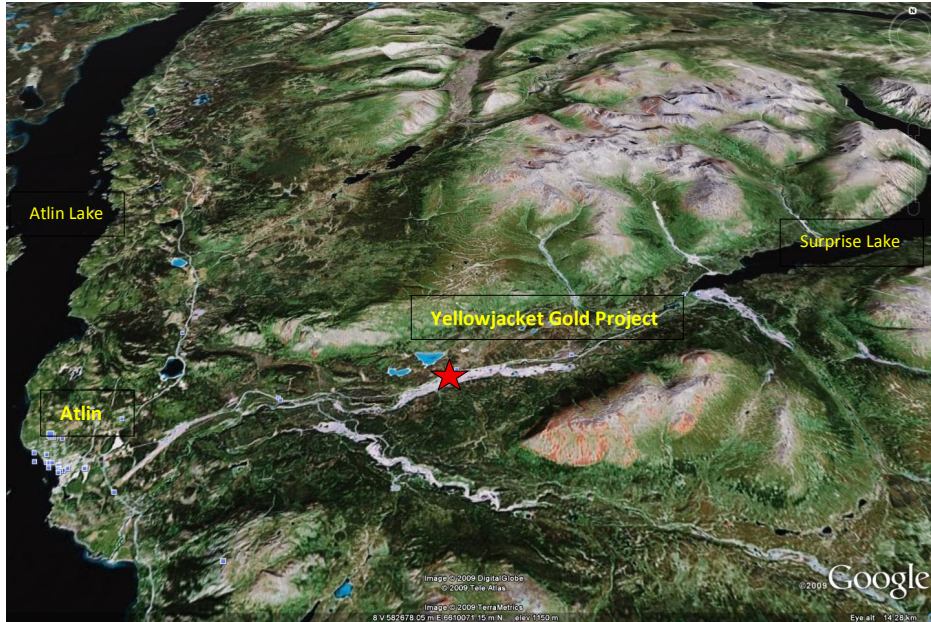


YELLOWJACKET GOLD PROJECT

BC EFFLUENT DISCHARGE PERMIT APPLICATION TECHNICAL ASSESSMENT REPORT



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SUBMITTED BY

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EXECUTIVE SUMMARY

This technical assessment report is in support of an effluent discharge permit application that has been prepared under the *Environmental Management Act, SBC 2003 Chapter 23*, for a <75,000 tonne per year mine and process plant on the Yellowjacket Gold Project.

The Yellowjacket Joint Venture (Yellowjacket JV) proposes to develop the Yellowjacket Gold Project, a small open pit mining operation which lies entirely within an area in the Pine Creek valley that has been extensively placer mined for over 110 years. The project site currently has existing infrastructure that was developed under a Ministry of Energy, Mines and Petroleum Resources (MEMPR) *Mines Act* Permit No. Mx-1-611 issued in 2007, for a 10,000 tonne bulk sample on the Yellowjacket Zone (YJZ). This area correlates to the Yellowjacket Gold Project referenced to in this application.

The project will consist of the operation and decommissioning of the following components and activities associated with the mining of a gold bearing structure:

- placer mining of surficial materials over top of mineralized zone within each pit(s);
- open pit mining of mineralized zone and associated minor amounts of waste;
- a material crushing and grinding process plant;
- mineralized material stockpile(s);
- waste (placer and bedrock) material stockpiles(s);
- process water (tailings) settling pond(s);
- groundwater extraction, including pumps and pipelines;
- access roads including internal roads within the pit;
- diesel generator for electrical power including on-site transmission;
- a fuel storage and handling facility (double walled enviro-tank system); and
- office and first aid trailers.

The project's total expected development area for the five (5) year period is approximately 18.0 ha.

The gold processing facility is capable of processing 20 tonnes per hour grinding ROM rock using a semi-autogenous grinding ("SAG") and ball mill configuration. Grinding is followed by Knelson concentrator gravity gold recovery. The Knelson concentrates are re-ground and further upgraded using a Deister shaker table. The Deister table concentrates can be directly smelted by propane or diesel fired furnace. The processing facility is gravity only extraction and does not utilize any chemicals or additives in the process.

The Yellowjacket JV proposes to implement best management practices and plans, to either eliminate or minimize the impacts associated with effluents. However, there will be three (3) effluent discharges associated with the proposed operations, and these will be discharged to the receiving environment through exfiltration from surficial gravel materials. They specifically are:

- Open pit mine water (referred to as "pit water effluent");
- Tailings pond supernatant (referred to here as "tailings supernatant effluent"); and
- Discharge from waste and mineralized stockpiles (referred to here as "stockpile effluent").

Baseline surface water quality and waste characterization programs have been conducted at the project site in 2006 and 2007. The results from the programs indicate that there will be no significant environmental issues in regards to the project.

Yellowjacket JV - Baseline Water Quality Monitoring Results

General observations of some water quality parameters results, which were analysis for the project:

- Elevated TSS during high flow conditions affect the concentrations of other constituents associated with suspended sediments;
- Nitrate, Ammonia, Nitrite and Sulphate values reported are below the 30 day and maximum BC PWQG;
- Total Cyanide and Chloride levels are below detection limits; and
- Some total and trace metals occasionally exceed BC PWQG typically only during freshet, when levels are largely governed by the high TSS/Turbidity and high flow. Only Cr and Fe exceed BC PWQG outside the freshet period.

For a more detailed review of the program and its results, the reviewer is directed to the final report on this subject entitled *Yellowjacket Gold Project – Baseline Water Quality Conditions (2006-2007 Monitoring)*, Lorax Environmental, March 2009 – Appendix D.

Yellowjacket JV - ARD/ML Waste Characterization Results

Samples were selected from three (3) drill holes located near the bulk sample site. These were chosen based on being a good representation of the material that will be produced from both the bulk sample and potential future development areas.

Acid Base Accounting (ABA)

The following summarizes the most salient conclusions drawn from the bulk sample characterization program for the Yellowjacket Zone in 2006:

- Paste pH values are all greater than 9, suggesting that waste materials from the YJZ will not be immediately acid generating;
- Sulphur of the YJZ materials is low, with the majority of samples having total sulphur contents less than 0.1%;
- Sulphur is present chiefly as sulphide minerals with undetectable amounts of sulphate;
- Fe-bearing carbonates were noted in hand sample and are indicated to be present in the ultramafic unit, with minor to none found in the remaining lithologies sampled;
- A second inorganic carbon determination, involving a more rigorous digestion method, was required to measure all inorganic carbon in the YJZ samples, suggesting that a portion of the carbonate minerals present in the YJZ samples may not be available as reactive NP. Therefore, ARD predictions were conducted using CaNP values obtained from the less rigorous initial inorganic carbon determination; and
- Essentially all samples produced NPR's greater than 10, indicating that lithologies in the region of the proposed bulk sample pit are non-acid generating.

Solid-phase Metals

- Arsenic, cobalt, chromium, nickel, antimony, selenium, and thorium are indicated to be present in elevated concentrations in YJZ samples, with Cr being the most frequently enriched metal in YJZ samples. This data indicates that these metals may be of environmental concern in neutral pH drainage from stock piles of bulk sample materials and from pit walls. However, as stockpiles are only short term, and all pit bedrock will flood along with the waste back-fill, the potential for environmental issues from drainage are potentially eliminated.

It is important to note the characteristics of the YJZ host lithologies; they tend to be mafic to ultramafic rocks with backgrounds traditionally high in chromium, nickel, cobalt, arsenic, antimony and selenium. The measured elevated levels probably represent background values for these elements in this system.

For a more detailed review of the program and results, the reviewer is directed to the final report on this subject entitled *Yellowjacket Property Bulk Sample Waste Characterization Program*, Lorax Environmental, March 2009 - Appendix H.

In 2009 additional environmental monitoring programs will be initiated to confirm results and monitor the activities on-site. The proposed monitoring and surveillance programs have or will be designed to ensure that all regulatory permitting requirements are met by the Yellowjacket JV.

The 2009 proposed environmental monitoring and surveillance programs will include:

- Surface Water Quality - Sampling and Analysis;
- ML/ARD – Mineralized, waste rock, and tailings -Sampling and Analysis;
- Field leach bin - Construction and sampling; and
- Benthic Invertebrate studies

For a more detailed review on the monitoring programs see Section 6.0 - Proposed Environmental Monitoring within this application.

