

## 1. PETROGRAPHY

A portion of each sample was mounted after impregnation and stained with alizarin red-S. The thin sections were examined and descriptions are given below. As is commonly the case with sidewall cores there has been considerable damage to the rocks which can be attributed to the way in which the cores are collected. Consequently a detailed description of the quantitative mineralogy of the samples and, in some cases, of the textures have not been given but attention is focused in the descriptions on the overall characteristics of the sample which can be determined in spite of the damage caused by the sampling bullet.

Sample: TSC47102; Location: Sidewall Core 45, 2746.5 m

### Rock Name:

Compact sandstone

### Thin Section:

The average grain size of the quartz grains is about 0.2 mm and possibly about 10% of the grains appear to show overgrowths. Much more abundant, however, is the development of long and curved contacts between the grains and in some of the more undisturbed parts of the thin section there is even the development of triple-point junctions and small aggregates of essentially monomineralic quartz material. More generally, however, there are patches and thin lamellae of clay between the quartz grains and authigenic kaolinite and clay derived from lithic material perhaps comprise a 10% of the volume of the rock together. Authigenic kaolinite is relatively abundant and tends to form isolated monomineralic patches which fill the intergranular space where they occur.

Authigenic carbonate is significantly less abundant but is more widely scattered throughout the thin section where it forms very small crystals dotted along the margins of quartz grains and within aggregates of both kaolinite and other clays. There are rare fine-grained monomineralic aggregates of the carbonate which may well be derived from recrystallised original limestone fragments. Carbonate also occurs in one part of the thin section where there is a thin bed of silty material about 1 mm in width.

In brief, therefore, this is a tight sandstone characterised by modifications to original quartz grains during compaction and diagenesis and the crystallisation of authigenic kaolinite and carbonate; as well, the rock does contain a relatively small amount of lithic fragments and these have been compressed and squeezed as the rock was lithified. It is likely that the sample has moderate to poor reservoir qualities. The undisturbed parts of the thin section appear to show no porosity.