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ABSTRACT

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New Concepts on the Exploration Potential of the Red River Basin, Offshore Northern Vietnam

The thick Tertiary sediment Red River basin is one of the largest not only in Vietnam but also in the southeast area. The basin is pull-apart type of extension, northwest-southeastern trending, and the flanks of which are controlled by the normal fault strike-slips procurement, which originally was a collision course between the Indian and Eurasian plates in the early Eocene-Oligocene time. The basin is historically complicated evolution from Paleogene to present time: rifting in Eocene-Oligocene, then various phases of extension and compression, inverted tectonic, uplifted and thermal subsidence, erosion-truncated and rise and fall of the sea level. Consequently, structural frames and also deposition environment strongly varied in time and in space from the north to south, onshore to offshore, from Pre-Tertiary basement to contemporaneous sediments in the basin. As this reason, the hydrocarbon exploration for this basin should follow a new concept and meet the abundance, diverse and multiform of the exploration objective.

Recent studies show that there are mainly more than eight play concept and trap styles for oil and gas exploration in the Red River basin: sandstones in the Oligocene and Miocene tectonic inversion structures, sandstones accompanied with the diapirism structures in Miocene-Pliocene time, sub-marine fans and turbidites, buried hill carbonate basement, on-lapping and pinch-out sandstones, tilted fault block, four way dip closures in Oligocene-Miocene, and reefal carbonate built-ups.

This paper offers also possible exploration to a new series of prospects and leads which are recently mapped in the area.