



## **Evaluation of the Resource Potential of Shale Hydrocarbons on the Territory Tatarstan Republic (Volga-Ural oil and gas province)**

Renat Muslimov and Irina Plotnikova

Kazan Federal University, Institute of Geology and Petroleum Technology, Kazan, Russian Federation  
(irena-2005@rambler.ru)

Volga-Ural provinces of Eastern European platform are referred to industrial developed areas of oil production with the deteriorating structure of residual hydrocarbon reserves, forcing to search for new reserves of raw materials growth, including unconventional sources of hydrocarbons – shale strata. The top priority for the study and evaluation of this territory are complexes of Domanic and Domanician shale deposits (Upper Devonian carbonate-siliceous-clays horizons that contain a significant amount of ).

In the present report the prospects of the development of shale oil facilities design methods in Tatarstan are considered. A program for evaluation of oil and gas deposits prospects is worked out. The stages of its realization are described. A preliminary estimate of the cost of the program is made.

Research on the evaluation criteria of shale oil and gas is conducted to accurately assess the resource potential of shale oil. Statistic analysis of the geochemical index of hydrocarbon source rocks in some areas of the Tatarstan (such as Melekessky basin, South-Tatar arch, North-Tatar arch and other) based on the characteristic of triple-division between the oil content and TOC of source rock, suggests that shale oil can be categorized into different levels of resource enrichment.

The report contains results of analysis of organic matter porosity and permeability distribution in domanik type rocks on the Tatarstan area. First estimation of resource potential of shale hydrocarbons in the territory of the Republic of Tatarstan were carried out. Resource assessment carried out for domanik rocks of the Ust-Cheremshansk deflection in the Melekess depression. Method of evaluation provided an opportunity to evaluate amount of mobile hydrocarbons in dense shale rock.

Still the question of the degree of maturity of the organic substance remains open. A detailed analysis of the pyrolysis was performed. The study of lithology and geochemistry allowed to develop shale facies model of shale sequences with a high content of organic matter.

Selection of the most promising areas of shale fields should be based on the paleo facies analysis of the depositional environment. Accumulation of high value silicon and oranic matter substances associated with specific geodynamic and paleo facial conditions of the sedimentary basin.