

1. INTRODUCTION

Four sidewall core samples were received for thin section petrography, SEM and XRD analyses. The sample from 6498 metres depth was too small for XRD analysis.

2. RESULTS

XRD results are presented in Table 1, which lists the following:

- (a) The proportion of the sample found to separate into the $-2 \mu\text{m}$ size fraction, as determined by the plummet balance. The figure obtained applies only to the pre-treatment and dispersion conditions used.
- (b) The mineralogy of the $-2 \mu\text{m}$ fraction.

In Table 1 the minerals smectite, "interstratified smectite", illite-smectite and illite form a series, corresponding to the presence of an increasing proportion of illite interstratification. There could be instances where one was uncertain how to describe intermediate degrees of interstratification, but this has not occurred here. Thin section petrography is presented in Appendix 1 and SEM Plates are presented in Appendix 2.

3. DISCUSSION

Authigenic clays are very rare in samples from 2788.5, 3103 and 3498 metres depth. The sandstone at 2787 meters depth contains authigenic kaolinite, smectite and randomly interstratified smectite-illite. Carbonate occurs in the samples from 3103.5 and 3498 metres depth both as fairly large crystals (up to 0.2 mm) and very fine crystals (10-20 μm). This carbonate was identified to be siderite in both thin section and by XRD.

The composition and nature of these sandstones is similar to those examined from similar depths in a previous study of sandstones from Pelican-5 (AMDEL report F6407/B6 and F6409/B6). However, both studies highlight the complex and variable nature of these sediments.