3.6 King #1, Core chip, depth 1406.50m

Thin section description

The sample is a very fine grained, very poorly sorted, texturally immature quartzwacke. Disrupted laminae have variable clay contents and stringers of opaque material. There are suggestions of ripples and possible burrows filled with cleaner sands and silt. Grain size is bimodal with the finer fraction ranging from 0.01mm (medium silt) to 0.2mm (fine sand) and the coarser fraction varying from 0.4mm (medium sand) to 2.2mm (granules). The finer sand is commonly subangular with low to moderate sphericity and the coarser sand is subrounded with low to moderate sphericity. Granules are composed of either quartz or K-feldspar. Texturally the sample is grain supported in the cleaner laminae with point and tangential grain contacts. In muddy laminae, the texture is matrix supported.

Porosity is best preserved in the cleaner laminae and ?burrows where there are minor secondary dissolution pores. These pores are typically grain size but there are examples of enlarged intergranular pores that could have resulted from the dissolution of either matrix or a cement. In addition there are honeycomb pores due to partial corrosion of feldspars. Fractures that parallel bedding are considered artefacts of sampling.

Quartz, K-feldspars, lithics, mica, glaucony, epidote, sphene, tourmaline and zircon represent the framework grains. A high percentage of the zircon have hydrocarbon envelopes and these are the most abundant accessory minerals (Fig. 7). Matrix is composed of anhedral brown clays and illitic laths combined with minor opaque stringers. Authigenic minerals and cements of pyrite framboids, micrite, iron oxide and kaolin are apparent.

Visual Estimate of Composition		%
Framework grains	Quartz	56
	Feldspar	3
	Lithics	tr
	Mica	5
	Glaucony	tr
	Accessory minerals	3
Matrix	Clay	20
	Opaque material	4
Authigenic minerals and cements	Carbonate	tr
	Pyrite	3
	Kaolin	tr
	Iron oxide	tr
Porosity	Intergranular	1
	Dissolution	4
	Fractures	tr