# Sedimentary Environment, Diagenesis and Sequence Stratigraphy of the Fahliyan Formation in Kilur Karim Oil Field (well# B)

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**Abstract**

The Fahliyan carbonate formation (Neocomian in age) is one of the major reservoirs of the Khami Group in the southwest of Iran. In this study, the sedimentary succession of the Fahliyan Formation in Kilur Karim Oil Field well#B (520m thick), situated in the Dezful Embayment, was investigated for microfacies, paleoenvironmental, diagenetic and sequence stratigraphic analyses. Based on thin section studies (some 490 samples), 11 microfacies and 5 facies associations were identified. According to the characteristics of typical sedimentary environments, these facies were deposited in a homoclinal carbonate ramp. Due to the dominance of the inner ramp (especially lagoonal) facies in the studied subsurface section, it is deduced that this area, in Neocomian, has been located in the marginal shallow parts of the Zagros Basin. Petrographic studies showed that the main diagenetic features of the Fahliyan carbonates were micritization, neomorphism, cementation, dissolution, compaction, dolomitization, fracturing, and pyritization. Sequence stratigraphic investigations led to recognition of three third order depositional sequences (comprising transgressive and highstand systems tracts) in the Fahliyan Formation. The lower boundary of the first sequence is type-1 and the other sequence boundaries are type-2. Lack of reservoir quality effective diagenetic processes and high amount of lime mudstone facies in the well succession have caused a low reservoir quality for the Fahliyan Formation in Kilur Karim Oil Field well#B.

**Keywords**: Fahliyan Formation, Kilur Karim Oil Field, Sedimantary Environment, Diagenesis, Sequence Stratigraphy, Cretaceous, Zagros.