Prospects for Exploration for Gas-Oil Pools in Faulted Zones of the East Kuban Depression

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One of the main exploration targets in Krasnodar Territory is the Jurassic complex of the East Kuban depression. Commercial oil and gas have been found here in the Yubiley, Lovlin, Sovetsk, Yuzhno-Sovetsk, Koshekhabl, Labin, and Barakayev areas.

Discovery of new fields in the region is expected on structures and in litho-stratigraphic traps. However, conditions seem favorable for discoveries also in fault traps and in structures associated with faults. Highly favorable in this respect is the southwest border of the East Kuban depression. Seismic surveys here show the regional Giagin and Ladozh faults, which cut the favorable Jurassic and Triassic rocks. See Figs. 1 and 2.

The Giagin fault extends along the southwest border of the depression and the northeast flank of the Adygey projection. It is a normal fault with a displacement of 1500-2000 m on the surface of the basement. See Fig. 1.

The Ladozh fault extends along the western border of the East Kuban depression. It cuts thick Triassic and Lower-Middle Jurassic sediments, which dip to the northeast toward the axial part of the depression. In the zone of faulting the monocline is complicated by several positive structural forms which are favorable for trapping hydrocarbons.

Some idea as to the distribution of sandy-silty reservoir rocks in the Lower and Middle Jurassic is gained from the seismic data. The seismic reflections from the Jurassic rocks in the eastern, downdropped blocks are more differentiated than on the western, raised blocks. See Fig. 2. Several dynamically expressed seismic horizons are recognized in the eastern blocks; these indicate possible presence of sandy-silty rocks in the argillite unit.

The main phase of formation of oil and gas pools in the outer zone of the East Kuban depression was during Paleocene-Eocene time, which was much later than the time of the faulting. Consequently, conditions are very favorable here for accumulation of hydrocarbons in fault traps.

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