

Micropalaeontological Reconnaissance of the Rockly Bay Formation, Tobago

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Abstract

In 2012, Centrica Energy undertook an onshore site survey in Tobago at the Cove Point Industrial Estate. The onshore survey entailed the drilling numerous boreholes to a maximum depth of 40 metres. Boreholes generally encountered a thin limestone layer followed by a mudstone sequence that, in Core BH030, was ascribed to the Rockly Bay Formation. It was sampled every three metres. Most samples were barren, but a few yielded a rich benthic assemblage of *Bulimina exilis* and *Bulimina marginata* with lesser *Cassidulina laevigata*, *Lenticulina rotulata*, *Brizalina subaenariensis mexicana*, *Brizalina translucens* and *Eponides regularis*. Planktonic foraminifera were rare in these samples. This indicates at maximum a water depth of considerably less than 200m and probably as shallow as shallower middle neritic (20–100 m). *Bulimina exilis* is indicative of relatively unchanged organic matter reaching the seafloor. The organic source may have come from the palaeo-Orinoco plume. A single specimen of *Asterigerina* sp. in the sparsely fossiliferous sample from 8.5 m might presage the development of clearer water.

The common occurrence of the benthic species *Bulimina marginata* indicates a Late Miocene or younger age. In contrast, the presence of the planktonic foraminifera *Globorotalia crassaformis* indicates an Early Pliocene to Recent age (= planktonic foraminiferal Zone N18 [*Globorotalia margaritae margaritae* Subzone] or younger. A single specimen of *Sphaeriodinellopsis seminula* at 8.5 m confirms an age no younger than mid Pliocene (*Globorotalia miocenica* Zone, *Globigerinoides trilobus fistulosus* Subzone, N20). Thus, an Early to Middle Pliocene (N18–N20) age is invoked.