

ABSTRACT

The Caspian region possesses a great potential in revealing of new deposits of oil shale. To date, there are five fields identified of this hydrocarbon type confined to the Volga tier of the Upper Jurassic period: West Shagan, Black Zaton, Tuksai, New Alexeyev and Karatobe. Their productive strata expose to daylight surface on slopes of salt domes. Regionally, these deposits belong to the Volga shale basin, most of which is located in the territory of Russia. Large deposits of oil shale with high technological indicators have been identified here.

According to paleogeographic research, at the end of Jurassic period in the Titonian stage (145-150 mln yrs), a shallow platform sea existed in the district, extending all over the Caspian basin and far beyond, to the south and the north, into the limits of the EastEuropean platform and Central Asia. The climatic conditions favoured the abundant biological productivity. The sea bottom had depressions, where stagnant anaerobic conditions favouring the development of shale strata were in place. Thus, deposits of the Titonian stage are developed throughout the Caspian depression. The exception is represented by tops of salt dome structures coming out to daylight surface, within which the Upper Jurassic sedimentation was destroyed by the pre-Cretaceous erosion.

Modern technologies of "shale" oil and gas production impose strict requirements on oil shale deposits both in terms of quality of raw material and storage conditions of productive strata. The technologies favour the most the shale formations occurring at the depth of 1.5-2.0 km, with powerful insulating caps above.

Cartographic materials of reference horizons of Jurassic soles and roofs, as well as geophysical data indicate that the Titonian stage deposits are exposed to daylight on dome tops and occur at depths of up to 2-3 km and more in large inter-dome depressions. Thus, large oil shale deposits can be expected at depths over 1.5 km, suitable for the latest technologies using the fracking method.

The northern half of the Caspian sedimentary basin area is of the greatest interest, as up to 10 oil shale strata were noted in the sections, characterized by sufficient capacity and high technological indicators.

Key words: shale oil, Titonian stage, Caspian sedimentary basin, shale oil and gas.