Evaluation of the Asmari formation reservoir characteristics in a borehole of the Marun oilfield in the north Dezful embayment

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Abstract

The Marun oilfield is located in the middle part of the folded Zagros structural zone, in the Dezful embayment. In this study, using subsurface data and Geolag software, the separation zones of the reservoir anticline were determined lithologically. Factors such as porosity and shale volume were considered in determining the reservoir zones. Petrophysical studies using neutron-density, neutron-sonic, density- sonic and M-N cross plots show that the predominant lithology in this reservoir is carbonate. Based on the analysis of well log data and using neutron-density cross-plot, the Asmari Formation has a good porosity especially in the upper parts of the formation. For this reason, these parts have better reservoir quality than the lower parts. Also, the accuracy of the evaluation performed in the studied borehole had an acceptable correlation with the calculated porosity of the core. In the present study, the average shale volume based on the CGR log is 25.33%, of which the highest shale amount is concentrated in the lower part of the formation. Since each sedimentary sequence can be composed of one or more reservoir zones with their own lithological and petrophysical characteristics, so 5 reservoir zones (A, B, C, D, E) were identified in the studied borehole. In this study, zone A belongs to the upper part and zone E belongs to the lower part of the Asmari Formation sequence. Analysis of available data, appropriate porosity in the whole formation and low shale volume, especially in zones A, B, C and D indicate that almost the entire formation in the Marun oilfield has a suitable reservoir potential.

***Keywords**: Geolag software, saturation, porosity, reservoir zone*