

Central Sumatra Basin is the largest oil and gas reserve in the Southeast Asia area which has almost fifteen billion barrels oil equivalent (bbls boe) in summary. Bumi field located in Central Sumatra Basin around EMP Malacca Strait PSC Area has big potential of hydrocarbon content to be explored deeply, especially on Pematang Formation as the Oligocene deposited.

The purpose of the study is to obtain depositional system of Pematang Formation of Bumi Field and to discover the processes during deposition period. The method of the study based on descriptive qualitative analysis and constraint by several data such 4 (four) cores data, 2 (two) FMI logs data, 1 (one) biostratigraphy data, and 16 (sixteen) wireline logs data, in addition 3D seismic line crossed study area has been also used.

The result of interpretation and analysis data discovers that sediment on target area resulted by several processes in fluvial depositional system. The sediment characterized by the presence of massive conglomerate (Gm) facies, planar-cross bedding sandstone (Sp) Facies, horizontal lamination sandstone (Sh) facies, and massive claystone (Fm) Facies. Three (3) depositional sequences; sequence A, sequence B, and sequence C has been recognized, each sequences bound by sub-areal unconformity surfaces (SB1, SB2, SB3, and SB4). The sequences compose by the complete system tracts (LST, TST, and HST), although the sequence C only has LST. Paleo current analysis on Pematang Formation's Sandstone discovers domination current orientation to the south – southwest which is mean that the source comes from the north – northeast relatively.

Key words: Bumi Field, Pematang Formation, Fluvial Depositional System, Sequence Stratigraphy