between these units. The main effect of this is an abundance of joints in the shale perpendicular to the bedding orientation. In addition to the scatter of joint orientations associated with differential strain there is some clustering of joint trends around certain trends. Distribution of bedding planes and joint surfaces is illustrated by the stereonet plots in Appendix 3. The main groups of joint planes are interpreted as follows;

a) Axial planar joints, varying over 45° in trend but broadly distributed around the local axial plane of the F2 fold structures.
b) Tensional joints, also varying over 45° in trend and usually steeply dipping in both directions with the mean trend perpendicular to the F2 fold axis. These may form one group of planes of variable dip direction and similar strike, or two approximately conjugate groups. It is difficult to determine to what extent the joint trends are influenced by folding subsequent to formation, but it is reasonable to assume this has contributed to the scattering of the joint families. It is also difficult to determine the extent of jointing related to the F1 fold event. Small clusters that fall in the groups of tensional joints could be related to the F1 axial plane.

The degree of joint fracturing is strongly influenced by the distance from the nearest fold closure, with the number of joints parallel to the opposite limb increasing with proximity. In the vicinity of a fold closure this interaction of joints may lead to pervasive fracturing and a virtual crush zone comprised only of small fragments. Such zones will produce very poor recovery in drill intersections hence disguising reversals in dip and preventing recognition of fold closure.

Orientations of joint planes within the Hellyer Mine are illustrated by stereonet plot in Figure 6. Groupings of joint planes are again closely related to the planes of minimum and maximum orthogonal stress, with the axis of sigma 1 interpreted to be through approx. NW.