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1. INTRODUCTION

The observations of structure and geology presented in this report were made during field visits by the author to the Hellyer-Que River area in January 1991. These observations are supplemented by geological and structural data acquired by Aberfoyle up to the time of the visit. Particular use is made of structural information gathered from the Hellyer and Que River mines during various studies of joint and bedding plane orientations and the 1:2,500 scale geological mapping, with the 1:10,000 interpretive geology.

The original aim of this study was to examine the structure of the area with special reference to the Mt Charter prospect. After visiting Mt Charter it was clear that the present exposure was too poor to gather meaningful data on the structural style. Instead, the scope of the study was broadened to look at the general Hellyer area but concentrate on areas where exposure allowed some observation of the structural styles. From the study of these areas a model of the fold geometries has been established for use in the interpretation of sparse data in the poorly exposed localities.

Around the Hellyer Mine the best exposure was in the recently constructed stream diversion drains around the tailings dam and along the main haul road cutting. Additional data has been obtained from previous studies and routine mapping of the Hellyer and Que River underground development. The data from the two mines does not have any form of specific location details, hence it is only used as an overview of structural orientations in the mines.

Due to the discontinuity of exposure in the Hellyer area, and the small areal extent of most exposures, the interpretation of small groups of structural orientations is very prone to misleading results. This is due to the lack of representative sampling. The problem is compounded by the difficulty in visualising the structure of an area with extreme terrain variation and observation of structure in many different planes of view, such as within the drains. Under such conditions it is necessary to obtain as many records of structure orientations as is feasible, and in order to interpret this data the most useful method is plotting onto a stereonet. This allows the recognition of patterns and trends in the orientation of bedding and structure that could not otherwise be visualised. Study of structure by this method also allows areas with a poor statistical sample to be compared against all other data, thus providing a model within which to interpret the small number of data. Details of the stereonet analysis procedure are outlined in Appendix 3. References to published