

fracturing and subsequent hydrothermal alteration often masks the primary textural features and the identification of either this facies or the massive andesitic lava facies is extremely difficult in areas immediately footwall to mineralisation (ie. stringer zones).

*Interpretation:* This facies most likely represents the quench fragmentation of an andesitic lava due to its contact with cold sea water, or in the case of the peperitic varieties, wet unconsolidated sediments. The degree of fragmentation increases away from areas adjacent to the massive andesitic lava facies, or toward individual flow margins. The degree of quench fragmentation decreases away from individual flow margins due to the insulating effect of the envelope of quench fragmented glass surrounding the lava. This insulating layer has the effect of reducing convective heat transfer, thus slowing the rate of cooling and reducing cooling contraction granulation (Pichler, 1965; Kokelaar, 1986)

*Possible Ore Horizons (HAT-5 & HAT-7)*

Within DDH HAT-5 a sequence of volcanoclastics ranging from pebble to medium sand sized and an underlying interval of muds/silts is interpreted as being stratigraphic equivalents to the Hangingwall Volcanoclastic Sequence (HVS) and Hellyer Mineralised Sequence (HMS) of the Hellyer deposit (Figures 1 and 3). This interval of clastic is also a possible equivalent to the Mixed Sequence horizon at Que River. The fine to very fine grained sediments in the equivalent stratigraphic position to the HMS at Hellyer represents the hiatus in volcanism during which the massive sulphide mineralisation accumulated.

The HVS equivalent in Hat-5, in core, consists of 9 to 10 metres of bedded mid to dark grey-green, poorly sorted, coarse to pebble sized volcanoclastics. The coarser units vary in core, from 1.3 to in excess of 5 metres in thickness and are weakly graded. These units consist dominantly (~80%), of angular to sub angular, porphyritic mafic to intermediate fragments along with minor fine grained sedimentary lithics. The matrix to these units appears to be a light grey mud.

The coarse sand sized volcanoclastics appear to be compositionally the same as the pebble sized units, but show slightly better sorting characteristics. These beds are thinner, not exceeding 50 centimetres in thickness, and lack