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Yuzhno Khilchuyu Field, Timan Pechora Basin, Russia

Yuzhno Khilchuyu Field is located on the western side of the Kolva Megasequence in the north central part of the Timan Pechora Basin, Russia. The field contains 1584 million barrels (214 MMT) of 35° API oil in place in the Lower Permian (Asselian-Sakmarian) carbonates at a depth of approximately 2200 m subsea. Minor additional oil and gas is located in the overlying units. The accumulation combines both structural and stratigraphic elements of trapping.

The reservoir consists of stacked successions of shallow-water carbonate deposits. Individual cycles were deposited in response to sea level fluctuations. These cycles each consist of a basal wacke- or packstone bed overlain by *Palaeoaplysiniid* grainstones and/or boundstones. Many cycle tops exhibit evidence of subaerial exposure which, in many cases, has enhanced porosity and permeability. Porosity is primarily interparticle and intraparticle due to dissolution. The gross reservoir thickness averages 64 meters, net pay averages 34 m. The central part of the field consists of the highest quality reservoir rocks, while the flanks are made up of thinner and poorer quality reservoir. Reservoir permeability varies from 1 mD to 4500 mD and porosity reaches as high as 30% according to core data. Test rates vary from 18 to 5525 BOPD at drawdowns of 217 to 3016 psi with the average rate of 2120 BOPD at a drawdown of 1200 psi.

Subsequent to reserves approval by the State Reserves Commission, Conoco and Arkhangelskgeoldobycha (AGD) carried out the following work program:

- reprocessing of 390 km of existing seismic data and acquisition of 230 km of 2D seismic data
- acquisition of a 217 sq. km 3D seismic survey
- drilling of two wells, one on the flank and one in the crest of the field, with core recovery across entire the reservoir interval
- long term interference testing in the crestal portion of the field
- drilling of two additional wells to ascertain the upside potential of the stratigraphic trapping of the oil

The work carried out has made it possible to develop a geological and reservoir model of the Asselian-Sakmarian reservoir to aid in planning future field development.