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POSTER ABSTRACT

**STRUCTURAL GEOLOGIC OBSERVATIONS AND GEOCHEMICAL RESULTS OF THE
LATE CRETACEOUS OUTCROPS OF TRINIDAD**

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In the Central region of Trinidad, there are two well known exposed outcrops of Upper Cretaceous age. These two units with their distinctive tectonostratigraphic characteristics are separated by a major strike-slip fault system. Geoscientists of the RepsolYPF Trinidad Exploration Unit performed field and geochemical sampling of these outcrops during the first half of 2006.

The first outcrop (San Fernando Hill Quarry), located to the Southwest of the Central Range Uplift is interpreted to be a transpressional type “Positive flower or pop up” structure. This interpretation is supported by surface geological observations and the subsurface data from nearby wells. The quarry provides a unique perspective of structural configurations as well as sedimentological informations on the Late Cretaceous age Naparima Hill, Gautier, and Guayaguayare Formations. Sedimentologically the outcrop shows well stratified carbonates encased by layers of marl with the evidence of post depositional deformations.

In the upper part of the quarry clear synsedimentary gravitational deformation can be observed. Locally, metric scale listric faults appear to be soling out in to a common detachment surface. These rotational faults exhibit growth depositional features.

The results from the geochemical analysis of the shale dominated lithofacies interpreted to be Naparima Hill Formation indicates good to excellent source potential with TOC values ranging from 3.8% to 5.0% and a predominance of amorphous type II kerogen based on results of the RockEval and visual kerogen analyses.

The second outcrop is located in the Central Range Uplift and exposed along a river bed with difficult accessibility. This marly unit, interpreted to be Gautier Formation. The geochemical analyses again indicate excellent TOC values up to 5.7%. However, the RockEval analysis indicates a much higher thermal maturity making the source potential difficult to access. As in the San Fernando Quarry samples, visual kerogen analysis also indicates a predominance of amorphous kerogen.

The results from geochemical analysis indicate similar characteristics for the two outcrops and appear to correlate with the sparse subsurface data in the central region of Trinidad.