

REVISION OF THE LATE NEOGENE STRATIGRAPHY OF SOUTHEAST TRINIDAD

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ABSTRACT

A review of the late Neogene stratigraphy of Southeast Trinidad, including the nearshore marine areas, has been initiated. The objective of this review is to update and revise the stratigraphy and correlation of the late Neogene units utilising biostratigraphic and geological information, data and material which have become available since 1959.

The late Neogene units comprise the Early Pliocene to Quaternary Moruga Formation (Gros Morne silt, Gros Morne sandstone, St. Hilaire silt, Trinity Hill sandstone, Las Tablas silt, Casa Cruz sandstone), Mayaro Formation (Mayaro sandstone, Mayaro clay, Goudron sandstone), Talparo Formation (Palmiste clay) and Cedros Formation. A preliminary revision of the stratigraphy of these units from the southeast coast (Point Negra to Galeota Point) to Point Radix (Kugler, 1959, Geological Map of Trinidad, scale 1:50,000 sheets G-west, H, E-south) has been completed and correlated with the subsurface units of the Guayaguayare oilfields and Galeota Ridge.

Two (2) new stratigraphic units, which can be distinguished lithologically and paleontologically, are formally proposed for inclusion in the new geological map portfolio of Trinidad:

1. **Lawai Clay Member**, Mayaro Formation
Stratigraphic thickness : 500' - 1,060'
Age : Early Pliocene, Amoco/shell palynology zone Λ IVC
2. **Palmiste Formation**
Stratigraphic thickness : 1,000' - 3,000'+
Age : Early Pliocene, *Globorotalia margaritea* Zone
(Amoco Shell palynology zone Λ IVC) _ T.T.I. palynology zone P-3.

The Lawai clay supersedes the Mayaro clay (map unit 6Ab), and is the basal member of the Mayaro Formation. It overlies possibly unconformably, the Trinity Hill sandstone (Upper Gros Morne) in the Pilote Syncline and is correlative with the Las Tablas silt. It also outcrops from Guayaguayare Bay to Mayaro Bay, but is readily observable only at Mayaro Bay. The Lawai clay has been penetrated by 28 wells in the Navette field and 3 wells in the Pilote Syncline including Amoco exploration water well Vespry Road-1.

The Palmiste Formation includes the Palmiste clay (map unit 3g) which was formerly assigned to the Talparo Formation. The Palmiste Formation is unconformable on the Mayaro Formation and possibly older units. Its maximum development is in the Atlantic shelf where it is presently confined to an asymmetric syncline located between the Galeota Ridge high and a right-lateral wrench system related to the Naparima-Nariva thrust belt. The Palmiste Formation is apparently developed in the eastern Ortoire Syncline as the Shell Trinidad 'Bolivina 9 - Sigmolinita 1 clay' (Morne L'Enfer Formation, unit 6), and also above the Casa Cruz sandstone at Moruga. It has been penetrated by 5 wells at Cedar Grove, Pierreville and Navette, by Amoco water well Tournebride-1, and by Dominion Oil well Palmiste-2 in the Atlantic shelf.

A final interpretation of the late Neogene stratigraphy of Southeast Trinidad will be presented after completion of selective biostratigraphic analysis of shot hole samples collected in recent SBC and 1967 GSI seismic surveys, and Shell, Texaco and Petrotrin auger and trench samples.