

This interval may be all postmature due to local igneous intrusive or extrusive activity, with the overlying assemblage caving, and so being seen in the cuttings. Alternatively, it may largely belong to the lower M. diversus Zone, with caving in the cuttings masking its true identity.

Given these uncertainties, it is quite possible that the log break at 310lm corresponds to the balmei/diversus boundary.

I. 3159 (cutts)-3474m (cutts) : L. balmei Zone

This interval is assigned at the top on the youngest occurrences of Gambierina rudata and Lygistepollenites balmei. Assignment at the base is on the absence of older indicators, although, as discussed below, it may be picked slightly too high. All diverse assemblages are from cuttings, and so the presence of Proteacidites grandis (to 3465-74m, cutts) and P. incurvatus (to 3366-75m, cutts) throughout the interval, although suggesting the upper L. balmei Zone, cannot be considered reliable. The entire interval is therefore assigned to the L. balmei Zone, without subdivision. Lygistepollenites balmei occurs consistently to, and beyond, the base of the interval.

Non-marine environments are indicated by the absence of marine dinoflagellates. Only very rare specimens of the lacustrine dinoflagellates Morkallacysta pyramidalis were seen.

Spore colours of mid brown at the top to dark brown at the base indicate peak maturity at the top and full maturity at the base for oil, and maturity at the top and peak maturity at the bottom for gas/condensate. These relatively high maturities are reflected in poor preservation of the delicate structures and species, and consequent low diversity.

J. 3519 (cutts)-3941m (swc) : T. longus Zone