

DISSERTATION INFORMATION

Title: *Sedimentary Facies and Distribution Characteristics of Eocene- Lower Oligocene Reservoirs in the East-Southeastern Margin of Cuu Long Basin*

Major: *Petroleum*

Major Code: *62.52.06.04*

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Research objectives: Elucidate the depositional facies and determine distribution characteristics of Eocene-Lower Oligocene reservoirs in the East-Southeastern (ESE) margin of Cuu Long Basin in order to support petroleum exploration and production activities in this area.

Dissertation statements:

- The Tectonic model of the ESE trough of Cuu Long basin during the early syn-rift stage was greatly influenced by tectonic activities, paleo-climate, paleo-topography and original bedrock, facilitating the formation of two Lower Oligocene black lacustrine shale units. These shale layers are widely distributed across the researched area, acting as source rocks as well as top seals for potential prospects in the ESE margin of Cuu Long basin.
- The basal sandstone reservoir, also extensively distribute widely in the research area, with high petroleum potential and commercial valuable. The porous-permeable preservation of this formation is related to unweathered granite fragments and the shield-like property of the overlying very hard black lacustrine shale, which is compressed with fast water expellation during diagenesis.
- The hydrocarbon-bearing Eocene – Lower Oligocene reservoirs in the researched area were formed in fluvial, alluvial fan and near (lake) shore sand bars depositional environment and distributed in two- or three-way structures onlapping against normal faults of faulted margin striking parallel to Con Son Swell.

The originalities of the dissertation

1. Establish the Eocene- Lower Oligocene sedimentary facies distribution maps in the ESE margin of Cuu Long basin
2. Propose the model of the ESE trough of Cuu Long basin during the early syn-rift stage and use this model to explain the mechanism that allow the completeness of the petroleum system activities in such faulted margin researched area.
3. Determine the horizontal and vertical distribution of the basal sandstone with porous- permeable preservation in the research area.

Scientific and Practical Contribution:

Scientific Contribution:

- Identify the distribution of Eocene-Lower Oligocene sedimentary facies at East-southeastern margin of Cuu Long basin.
- Determine Eocene-Lower Oligocene reservoir distribution in the researched area.
- Demonstrate the complete activities of all elements of the petroleum system of Eocene-Lower Oligocene plays in ESE margin of Cuu Long basin in particular and in faulted margins of rift basins in general.
- Categorize petroleum reservoirs in the research area based on their porous-permeable characters and identify the characteristics of each group.

Practical Contribution:

- This research result points out that the hydrocarbon potential of basal sandstone reservoir is significantly higher than previously assessed. This was the basis for exploring and appraising new discoveries in research area
- Categorizing petroleum reservoirs in the research area based on porosity-permeability preservation has provided great supports in preparing technical solutions and proper reservoir stimulation technologies in order to increase oil and gas recovery from petroleum reservoirs within the area.

- This Research contributes to the petroleum exploration and production strategies for Eocene – Lower Oligocene reservoirs in the ESE margin of Cuu Long basin.

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