April 18, 2006

*John Gibson is a Scientist Emeritus with the Department of Fisheries and Oceans in St. John's, Newfoundland, where he was a Research Scientist working on Atlantic salmon and trout. He is also an adjunct professor at Memorial University of Newfoundland. He was involved in New Brunswick investigating the pollution of the Northwest Miramichi river in 1960 by zinc and copper from the Heath Steele mine in New Brunswick, when many fish were killed by inadequately treated mine tailings.*

A copper-zinc-lead mine is being developed in central Newfoundland (Aur Resources' Duck Pond project near Buchans). The major concern is that a lake in the area, Trout Pond, is planned to be eliminated as a viable ecosystem, by using it as the “Tailings Management Area”, starting in the summer of 2006, plus an unnamed headwater lake on a tributary to Gill's Pond Brook. The Trout Pond drainage area is 2.2 km<sup>2</sup>, and is part of the Harpoon Brook drainage basin, a major

tributary of the Exploits River. Trout Pond is 1.3 km in length, has a maximum width of 400 m, and maximum depth of 2.5 m, and area of 0.5 km<sup>2</sup>. It is a headwater lake, with no inlets. Currently the lake has a healthy population of resident Atlantic salmon and brook trout. Salmon in the lake were sampled of fork length ranging from 140 mm to 410 mm, and brook trout ranging from 120 mm to 300 mm. The outlet stream is productive, and at an electrofishing station in 2000 there was estimated 242 g/100 m<sup>2</sup> of salmon and 149 g/100 m<sup>2</sup> of brook trout. Trout Pond also provides habitat for waterfowl, such as osprey, mergansers and loons, and several species of ducks, and the furbearers, beaver, otter, mink and muskrat.

There are planned dams of 8 m height at both ends of Trout Pond valley, raising the lake water level from the present 257 m to 265-270 m, possibly leaching methyl mercury into the lake. In order to facilitate placement of the dams Trout Pond is to be pumped down approximately 1 m in depth. Highly toxic materials would be pumped into the lake, killing the present ecosystem. The water in Trout Pond would contain dissolved metals, elevated suspended solids, other contaminants and low pH. There will be a tailings production of 2.15 million dry tonnes. Tailings will be pumped to the lake at 53 t/h of solids when operating. All process wastewater from the concentrator (204 m<sup>3</sup>/h) will be discharged as part of the tailings flow into the tailings pond. Waste water from the underground mine (137 m<sup>3</sup>/h) will be combined with the tailings flow and discharged to the tailings pond. Drainage water from the open pit will be pumped to the tailings pond and discharged directly into it. Waste water or “grey water” mixed with the tailings stream will be discharged into the tailings pond. Also runoff from the stockpile of acid releasing rock will be pumped to the tailings pond (50 m<sup>3</sup>/h), and surplus acid releasing rock will be disposed of in the tailings basin. In addition, the normal volume of precipitation and natural seepage, seen in the present discharge of Trout Brook, would be added to the lake. The average thickness of the tailings deposit in the basin at closure would be 3 to 4 m, with a water cover of 1.5 m. There would be seepage of 0.2 m<sup>3</sup>/h to Trout Pond Brook, and 0.1 m<sup>3</sup>/h to Gills Pond Brook, rising at closure to 0.8 m<sup>3</sup>/h to Trout Pond Brook, and 0.7 m<sup>3</sup>/h to Gills Pond Brook.

During operation (the 6.2 year expected operation of the mine) copper and zinc levels were expected to increase due to treated effluent being released into Harpoon Brook. The lethal thresholds for salmon parr have been found to be 48 µg/l for copper and 600 for zinc; the effects of copper and zinc are additive, and it has been shown in laboratory experiments (Sprague et al. 1965) that salmon parr detect and avoid levels much lower (0.02 toxic unit). It is stated in the EIS (p. 203) that “The biophysical effects assessment concluded that the most serious effects during construction would be due to sedimentation and the removal of Trout Pond from the watershed, which could affect water quality and freshwater fish in the Harpoon and Exploits watersheds, and to a lesser degree in the Tally Pond watershed.” At decommissioning the outflow dam of Trout Pond would remain, retaining the toxic materials, and requiring permanent maintenance.

As part of ‘mitigation’, fish will be removed from Trout Pond prior to its use, and transferred to another lake. If the fish are transferred to another water with fish of a different genetic makeup or is at carrying capacity the exercise would be detrimental. If the idea is to turn the lake into a fishless lake to help change regulations it is unlikely that all fish could be caught. If the lake to which it is planned to transfer fish has its own fish community, there is no new fish habitat created. There would be ‘compensation’ for lost habitat by removing a dam on Harpoon Brook and on East Pond and by ‘improving’ spawning habitat in East Pond. Removing dams which are fish obstructions falls under present legislation, and their demolition should not be used as an

excuse for lost habitat. Although an impoundment above a dam would be replaced by fluvial habitat, the previous habitat also was fish habitat, so does not replace lost habitat. If access is improved for East Pond, juvenile fish, which can travel several kilometers upstream, would migrate from downstream, recruitment would be adequate, and improved spawning area would not be required. Is East Pond at carrying capacity? If so spawning habitat may not be limiting.

Incredibly, it is stated in the EIS (p. 268 and Table 6.6) that, “the residual environmental effects of the project on fish and fish habitat are assessed as minor. The proposed project is therefore not likely to have significant adverse environmental effects on fish and fish habitat.” In fact the effects would be major, because a lake ecosystem plus its population of salmon and brook trout, and other fauna, would be eliminated, and the downstream reaches from Trout Pond are likely to be seriously contaminated. Salmon parr can detect well below (2%) lethal levels of copper and zinc, so possibly would not migrate up Harpoon Brook. The Exploits River is a valuable salmon river, and would be negatively affected. It must also be taken into consideration that lakes have positive modifying effects on fish production downstream (Gibson 2002).

Evidently a lake can be rescheduled (Schedule 2, in a 2002 review of the *Metal Mining Effluent Regulations*) as a tailings impoundment area if it has been polluted historically. This may be reasonable, but to reschedule a pristine natural water body as an industrial waste dump is completely contradictory to the *Fisheries Act*. Nevertheless, the Department of Fisheries and Oceans (DFO) has accepted that “the project is not likely to cause significant environmental effects”, and has requested to Environment Canada that Trout Pond be added to Schedule 2. This would set a dangerous precedent for any mining company or organization to pollute a waterway if it were cheaper to do so than otherwise dispose of toxic wastes. The mining company in this case should be asked to construct a separate holding area for treatment of tailings, as was required for the Heath Steele mine in New Brunswick forty five years ago in a similar situation, and Louvicourt mine in Quebec is currently required to do.

The *Fisheries Act* is very clear that deleterious substances not be discharged into fish bearing waters or that fish habitat be destroyed. Weakening the *Fisheries Act* has the potential danger that economic considerations would influence political decisions to over ride scientific and environmental considerations, with ‘compensation’ as a public relations strategy, ineffective in practice, as we saw in the Star Lake project (Gibson et al. 1999). If DFO allows the Trout Pond ecosystem to be destroyed it would effect a giant step backwards, and in general would weaken public confidence in the ability of Canadian government departments to enforce the *Fisheries Act* and conserve our national resources.

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### **Additional Comments from Fisheries Experts.**

**These comments were supplied to Canadian Environmental Network members of the Multi-stakeholder Advisory Group.**

Dr. Joseph B. Rasmussen, Professor of Biology  
and CRC chair in Aquatic Ecosystems  
University of Lethbridge, Alberta

**Re: Potential impacts of the Aur Resources/Duck Pond Mine project in the Exploits River Watershed in west-central Newfoundland, and the addition of two new fish-bearing water bodies in Schedule 2 of the Metal Mining Effluent Regulation (MMER) of the Fisheries Act**

From my perspective as a fisheries biologist and aquatic scientist (CRC Tier I Chair in Aquatic Ecosystems) there are several concerns that I would like to outline with regard to potential environmental impacts of the proposed mining project on which you have solicited my opinion, and the manner in which Canadian regulatory agencies appear to be dealing with this proposal. To facilitate this mining project, Aur Resources has requested permission from the Department of Fisheries and Oceans (DFO) and Environment Canada (EC) to destroy two headwater ponds—both of which, along with their associated wetland habitat, contain populations of trout, salmon, and waterfowl and other wildlife—for the purpose of depositing acid-generating and toxic wastes from their Duck Pond copper-zinc mine.

The proposed project raises key environmental protection issues of three different kinds: habitat, water quality, and future environmental risks.

(1) The first centers on the loss of important salmonid and wildlife habitat in the headwater tributaries and wetlands of an important navigable waterway. This waterway contains brook trout and Atlantic salmon (both land-locked and sea-run), arctic char, american eel, threespined stickleback and many other species, and has, in the past, been considered a sufficiently important fisheries resource to justify the investment of over 30 million dollars of public funds by the DFO for salmon enhancement since 1978. There is no doubt that the proposed use of these two lakes for mine waste storage will wipe out both the fish and their habitat due to the toxic levels of copper and zinc involved, and the acidic drainage that will occur as a result of dumping millions of tonnes of pyrite-rich mine wastes.

It is my opinion that the habitat compensation plans, including the most recent one (March 14, 2006) put forward by the company, are based upon weakly designed impact studies that present very crude and preliminary estimates of fish biomass and productive capacity of the habitat in question. Not only are these studies not convincing to me as an aquatic scientist, there is ample evidence from the documentation surrounding this project that Canadian regulatory agencies (DFO and EC) have at various times also expressed similar concerns over the deficiencies of the materials (including the Environmental Impact Statement and the various compensation plans) submitted by Aur Resources, and furthermore, that the company

has never addressed these concerns in any credible way. In addition to this, it is fairly obvious that the proposed compensation for lake habitat by fluvial habitat is a sham because this habitat is presently fish habitat already, and that, in fact, no new habitat will have been created to compensate for that being destroyed. The argument that the overall productive capacity of the habitat before and after the project will not change is compromised by the weak estimates put forward by the various statements and plans offered by the company.

(2) The second area of concern regards the potential degradation of riverine water quality resulting from hydrological impacts, combined with the toxic seepage into aquifers and surface waters of the Exploits River watershed. These chemical and toxicological issues have been almost completely ignored in the impact studies and rehabilitation/closure plans carried out to date. Moreover, there is a high risk that the important aquifers in the tributary watersheds of the headwater streams may be polluted by acid generated by microbial oxidation of the pyrites in these mine tailings, together with other toxic substances, such as cyanide and lead, leading to far-reaching impacts downstream in this watershed. My opinion is based upon the fact that similar deposits have resulted in significant fish die-offs at other sites. Clearly Environment Canada and DFO expressed initial concerns about this risk, as the ENGOs involved continue to do.

(3) The third area of concern involves the long term future of these tailings ponds, and the environmental risks and liability issues that may arise. The important problem here is that such acid-generating mine wastes must be kept underwater in order to minimize the rate of oxidation by *Thiobacillus* bacteria, and thereby minimize the rate of acid leaching into surface and ground waters. In order to ensure this, the water levels in the tailings ponds must be maintained in perpetuity. There is absolutely no way to determine beforehand how long this material will need to be kept under a water cover.

This raises the question as to who is going to underwrite the costs of maintaining the dams that regulate these water levels. The closure plan put forward by Aur Resources does include some language that recognizes the potential risks posed by these mine tailings. However, the plan assumes that after a few years, the acid-generating pyrite material in these tailings will have been ameliorated to the extent that 30 cm of borrow material and whatever natural wetland development takes place on the site will be sufficient to keep the area safe over the long term. Thus, they contend that there will be no long-term need to maintain water levels or monitor the status of the material at the site, on the surface, or the underground drainage from the site because the material will be in a safely deposited form by that time (2 to 5 years). Pyrite deposits can continue to release metal-rich acidic leachates for many years, so I would, therefore, have little faith in the assumption that the site can be made safe within five years at the outside, and that a shallow surface covering of borrow fill and organic sediments from natural wetland development will keep these leachates from entering the ground water. Indeed, I have seen many other "safe sites" with pyrite-rich tailings that continue to discharge acid drainage to surface and ground waters many years later. My concern is that if Canadian regulatory authorities approve this project based on this risky rehabilitation and closure plan, Aur Resources will have been allowed to offload these risks onto the Canadian public. In addition to these types of environmental risks, the project proposal, if allowed to go forward with the listing of the two ponds in Schedule 2 of the MMER, will be setting an important legal precedent that may greatly set back environmental protection all across Canada. Despite the concerns that EC and DFO initially expressed about this project and the absence of credible evidence that actual habitat compensation will be provided, that water quality in the area will not be compromised, or that the site will be safe in the long term, it now appears these Canadian regulatory agencies are prepared to recommend that the Metal Mining Effluent Regulation (MMER) under the *Fisheries Act* be amended so as to add these ponds to Schedule 2 of the MMER. By listing these ponds on Schedule 2 of the regulation, Aur Resources will, in effect, be permitted to use a pristine aquatic ecosystem as a waste

dump, which would otherwise be forbidden by the *Fisheries Act*.

While weak habitat compensation proposals based on inadequate impact studies are all too common in this country, and many mining projects have in the past been approved on similarly weak grounds, the Schedule 2 designation is completely inappropriate for a site of this type. The MMER has allowed for scheduling a water body as a tailings impoundment area if the water body has “historically” been polluted by mine wastes. While it may be reasonable for the *Fisheries Act* to allow for this type of “grandfathering,” to reclassify a pristine ecosystem that currently has a healthy population of fish and wildlife, including both migratory and land-locked salmonids, as a waste dump is completely contrary to both the letter and the spirit of the *Fisheries Act*, and may be, in effect, illegal. If this amendment to Schedule 2 is allowed to go forward, it will set a dangerous precedent because it will provide an easy way to get around the fairly stringent provisions of the *Fisheries Act*. Every mining company putting forward new mining proposals—in Newfoundland and in the rest of Canada—will, of course, expect the same principle to be applied to them. The *Fisheries Act* is a vital piece of legislation for environmental protection in Canada, and it should not be watered down by regulatory agencies that Canadians have entrusted with the stewardship of their public resources.

I have been a fisheries and aquatic scientist in Canada for over 30 years, and I have carried out many studies on aquatic ecosystems impacted by mining and smelting operations in the Noranda and Sudbury areas, so I am very familiar with the extent of long-term environmental damage that can be incurred at the Duck Pond and similar mines, and the long-term burden that this damage can impose on both public health and the environment.

Our regulatory agencies need to engage those that profit handsomely from industry in the short-run in the process of ameliorating the long term risks to public health and safety and the environment. This is a far superior stewardship principle than finagling the laws to facilitate short-term profits, and then offloading the long-term risks onto future generations of Canadians.

While it is a commonly heard cliché that Canada is both blessed with an abundance of wild and relatively unspoiled rivers and habitat, and that our economy remains strong in the resource sector, without effective stewardship, these advantages will soon be squandered and replaced eventually by what approximates a lunar landscape.

Dr. Joseph B. Rasmussen, Professor of Biology  
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**REVIEW OF COMPENSATION PLANNING FOR DUCK POND COPPER-ZINC MINE PROJECT – AUR RESOURCES INC., TORONTO**  
**Prepared for MMER/MAG ENGO (CEN) Members**  
**By G.F. Hartman, Ph.D.**

**INTRODUCTION**

Aur Resources Inc., 1 Adelaide Street East, Toronto, Ontario, propose to mine copper and zinc (and gold) at a location about 30 km southeast of Buchans, Newfoundland (about 56° 20' west L and 48° 50' N). The project proposes an underground operation and an open pit operation to mine ore in the Duck Pond and Boundary Deposits, respectively.

The proposed mine operation is located in an area of influence of three tributary stream systems:

- 1) the headwaters of Trout Pond Brook, which drains into the East Pond Brook system and then to Harpoon Brook,
- 2) a tributary of Gills Pond Brook, which drains into Harpoon Brook, and
- 3) the Tally Pond system.

The proposed mine is located in an area in which extreme temperature minima and maxima are -33.5°C and +33°C. Total precipitation averages 1,204 mm, which includes 873 mm of rainfall. Monthly rainfalls May through October range from 74 to 114 mm. A daily maximum rainfall of 139 mm (in August) has been recorded (Anonymous 2006).

The operating mine will include the following components some of which may already be in place:

- 1) use of a lake, Trout Pond, as a tailings impoundment area,
- 2) use of a small pond in the upper part of Gills Brook tributary as a sedimentation pond,
- 3) deposition of mine wastes in stockpiles about 4 km NE of the mine,
- 4) excavation of a gravel pit (borrow pit) about 3.5 km NNE of the mine,
- 5) roads to the gravel pit and stockpile areas,
- 6) roads to and along the NW shore of Tally Pond,
- 7) a road from the mine-site in an easterly direction to an existing road, and
- 8) a road to the boundary pit NE of the main operation.

Other details of the mine proposal are given in Anon. (2003) and Whitford (2006).

In this paper, I propose to:

- 1) review the sequence of reports and other documents provided to me that are involved in the development of the compensation plan;
- 2) comment on the efficacy and conclusions of a “CEAA Screening Environmental Assessment Report”;
- 3) comment on the efficacy of amending the Metal Mining Effluent Regulation (MMER) to enable adding two water bodies as tailings impoundment areas for the above-named mine to Schedule 2 of the MMER for consideration by the Governor-in-Council, in light of problematic compensation plans.

I do not enjoy critiquing other people’s work. It should be the role of the Department of Fisheries and Oceans (DFO) and Environment Canada (EC) to diligently review such proposals in the clear context of their departmental mandates. Their mandates should not be to facilitate industrial development; there are other departments with that role.

**DOCUMENTS REVIEWED (Listed in sequence of dates; earliest first)**

1. Jacques Whitford Environment Limited (JWEL). 29 Jan 2003. *Duck Pond Copper-Zinc Project Quantification of Potential HADD*. Prepared for Aur Resources Inc., Toronto, Jacques Whitford

Environmental Limited. JWEL Project No.8365. pp 26.

2. Jacques Whitford Environment Limited. April 22, 2003. *Duck Pond Copper-Zinc Project Strategy for Fish Habitat Compensation*. Prepared for Aur Resources Inc., by Jacques Whitford Environment Limited. JWEL Project No. 8365. 19 pages + Appendices.

3. Department of Fisheries and Oceans. Canadian Environmental Assessment Act (CEAA), *Screening Environmental Assessment Report, Duck Pond Copper-Zinc Mine*. HRTS Ref/File No: 00-HNFL-NA1-000-000052. Prepared by Julie Whiteway, DFO Habitat Evaluation Biologist, signed-off on 18 June 2003 by M. Barnes, DFO Section Head, Habitat Evaluation, Marine Environment and Habitat Management Division. 12 pages + figures and Appendices (poor quality/not seen).

4. Jacques Whitford Environment Limited. 2004. Memorandum re. Information requirements for Duck Pond compensation plan. File No. 10099, April 8, 2004. To Steve Snow, DFO. 4 pages.

5. Bennett, B. (JWEL). 2005. Memorandum to S. Kuehnemund (DFO), Addendum to Duck Pond copper-zinc project quantification of potential HADD. File No. 10099-0003, February 17, 2005.

6. Flood, G. (DFO) 2005. Letter to Mr. K. Hamilton (EC), Re. Duck Pond copper-zinc project – Designation of Trout Pond as a tailings impoundment area (TIA) under the Metal Mining Effluent Regulations (MMER). June 16, 2005.

7. JWEL. March 14, 2006. *Duck Pond Copper-Zinc Project Lacustrine Fish Habitat Compensation Plan*. Prepared for Aur Resources Inc., Toronto, by Jacques Whitford, 20 pages.

### **SPECIFIC COMMENTS ON INDIVIDUAL DOCUMENTS**

**My approach:** I will initially review the documents, one by one, for four reasons:

- 1) To indicate why parts of each of them are not clear
- 2) To show that many of the elements of the compensation plan are tentative and without certainty in regard to what they might accomplish
- 3) To indicate where the compensation plans changed from one report to the next, right to the last plan in 2006
- 4) To indicate that the various compensation plans were tentative and not formally finalized at the time that (a) the CEAA Screening report concluded that: *“The project is not likely to cause significant adverse environmental effects (take action to allow the project to proceed)”* and (b) the letter from G. Flood to K. Hamilton, written in 2005, which recommends that Environment Canada *“take the necessary next steps in the process to amend the MMER in order to add the above proposed TIA to Schedule 2 of the MMER for consideration by the Governor in Council.”*

The specific comments form the foundation of discussion on why none of the compensation plans, including the current one, are adequate to assure “no net loss” of fish habitat, and why the tailings impoundment areas should not be given Schedule 2 status. I have also made comments relating to the fact (or strong appearance of same) that recommendations were made by DFO to approve the use of fish-bearing water bodies well before adequate studies, surveys, or compensation plans for the HADD of fish habitat had been submitted to federal authorities.

#### **1. Duck Pond Copper-Zinc Project Quantification of Potential HADD (January 2003).**

This report quantified habitats in the affected lacustrine and riverine areas. It quantified lacustrine habitat in “Habitat equivalent units” for Trout Pond, and in “Units” (100 m<sup>2</sup>) for riverine areas. The lacustrine habitat quantification process was based on references that I have not seen. Even so, I have three major concerns:

- 1) The whole set of complex calculations is based on mapped information for Trout Pond (Figure 4.1 in the report). It appears to me that there was a progressive elaboration of data, starting from broad general mapping exercise. It is not clear how all of the conclusions about habitat use by species and age groups could have been safely drawn from such general information. The trophic processes upon which population strength

may in part be based for each species are not discussed.

2) It is unclear how behavioural interactions, both within and among species, were analyzed or accounted for in the quantification of habitat equivalent units. Behaviourbased habitat partitioning by fish, both through feeding success and agonistic behaviour, is not referenced here. However, such work done long ago by Nilsson (fish feeding in lakes) and by Hartman (interactions of salmonids in streams) has important implications for the use and partial, or total, partitioning of habitat.

3) There are no references to the effects of reduction in stream volumes on temperature conditions. Trout Pond outlet flow will be reduced by 13% to 65%. East Pond Brook will be reduced by 13%, and the stream below West Tally Pond will also be reduced. The effects of such stream flow reductions on temperature were apparently not considered as HADD.

## **2. Duck Pond Copper-Zinc Project Strategy For Fish Habitat Compensation (April 2003).**

This report has two main sections, one for “Stream habitat compensation” and one for “Lake habitat compensation.” The total habitat area of harmful alteration, disturbance, or destruction (HADD) is given as 291,032 m<sup>2</sup> of lacustrine habitat and 28 units (unit = 100 m<sup>2</sup>) of riverine habitat. *Habitat unit* is not defined at the time the term is first used, and the use of different habitat quantification terms throughout the documents is unhelpful. The areas where compensation is to be carried out are indicated; however, a first major concern about these sections is that there is no evidence that the environments have been surveyed and mapped. Page 10, para. 2 of the report states that information *to be obtained will be similar to that outlined by Newbury and Gaboury (1993) and will include drainage basin area, stream profiles, seasonal hydrology, and habitat characterization...*

Riverine habitat (28 habitat units, 2,800 m<sup>2</sup>) is proposed to be created in Five-Mile Steady, a former log storage and release area in Harpoon Brook, by lowering the water levels so that the lower reaches of two tributaries (Harpoon Brook and East Pond Brook) will be exposed for compensation work. The lowering of water levels in Five Mile Steady is to be accomplished by removing an old bridge and abutment structures under it.

Compensation for loss of lacustrine habitat is proposed to be done in East Pond and its tributaries. Removal of an obstruction at the outlet of East Pond and placement of “spawning gravel” in East Pond tributaries are the measures proposed.

There are four comments about this plan that indicate that compensation activities can only be tentative at this stage:

1) The report states that structure removal will *result in an unobstructed flow under the new bridge and it is projected that the water level above the bridge will drop accordingly, as determined by the upstream bedrock control* (p. 5, para.2). Use of the word *accordingly* does not quantify the change. Later on p. 5, reference is made to a 0.5 m drop in water level. It is unclear how this figure is obtained and, if 0.5 m is the expected level change. It is also unclear whether the structure removal will actually improve fish access. On p. 5, para. 4, it states that *Although Aur Resources believes that the removal of the existing dam will improve fish access, Aur will conduct additional work... if it is needed.* This matter is problematic because the stream bed under buttress 2 and spillway 1 is composed of cobble and gravel. The degree to which this section might erode down and change the stream profile is not indicated.

The proposal for compensation of habitat loss should include drawings of longitudinal profiles of the channel bottom through the bridge area or, plans to prepare them. The proposal should then have included models of surface levels through the dam area and into Five-Mile Steady at a range of discharges. This would show what the surface levels and drops would be, at the bridge and in the lower reaches of the tributaries, at different discharge volumes in Harpoon Brook.

2) There is no survey of the basin topography of Five-Mile Steady and the areas where the tributaries enter and pass into it. There is no survey of the gradient and channel geometry of the two tributaries in the sections (presumably) to be used for habitat creation at the time the report was written. For this reason, it is unknown how much of the stream channels might be made available for habitat creation work with different amounts of change in water level in Five-Mile Steady.

3) It is not clear from the report what kind of habitat exists in the sections of these tributaries upstream from Five-Mile Steady. On p. 8, para. 4, it is stated that *Field investigations have not been conducted to determine the precise nature of the areas that will be most affected by a change in water level in Five-Mile Steady*. The proposal should include plans to survey the streams above the sections that may be used for habitat creation in order to ensure that the compensation plan will not create habitat types that are already in adequate supply. It is not clear if this is to be done. On p. 9, para. 3, it states that *The main element of the plan is the placement of small areas of cobble and/or gravel to encourage salmon and brook trout spawning*. The proposal does not present information about the types of habitat that are limiting to production of different species. There are two species and three life history types of salmonids in the area. The types of habitat that limit brook trout may not be the same as those that limit salmon. I suggest that there should be proposal components for surveys and analyses to attempt to establish the types of habitat that may be “limiting” for all three kinds of fish and the different life stages of each. I understand that there may be elements of judgment and a call for experience in such an effort; however, without such effort, the habitat creation plan is “flying blind.”

4) On p. 8, para. 2, it is stated that hydrological information was provided for Harpoon Brook, East Pond Brook, and other tributaries. This information was not attached to the copy of the report that I reviewed. Given that the compensation plan is tentative at this stage and that critical field work not yet done, there is no certainty that the measures will work as proposed. Without effective compensation, it is premature to say that the project is *not likely to cause significant adverse environmental effects (take action to allow the project to proceed)*. The screening report gave the project a “go-ahead” at a stage when “no net loss” is not guaranteed.

### **3) Canadian Environmental Assessment Agency (CEAA) Screening Report, June 2003.**

This document includes the same overall components for compensation as proposed in Jacques Whitford Environment Limited 2003. These are (a) establishment of 28 habitat units to compensate for riverine habitat HADD, and (b) obstruction removal and spawning habitat creation in the East Pond system to compensate for lacustrine habitat loss.

The screening report, prepared by Julie Whiteway (June 16, 2003) and signed-off by M. Barnes, DFO’s Habitat Evaluation Section Head (June 18, 2003), concludes that the project is, *...not likely to cause significant adverse environmental effects (take action to allow the project to proceed)*. The rationale for the conclusions is given.

I will review the document in more detail; however, the use of two expressions in combination, “not likely” and “significant” is troublesome. I believe that such language may have been used because the compensation strategy document, upon which the conclusions were based, was tentative and was not supported by required compensation-related field studies at the time the screening report was being prepared. If the screening process is in place to protect the environment and public resources, it should draw conclusions with more clear language and a stronger foundation than interlocked terms such as “not likely” and “significant” imply. In the following, I have more specific comments about the screening report.

The document was difficult to review because the group that I am assisting was not provided with a clear or good quality map of the “Arrangement of Surface Facilities” in the report. The map of surface facilities does not provide details of the construction of the dykes that are to contain the tailings.

A readable form of these details had to be found in other documents (provided by the consultants for the company). The surface facilities figure shows a seepage pond on the NE side of the impoundment. Is the “seepage” from the tailings impoundment? If not, and the water is from adjacent land, and if the “seep collection ditches” are effective in location and function, why is there seepage by the impoundment? The map shows a “pit waste pipeline” connecting the tailings ponds and the “waste stockpile.” Is there drainage from the waste stockpile?

On p. 1 of the screening report, it states that excess water from the tailings impoundment area will be treated at a liming station and then released to the sedimentation pond. If acid formation does not occur when tailings are under water cover, why is liming applied?

The last paragraph on p. 1 is confusing. What is the expected quality of the seepage water? If some of it is not “clean,” what is the source of pollution? The information on the storage capacity and function of the tailings pond is not adequate. What is the storage capacity? In an extreme rainfall event, e.g., 139 mm in one day, could the tailings impoundment hold the 139 mm of rainfall directly on it plus all of the surface seepage from the surrounding basin area? The surface facilities map shows an “emergency spillway.” How and when is the emergency spillway to operate? Flooding affected drilling operations at the relatively nearby Messsina Minerals Tulks South operation in April 2006. What level of certainty about tailings impoundment stability did the federal agencies have when they drew conclusions about the environmental effects of the Duck Pond operation?

On p. 2, it states that tailings from the underground mining operation will be mixed with cement and used as backfill. What volumes of waste will be used this way? Where will it be stored before being used as backfill? How long will it be stored? Are there risks of acid water formation from such material if stored on land?

What will be the quality of the water in the tailings impoundment in regard to dissolved zinc and copper compounds? Will these compounds be removed by a 5-day retention in the sedimentation pond if excess water has to be spilled? The surface facilities plan shows the impoundment area and the sedimentation pond, but it does not show how the flows will get from the impoundment area to the sedimentation pond.

On top of p. 3, it is stated that the Lower Duck Lens and the Southeast Zone are not part of the current mine plan. Will there be further mining after the current project? If so, does the screening report preparation process include consideration of potential additive effects of further mining?

On p. 3, para. 8, it states that DFO has been involved in Atlantic salmon enhancement work that includes “providing fish passage” in Noel Paul’s Brook and Harpoon Brook. If the removal of the dam below Five-Mile Steady is considered useful enough to form a part of a habitat compensation plan now, why was it not taken out already by DFO?

On p. 5, item 23, Areas of Interest, issues of wetland habitat, migratory birds, and Canada geese were listed among ten matters of interest for Environment Canada. The questions of “if” and “how” the total alteration of about one km<sup>2</sup> of wild land and water, plus the use of new roads with heavy industrial traffic, are not adequately considered in the screening process in regard to wildlife.

On p. 5, item 26, *the DFO will work with the proponent to ensure...* It is unclear whether DFO’s role here is as a partner in the development of a mine or, as a management and regulatory agency charged with looking after fish and fish habitat. It is a matter of principle, but if some part of an industrial development fails, in the sense of causing environmental damage, and DFO has “worked with” the proponent, who is responsible? DFO is a public fisheries agency and as such, should not function as a “hand-maiden” to industry, and it should not work itself into a position in which it may



be partially responsible for potential damage to fish habitat.

The public consultation process raises questions. It is very difficult for the public to review complex issues covered in series of documents. Such reviews may require examination of hundreds of pages of material. Does the "Town Office" have "available" multiple copies of all of the documents that may be sought by the public if several people require them? In this case, the report indicates that the public was involved at a time (2000 and 2001) when the compensation plans were far from complete. It is stated that comments received by DFO "will be considered" (item 29, para. 3). In item 29, para. 5, "relevant comments received" and the responses will be included in the compensation plan. Was there an ongoing public involvement process that ran parallel to the sequence of changing compensation proposals? Finally, the use of words like "relevant" and "considered" leave room for public concerns to be by-passed. This language should make people cautious because it leaves much room for dismissal of public concerns.

The proponent says it held meetings with two local economic development groups (item 29, para.2). Were such meetings held to get environmental advice? In item 30, para. 1: *The public information sessions indicated that the proposal is viewed as a positive development for the region, especially with respect to socio-economic benefits such as project-related employment and business opportunities.* Is it the role of the CEAA and a Screening Environmental Assessment Report to become involved in the socio-economic evaluation of a project?

In item 32, "Environmental Effects Considered and Significance," there is no reference to potential effects on water temperatures in streams. The flow volume will be reduced in Tally Pond Brook (between Tally Pond and West Tally Pond), Trout Pond Brook, and East Pond Brook (J. Whitfield report, Project No. 8365, January 2003). In a stream, surface-to-volume ratio increases with reduction of flow. Radiant energy on the relatively greater surface area causes increased warming of the stream. Temperature effects and the possibility of metal ion entry into Gills Pond Brook via the sedimentation pond are not listed as concerns.

In item 33, "Mitigation Measures," in this section, tailings are to be treated for 2.5 years after the mine closes. The report does not indicate who will be responsible for the tailings impoundment after this period. Do mine tailings impoundments become environmentally benign after 2.5 years? In para. 5 in this section, it states: *In order to allow natural degradation of thiosalts (compounds formed by the partial oxidation of sulphates that may be unaffected by treatment at the release from tailings ponds and may undergo oxidation to form sulphuric acid) and reduce elevated suspended solids, tailings will be held in the Tailings Management Area for approximately 260 days before being released into the environment.* This statement is not clear. Will there not be new tailings material continually released into the impoundment area? It seems to me that to do what the section suggests, it would be necessary to hold a batch of tailings for 260 days, release it, and then start a new batch. In para. 3, page 9, Mitigation Measures: Is removing an existing obstruction really a compensation measure? Should DFO not have done this anyway?

In para. 5, page 9, Mitigation Measures: There is reference to placement of spawning gravel in tributaries to East Pond. Is spawning habitat a limiting factor? Is gravel placement mitigation or compensation?

monitor be an employee of DFO, and possibly paid for by the proponent?

In the section on "Follow-up Monitoring and Compliance Requirements," item 34, para. 2, the requirements should be stated more clearly than "DFO recommends that the proponent..." and in para. 5, page 10, "The DFO will request..." If things are worth doing, then DFO should require them. Government does not normally recommend that citizens obey speed limits, and it does not normally request people to pay their taxes; it requires or orders them to do so in order to be in compliance with the law.

Given the tentativeness of the compensation plans, the uncertainty regarding whether the compensation measures are appropriate (i.e., what limits production for the different species in each area?), and the other items about which I have raised questions, I am not certain that “the project is not likely to cause significant environmental effects.”

**4. Jacques Whitford Environment Limited. 2004. Memorandum to Steve Snow (DFO) from B. Bennett (JWEL), April 8, 2004.**

In this memorandum it appears that compensation planning for the project is not complete. In this memorandum it is proposed that the compensation for lacustrine habitat be carried out as “further restoration of stream habitat” at the same location as that used for restoration of riverine habitat. In addition to the change in compensation strategy, two concerns arise:

- 1) There is a suggestion that there is a discrepancy in the brook trout standing stock in the sedimentation pond, and there is no way to determine a “reasonable number.” Did the consulting company not get field data on fish and then develop the estimate themselves?
- 2) It assumed that Five-Mile Steady was degraded habitat with “nil” production. This assumption should have been tested before this stage in the compensation planning. If the sedimentation pond—< 2m max depth—had fish in it, why would the large river-run pond—Five-Mile Steady—not have fish in it? Did DFO scientific and technical staff, with their “experience and knowledge” (see CEAA Screening Report) have no understanding of possible fish use of Five-Mile Steady?

**5. Bennett, B. (JWEL) Memorandum to S. Kuehnemund (DFO). Re Addendum to Duck Pond Copper-Zinc Project Quantification of Potential HADD. February 17, 2005.**

This memorandum provides details of jetty construction in Tally Pond. It quantifies the small area of HADD.

**6. Flood, G. (DFO). 2005. Letter to K. Hamilton (EC) Re Duck Pond Copper-Zinc Project – Designation of Trout Pond as a Tailings Impoundment Area (TIA) under the Metal Mining Effluent Regulations (MMER) June 16, 2005.**

In this letter, it states that DFO is still finalising the fish habitat compensation plan/agreement with the proponent. It also states that the EA has concluded that the project is “not likely to cause significant” adverse environmental effects. On this basis, it is recommended that EC take the necessary next steps in the process to amend the MMER in order to add the proposed TIA to Schedule 2 of the MMER. I have underlined “next.” Had there already been some steps taken with this objective in mind?

**7. Jacques Whitford. 2006. Duck Pond Copper-Zinc Project Lacustrine Fish Habitat Compensation Plan, Prepared for Aur Resources Inc., JW Project 10099.**

In this document, a major shift in compensation strategy is finalized. In it, all compensation work is proposed to be done at locations around Five-Mile Steady. This is indicated by Table 6.1 in the report, which outlines: *A schedule of works and monitoring that is proposed for Duck Pond habitat compensation...* This strategy is different than the one indicated in the CEAA Screening Report. The proponent and its consultants should have done a full enough study of the ponds and streams involved so that it would be known what the final compensation strategy was to be at the time the Screening Report was prepared. Because this was not done, the Screening Report was, in some respects, premature and flawed.

I will not comment on details of the writing in this report. However, I have been confused by the use of an array of habitat quantification terminology. Habitat is discussed in “units,” “habitat equivalent units,” and m<sup>2</sup>. The two former quantities should have been defined at once in each report where they appear.

On p. 4 of the report, habitat equivalent units are given in hectares (ha). In the previous report by Jacques Whitford Environmental Limited (2003), habitat equivalent units are given in m<sup>2</sup>. These may mean the same thing, but it is unhelpful to a reader to have cross-check units. I have already commented on the overall process of calculating these “habitat equivalent units.” The reports regard standing stock as being the same as production or productive capacity. Ricker (1968) defined biomass as the amount of substance in a population, also called standing crop. He defined production as the increase in biomass. This increase results from the addition of new individuals from reproduction, and the growth of all fish in the population. In a stable population, these are offset by natural mortality and, in some cases, fishing mortality. Standing stock may be used to indicate how much the environment can, or may, hold. However, the term should not be confused with production.

The most difficult questions about methodology arise in consideration of the proposal to compensate for lacustrine habitat loss by restoring productive capacity to 1,078 units of degraded stream habitat. It is assumed that the existing habitat in Five-Mile Steady has “nil production” (p. 6, last para.). No survey data are given for this statement and its only support comes from DFO in an “agreed assumption.”

The report suggests that restoration work will be carried out at “A” and “B” shown on Figure 1.1. These areas are very limited in size, if one considers the area to be restored. In the following comments, I am assuming that the 1,078 units to which the report refers are 100m<sup>2</sup> each. If so, this means that they must restore 107,800 m<sup>2</sup> of habitat along about 3.3 km of lower East Pond Brook and Harpoon Brook, before the latter widens out into the pond above the location of the old dam and bridge. Restoration of 107,800 m<sup>2</sup> will require a strip of work about 33 m wide along the length of East Pond Brook from the high water mark to its junction with the present stream, plus work along the length of Harpoon Brook from the high water mark to where it widens out to the pond. I have included an image (Google Earth) of Five-Mile Steady. The total length of pond, stream and flood area is about 2.6 km long. The stream channel appears in brown, the former flooded area appears in pale beige, and the un-flooded area is in green. In this image, the pond area appears to be about 0.8 km long. The pond boundaries in Figure 1.1 of this report correspond to the upper limits of the pale beige area (in the Google Earth image, see last page) that was flooded. What pond configuration and size was assumed at the time compensation plans were finalized and Figure 1.1. was prepared? In the Google Earth image, the average width of the current stream channel appears to be about 70 m. This raises questions:

- 1) Will the project restore almost half of all of the stream area?
- 2) Will all mud and logs, which form almost half of the stream bottom area, be dug out and carried across the former flooded zone to high ground?
- 3) Can a boat be operated with a pump (generated power on shore or in the boat) to pump mud and chips from such an area?
- 4) How much mud, logs and chips are to be removed? If the mud, logs and chips in the work area are on average, 15 cm thick, the project will have to move about 16,170m<sup>3</sup> of material.
- 5) Does the topography allow for storage of the required large volumes of mud, such that it won't be washed back into the stream during a period of heavy rainfall? The report refers to the vegetation forming *a natural filter/barrier as much as possible*. Does this mean that the project does not actually know enough about the volumes of mud to be stored, and the ability of the vegetation to hold sediment back, to be able to be certain about the effectiveness of this part of the strategy?
- 6) Has the project evaluated the task of moving the logs and mud across a formerly flooded and muddy area during the period when there are 3 to 6 days per month with rainfall between 5 and 10 mm? Extreme daily rainfall during the work months may reach 69 to 139 mm. Such conditions will make the success of restoration work and sediment retention difficult.
- 7) How will the “silt fencing” and “sediment traps” work in the stream channel which is many meters wide?

8) How much spawning gravel will be placed, and how was it determined that spawning habitat was a limiting factor thus necessitating this measure?

9) On page 13, it states that the presence of young-of-the-year fish will be taken as verification of spawning. Is there no possibility that young-of-the-year fish might move in from upstream?

Given the extent of the area involved, will restoration actually deal with all of the 107,800 m<sup>2</sup>, or will it simply improve parts of it? This question may be important, because if restoration is not total for the area, just how much of the area will be worked on? What will actually be done?

I have raised a number of questions about the restoration work. I appreciate that I have made some assumptions about the situation in posing these questions. However, if this 2006 compensation report is to be a final compensation document that people may evaluate, it should provide far more details about the program. The maps of proposed works should show what the actual boundaries of the work area will be. Is the outline of the system going to remain as shown in the "Google Earth" image, or will flooding bring the pond, seasonally, up to the mapped area indicated in Figure 1.1 of the Whitford (2006) report? The report should contain a detailed map showing channel geometry. It should provide details on the amounts of material to be moved, locations for its deposition. It should also present an "as-built" set of drawings to show what will actually be done and where it will be done. The public cannot evaluate the program without such information. Furthermore, it cannot evaluate the proposal, at this stage, if more work is promised "as needed."

Finally, it is unclear to me why Trout Pond has to be used as a tailings impoundment in the first place. The CEAA Screening Report, p. 7, states that five sites within ten km of the project were considered for tailings disposal. It was stated that the use of Trout Pond would save *the risk of contamination along the transportation routes*. Will there not be transportation of material from Boundary Pit to the ore processing plant?

### **SUMMARY COMMENTS**

Far too much of the process is built around unanswered questions. It has involved changing compensation plans, a problematic final compensation proposal, acceptance of the project in the 2003 Screening Report long before final plans were made, and failure to consider some potential impacts to fish (e.g., temperature effects, water quality effects below the sedimentation pond). It has involved questions as to why tailings have to be put in Trout Pond. Was potential contamination along a transport road more environmentally risky than filling in a pristine pond? Presumably, ore would have to be hauled along the road from Boundary Pit to the processing mill. Would the same choice have been made if placing tailings in Trout Pond had been more expensive than transporting them elsewhere? In light of these questions, it appears to me to be unsound environmental management to say: *take action to allow the project to proceed...*, and then to top it all off by listing the tailings ponds for this mine in Schedule 2 of the MMER.

### **REFERENCES**

Seven of the references were listed in the working list. The additional references are:

Anonymous. 2006. Canadian Climate Normals 1971-2000. Env. Canada.

<[http://climate.weatheroffice.ec.gcca/climate\\_normals/results\\_e.html=ALL&Sta](http://climate.weatheroffice.ec.gcca/climate_normals/results_e.html=ALL&Sta)>

Ricker, W.E. 1968. Methods of Assessment of Fish Production in Fresh Waters. IBP Handbook No. 3, International Biological Programme, 7 Marylebone Road, London. Blackwell Scientific Publications, Oxford and Edinburgh.