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Petrophysical and sedimentological integration of upper Nubian sandstone block NC 98 (A Pool), eastern Sirt Basin, Libya

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The pre-upper cretaceous sandstone formation in Sirte Basin, Libya is considered as an important reservoir for hydrocarbon. The main traps system in A-Pool- NC98 block are structural and stratigraphic combination traps, comprising of at least two major NW-SE trending tectonic blocks, each block is broken by a several more pre-upper-cretaceous faults. The present paper deals with evaluation of petrophysical for four exploration wells A3, A4, A5 and A6 and obtainable sedimentological integration with well A4 of upper Nubian sandstone reservoir occurs at a depth of between 14000-15500 feet, at A-Pool- NC98 block. Generally, the exploratory oil wells which drilled by Waha Oil Company in A-Pool, NC98 block, eastern Sirt Basin, Libya are producing from the upper Nubian sandstone reservoir. The upper Nubian sandstone reservoir is a complex of fine to medium grained, moderately to well cement mainly by silica and ferroan dolomite, grains are angular to rounded with straight, concave-convex and slightly sutured contacts. The geological and petrophysical evaluation have been done by using Techlog and Petrel software in study area taking a read every 0.5 feet and analyzed for detailed evaluation of reservoir parameters. The obtained petrophysical analysis are clearly showed that the upper Nubian sandstone considered as a good reservoir quality in wells A3, A4 and A5, whereas bad reservoir quality in well A6. The hydrocarbon in A-Pool is very rich retrograde condensate gas and waxy oil. The hydrocarbon has been sourced from hybrid petroleum systems (pre-upper cretaceous and upper cretaceous). Three main lithofacies have been recognized in upper Nubian sandstone by core interval; trough cross-bedded, horizontally laminated and low angle cross-bedded sandstones with many minor lithofacies such as rippled and fine laminated sandstones.

Biography

Ayoub M Abughdiri is the Petrophysical and Reservoir geologist for Waha Oil Company since (2011) and Collaborator with University of Zawia Faculty of Science - Libya, since March (2018). He has completed a Bachelor Degree in Geological Engineer (2006) from University of Tripoli – Libya and a Master Degree in Geology (2016) from The Libyan Academy - Libya. He has worked as a Senior Mud Logger for Geoservices company on "Advanced Logging System" following the drilling parameter, drilling operation, prepare and describe rock samples.

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