



Geology of the Antucoya Porphyry Copper Deposit: An Early Cretaceous System in the Coastal Cordillera, Antofagasta Region, Chile

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The Antucoya porphyry copper deposit is situated 120 km northeast of Antofagasta in the Early Cretaceous metallogenic belt of the Coastal Cordillera. Antofagasta Minerals acquired the deposit from Soquimich (SQM) in 2006 and combined the associated mineral rights with its adjacent Buey Muerto properties. Prefeasibility and feasibility studies were conducted between 2007 and 2012 and in 2013 mine construction was approved.

The mineralized system is related to granodioritic porphyry (Antucoya porphyry) and dacite porphyry (Buey Muerto porphyry). Late dacitic dikes intrude the former ore-related intrusions and Jurassic andesitic host rocks in a tectonic environment dominated by splays of the Atacama Fault System.

The principal mineralization constitutes a column 350 m thick, composed of atacamite, brochantite, Fe-Cu sulfates, Cu-bearing limonite, chrysocolla and black oxides, with rare chalcocite and covellite in a thin supergene enrichment blanket.

In the underlying hypogene zone, the mineralization is dominated by chalcopyrite>pyrite>bornite hosted by A- and B-veins in potassic alteration, and in C-veins on the periphery of the porphyry intrusions. The pyrite/chalcopyrite ratio is greater in D-veins within a shallow phyllic zone. The Mo distribution is erratic and poorly characterized. The total resource is 1204 Mt at 0.31%CuT, using a 0.15%CuT cut-off.