

Sample: FSC47114; Location: Sidewall Core 3, 3609.5 m

Rock Name:

Lithic sandstone

Thin Section:

Fine-grained constituents comprise at least 40% of the volume of this rock and there is a correspondingly small proportion of sand-grade quartz grains. The latter are well sorted and most grains are 0.15 to 0.3 mm in size. There is some evidence of pressure solution effects from these grains but in general the compaction forces on the rock have been absorbed by the clastic deformation of the lithic fragments rather than by dissolution of the stressed quartz grains. A small proportion of the grains show overgrowths and these are notably smooth in a few places against kaolinite.

The lithic fragments generally show fine-grained textures and clay and phyllosilicate are the predominant constituents. A small proportion contain abundant sericitic or illitic material but most of the lithic fragments are less well defined and probably contain very fine-grained intergrowths of quartz, phyllosilicates and authigenic carbonate.

Authigenic kaolinite and authigenic carbonate are both present but the kaolinite, although it forms discrete patches, is not abundant in the rock whereas the carbonate is widely dispersed and most fields of view contain porous aggregates of this material where it appears to have partly replaced some of the lithic fragments.

This appears to be an essentially impervious sandstone which not only shows an apparent absence of porosity in thin section but also contains several potentially reactive minerals (carbonate, kaolinite and various clays in lithic fragments). To this extent, artificial stimulation of the reservoir by chemical means would be a complicated job.