Upper Cretaceous Sediments - New Exploration Target in North Tadzhikistan

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(Neftegazovaya Geologiya i Geofizika, no. 3, p. 15–18, 1980)

Exploration in North Tadzhikistan in the western part of the Fergana depression has established gas productivity for the Mesozoic sediments. Three oil-gas-condensate fields have been discovered in the Niyazbek-Karakchikum area since 1970; these are the Niyazbek, Madaniyat, and Severnyy Karakchikum. Oil and gas were found in Paleogene strata II, IV, and VI in the Niyazbek area and in stratum II of the Madaniyat area.

The first commercial gas in the Upper Cretaceous of West Fergana was found in 1977 in the Severnyy Karakchikum area. The structure on the Oligocene seismic reflector is 7.5 by 2 km, and closure is 300 m. Flows of gas have been recovered from wells 1, 2, 4, and 19. See Fig. 1. The pay zones are fine- and coarse-grained sandstones, which contain also beds of gravel, siltstone, and clay. Total thickness is 16-18 m, and effective thickness is up to 9 m. Oil and gas have also been found in strata II, IIa, IV, V, VI, VIIa, and IX of the Paleogene.

Paleo-structural maps were compiled for the various stages of geologic time to determine the relationship of the spatial distribution of pools to tectonics. See Fig. 2.

The folds began to develop back in the Cretaceous. However, the small fold in the south central part of Fig. 2 was late in forming.

The region is also favorable for stratigraphic traps. There is a systematic decrease in thickness of the Cretaceous sediments from east to west in North Tadzhikistan from 515 m at Ravat to 125 m at Severnyy Karakchikum, to 40 m at Digmay to complete pinchout in the Kayragach and Shirinsay areas. In this same direction, however, the reservoir properties improve. The most favorable region for stratigraphic traps is along the line Severnyy Karakchikum - Auchi-Kalachi.