Geological Petrophysical Evaluation of Yamama Formation Subba Field

Abdulameer T. Shnawa
South Oil Company, Basrah, Iraq.

The main purpose of this study sets out for estimating hydrocarbon potentialities of Yamama Formation (Valaginian Early Hauterivian) by using assessment technique links up between gamma ray spectrometry logs and other conventional open hole logs for determining the petrophysical properties of Yamama units in Subba oil-field.

The Lower Yamama (YB); is considered the main reservoir unit, aptly composed of shallow high depositional energy levels of oolitic to bioclastic grainstone facies reflecting low clay-content, thus these properties had gave a fruitful chance for immigrated oil to accumulate in porous bodies of this reservoir units.

The non-improved petrophysical properties of upper Yamama member (YA) due to far-deep depositional conditions reflected by well-developed dense-compact sub-tidal open-shelf lagoonal benthic foram / algal wackestone facies and sparse-fossiliferous lime mudstone intercalated with bioclastic wackestone facies, are clearly displayed sedimentary intervals of high clay-content that is, the reduction potential depositional conditions are highly affected on these facies.

YB-unit attains (22-29m) net pay thickness with porosity (9.35-10.9%) and water saturation ranged (40-40.6%), whereas the YA-unit net-pay thickness is reached to (7.5-16.5 m) with (6 % phi) and (35.3 %Sw). The oil water contact at the lower Yamama member may assign at depth 3573m (MSL) of southern dome on basis of electrical logs monitoring, well log interpretation and test results carried out the formation units.