

عنوان مقاله:

A New Cementation Factor Correlation in Carbonate Parts of Oil Fields in South-West Iran

محل انتشار:

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خلاصه مقاله:

Petrophysical parameters such as porosity, water and oil saturations, formation resistivity factor, etc.describe the storage capability of the porous media or the capacity of rocks to hold fluids. Themodified Archie's equation (...), also called the saturation equation, is used todetermine the water saturation. Archie's parameters, namely m, n, and , are sometimes assumed constant to simplify petrophysical measurements. But these parameters are not constant, particularlyin heterogeneous reservoirs. Inaccurate estimates of these parameters can cause significant errors in the calculation of water saturation when using Archie's equation and lead to discrepancies betweenlog interpretation and production test results. There are many factors affecting cementation factor (m) such as porosity, pore throat size, type of rock grains, type and distribution of clay content, degree of cementation, and overburden pressure. In the present paper, the results of electrical resistivity experiments are used to derive a new cementation factor correlation which can be applied to carbonateparts of Asmari and Sarvak formations located in south-west Iran. In Iran, the cementation factor istraditionally measured by Shell formula or is assumed equal to 2 to avoid difficulty. In the newformula, increases with increasing porosity; however, in the Shell formula, m decreases withincreasing porosity especially in the low porosity ranges, which is in disagreement with the currentpaper results. In addition, the results demonstrate that it is not possible to introduce constant m valuesor separate cementation factor correlations versus porosity for different petrofacies and rock types.Petrophysical evaluations are done to quantify hydrocarbon resources in formations under study. Then, the water saturation is calculated with different calculation methods of cementation .factor, m .The calculated water saturations are compared with the measured water saturations of preservedcores

کلمات کلیدی:

Water Saturation, Cementation Factor, Archie's Equation, Formation Resistivity Factor

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