

Sample: TSC47110; Location: Sidewall Core 19, 3684 m

Rock Name:

Compact lithic sandstone

Thin Section:

Collection of the sidewall core has caused considerable and extensive damage to this sandstone and there are some zones in which the average size of the quartz crystals/grains is not more than 0.1 mm. Less damaged areas have an average grain size of approximately 0.25 mm and these are taken to be more indicative of the nature of the original sandstone. These latter areas also contain about 25 to 30% of lithic fragments which occur as rather heterogeneous fine-grained aggregates between the quartz grains. There are some clearly cherty fragments and numerous argillaceous lithologies which probably contain abundant sericitic and illitic material. Most of the latter are probably metasedimentary rocks of some kind. In one or two instances in this sample there are fine-grained, possibly quartzofeldspathic, lithologies which may be of volcanic origin.

Authigenic kaolinite is present in the sample but it has rather a patchy distribution and it is difficult to estimate the proportion present with precision but it is thought to be less than 5%. The aggregates of kaolinite are commonly not more than 0.1 mm in size and although some fill all the intergranular space where they occur others are associated with patches of lithic fragments. A process may have occurred whereby there was partial dissolution of the lithic material and the cavities thus formed were subsequently filled with kaolinite precipitates.

There are thin films of fine-grained carbonate around some of the quartz grains and as partial replacements of some lithic material but the carbonate, although widespread, is not a quantitatively important constituent of this rock.

The sample appears to be impervious in thin section and it is thought likely that it has distinctly poor reservoir properties.