

SEG 2024 Conference: Sustainable Mineral Exploration and Development

The Geology of the Mingomba Deposit in the Zambian Copperbelt

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Mingomba is a reduced facies, sedimentary-rock-hosted chalcocite-dominated deposit hosted in the Copperbelt Orebody Member (COM, aka Ore Shale) of the Lower Roan Subgroup, the lowest part of the Neoproterozoic Katangan Supergroup. On a regional scale, the deposit is part of a mineralized system continuous over ~15 kilometers from the Konkola mine in the southeast to the Musoshi mine in the northwest.

The >50,000 meters of diamond drilling at Mingomba from March 23 through April 24 has demonstrated significant lateral zonation in copper mineralogy. The drilling has identified contiguous grades averaging over 5% copper with a median true-thickness of 8.5 metres along a north-east trending zone, over two kilometers long and approximately 1.5 kilometers wide at depths of 1,150 metres to 1,650 metres. The Mingomba system remains open to the north and east.

The highest grade mineralisation is predominantly developed directly at the interface between reduced and oxidized elements of the stratigraphy. Chalcocite mineralisation occurs to the top of the Copperbelt Orebody Member, suggesting that the system is sulfur limited and the ore-fluid was extensively fertile. A second mineralized horizon is developed in the more shallow Chambishi dolomite, potentially correlative of the Mines Series in the DRC.

We hypothesize that the zone of chalcocite enrichment at Mingomba is controlled by an array of syn-sedimentary growth faults striking north-west and north-east. This potential fault array could produce a series of half-grabens or sub-basins, controlling the distribution of both the copper-bearing ore-fluid, and the distribution of the reductive rocks necessary for copper mineral precipitation.

The recent drilling campaign has demonstrated that Mingomba's size, and high-grade chalcocite-style of mineralisation, are comparable to Ivanhoe's Kakula mine in DRC. Mingomba, like Kakula, highlights the residual exploration prospectivity of the Central African Copperbelt.