



Geodynamic factors in the formation of reef reservoirs of the Kama-Kinel rift

V. Izotov (1), L. Sitdikova (2), A. Sadrlimanov (3), and A. Safin (4)

(1) Kazan State University, geology, Kazan, Russian Federation (sitdikova8432@mail.ru, +7(843)238-84-71), (2) Kazan State University, geology, Kazan, Russian Federation (sitdikova8432@mail.ru, +7(843)238-84-71), (3) Kazan State University, geology, Kazan, Russian Federation (sitdikova8432@mail.ru, +7(843)238-84-71), (4) Kazan State University, geology, Kazan, Russian Federation (sitdikova8432@mail.ru, +7(843)238-84-71)

Devonian and Carboniferous carbonate sedimentation in the eastern portion of the Russian Plate largely depended on the development of the complex Kama-Kinel rift zone dividing arched uplifts in the western region of the Volga-Ural province. Geodynamically, this zone was formed in several stages with the successive development of reef barriers. Individual elements of these reef masses with high permeability and porosity subsequently became hydrocarbon reservoirs and formed chains of major oil fields.

The reef masses have a complex structure due to sedimentation and diagenetic processes in some reef zones. This causes the formation of specific types of void space in particular reef zones.

The highest porosity is found in lumpy limestones formed in peripheral zones of intra-reef lagoons unaffected by diagenetic recrystallisation.

Medium porosities are characteristic of partly recrystallised limestones of transitional zones of the lagoons.

Low permeabilities and porosities are found in pelitomorphic limestones formed in central portions of the intra-reef lagoons. However, geodynamic unloading in limestones of this type produced secondary fractures and specific fractured reservoirs.

Thus, some reef masses contain hydrocarbon deposits with complex reservoirs requiring specific technologies for their development.