

AN EXPLOSION OF VARIETY IN THE DEGRUSSA STRUCTURAL VINEYARD

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ABSTRACT

The DeGrussa copper-gold deposit is located 900km North of Perth. Copper-gold bearing massive sulphide lenses occur in lower greenschist facies meta-sedimentary and mafic volcanic of the Bryah Basin. Regional folding, faulting and tilting of the stratigraphy primarily occurred during the Capricorn Orogen.

The Shiraz Fault and Merlot Fault are regional oblique-sinistral faults that offset the DeGrussa massive sulphides lenses into three fault blocks by ~350m and ~120m, respectively. A network of deposit-scale brittle-ductile faults splay from, and in one example are cut by, the Shiraz and Merlot faults. This results in localised ore displacement, selvage alteration and degradation of the rock mass integrity.

Historically, only the Shiraz and Merlot Faults were modelled and validated during mining and grade control. The requirement for a comprehensive structural model became more relevant as mining became advanced and confining stresses on local rock mass became more complicated. The DeGrussa Structural Model has been developed to communicate areas of structural concern underground which might otherwise have been overlooked. To mitigate risk through well informed decisions. During this process, every accessible excavation was walked and structurally mapped. New workflows in LeapFrog Geo and new technology, e.g., FieldMove Clino streamlined the validation process. Drillhole orientation was a limiting factor during validation. At the time of writing this submission, the DeGrussa Structural Model consists of 24 faults, and is now an important tool for the Technical Service team and feeds into mine plans and schedules.

Applied structural geology is often seen as exclusive to those with a PhD in the field. Faults at DeGrussa have been modelled and reconciled by a Mine Geologist, using first principles geological characterisation. This is a simple process that demonstrates any geologist can contribute to a structural model, provided they understand the fundamentals of unbiased structural measurements and consistent record of observation.