

## **Facies and diagenetic processes and their effects on distribution of petrophysical properties and reservoir quality of the Asmari Formation in Gachsaran Oil Field**

**M. Farshi<sup>1</sup>, R. Moussavi-Harami<sup>2</sup>, A. Mahboubi<sup>3\*</sup>, M. Khanehbad<sup>4</sup>**

1, 2, 3, 4- Dept., of Geology, Faculty of Science, Ferdowsi University of Mashhad

\* mahboubi@um.ac.ir

**Recieved: 2017/3/9 Accepted: 2017/5/23**

### **Abstract**

The Asmari Formation in Gachsaran Oil Field has a low lithological diversity and includes of limestone in the lower parts and dolostone in the upper parts of the reservoir. The goal of this study is determination of facies, depositional environment, diagenetic processes and their effect on the reservoir quality of this formation. Microscopic studies of 478 thin sections of cores led to the identification of 11 microfacies belong to 3 facies belts including inner (tidal flat, lagoon, shoal), middle and outer ramps. This study also revealed diagenetic processes including micritization, bioturbation, neomorphism, compaction, dissolution, cementation and replacement. In order to investigation of reservoir characterization, the effects of diagenetic processes and sedimentology used on the distribution of porosity and permeability. Based on the results, dolostones with intercrystalline-vuggy porosity, wackestone/dolowackestone with vuggy-channel porosity and Porous grain-dominated packstone are the best reservoir facies comparsion with other facies in the Asmari Formation.

**Keywords:** Asmari Formation, Gachsaran Oil Field, depositional environment, diagenesis, Reservoir quality.