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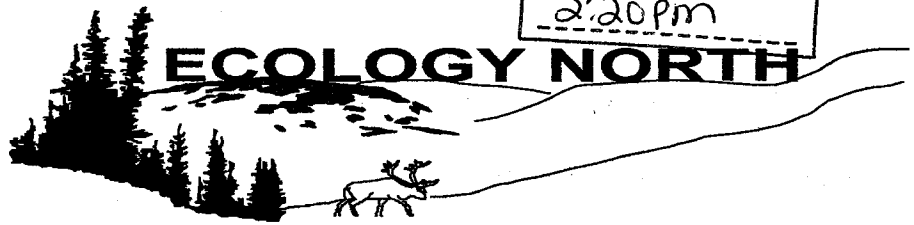
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May 15, 2009

Mr. Alan Ehrlich
Senior Environmental Assessment Officer
Mackenzie Valley Environmental Impact Review Board
200 Scotia Centre
Box 938, 5102-50 Ave
Yellowknife, NT
X1A 2N7

Dear Mr. Ehrlich,

Re. Proposed Fortune Minerals' NICO Project Environmental Assessment

Ecology North has prepared this submission to express our concerns regarding Fortune Minerals' proposed NICO mine and to suggest some areas of focus for the environmental assessment for this project. Many of our concerns and suggestions relate to the potential effects of climate change. The climate in the NWT and Tliche region has changed significantly in the last century. This has been unanimously stated by every elder we have spoken to. Weather data from the Yellowknife Airport has confirmed that the average monthly temperatures, during winter, in Yellowknife have increased significantly from 1943 to 2007.

As outlined in the Government of Canada's report, *From Impacts to Adaptation: Canada in a Changing Climate 2007*, Scientists expect average temperatures in the NWT to continue rising. They also expect an increase in precipitation. These two impacts must be considered in planning and development in order to avoid future problems. Throughout this letter I will elaborate on how these two effects of climate change may affect the NICO mine and should therefore be considered during the environmental assessment for this project.

Ecology North's knowledge of the mine is largely based on two slide shows, entitled "NICO COBALT-GOLD-BISMUTH-COPPER PROJECT Technical Scoping Session April 20, 2009" and "NICO COBALT-GOLD-BISMUTH-COPPER PROJECT Technical Scoping Session Environmental Overview," available on the Mackenzie Valley Review Board's website at <http://reviewboard.ca/upload/>

[project_document/1241024406_NICO_Project_Description_Presentation.PDF](http://reviewboard.ca/upload/project_document/1241024406_NICO_Project_Description_Presentation.PDF) and http://reviewboard.ca/upload/project_document/1241025009_NICO_Environmental_Overview_presentation-April_20_09.PDF. These presentations will be referenced in this letter, respectively, as the “project overview” and the “environmental overview.”

Comments on Project Overview

Slide 28 – NICO Mine Closure - The first bullet on this slide states, “*Closure of tailings management area will focus on reducing risk of wind & water erosion.*” Climate change should be considered when planning for wind and water erosion. Throughout the 21st century, precipitation is expected to increase, and there may be changes to wind patterns. These potential climatic changes should be accommodated in the design to prevent failure of erosion-prevention measures.

The second bullet on this slide states, “*Mine infrastructure will be removed & ground surface will be re-contoured to promote re-vegetation.*” It is unclear if there will be anthropogenic revegetation (i.e., active planting by mine personnel or other parties), or if the site will be left to natural colonization. If there is active planting it must be ensured that the species being planted are not or will not become invasive. Plants used for revegetation should be native to the area.

Slide 29 – Conceptual Closure Plan – This slide indicates that the open pit will flood after closure of the mine. As stated by a representative of Fortune Minerals at a scoping session in Behchoko, the rocks in the area of the mine are a natural source of arsenic. Any water pooling in the pit could become contaminated with arsenic. Contaminated pit water will have to be controlled. When examining this issue, climate change and the possibility of melting permafrost must be considered, as melting permafrost could change the hydrology of the area, including the flow path of ground water.

Comments on Environmental Overview

Slide 2 – Introduction – The second bullet of this slide states that, “*many of the potential impacts of the mine can be assessed and mitigated through existing methods.*” This statement should be reconsidered. Existing methods may not be adequate at assessing and/or mitigating impacts in light of expected climatic change. As average temperatures increase, permafrost melts and precipitation increases, existing methods may become ineffective or less effective. For example, mines in the north have traditionally relied on permafrost and frozen soil to contain tailings. With rising temperatures this may no longer be a feasible option. In fact, past industrial developments may require renewed reclamation efforts to deal with existing methods of containment that are no longer reliable.

Slide 8 – Pre and Post-Forest Fire Sediment Arsenic Levels – This slide shows that arsenic levels in Peanut Lake spiked dramatically after a forest fire in 2008. One predicted effect of climate change in Canada is an increase in the number and severity of forest fires. If fires have the potential to release dormant arsenic from the environment into lake sediments, as this slide suggests, the possibility of more fires underscores the need to ensure arsenic, from rocks and other sources, is not released into the environment.

This slide also raises concerns about the feasibility of accurate long-term monitoring of arsenic levels. If arsenic levels can spike naturally in the area of the proposed mine, it is essential that the design of the future monitoring program will be able to isolate the impact of the mine on arsenic levels. If arsenic levels do spike during the life of the mine, there has to be a way to determine whether the arsenic is attributable to the mine or some natural phenomenon. It is also imperative that baseline data, gathered before any development commences, is not biased towards high levels of natural arsenic caused by forest fires, as this could alleviate some responsibility on the part of the mine to prevent mine related increases in arsenic in the receiving environment.

Slide 9 – Fish and Fish Habitat – This slide states, *“Effluent treatment facility will use a polishing pond constructed from a non-fish bearing wetland.”* Climate change must be considered in the construction of the effluent treatment facility, the tailings management area or any other structure designed to contain water and/or waste. Dykes, dams and retaining walls constructed from frozen soil have the potential to leak due to rising temperatures. Melting permafrost has caused lakes in the northern hemisphere to drain. All management of wastewater must be planned with consideration of the risk of permafrost melting and hydrology changes. Effective backup plans must be made for potential failure of water containment structures.

Slide 11 – Caribou – This slide states, *“because the NICO Project is within the winter range of the Bathurst herd, developing RSFs for the winter range will be the basis for determining the cumulative and incremental effects from the NICO Project on caribou.”* The development of an RSF (resource selection function) for the winter range of the Bathurst herd will provide a baseline for assessing future effects on caribou. However, it will also be important for the assessment of effects on caribou to be able to decipher those changes associated with climate change from any potential mine related effects. Therefore the design of the monitoring program and data evaluation should consider the potential changes in habitat availability and caribou range.

Slide 12 – Wildlife-Assessment Considerations – This slide states, *“risk assessment on potential for effects to wildlife is being completed.”* This risk assessment should take into consideration the effects of climate change on wildlife habitat in the Tlicho region.

The proposed NICO mine will be powered by diesel. This release of carbon dioxide will contribute to global warming and climate change.

Ecology North agrees with the growing global consensus that to avoid the most devastating effects of climate change, including loss of habitat and possible extinction of species, the average warming of the globe must not exceed two degrees Celsius, relative to pre-industrial temperatures. In order to ensure global warming does not exceed this threshold, Canada must join the other industrialized nations in cutting greenhouse gas emissions by 25% by 2020 and 80% by 2050, relative to 1990 levels.

As industry accounts for more than half of the NWT's greenhouse gas emissions, new projects like the proposed NICO mine must participate in the effort to reduce the NWT's emissions to the aforementioned target levels in 2020 and 2050. The proposed NICO mine should aspire to be carbon neutral by utilizing renewable sources of energy, like hydro-electricity or wind power, and by

purchasing reputable carbon offsets such as those for projects certified by the Kyoto Protocol's Clean Development Mechanism.

The developers should release an estimate of how much electricity the NICO mine would require. They should also release two estimates of the proposed mine's greenhouse gas emissions based on two scenarios: 1) NICO mine is developed and run using only diesel fuel to generate electricity, and 2) NICO mine is developed and run using a mixture of diesel-generated electricity and hydro-electricity. This information is necessary to fully assess the environmental impacts of the mine, and to search for ways to reduce the mine's carbon and environmental footprints.

Slide 15 – Water Usage – Climate change has the potential to affect water levels in streams, lakes and rivers. Climate change should be considered to ensure that future water flow levels will be adequate to satisfy the proposed mine's water requirements without having a negative impact on the surrounding environment.

Slide 17 – Mine Rock Management – This slide states, *“runoff from the MRMA will be captured with a diversion ditch & directed into a collection sump where it will be pumped or flow by gravity to the ETF (if required).”* As stated by a representative of Fortune Minerals, rocks in the area of the proposed mine contain arsenic. Water (rain and snow melt) flowing through the mine rock management area may become contaminated with arsenic or other potentially harmful chemicals. Therefore the diversion ditch should be designed to eliminate seepage from the MRMA into the surrounding environment. Changes in the ambient temperature due to climate change may impact the effectiveness of this ditch and should be considered in the design and assessment stage of the project. For example permafrost may melt potentially affecting the hydrology of the area.

This slide says that rock taken from the pit will be used to construct roads and the dams of the tailings pond. It must be ensured that the rock utilized for the construction of these mine components is appropriate for this wide spread use, where there would be high potential for runoff to reach the surrounding receiving environment. The rock should not be acid generating, and have limited potential for chemical leaching, particularly with respect to arsenic. The environmental assessment should include a detailed analysis of the rock to be used for these purposes.

Slide 19 – Tailings Management Area – This slide indicates that Fortune Minerals is testing waste rock and ore for leaching characteristics under *“ambient conditions,”* including, *“ambient oxygen & rainfall.”* The slide states, *“the experimental set-up will simulate an un-flooded tailings deposition.”* This leaching testing should take climate change into consideration. Precipitation is expected to increase in the coming years. Hydrology of rivers and lakes may change. Ambient condition testing is not thorough enough to ensure that leaching of harmful substances will not occur in the future as precipitation and hydrology may change (i.e., ambient conditions may change). Consider including tests in the environmental assessment with elevated temperature and precipitation as a worst case scenario.

If you have any questions or comments regarding this submissions, please contact Daniel T'seleie, Climate Change Planner, at 867-873-6019, or by email at daniel@ecologynorth.ca.

Sincerely,

A handwritten signature in black ink, appearing to read "Doug Ritchie". The signature is written in a cursive, flowing style with some loops and flourishes.

Doug Ritchie
Program Director
Ecology North

