

Fracture Pressure Predict Based on Well Logs of Depleted Reservoir in Southern Iraqi Oilfield

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Abstract : Formation pressure is the most critical parameter in hydrocarbon exploration and exploitation. Specifically, predicting abnormal pressures (high formation pressures) and subnormal pressure zones can provide valuable information to minimize uncertainty for anticipated drilling challenges and risks. This study aims to interpret and delineate the pore and fracture pressure of the Mishrif reservoir in the southern Iraq Oilfield. The data required to implement this study included acoustic compression wave, gamma-ray, bulk density, and drilling events. Furthermore, supporting these models needs the pore pressure measurement from the Modular Formation Dynamics Tester (MDT). Many measured values of pore pressure were used to validate the accurate model. Using sonic velocity approaches, the mean absolute percentage error (MAPE) was about 4%. The fracture pressure results were consistent with the measurement data, actual drilling report, and events. The model's results will be a guide for successful drilling in future wells in the same oilfield.

Keywords : pore pressure, fracture pressure, overburden pressure, effective stress, drilling events

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