

SUMMARY

A study of mineralised and barren profiles at New Cobar has revealed the nature of dispersion of Au and its pathfinder elements within the top 30 m of the regolith. Gold mineralisation at the New Cobar deposit is associated with Ag, As, Bi, Cu, Mo, Pb, Sb, Se and W which are retained in the outcropping sub-vertical lode material. Sub-horizontal veins are also strongly mineralised for up to 6 m from the sub-vertical lodes with anomalous Au, Ag, Pb and Cu extending out for at least another 25 m. Thus, a lateral progression from Au-Ag-Pb-Cu to those elements, plus Bi, Mo, Se (and perhaps Sb and W), would be expected as mineralisation is approached.

In the mineralised profile, Au was separated from Ag during weathering to form pure supergene gold. Although there is no evidence of supergene enrichment of Au, there does appear to be surficial depletion of Au. Thus, use of the Au pathfinders in near-surface sampling during regional exploration is strongly recommended. The pathfinder elements are retained in Fe oxides with thousands of ppm Cu and Pb routinely observed in both hematite and goethite even in the near surface leached zone.

Weathering occurred in two main stages:- initially under acidic sulfate conditions to form alunite-jarosite minerals (hinsdalite) and Fe oxides and then under more arid conditions when Cl-rich overprinting occurs. However, because of the lack of mineralogical variation in the material so far studied, characterisation of material from 30 m to the base of oxidation is recommended when mining recommences.