

Sample: TSC47107; Location: Sidewall Core 42, 3194 m

Rock Name:

Dolomitic lithic sandstone

Thin Section:

Approximately 15% of the volume of this rock consists of fine-grained authigenic carbonate and there is a similar or possibly somewhat smaller amount of clay derived from lithic fragments. Authigenic kaolinite appears to be essentially absent. As far as can be determined the sandstone consists of well sorted grains which range from about 0.1 to 0.25 mm in size. Where the sandstone is relatively well preserved, there is evidence of the presence of long and curved contacts between the grains and rare instances of overgrowths. For the most part, however, intergranular space is relatively abundant and is filled either with distorted heterogeneous remnants of original lithic fragments or with fine-grained patches and porous aggregates of ?dolomite. It is the abundance of these fine-grained constituents which has led to the apparently impervious and impermeable nature of the sandstone. Modifications to the quartz grains appear to be locally significant and there is an inverse relationship between the amount of clay in the rock and the extent of pressure solution of the quartz.

The sample has been considerably damaged during collection of the sidewall core but it seems likely that it is amongst the more carbonate-rich and lithic sandstones in this group. Its reservoir properties include not only meagre porosity and permeability but also wide varieties of potentially active minerals including carbonate as well as, probably, a range of phyllosilicates.