Prediction of Gas Occurrence in Prospective Areas of the Yamal Peninsula

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Reservoirs are regarded as a three part system: reservoir proper, true seal, and an intermediate false seal. The degree of filling of a reservoir depends on the thickness of this false seal.

The thickness of the false seal depends on the nature of the tectonic activity and the proximity of the source area. The false seal is a rock unit that formed as a result of sharp differential subsidence of the basin floor along with intensive uplift in the source area of the detritus. The resulting rock is consequently different in composition and properties from the reservoir and seal.

Logging characteristics tend to be intermediate between those of reservoirs and seals, except for the gas log, which has high values for the false seals.

Two false seals are recognized in the Hauterivian-Barremian-Aptian play. The first is above stratum Тт18–19, and the second is above stratum Тт1. In the Severo-Tambey field their thickness is 7 and 9 m, respectively, and in the Yuzhno-Tambey field it is 8 and 13 m. A third false seal is in the Albian above upper pay zone XM1. Its thickness in the Severo-Tambey field is 10 m, and in the Yuzhno-Tambey field 8 m. The thickest false seal at 38–40 m is above the Cenomanian pool in stratum ИИК1 beneath the Turonian clay seal. See Fig. 1.

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