

DEPOSITIONAL MODEL AND RESERVOIR FEATURES OF THE EOCENE SANDSTONES IN THE AKCAKOCA AREA : WEST BLACK SEA REGION-TURKEY

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This study comprises the definition of stratigraphic relations, depositional facies, and reservoir evaluation of the Akcakoca sandstones. Investigated sandstones are channel fill sediments which deposited by turbidite mechanism at the middle fan part of retrograded sand-rich submarine fan system during the Lower-Middle Eocene age.

Turbidite lithofacies, depositional facies and, possible reservoir facies of the sandstones were distinguished and identified by sedimentological studies at the outcrops.

In the study area, investigated sandstone layers are horizontally continuous and show fining/thinning upward sequences. These sequences correspond to channel axis, channel margin, levee and their complex sequences. Lithofacies which is distinguished as Turbidite-B is a channel axis facies and appears to be the most promising reservoir unit of the Akcakoca sandstones. Turbidite-B lithofacies composed of thick, poorly indurated, massive sandstones.

Basic core analyses were carried out on the plug samples taken from reservoir facies. In addition, X-ray and scanning electron microscope analyses as well as epoxy impregnation were also made for better understanding reservoir quality. Reservoir sandstones display primary intergranular type porosity and have approximately 22 % porosity and 40 mD permeability values. X-ray and SEM analyses have revealed that the type of clay of the sandstones is authigenic, grain coated Fe-chlorite and amount of its 8-10 %.

Offshore data obtained from offshore wells drilled 6.5 miles far from the study area were also correlated with outcrop data. Consequently, Akcakoca sandstones were deposited as mid-fan channelized supra-fan lobes and have good reservoir characteristics at the channel axis facies and, display wide spread between onshore and offshore wells.