



MiningWatch Canada

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May 7, 2006

Patrick Finlay
Director, Minerals and Metals, Pollution Prevention Directorate
Environment Canada
351 Saint-Joseph Boulevard
Gatineau, Québec 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-Multistakeholder Advisory Group together with Maggie Paquet (Citizens' Stewardship Coalition, Port Alberni, BC), Judy Parkman (Recycling Organization Against Rubbish, Richmond, BC) and Randy Fleming (Inter-Church 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 (MMER) that came into effect in 2002 is proving, in these amendments, to be a licence to destroy – unnecessarily – valuable fish, fish habitat and associated watersheds.

The following comments:

- review shortcomings in the current MMER 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 MMER, 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 MMER 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 MMER 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 MMER 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 MMER.

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 MMLER 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 MMER.

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 MMER 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 MMER

The single most unacceptable regulatory amendment to the MMER 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 21st 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 A 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 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 AurResources 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 A 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 MMER 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 MMER, 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) 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 process 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 A 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 “intact” 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 MMER and the proposed amendments that have been gazetted.
- For any future MMER amendments there should be 60 days to respond to Gazette I. 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 amendments reviews 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 MMER. 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
Metal Mining Effluent Regulations Multistakeholder Advisory Group
Canadian Environmental Network

cc. Georgette Mueller, PCO
Canadian Environmental Network

Appendix A

Issues of Concern Regarding Aur Resources' Proposed Duck Pond Mine in Central Newfoundland

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 MMER 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), p.21.

Facts from the Public Record

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, Atlantic and land-locked salmon (ouananiche). Trout Pond also contains threespine stickleback, otters, and other species.
- **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 provincial 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 km², 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 km². 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 m² of salmon and 149 g/100 m² 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 m³/h) will be discharged as part of the tailings flow into the tailings pond. Waste water from the underground mine (137 m³/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 m³/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 m³/h to Trout Pond Brook, and 0.1 m³/h to Gills Pond Brook, rising at closure to 0.8 m³/h to Trout Pond Brook, and 0.7 m³/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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