

BacTech Environmental's Bugs Eat Rocks

Option 3 (U.K.) Buys 19.9% of BacTech

Signs 5 Year Exclusive Agreement for Certain Former Soviet Countries

BacTech announced on October 3rd that it had closed a \$1.455M financing with cleantech fund Option 3 of the U.K. Option 3 will nominate a director to the board and will also be a 50/50 partner with BacTech in a number of former Soviet Union (FSU) countries including Russia. The funds will be targeted initially at progressing the Snow Lake project towards construction in the Spring of 2013.

Almost 2 years ago, BacTech Mining was split into two companies: a pure mining company (REBgold; TSX.V: RBG) and a pure environmental cleanup company (BacTech Environmental). The new BacTech then began investigating a number of mining reclamation projects throughout the world, and last year negotiated an exclusive agreement with Manitoba's Department of Innovation Energy and Mines to clean up the Snow Lake arsenopyrite stockpile, using the patented BACOX bioleaching technology.

The economic study shows positive cash flow and internal rate of return (see www.bactechgreen.com for a copy of the report). At \$1675 gold, the project has a cumulative cash flow of \$34M, an IRR of 25% and an NPV of \$23M (using 5% discount rate). The NPV equals ~\$0.59 per share of asset backing.

"What is important to highlight is the fact we are processing a very low grade concentrate (~1/3 oz) and we still make money. Imagine how effective this would be with a more normal grade of concentrate (>2/3oz). Our goal is to identify additional feeds that would enhance the grade at Snow Lake and we continue to look for them."

As BacTech moves the Snow Lake reclamation project forward, the company is also examining similar projects in Mexico, Yellowknife, British Columbia, Peru, Bulgaria and Bolivia, among others. The Snow Lake project was selected from a list of projects examined in 2011 either sourced internally or from interested parties. Key to the company's selection process is the ability for a project to return a profit while also delivering an environmental benefit.

"The potential size of the reclamation market we are addressing is truly very large," says Orr. "Our mandate is to identify projects that add production and value in the short to medium term, keeping in mind that not all tailings projects are bioleach candidates. We must search for the wheat amongst the chaff."

Snow Lake Mine Reclamation Project Will Be BacTech's First Commercial Bioleaching Treatment Plant in North America

In late December, BacTech signed a definitive agreement to clean up the stockpile from the former Nor Acme Mine in Snow Lake, Manitoba. The former gold mine operated for nine years from 1949 to 1958, mostly producing "free" gold that did not need the application of any liberation technology. About

15% of the mined gold was in the form of arsenopyrite that included very high levels of arsenic, which precluded using conventional technology at the time. The miners produced a float concentrate and stockpiled it on the site for later processing once a suitable technology could be identified that could deal with the high levels of arsenic.

The stockpile containing about 20% arsenic – and over 90,000 ounces of gold – is still there, slowly oxidizing and discharging acidic water contaminated with soluble arsenic into the local environment. The stockpile contains about 300,000 tonnes of concentrate with an average grade of about 9.7 gpt gold (roughly 1/3 of an ounce).

BacTech's bioleaching technology is ideally suited to freeing the gold while oxidizing the sulfides to eliminate acid discharges and stabilizing the arsenic as benign ferric arsenate. The project has the added attraction of not requiring construction of a flotation plant or facilities for crushing or grinding. Most other projects considered by BacTech involve tailings where the sulfides need to be separated from the waste rock to produce a concentrate for bioleaching. At Snow Lake the stockpiled ore is already in a concentrated form and ready for the bacteria.

Newalta Corporation's participation in the Snow Lake project provided BacTech with needed capital while it proves up the validity of the project. Under the terms of the agreement, Newalta will provide two engineers to join in the engineering study. Beginning with the publication of the economic study, Newalta will have 90 days to strike a deal with BacTech with respect to their participation at Snow Lake. BacTech is under no obligation to repay Newalta its \$300,000 cash infusion.

Orr said the ideal arrangement for BacTech would be to enter a 50-50 partnership with Newalta or another capable partner to become the operator. Newalta currently operates over 85 plants in Canada and the U.S. The plant also will be capable of treating other refractory-type gold values and waste in the region once it completes the stockpile and could become a regional bioleaching facility for years to come. A recent trip to British Columbia uncovered gold tailings that could see the concentrates find their way to Snow Lake for processing thereby doubling the life of the plant, if a deal can be negotiated.

Best of all, under its agreement with Manitoba, BacTech can keep all the gold freed from the stockpiled ore in exchange for building the plant and treating the contained arsenic. BacTech will also pay the government a 2% NSR after its capital has been repaid. In addition BacTech will be contributing \$5 for every ounce recovered to the local town (approx. \$50,000/yr) who have been great supporters of the project to date.

"This will be the first commercial bioleach facility in North America," says Orr. "This is a major step forward for BacTech as we position ourselves as a leader in the field of tailings reclamation. It is a highly visible project whose success could lead to bioleaching playing a prominent role in future cleanups in North and South America. In the past 9 months we have been inundated with requests from people or governments



BacTech drills to test mineralization in concentrate stockpiled for over 50 years in Snow Lake, Manitoba prior to investigating feasibility of applying its proprietary bioleaching technology to clean up the toxic site and reclaim up to \$150 million in gold contained in the ore.

who have tailings issues. I always tell them that Snow Lake is priority #1 as it will be a great showpiece for us".

BacTech Files Patent Using Bioleaching to Produce Ferric Sulphate; Targets Waste Water Treatment Market

BacTech Environmental holds the sole and perpetual rights to the original company's patented BACOX bioleaching technology for anything related to mine tailings – a process that uses bacteria to remove toxic chemicals from mining wastes while liberating gold and other metals, both base and precious, for sale on the open market. BacTech, under the agreement with REBgold, can own any improvements or alternate applications of the technology developed by the Company. In early June, BacTech filed a preliminary patent covering the production of ferric sulphate using bioleaching. The significance of this is onsite production of a product that is used extensively in the waste water treatment industry on a global basis. Currently most of the product is trucked in a diluted solution sometimes over great distances. Producing the product onsite, using pyrite from old tailings, allows for inexpensive, secure source that will enable the end user to reduce operating costs.

BacTech's completely modular bioleaching technology has been successfully used in the gold industry for a number of years. It utilizes naturally occurring bacteria that are harmless to both humans and the environment. The bacteria literally eat the rocks, breaking down sulfides in 5-6 days that normally would take over 20 years to occur naturally. The bioleaching process neutralizes the sulfide source of acid and stabilizes hazardous metals, including arsenic, into benign compounds. The bacteria effectively eliminate acid mine drainage at the source while liberating valuable metals, such as gold, silver, copper and other base metals. BacTech's strategy is to retain those metals to fund its reclamation projects.

Investment Considerations

2011 was BacTech's inaugural year as an independent company and 2012 is our year of major milestones. One hoped-for milestone in 2012 will be the ability to trade on a U.S. stock exchange, making it easier for existing and potential U.S. investors to become shareholders in this environmentally-focused company.

BacTech's management team is focused on creating substantial cash flow by year-end 2013. Orr's team of

professionals have extensive experience in mining company management, metallurgy, and materials science, as well as minerals, biochemical and chemical engineering. If the team is successful in reaching its goal, the company will no longer be dependent on equity markets, according to Orr.

BacTech is one of only two companies in the world with a proprietary commercial technology suitable for oxidizing sulphides. As BacTech Mining, BacTech helped to build several commercial bioleaching plants, one in China and 2 in Australia. Currently, there are about 20 facilities worldwide that treat arsenic-bearing gold ore, but BacTech is the only company that has identified environmental reclamation as a new market for bioleaching.

BacTech hopes to begin building a \$21 million bioleaching processing plant at Snow Lake by next spring and be in actual production by the end of the second quarter 2013. The anticipated life of the project is about seven years with an additional 15 years for other feeds if they can be identified.

"We have done a lot in the past two years," says Orr. "In our first year as a stand-alone environmental reclamation company, we have managed to identify, negotiate and sign our first project that will use bioleaching as a means to reclaim an historic problem. Our goal is to build one plant per year for the next five years. We have also filed a patent that sees us attacking a new industry but using technology that is already proven. Now if only the markets would calm down long enough for people to invest again. Is there anyone out there?"



Peñoles, Mexico demonstration bioleaching plant built by BacTech



BACTECH ENVIRONMENTAL CORPORATION

CNSX: BAC

Contact: Ross Orr, President & CEO

50 Richmond St. East, Ste. 300
Toronto, ON M5C 1N7, Canada

Phone: 416-813-0303, x 222

Fax: 416-596-9840

E-Mail: info@bactechgreen.com

Website: www.bactechgreen.com

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Canada: Hi: C\$0.24 • Low: C\$0.05