

# Exploring for Deep Secondary Reservoirs in the Dnieper-Donets Basin, Ukraine

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Recently, one of the exploration trends towards searching for secondary reservoirs of tectonic origin at great depth is gained momentum in the Dnieper-Donets. Some favorable conditions exist here at depth over 5000m in Carboniferous sediments of Moscovian and Bashkirian stages. It is evaluated that proper processes are most intensive inside anomalous strain zones affecting strata during formation of horst-anticline structures. Fracture length and population depends also on lithology and petrophysics of deformed rocks. Thus, the rock types more capable to fracturing form secondary reservoirs. To predict, drill, and test such reservoir the special technique and equipment are required. The basic item of the effective exploration complex is dynamic attribute seismic analysis for particular seismic events reflecting productive horizons. An example how such complex is applied is exploration of West-Shebelinka prospect. An apical part of this structure tarp has revealed a peculiar anomaly of seismic record. Starting from the level of Moscovian stage strata it can be traced to the deep along its fuzzy boundaries, which are too wide as for usual fault zones. This anomaly is stipulated by secondary changes caused by tectonic forces. Moreover, those changes have produced a dilation domain (fracturing and leaching) of tights sandstones and decreasing of their acoustic signatures. New interpretation may speak in favor of new combinations type of multilevel trap/reservoir the depth of which is limited only by conventional drilling equipment. Testing of well 701-West-Shebelinka has proved gas potential of this structure and exploration potential for hydrocarbons in secondary reservoirs at great depth.