

Predicting Tilted Fluid Contacts: A Case Study from a carbonate reservoir in NW Oman

Mohammed H. AlKindi¹, Ibrahim Y. Al Ismaili¹

¹Vision Advanced Petroleum Solutions, Muscat, OMAN

ABSTRACT

Predicting the geometries of current and palaeo fluid contacts is critical for field development and reserve estimations. In low-permeability carbonate reservoirs that underwent significant deformation after the main hydrocarbon charging phase, millions of years might be required before fluid contacts regain flat levels. Our study shows that the integration of reservoir evolution models, petrophysical logs and production data can help estimating the location of current mobile hydrocarbons and define the transition zone in which high water rates are often coproduced with hydrocarbon and where imbibition saturation curves should be used to estimate saturations. The results also provide better insights on the locations of spill points and the future appraisal and development plans