Hellyer Volcanics. Due to the increasing frequency of this intermediate to mafic lava and associated volcaniclastics toward the northern end of the deposit it is most likely that the source of this lava is to the north of Que River.

*Volcaniclastics:* The volcaniclastics in both sections appear to be lithology and depositional very similar to the volcaniclastics present at the Hellyer deposit (Waters, 1988, 1989). The volcaniclastics associated with the Que River deposit do however, appear to lack the finer grained facies found at Hellyer.

The breccias present at Que River are dominated by mass flows of volcanic lithic rich material up to 5 - 10 metres thick in core (Figs. 1, 2 and 3). These breccias are typical poorly to very poorly sorted chaotic units which vary from open to closed framework. Often the one unit can grade laterally from closed to open framework (Fig. 3). The breccias vary from polymictic to monomictic, dominated by angular to sub-rounded, locally derived volcanic fragments which vary from a few millimetres to about 2 to 5 centimetres in size (Fig. 5). Compositionally these range from quartz-phyric dacites (~20 - 25%), through to more intermediate to mafic porphyritic volcanic fragments (~65-70%). Dark to mid grey, massive, silicified fragments have also been noted in the framework to these breccias (~5-10%)(eg. QR-923). Framework fragments show varying degrees of alteration ranging from silicic through to sericitic and chloritic. The matrix to these breccias ranges up to 35-40% in the open framework types and in comprised of mid to dark grey muds and muddy fine to medium sands.

These breccias are generally massive, but both normal and reverse grading have been observed. Reverse grading occurs at the base of some units (ie. QR-1055; NB: some holes are drill up therefore the logs shown are upside down), and is accompanied by a change from a relatively open framework with a mud matrix to a more closed framework with a decrease in matrix content. It is possible that this muddy, more open framework base results from the incorporation of mud into the debris flows base as it moves over the sea floor. This removal and incorporation of the mud from the sea floor into the bottom of the debris flow units may account for the relative lack of preserved fine grained pelagic deposits associated with the massive sulphide mineralisation.