Geologic Features and Oil Potential of the Kholmogor Field of the Surgut Dome

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The Kholmogor oil field was discovered in 1973 on an anticlinal structure northeast of Surgut in the Tyumen Region of Siberia; reserves are large. Well 1, the discovery well, passed through sandy-clayey sediments of the Quaternary, Paleogene, Cretaceous, and Jurassic but had not reached basement when it bottomed at 3150 m.

The Kholmogor structure is outlined by the minus 2750 m contour; it has an area of 100 sq km and an amplitude of 65 m. The crest has two cupolas, outlined by the minus 2700 m contour. Dips do not exceed 0°15′. See Fig. 1.

Eight smaller satellite uplifts are present around the Kholmogor structure. They are outlined by the minus 2750 m contour; all these structures are united into one large structure by the minus 2775 m contour.

The oil pool of stratum 6C₁₀ occurs in sandstones; testing yielded 74 m³ per day. The oil pool in stratum 6C₁₁ also occurs in sandstones and testing yielded 132 m³ per day. Both pools are the blanket-crest type. See Fig. 2.

In addition to the two pools, there are other sandy strata in the section which according to geophysical logging are favorable exploration targets. One of these occurs between 6C₁₀ and 6C₁₁. If the sand content of all three of these should increase, they would form a single hydrodynamic system. Strata 6C₁₂₋₁₄ form a single hydrodynamic system. Geophysical logging shows an oil saturation here for the top part of the structure. By analogy with other producing regions strata AC₁₋₃ are also favorable targets here.