

## Depositional Environments and Reservoir Quality of Oligocene-Miocene Sediments in Central Part of Nam Con Son Basin, Offshore South Vietnam

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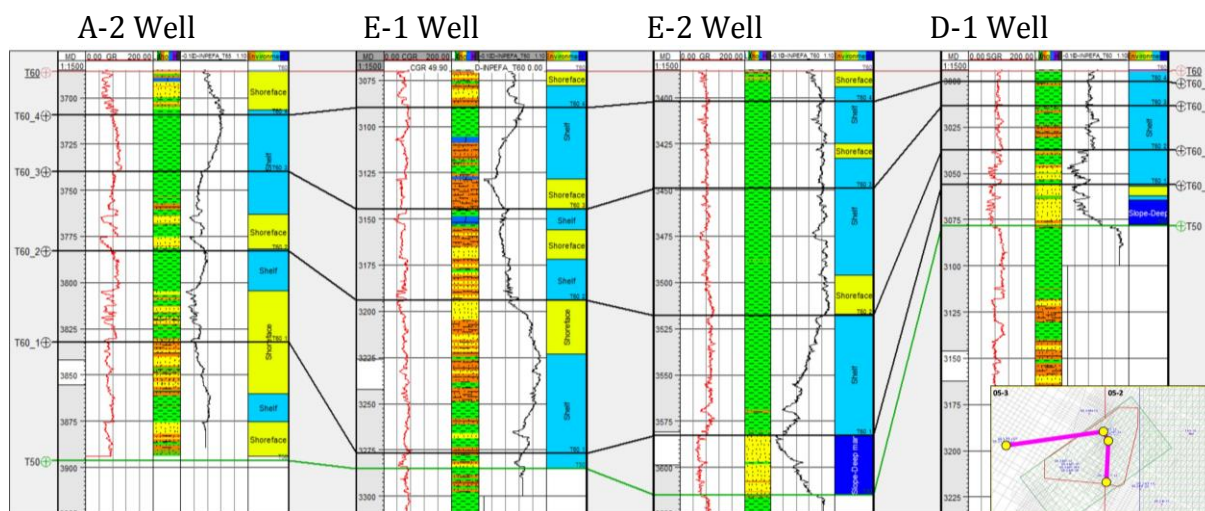
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### Abstract

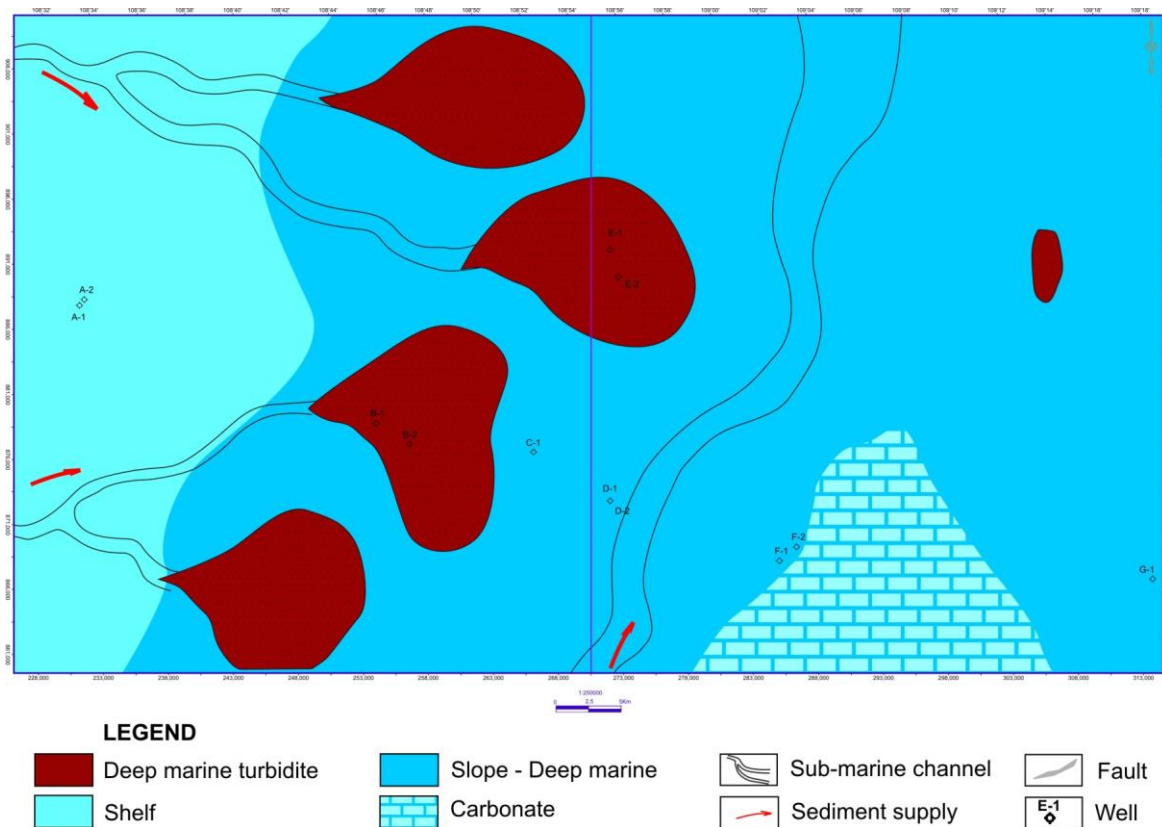
Nam Con Son Basin located offshore South Vietnam is predicted to contain 20% of the total hydrocarbon resources of Vietnam. Recent exploration has demonstrated discoveries in 3 types of reservoirs: pre-Cenozoic weathered and fractured basement, Oligocene and Miocene clastics, ranging from continental deltas to deep marine turbidites, and high quality Miocene carbonates.

To determine the provenances of source rocks and potential reservoirs in the study area, the well-log and seismic data were used for determining the depositional environments of Oligocene-Miocene sequence on the basis of seismic facies analyses, biostratigraphy and well correlations. The interpretation results unraveled the presence of different environments ranging from lacustrine/coal swamp during the Oligocene to shallow and deep marine in the Miocene (Figure 1).



*Figure 1: Depositional environment of the Middle Miocene sequence varies from shoreface in the west to shallow marine in the east. Thick blocky sandy layers in E-2 and D-1 wells are interpreted as syn-rift turbidite deposits as confirmed by core data.*

A series of isopach and depositional environment maps were compiled together with porosity trends and net/gross sand maps. The obtained results illustrate the paleogeography and distribution of potential reservoirs within the Oligocene-Miocene succession (Figure 2).



*Figure 2: Paleogeographic map for the Upper Miocene sequence*

The study has shown the evolution of depositional environments during Oligocene-Miocene period in the central part of Nam Con Son basin. The potential source rocks are identified as Oligocene lacustrine/coal swamp sediments. The important reservoirs in the study area are Miocene shoreface, turbidite sands and carbonates. One of the most significant factors influencing the potential reservoir porosities is the high content of carbonate cement (occasionally reaching up to 30%) that may considerably reduce the reservoir quality. The results contribute to a predictive exploration model for the central part of Nam Con Son Basin, offshore South Vietnam.