

## EXECUTIVE SUMMARY

Analysis of geological structure in the area of the Hellyer Mine indicates the geometrical arrangement of lithologies is largely controlled by two major folding events and late faults of predominantly dip slip displacement. The axes of the first fold event were formed on an approximately  $290^\circ$  trend. These are folded by the second event with axes along an approximately NNE trend. Deformation in the immediate area of the deposits at Hellyer and Cue River may be related to the late fold event but is of much higher and inconsistent strain. This is attributed to local reactivation of basement faults in these areas producing extreme shortening in narrow zones. Shortening is manifest as tight, asymmetrical folding and attenuation of fold limbs. The relationship between the position of the deposits and the high strain zone is interpreted to be a generic control. Structures reactivated in the basement during shortening are assumed to be fundamental basement features related to the formation of the basin and the localisation of mineralisation. There is no data available from this study to indicate the exact nature of these structures.

Revision of the geometry of the sediment package indicates steeper dips and more extensive faulting than previously mapped. Future drilling programmes may be better planned with regard to localisation of targets and the orientation of holes if local structure is analysed in more detail prior to drill planning. Enhanced understanding of detailed structure will also improve interpretation of existing outcrop mapping as well as guiding future mapping with more efficiency.

Without this proper recognition of structural geometry, which this study indicates is quite achievable, all other geochemical and petrological work, not to mention drill targetting, is without proper lithological context. Through understanding of this structural geometry there is also the potential to recognise areas of complexity relating to the fundamental controls on mineralisation. Present interpretation of these controls within the mine is handicapped by the lack of proper framework to distinguish between early and late structure. At surface this form of interpretation is not attempted but should be possible.