

Copper Blow Cu-Au IOCG Project, Broken Hill

Copper and gold mineralisation occur in a shear zone which hosts both high strain mylonitic rocks and later veins and breccias. Mineralogy within the shear is characterised by abundant biotite, magnetite and quartz over-printed by early phase cobalt-bearing iron oxides (pyrrhotite and pyrite) and later chalcopyrite and gold. Alteration paragenesis suggest an early potassic (biotite-kspar-magnetite) event followed by a phyllic (sericite-quartz-carbonate-chlorite). The change from one to the other is postulated to coincide with a transient change in kinematics from a dextral ductile shear to reverse SE over NW thrusting and formation of flat-lying veins and copper-bearing structures.

The geochemistry of the mineralisation is characterised by an influx of Fe, K, Si, Mg, Mn with significant anomalies in Cu, Au, Ag, La, Mo, Co, Ce, U, P.

The shear zone, located approximately 20 km south of Broken Hill, extends for over 4km in a northeast-southwest orientation. Rare hematite veins have been noted in drilling in the southern part of the zone and specular hematite schists have been mapped, but untested, by drilling in the northern zone.

The shear zone and epigenetic mineralisation post-dates metamorphism of the Broken Hill and Thackaringa Groups. Mineralisation may be related to emplacement silica undersaturated alkalic intrusions previously documented in the district.