

Bisie tin project heads into the home straight

Alphamin Resources, which has its primary listing on the Toronto Venture Exchange and a secondary listing on the JSE's AltX, is making good progress on its Bisie tin project in the DRC, with construction 88 % complete as of late November 2018. Commissioning is expected in the first half of 2019 with steady-state production being achieved towards the end of the year.

Located approximately 180 km north-west of Goma, the provincial capital of North Kivu Province, Bisie is 60 km from the town of Walikale and 32 km from the national route linking Walikale with Kisangani. North Kivu has no mining sector to speak of and Bisie will be the first commercial scale mine in the province.

The mine is expected to produce on average 9 642 tonnes of tin per annum over an initial 12,5 year life of mine, at a cash cost of US\$8 837 per tonne of tin produced and US\$10 359 per tonne tin sold after duties, royalties, levies and marketing fees, generating an average EBITDA of approximately US\$110 million per annum.

Bisie, which has a capex of approximately US\$160 million, has the highest grade of contained tin of any tin mine in the world and the second largest resource size (although drilling stopped before the full resource size was determined).

In its report on the three months and nine months ended 30 September 2018, Alphamin says the project – for which DRA is the EPCM contractor – had recorded 1,77 million hours worked by 898 project employees with no lost time injuries reported through to late November. The focus during the quarter was on Total Safety Culture training and fire-fighting training. The company says it continues to monitor the ongoing Ebola outbreak in North Kivu, which has not affected operations to date.

Alphamin's underground mining contractor, Reliant SARL, continued to progress ahead of schedule during and after the nine months



View of the Bisie site taken in November 2018.



The primary and secondary crushers at Bisie.

ended 30 September 2018. As at 29 November 2018, Reliant SARL had advanced a cumulative total of 2 421 m to a target of 2 240. The capital footprint contemplates a total of 2 700 m.

Rock conditions underground have led management to review the suitability of the

sub-level caving mining method previously planned at Bisie. A cut-and-fill mining method is being analysed and, if approved, would result in changes to the operating costs, mined grade, recovery and mineral reserves.

In respect of process plant construction, steel erection continued ahead of schedule and was 70 % complete with 95 % of the total steel requirement delivered to site as of late November.

Electrical and piping disciplines commenced during the quarter and are ahead of schedule. Substantially all major component parts of the plant have been delivered and are installed. Commissioning of the primary crusher is planned for January 2019. Commissioning of the gravity concentration building is scheduled for March 2019.

Alphamin has completed the licensing process of the newly built 1 200 m airstrip, which is located approximately 11 km from the Bisie site. The airstrip is now fully operational. The company's 36 km access road from the nearest national road to the project is also fully operational.

Logistics along the access routes to site are moving relatively freely with approximately 95 % of loads already delivered to site, despite some challenges with regional road conditions, rebel activity and the Ebola outbreak, says Alphamin. Procurement is 99 % complete.

In terms of processing (and as explained in our article on Bisie in our January 2018 issue, based on a visit to the project by *Modern Mining*), the ore delivered to surface from the underground mine will be treated using conventional – and simple – gravity separation methods.

Mined ore will be crushed to 100 % passing



Mills and gravity separation building.

10 mm. The coarse material (10 mm to +1 mm) accounts for 75 % of the mass flow and the tin contained in this size fraction will be recovered in conventional jigs. The fine material (-1 mm) makes up the balance of the material and the tin contained in this stream will be recovered using spirals. The concentrates from both the jigs and spirals will be milled and subjected to flotation to remove sulphide material.

The current mine will exploit the Mpama North deposit at Bisie. A growth opportunity lies in Mpama Deeps, a high-grade continuation of the Mpama North orebody that could not previously be drilled due to limitations on heliborne drill capabilities (the site was all but inaccessible except by helicopter when Alphamin carried out its resource drilling). Alphamin also plans further assessment of the Mpama South orebody, which occurs 750 m to the south of Mpama North within the same system with largely similar mineralisation and structural control but with more developed base metals (Pb/Zn).

Photos courtesy of Alphamin



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