

Alphamin completes FEED, CBE for Bisie Tin Project in DRC

Alphamin has announced that it has completed the front-end engineering design (FEED) and control budget estimate (CBE) for its 80.75%-owned Bisie Tin Project in the Democratic Republic of Congo.



The completion of the FEED program and associated CBE, it says, confirms the robust economic metrics and potential of the Bisie Project and the development of the Alphamin Bisie Tin Project into North Kivu's first commercial mine, and a new global tin producing mine. Boris Kamstra, CEO of Alphamin explains: "The completion of the FEED and CBE phase marks another important and exciting milestone as Alphamin advances the project towards becoming the first industrial mine in DRC's North Kivu Province."

A comprehensive process for estimating capital costs was followed and the CBE results show that the project has the potential to remain strongly profitable at lower tin prices, as well as at increased prices for key consumables. The completed FEED and CBE increase proven and probable reserves to 4.67Mt at 3.58% Sn containing 167.3Kt of tin while also increasing the life of mine (LoM) to 150-months or 12.5-years. The optimised process flow sheet resulted in 6% higher annual average plant throughput rates, and an increase in tin recoveries to 73%.

A cash margin of some \$11,040 per tonne of tin sold is foreseen, yielding a LoM annual average EBITDA of approximately \$110m (constant 2017 terms). Alphamin is also pleased with the robust economic performance indicators of a net present value (8%) of \$402.2m as well as real, after tax, Project IRR of 49.1%. The projected payback period is 17-months from the first tin production at the Alphamin Bisie Tin Mine.

Reduce the implementation and operational risks

"The FEED program's emphasis was to reduce the implementation and operational risks associated with the project wherever possible, and resulted in necessary increases in certain capital and operating costs. The improved mine design, process flow sheet optimisation, and an improved tin price outlook, have enhanced the forecast economic performance indicators and overall robustness of Bisie significantly, despite the aforementioned cost increases," explains Kamstra.

“These improvements along with the continued strong support from provincial and national government and the local communities confirm our view that Bisie forms the ideal foundation on which to build a mining company and associated infrastructure for mining in the tin-rich province of North Kivu. This mining project presents Alphamin shareholders with an attractive opportunity to participate in one of the highest grade known tin deposits in the world,” says Kamstra.

Kamstra explains, “This CBE is by definition conservative and based on tenders, quotes and detailed estimates. Given the paucity of commercial operations and operating data in the area estimates used have been of necessity conservative. Once the Bisie mine is fully operational, there is considerable scope to improve operational efficiencies and recoveries from the assumptions used in this study as well as to reduce costs, particularly in the areas of logistics. In addition, the exploration and resource delineation drilling that will continue after the Bisie mine is established is, given the open-ended nature of the existing reserves upon which this CBE is based, expected to increase the reserve inventory and thus LOM.”

Mine design

The project team has recently completed the optimisation of the mine and process plant design for Bisie, which has resulted in the following changes to the mine design. The fundamental mining method has not changed but, the layout and mine design parameters have changed notably from the updated feasibility study issued in June 2016.

The mine design was developed based on the revised criteria, including a reduction in cut off grade from 1.8% to 1.4% due to a far higher tin price, that resulted in a 30% increase in ore tonnes mined, a 10% increase in tin tonnes mined, and a LoM extension of 2.5-years. The capital footprint has been defined as mine development and associated infrastructure that will take place up to and including December 2018. This includes approximately 64,000-tonnes of ore from the ore drive development, which will be stockpiled prior to plant commissioning. Stoping will commence outside the capital footprint.

The mineral resource estimates were updated in May 2016. The mineral resource estimate contains 19,600-tonnes of tin of measured mineral resources, 188,400-tonnes of tin in indicated mineral resources and 22,800-tonnes of tin in inferred mineral resources declared at a 0.5% tin cut-off grade.

The mineral reserve estimate contains 15,896-tonnes tin in the proven reserve category and 151,448-tonnes tin in the probable reserve category at a 1.4% tin cut-off grade.

Contractors will mine the Mpama North orebody using proven underground mechanised mining methods to deliver ore to the process plant at an expected rate of 25-35ktpm. A comprehensive programme of metallurgical testing was executed to support the CBE. An overall metallurgical recovery of 80% was achieved under laboratory conditions. Factoring in operating conditions, operator skill levels, and an element of conservatism, an overall recovery of 73% has been applied in the evaluation of the project economics. The process design is based on recovery of tin into concentrate through conventional gravity separation methods. The Bisie Tin Project process plant design capacity is 360-400ktpa.

Conflict-free tin

Alphamin is committed to develop the first large commercial tin mine in the eastern DRC that will produce conflict-free tin concentrate, while promoting community development, safety, health and environmentally sound practices. “The Bisie operation will supply conflict-free tin from eastern DRC and the Alphamin operation will be the manifestation of what conflict

mineral advocacy and legislation aimed to achieve. Alphamin's conflict-free tin concentrate and social initiatives should therefore be of interest to international trading and smelting companies and multinational brands which use tin in their products, including laptops, mobile and smart phones and cars," explains Kamstra.

"The complexities of certifying tin concentrates as conflict-free also make the product less appealing to armed groups and so reduces the risk of threats to the mine or transporters with the intention to forcefully gain occupation of the mine site or appropriate final product," he says. Alphamin is a member of the Conflict-Free Sourcing Initiative, a global end-user grouping of companies who develop conflict-free certification standards and protocols, and is also a member of the International Tin Research Institute which is involved in global conflict-free sourcing initiatives.

In April, 2016 a memorandum of understanding was signed between Alphamin and the Walikale Community to collaborate in creating the Loya Alliance. The Loya Alliance will invest, along with the community itself and other development partners including the Government of the DRC, in 120 projects over the initial five years, which will include schools and technical training, primary healthcare services, agriculture and fish farming, small scale renewable energy, small and micro enterprise, community infrastructure, town zoning and road articulation to help manage growth, and women's empowerment.

Job creation

Alphamin, through its exploration and development phase has already created 480 new jobs, invested in road and telecommunications infrastructure to unlock the isolated Walikale territory, developed 25 participatory local development plans representing the long-term needs of the 14,000 households living closest to the mine, and recently completed the construction of a quality primary school with solar powered lighting. An artisanal and small scale miner (ASM) strategy is being implemented to work with all levels of government to optimise incentives for ASM miners to work legally off the Alphamin concession, reduce impunity for illegal activity and assure optimal security for operations, personnel and local residents.

Alphamin is responsible for consistent monitoring of all community initiatives, including the artisanal strategy, and will work with all involved stakeholders to assure respect for and compliance with the Voluntary Principles on Security and Human Rights guidelines. Alphamin, therefore has a robust and proactive programme of community outreach and engagement in place. Alphamin has completed the required environmental studies and is in full compliance with IFC Performance Standards and Equator Principles. Comprehensive management plans have been developed to mitigate the potential negative environmental impacts of the project.

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