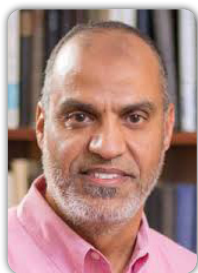


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Utilizing well logs and experimental core data to assess hydrocarbon potential of a mature oilfield

Estimating petrophysical parameters from well logs plays a significant role in exploring and developing oil and gas reservoirs. This study presents results of log analysis from four wells in a mature oil field in Sirte basin, Libya. A complete statistical analysis is proposed to obtain average petrophysical properties such as porosity, permeability and hydrocarbon/water saturations at the well location. This analysis is based on wireline logs data then verified with experimental core plugs in order to minimize uncertainty. Based on the characteristics of oilfield lithology, the rock mainly consists of sand and shale sequences. The computed results from well logs were generally in good agreement with the experimental core plugs from the same wells. Computed petrophysical parameters for the wells gave an average total porosity ranging from 16% to 26% and permeability in the range of 20 mD to 3358 mD. Water and hydrocarbon saturation were found at an average range of 28% to 57%,

and 43% to 72%, respectively. The overall results indicate that the oil-bearing zones in the studied wells are highly permeable and porous and the field still has a vast commercial hydrocarbon potential that can be economically depleted.

Speaker Biography

Mansur Ermila joined the Petroleum Engineering Department in 2012 as a Research Assistant professor and became a full-time member of the faculty in 2015. He teaches Drilling engineering, well completion, reservoir fluid properties, reservoir rock properties, introduction to petroleum industry and advanced drilling fluid. He earned his B.S. from University of Tripoli in Petroleum Engineering, and a M.S. in petroleum engineering from University of Miskolc (Hungary) and PhD in petroleum engineering from Colorado School of Mines. His research interests include drilling operation, well completion, stimulation, artificial lift optimization. He is an active member of SPE, AADE, ARMA and Pi Epsilon Tau.

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