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THE APPLICATION OF SEQUENCE STRATIGRAPHY TO THE SAJAU (PLIOCENE) COAL DISTRIBUTION IN BERAU BASIN, NORTHEAST KALIMANTAN, INDONESIA

AHMAD HELMAN HAMDANI & DIANA PUTRI HAMDIANA

Faculty of Geology, University of Padjadjaran, Indonesia

ABSTRACT

The deposits in the Sajau coal measures of Berau Basin, northeastern Kalimantan were within a range of facies associations, which ranged a wide spectrum of settings from fluvial to marine. Siliciclastics were found to be more prominent in the transitional to terrestrial coal measures. However, these coal measures contained in addition three laterally extensive marine bands (mudstone). The function of these bands was to play the role of marker horizons, assisting in the correlation between fully marine and terrestrial facies. On investigating this range of facies and their sedimentology, a high-resolution sequence stratigraphic framework could be developed. The third-order Sajau transgression has been already established, and in its light, nine fourth-order sequences are recognized. The study reported peat accumulation principally correlating in transitional areas with early transgressive sequence sets (TSS) and high stand sequence set (HSS) in the composite sequences. In addition, in more landward areas, it correlated with the middle TSS to late high stand sequence sets (HSS). Peat accumulation regimes showed wide differences inside the sequence stratigraphic framework. These differences were considered to be because of deviations in subsidence and background siliciclastic input rates in depositional setting variants. A combination of differences and variations resulted in discrepancies in the rate of accommodation change. Nevertheless, the preservation of coal resources in the middle-to-late HSS in this area was probably due to the rise of the regional base level throughout Sajau.

KEYWORDS: High Resolution, Sequence Stratigraphy, Coal, Pliocene, Berau Basin