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POSTER ABSTRACT

STRATIGRAPHY OF THE FOREST FORMATION WITHIN THE WESTERN FOREST RESERVE AREA.

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The Parrylands and Forest Reserve areas are mature oilfields located in the Southern Basin of Trinidad. The majority of hydrocarbons are derived from the Cruse Formation, the Forest Formation and the Morne L'Enfer Formation reservoirs of Miocene and Pliocene age. Traditional interpretation of this area has mainly focused on the structural elements as the main trapping mechanism, resulting in high well concentrations on the Forest Reserve and Lot One Anticlines. However, the distribution of hydrocarbons within the Forest Reserve area has proven to be very elusive. In some cases, up structure wells are water bearing while down structure ones are hydrocarbon charged at the same stratigraphic level inferring a fluid anomaly caused by some sort of barrier between the reservoir blocks. Also, wells within the Forest Reserve syncline have significant oil shows. It is hoped that by applying a stratigraphic model to the area, an explanation for the sporadic oil distribution will be discerned. This study focuses on the Forest Formation, which is one of the most prolific producing formations both onshore and offshore.

The Forest Formation as defined by Hans Kugler (1965) contains four stratigraphic members. They are the Forest Silt, Upper Forest Clay, Forest Sands and Lower Forest Clay. Biostratigraphic analysis performed on these sub-members indicates that the

dominant planktonic species is the *Globigerina sp* while the dominant calcareous species are *Amphistgina senni, Cassidulina subglobosa, Nonion sp, Uvigerina isidroensis* and *Buliminella cf bassendorfensis.* This indicates an inner neritic environment in a delta setting with a maximum water depth of 50 meters.

Five major sub-members units have been identified within the Forest Sands. The first four are located at the top of the section and are hydrocarbon bearing. The last unit is separated by a large shale section and is water bearing. These sands are part of a deltaic system that appears to have a fluvio-tidal influence. Hence, a suitable depositional model proposed is one of sand bars or sand ridges within channels. These channels would migrate laterally with time resulting in coalescing of the bars or ridges and the stacking of channel deposits. Sand trends were typically from N to S or NW to SE. The exercise of mapping each individual sand unit identified the sand trends and the possible oil migration pathways within the respective units. This approach revealed potential stratigraphic traps resulting in exploitation and exploration drilling prospects within this defined area.