

**Environment Canada's Intervention on the Tahera Diamond Corp.
Jericho Diamond Mine Water Licence Application**

Nov. 30, 2004

Environment Canada's (EC) review has considered all the documents contained in the Water Permit Submission dated Aug. 2004 (including Appendices A-HH), as well as those put on the public record.

Concerns identified in EC's technical submission for the Environmental Assessment have been addressed to some extent by information and undertakings provided by the Tahera Diamond Corp. Ltd. (TDC). This intervention will highlight areas which warrant further attention, and provide recommendations for consideration in the development of water licence conditions.

Summary of Comments & Recommendations

Monitoring of aquatic effects

TDC has submitted an Aquatic Effects Monitoring Program (Appendix N). In general, EC finds that the aquatic effects program should be comprehensive enough to detect changes in the environment, but has some concerns with how the data are to be evaluated. Tahera must determine how effects on sediments, benthic invertebrates, zooplankton and phytoplankton should best be monitored and what statistical design will achieve good detection of potential impacts.

Environment Canada recommends that ammonia levels within the Long Lake Containment Facility (LLCF) and the downstream receiving environment be carefully monitored, and that TDC be prepared to implement an effective contingency plan should levels show trends which could be harmful to aquatic ecosystems.

Monitoring of water chemistry should be done often enough to identify seasonal and long-term changes in major ion, nutrient, and metal concentrations, including under ice conditions.

EC recommends that the water licence include a requirement for submission of an aquatic effects monitoring plan (AEMP) for review and approval. The plan should include an evaluation of baseline data, and set out exactly what tests will be used to identify and evaluate changes in the environment.

Discharge criteria

For the LLCF discharge, parameters to be regulated should include pH, suspended solids (TSS), ammonia (NH₃-N), nitrate (NO₃-N), nitrite (NO₂-N), phosphorus (P), total petroleum hydrocarbons (TPH), BOD₅, faecal coliforms (FC), and the following total metals: aluminum, arsenic, cadmium, chromium, copper, lead, molybdenum, nickel, and zinc.

Recommended discharge criteria are presented in the intervention.

TDC has requested limits of 100 mg/L (grab) and 50 mg/L (MAC) for surface runoff and LLCF discharges during construction. EC does not agree that it should apply to discharges from the LLCF as there is the potential for large volumes of silty water to be discharged to Stream C3.

EC recommends that a full suite of parameters be monitored under the SNP, including the metals listed in an ICP scan, major ions, nutrients, and physical parameters.

Use of toxicity testing

EC recommends that acute toxicity testing be done on the end-of-pipe effluent twice a year, at startup of discharge, and just before freeze-up, using the standard rainbow trout and *Daphnia* tests. Chronic testing should be done at least once annually on samples taken at the edge of the mixing zone, just before freeze-up.

Plans

Environment Canada recommends that annual reporting include updates to the site water balance, particularly as this pertains to the operation of the LLCF.

A more detailed plan for conducting seepage surveys should be submitted for review and approval, with annual reporting of results.

EC recommends that TDC submit a dewatering plan for Long Lake. Contingency plans should be in place in the event that suspended solids or other water quality parameters preclude discharge.

The Abandonment and Reclamation plan should be updated annually after production starts, and submitted for approval, and include identification of research needs to inform reclamation planning.

Miscellaneous licence recommendations

There will be several new definitions needed for this project; EC recommends that the licence define the following terms: ARD to include alkaline drainage; the AEMP; ground ice; ICP metal scan; land farm; major ions; nutrients; physical parameters; and seepage.

The Annual Report for the Jericho Diamond Mine should include tabular summaries of the SNP data plus graphs of the data for all monitored parameters.