

DEPARTMENT OF FISHERIES AND OCEANS

and

ENVIRONMENT CANADA'S

Joint Submission to the

NUNAVUT WATER BOARD

**On an Application for Renewal of Water Licence
NWB2ULU9700 (Ulu Exploration Program)**

By

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1. INTRODUCTION

The Department of Fisheries and Oceans (DFO) and Environment Canada's (EC) intervention to the Nunavut Water Board presents concerns and recommendations with respect to Echo Bay Mines Ltd. Water Licence renewal application for the Ulu exploration program (NWB2ULU9700), submitted in October 1999. The licensee has applied to use up to 100 cubic metres of water per day and to dispose of waste, in connection with bulk sampling, exploration drilling and associated camp operations.

The original water licence was issued on November 25, 1997 with an effective date of December 1, 1997 and an expiry date of May 31, 2000. However, the Ulu exploration program was put on hold in September 1997 due to the decline in the price of gold. The Ulu exploration project is being carried out in conjunction with the Lupin Mine operation, with ore from the Ulu site to be transported by winter road to the Lupin Mine processing plant 155 km to the south. The Licensee proposes to extract up to 40,000 tons of ore.

This submission describes our concerns and recommendations regarding:

- a) Use of East Lake as a contingency for minewater containment;
- b) Additional studies on East Lake;
- c) Modeling water level changes in West Lake;
- d) Ongoing Acid Rock Drainage (ARD) testing;
- e) Development of the Spill Contingency Plan, Waste Rock and Ore Storage Plan, and Sewage and Solid Waste Operation and Management Plans;
- f) Surveillance Network Program (SNP) implementation

The recommendations presented in this submission are based on information supplied to date by Echo Bay Mines Ltd. Should new or additional information be brought forward by the proponent or identified during the public hearing this submission will be re-examined. Any changes will be brought to the attention of the Nunavut Water Board.

2. ENVIRONMENT CANADA'S MANDATE

The general mandate of EC is defined by the *Department of the Environment Act*. This Act provides the Department with a general responsibility for environmental management and protection in terms of the need to foster harmony between society and the environment for the economic, social, and cultural benefit of present and future generations of Canadians. The Department shares this responsibility with provinces and territories. EC is also responsible for providing environmental advice to federal government agencies and for the preservation and enhancement of environmental quality.

Industrial operations of Echo Bay Mines Ltd. are subject to the following statutes administered by Environment Canada: the *Fisheries Act*, the *Canadian Environmental Protection Act* (CEPA), the *Migratory Birds Convention Act* and *Canada Wildlife Act*. Environment Canada's submission is based primarily on its mandated responsibility for the enforcement of Section 36 of the *Fisheries Act*. Subsection 36(3) of the *Fisheries Act* prohibits the "...deposit of a deleterious substance of any type in water frequented by fish...". A first step towards compliance with this requirement is demonstrating that the effluent is non-acutely lethal. This may be demonstrated by an acute lethality determination such as *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout* (Reference Method EPS 1/RM/13, July, 1990) and amendments (May, 1996), or other techniques and procedures.

3. DEPARTMENT OF FISHERIES AND OCEANS' MANDATE

Under the authority of the habitat provisions of the *Fisheries Act*, DFO has the responsibility to protect fish habitat. The Policy for the Management of Fish Habitat provides direction for interpreting the broad powers mandated under the Act. The objective of this policy is to achieve a net gain in the productive capacity of habitat for fish resources in Canada. The fundamental strategy for achieving the net gain objective is to prevent further erosion of the productive capacity of existing habitat by applying the No Net Loss Principle to habitat management decisions. Under this principle, DFO strives to work with developers to ensure that projects are designed to maintain productive capacity. Where this is not possible, DFO strives to ensure that unavoidable habitat losses are balanced by habitat replacement or gains on a case-by-case basis.

4. TECHNICAL COMMENTS AND RECOMMENDATIONS OF DFO AND EC

- a) Echo Bay Mines Ltd. proposes to direct any mine water encountered to a constructed holding pond, for treatment and subsequent release to East Lake, along with camp sewage. The application states that if additional holding capacity is required, a containment berm could be constructed at East Lake. This is questionable because of the diffuse discharge from East Lake (which drains to Ulu Lake by exfiltration); should problems arise with effluent quality it is unlikely that it could be contained in East Lake, and it is a short distance to Ulu Lake, which supports fish. Echo Bay Mines Ltd. has proposed studies to determine the rate and route of drainage from East Lake, which should be done this coming open water season. An evaluation of the feasibility of constructing retention structures should be carried out following this work. If East Lake is to be used as a contingency receiving pond, plans should be in place to prevent transport of any contaminants into Ulu Lake.

- b) The information provided by the baseline aquatic study indicates that East Lake may be of sufficient size and depth to support a fish community. Confirmation of the presence or absence of fish in East Lake should be done by Echo Bay Mines Ltd., as ongoing activities could adversely affect fish and fish habitat in East Lake.
- c) The Water Licence application indicates that water use from West Lake will result in the drawdown of West Lake by a total of 0.19 metres over an unspecified period of time. Modeling should be developed which verifies this drawdown, and shows the lake level changes over time, with an assessment of the effects on littoral zone habitat (e.g. change in area) and potential impacts to spawning habitat in West Lake.
- d) Concerns for potential acid generation from ore storage piles or waste rock used in construction have been addressed by the kinetic testing done by Klohn-Crippen. It is recommended that, as ore is extracted, testing be done periodically to identify whether changes in the rock composition are occurring which may be associated with higher acid generation potential.
- e) With the suspension in exploration under the previous licence, there were several plans which were not developed. These include the Spill Contingency Plan, Waste Rock and Ore Storage Plan, and the Sewage and Solid Waste Operation and Management plan. Development of these should be done once the water licence is issued.
- f) The expiring licence has an effective Surveillance Network Program, which should permit detection of impacts to the environment from project discharges. It is recommended that salinity be added to the parameters to be measured at the settling ponds. SNP sampling should commence within a short time of the issuance of the renewal licence.

5. SUMMARY

The following is a point form summary of recommendations made by DFO and EC:

- Further development of minewater contingency plans is needed;
- Evaluation of fish habitat in East Lake should be done prior to minewater inputs;
- Verification of West Lake drawdown through hydrological modelling, and identification of impacts on fish habitat, needs to be done;
- Periodic testing of ore and waste rock for acid generation potential is recommended;
- Plans which were identified but not submitted under the last licence should be drawn up;
- The SNP should be implemented this open water season, and salinity added to

the parameters measured for effluent discharge.