726611 Study of Microfacies and Sequence Stratigraphy of the Fahliyan Formation in the Marun Oil Field, Northern Dezful Embayment, Southwestern Iran

Feghhi, Amir ¹; Habibnia, Bahram ²; Amiri Bakhtiar, Hassan ³; Avarjani, Shahram ³ (1) Islamic Azad University - Omidiyeh Branch, Omidiyeh, Iran, Islamic Republic of. (2) Ahwaz Faculty of Petroleum Engineering, Petroleum University of Technology (PUT), Ahwaz, Iran, Islamic Republic of. (3) Exploitation Geology, National Iranian South Oil Company (NISOC), Ahwaz, Iran, Islamic Republic of.

Considering all different formations in Zagros basin, the Cretaceous column has a remarkable position. "Fahliyan" carbonate formation with the age of Neocomian (early Cretaceous) is a main reservoir of Khami group and is extended in whole Zagros depositional basin. The equivalent formation of "Fahliyan" formation in Saudi Arabia, Bahrain and Qatar is "Yamama" formation and in Kuwait from older to earlier; "Makhul", "Minaghish" and "Ratawi" formations (Setudenia, 1978). According to characteristics of Fahliyan’s equivalent formation in Saudi Arabia and Qatar ("Yamama" formation), it looks that their depositional conditions had been very alike to each other. In the past, several geological studies had been done on this formation (mostly using lithostratigraphy and biostratigraphy points of view), however concerned with its performance of being a high-quality reservoir and since Marun oil field is one of the top biggest oil fields in Dezful embayment and Iran, there was a critical need for more detailed studies to help hydrocarbon exploitation from Khami group in this field. This research was mainly an effort to this aim.

This research has been done based on petrographic methods and using methodology and principles of sequence stratigraphy. Moreover, well logs have been used as a subsidiary tool to assess the sequence stratigraphical studies. To describe microfacies and to determine their depositional environment, "Wilson" (1975) and "Flügel" (2004) methods have been applied and for nomenclature of carbonate rocks, "Dunham" (1962) method has been used. After recognition of microfacies and evaluation of lateral and vertical variations (using Walter’s law) depositional model of Fahliyan formation was proposed. Then, sequences of Fahliyan formation and their systems tracts were identified. At the final stage, compartments with more reservoir potential were recognized.

Generally speaking, the main tasks having done during this study are as below:
Study of microfossils (benthic foraminifera and algae)- Relative age determination of "Fahliyan" formation (based on age of microfossils)- Study of different kinds of microfacies- Study of depositional environment and sedimentary cycles- Sequence stratigraphy of "Fahliyan" formation in well section- Evaluation of "Fahliyan" reservoir characteristics in Marun oil field- Assessment of relation between microfacies with reservoir potential and sedimentary cycles of "Fahliyan" formation using thin sections and well logs
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