Effects of depositional environment and diagenetic processes on reservoir quality of Asmari Formation, in Ghale Naar oil field, Dezful Embayment

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Abstract

Asmari Formation (Oligocene - Miocene) is the most famous carbonate reservoir that ever known in the world. It is the main hydrocarbon reservoir in Iran and also the major oil production in Dezful Embayment. In this study, in order to understand the reservoir quality controlling factors of this Formation, detailed petrography studies were carried out in Ghale Naar oil field. This formation in the Ghal'e Naar oil field is composed of grain-supported bioclastic-pelloidal (foraminiferal-algal) faciese and nine sedimentary facies have been identified based on eight hundred microscopic thin section studies from core and cutting samples in this oil field. These facies are related to the lagoon, shoal, nummulitic bank and open marine sub- environments of a homoclinal ramp carbonate system. The results of this study showed that the diagenetic processes like dissolution and dolomitization are related to the grain supported shoal microfacies and nummulitic shoal. Dissolution along with dolomitization are factors that increase reservoir quality and cementation and compaction are the most important factors in reducing the quality of reservoir in Asmari Formation.

Keywords: Asmari Formation, facies, diagenesis reservoir quality, Ghale Naar oil field