

Controls on gold mineralization along the Capburn Fault, East Otago, New Zealand

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ABSTRACT

Current gold mining and exploration in the Otago Schist is focussed on regional-scale structures that host the Hyde Macraes Shear Zone (HMSZ) in SE Otago and the Rise and Shine Shear Zone (RSSZ) in Central Otago. Both shear zones are truncated by Late Cretaceous normal faults, the Footwall Fault and Thomson Gorge Fault respectively. These bounding faults juxtapose lower greenschist facies, TZ3, schist to the N, over upper greenschist facies, TZ4, schist to the S. Whereas, the HMSZ is hosted in lower greenschist facies schist, on the NE side of the Footwall Fault, the RSSZ is hosted in upper greenschist facies schist on the SW side of the Thomson Gorge Fault. Anomalous As- and Au-bearing schist (>1 ppm Au) has recently been drilled along strike with these shear zones, adjacent to the Late Cretaceous Capburn Fault, <10 km NE of the currently active Macraes Mine. Unlike the gold deposits at Macraes, the Capburn zone is hosted in upper greenschist facies schist on the SW side of the Capburn Fault and thus its structural setting and host rocks are more similar to the RSSZ.

This study examines core from the Capburn diamond drill hole, CBN0003, to identify and characterise the structures controlling Au and As mineralisation. A mineral paragenesis will be constructed and trace element composition of sulphides will be determined by SEM (Scanning Electron Microscope) and LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry). Results of this study will then be used to compare and contrast this occurrence with the HMSZ and RSSZ gold deposits and infer an age and relative depth of mineralisation. The identification of relevant gold bearing structures will help direct future exploration along the Capburn Fault.