

## **Upper Cretaceous in the Middle Magdalena Valley, Colombia: A New Exploratory Target In and Old Mature Basin**

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Oil exploration of the Middle Magdalena Valley Basin (MMVB) in Colombia, has been traditionally focused to the search of clastic reservoirs of Cenozoic age from its beginnings in 1916. Later in the 50's and 60's companies started drilling deeper, exploring the Upper Cretaceous. Few wells were successful in those exploration campaigns. Upper Cretaceous formations were considered either as seal rock for lower cretaceous reservoirs or the economic basement for Cenozoic exploratory plays. An analysis was conducted on geological data of old wells drilled inside and close to the exploration and production areas contracted by Petrolatina Energy Plc in this basin, as well as an exhaustive study of test and pressure data that included: Drillstem tests, Open hole tests, non conclusive tests, old pressure data, reported oil and gas shows, old sidewall core samples analysis in this wells, and also all available well history reports of this areas. This information suggests a bypassed oil potential in the Upper Cretaceous reservoirs of this basin. According to this, a stratigraphical and sedimentological analysis was conducted to understand and detect reservoirs in the upper cretaceous and lower Paleocene Formations. Based on seismic interpretation and stratigraphical analysis it was showed that an important relative fall of sea level and increase of sediment supply had played an important role in reservoir deposition for the Upper cretaceous in this part of the basin. The hydrocarbon generated in the northern part of the MMVB originated from marine source rocks of Aptian-Valanginian age. Therefore, with the identification of a new Upper Cretaceous reservoir and the knowledge of generation from the Basal Calcareous Group, it is proposed a new petroleum system of Aptian-Valanginian-Maastrichtian age. The Reservoirs of this petroleum system (Umir Fm.) exhibit moderate to good petrophysical properties. The knowledge of this unit has been acquired mainly from the analysis of electric logs, petrography and core tests. The reservoir characteristics and results are summarized in this paper. This study has had an impact in the increasing production and new proven reserves of a new reservoir in the basin. In summary, a new reservoir has been tested and set in production in the Middle Magdalena Valley Basin in Colombia, which opens the door for exploration of new hydrocarbon reserves in an old mature basin.