

Checking of the Real Field Yielded Oil Amount by the Proper 3-D Reservoir Bodies Model Geometry Estimation

By

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The mature Osobnica oil field is located in the western part of Polish Outer Carpathians. The trap was formed of Cretaceous and Tertiary turbidite sandstones-mudstones, tectonically folded into anticlines, and later transversally faulted during Carpathian thrusting. The reservoir sandstones were divided into three units, with gas cap, oil productive horizon, and water leg in each of three folded anticlines forming the trap.

Recently, field has been intensively developed by several dozens of exploitation wells; however, the production suddenly eclipsed. This pushed re-evaluation of the present trap in order to rebuild income or even increase production.

This project will be based on the detailed resolution of the geometry of former sandstone reservoir bodies, with influence of the fault system on the compartmentalization of the units and distribution of petrophysical properties in fault-active conduit system. Such nonuniform reservoirs in thin-skinned thrust structural setting, especially, require modern and proper model of the distribution of oil-saturated zones.

The new trap model will be checked by estimating oil amount with help of the data base of well production tests. New trap model will be also analyzed using the pressure-rebuild curves and appropriate interpretation in relation to the standard curves. Such procedures will allow for a precise determination of the parameters for the remaining oil in the field area and successful production strategy planning for future field development. The SSI Co. "Interpret" software used in this work as a project summarizing tool will enable determination of the 3-D trap geometry and calculation of the quantity of oil in place, with only an error of about 5-10 %.