

PETROLEUM GEOLOGY OF THE BATHONIAN-CALLOVIAN RESERVOIR OF THE NORTHERN PART OF LATITUDE PRIOB (WEST SIBERIA)

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Insufficiently known Middle Jurassic reservoir is one of the most interesting petroleum objects in West Siberia. The Bathonian-Callovian reservoir and its seals were studied over the wide territory. Reservoir rocks are represented by polymictic sandstones and siltstones. High concentrations of skeleton grains and low contents (10-12%) of clay cement are responsible for conservation of pore space in reservoir rocks. Fine-grained texture, abundant layers of carbonatization prevented formation of high reservoir properties (such as porosity and permeability). According to quantitative characteristics (macroheterogeneity ratio, summarized thickness of sandstone benches, thickness of permeable rocks, number of sandstone benches, sandy ratio of sections, etc.), two types of sections were distinguished using cluster analysis. The first section type is featured by lower macroheterogeneity ratio and other mentioned characteristics. It was shown that two distinguished types of sections correspond to different reservoir properties of rocks and scale of oil and gas manifestations. The first section type is characterized by reservoir rocks with low permeability (1 mD). Reservoir rocks of second type section have permeability 1-10 mD and double increased number of oil manifestations. The second type sections are found on the sides of the 1st level positive structures and at higher level structures within the sides of negative structures of the 1st level. For the first time the method of allocation of zones of potential accumulation of oil and gas based on the analysis of network of probable fluid flows was used. This method allows to reveal perspective oil-and-gas fields.