

Geological and Collector Characteristics of Mesozoic-Cenozoic Deposits of North-Western Part of The Caspian Depression

Opinion

Volume 3 Issue 3- 2022

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Article History

Received: November 22, 2022 Accepted: : November 28, 2022 Published: November 28, 2022

Opinion

Today, Azerbaijan has the right to vote in the oil industry as the main area of the global economy. Our Motherland once again confirms that it is the ancient land of oil, the center of the first sea oil, the “oil academy”. On September 20, 1994, the “Contract of the Century” was signed with the world’s largest oil companies. This contract is increasingly raising the economic strength and political reputation of Azerbaijan. Azerbaijan is one of the richest oil and gas provinces. The development of these reserves can play a big role in the development of the oil and gas industry in our country. Many Geological exploration and Geophysical assessments have been conducted recently in Azerbaijan which based on oil and gas perspective of deeper layers, scientific criterion have been prepared that can be basement for the future exploration. It was noted that main oil and gas deposits are related with South Caspian and Kura basins which exposed to intensive depression during the Mesozoic period. The quantity and numerical expression has not been reflected properly yet, despite the high perceptivity of the central part and deeper layers doesn’t create suspicion in explorers.

It is known that exploration, production and assessment of potential of oil and gas deposits highly depends on the information gathered about the lithophysical characterization of strata encountered in geological profile. In this point of view the process mentioned above should be carried out in the oil and gas regions of South Caspian Basin where the Mesozoic Cenozoic deposits are spread widely [1-3]. In the article different geological-geochemical and physical aspects which affect the gas and collector potentials of oil and gas-condensate deposits encountered in area have been researched. Carried investigations show that, in the paleo-profiles created along the Kurdakhany-Shakh-deniz anticline in the north-west side of the field the Pliocene -Anthropogenic deposits were accumulated in small thickness from 100m to 200 m. The thickness increases in Qum island structure to 3600 m,

in Shakh-deniz to 6000 m. In the edges of synclines, the thickness of named deposits have higher numbers which is in north-west is 3000 m and in Shah deniz around 10000 m. So, without enough knowledge about the collector characteristics of the strata of the field the estimation of hydrocarbon reservoirs and the determination of concrete of production as well as change in exploration direction is impossible.

Beside the geological-geophysical investigations carried in the field, the lithophysical and collector characteristics, for the determination of change in conformity along the field, the carbon content, porosity, permeability, density, granular content and the velocity of the sonic waves of the above mentioned strata, specially lower parts of it have been investigated. Correspondingly the table has been prepared which reflects the collector characteristics of the field. Also the upper, middle and lower limits of physical characteristics of the field has been identified in the table. At the same time, the dependence of collector characteristics on each-other, on depth and on different physical aspects have been assessed.

According to the results of work carried out within the study area, the PT sediments are lithologically represented by sands, sandstones, and alternation of aleurites with interlayers of clays. In the southern and eastern parts of the region, the carbonate content of rocks undergoes some changes. In the central part of the region, the change in porosity and carbonate occurs in steps [4-6]. It is established that the change in petrophysical values in a wide range is associated with lithological heterogeneities, a variety of depths of occurrence of rocks and tectonic conditions in the region.

In the study of the reservoir properties of the region, it was found that in the deep formations there is an effective porosity and this makes it possible to predict oil and gas reservoirs at the considered depths. But according to the graphs of petrophysical changes of the limits of the parameters under consideration, it is clear that due to



some lithophysical changes, the established pattern is violated. Optimal geophysical methods are used to predict oil and gas potential in the deeper layers of the structure. The use of the method of filtering-capacitive properties of rocks is considered to be integral.

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