

3.12 King #1, Core plug 27, depth 1432.15m

Thin section description

The sample is a very fine grained, very poorly sorted, mineralogically mature and texturally submature quartzarenite. Low angle cross bedding and laminae are evident. Grain size is bimodal with both very fine sand and medium sand as the averages for the different fractions. Bedding is evident from the alignment of elongate grains and concentration of coarser sand. The fine sand fraction is typically subangular with low to moderate sphericity, grains range in diameter from 0.03mm (coarse silt) to 0.17mm (fine sand). Coarser grains vary in diameter from 0.25mm (fine-medium sand) to 0.85mm (coarse sand) and commonly are subrounded with low sphericity. Point contacts between grains are dominant in this grain supported texture. There is no evidence of mechanical compaction apart from possible grain rotation.

Porosity is excellent due to lack of matrix and authigenic cements. Well interconnected primary intergranular pores are dominant (Fig. 15). Isolated oversize pores indicate that there has been dissolution of labile grains. These secondary pores are interconnected via the primary pores. Rare K-feldspars have been corroded along preferred crystallographic axes to form honeycomb porosity.

Quartz is the dominant framework grain in both size fractions and there is minor K-feldspar, lithics, mica, opaques, zircon and epidote. Traces of opaque material that form rare stringers are the only matrix evident. Authigenic minerals and cements are restricted to minor carbonate spar and traces of iron oxide.

Visual Estimate of Composition		%
Framework grains	Quartz	68
	Feldspar	2
	Lithics	tr
	Mica	1
	Accessory minerals	tr
Matrix	Opaque material	tr
Authigenic minerals and cements	Carbonate	3
	Iron oxide	tr
Porosity	Intergranular	20
	Dissolution	5