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CLASSIFICATION AND CHARACTERISTIC FEATURES OF RESERVOIRS IN AB1,2,3 FORMATIONS OF SAMOTLOR FIELD (p. 4)

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Significant oil reserves of Samotlor field are associated with strata of AB1 group of alymsky suite. AB1 reservoir-rocks are characterized by a complex structure being the result of a large-scale biological-turbational processing of sediments and local manifestations of carbonization processes. Facies zoning and sediments lithological typing are updated on the basis of core comprehensive study of 85 wells. According to the prevailing dimension, sediments are divided into four granula types inside which lithotypes of different relative to each other permeability can be found with account of biological-turbational degree and carbonization. It is stated that intensive development of secondary biological-turbational textures, while retaining the initial porosity and granulometric composition, can 25 times or more reduce sediments’ permeability of the deposit up. Consistent correlation of facies and lithotypes distribution is marked.

Key words: Samotlor field; reservoir; lithotype; facies; porosity; permeability; granulometric composition.

GEOLOGICAL SPECIFIC FEATURES OF SHERKALINSKY SUITE RESERVOIRS OF TALYNSKY TERRITORY (p. 12)

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Talinsky territory of Krasnoleninsky field has recently acquired a reputation of one of the most complex and unique objects of domestic oil producing industry. Many experts, engaged in studying of field development problems, associate the situation with reservoirs structural features of YuK10 and YuK11 productive formations.

The paper is devoted to understanding of super-reservoirs nature from the point of view of studying conditions of generation of Sherkalinsky suite formations, analysis of rocks material composition and variability of reservoir filtration-volumetric properties. The paper presents some principal model of a super-reservoir, which serves the basis for developing of a 3D geological model.

Key words: super-reservoir; Sherkalinsky suite; riverbed facies; quartz grits; high permeability; low core recovery; hydrophobic reservoir; super-reservoir capacity.

THE FORECAST OF SPREADING OF VASUYGAN SUITE SANDSTONES ON THE NORTHERN SLOPE OF NIZHNEVARTOVSK ARCH (p. 22)

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The detailed correlation of well logging proved the fact that the upper vasuygan subsuite of Nizhnevartovsk arch is characterized by presence of three layers of sandstones with thickness up to 20 m and availability of two sandy layers with thickness up to 40 m in Yarsomovsky trough. By electrometric characteristics of well logging provided mapping of limits of each sandy layer spreading and determination of its reservoir facies. Layers subsequent formation and peculiarities of their territorial spreading specify different levels of oil-water contacts, thus providing very important information while prospecting for deposits of non-structural type.

Key words: vasuygan suite; sandy bodies; wells geophysical survey (GIS); forecast of oil and gas content; reservoir facies; littoral; shallow water; reservoir; hydrocarbon traps.

FLUID-DYNAMIC MODE OF RIFT-RELATED BASINS AND ASSOCIATED EPIGENESIS ARE THE KEY FACTORS FOR PREDICTING OF A COVER PRODUCIVE RESERVOIRS (p. 29)

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Generation of micro-drusy and regeneration quartz, macro-scale trilinic kaoilinite (less dickite) in terrigene reservoirs with large cavities of leaching specifies the state of geodynamic anomaly, experiencing its final stage, associated with formation of large hydrocarbon accumulations. Development of authigenic leucoxene and anatase in association with trilinic kaoilinite and calcite in reservoirs characterizes the situation of weak tectonic stress when multiple reservoir depressurization of hydrothermal system occurred. This fact witnesses low probability of appearance of hydrocarbon commercial deposits in the period of tectonic activity.

Key words: continental rift-genesis; hydrothermal lithogenesis; fluid dynamics; hydrocarbons, kaoilinite; dickite; leucoxene; anatase.

APPLICATION OF SKIN-FACTOR FOR DATA INTERPRETATION OF GEOPHYSICAL WELL LOGGING (p. 39)

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Physical nature of the so-called skin factor is considered. It is shown that its magnitude depends on the method of its determination. Brief analysis of two common, differing by results, methods of the skin factor determination is submitted. In accordance with the first method, initially introduced in production practice, the skin factor is essentially a conventional multiplier, i. e. a correction factor, the use of which, for example, in the formulas on the basis of Darcy's law indicates the correctness and (or) the incompleteness of those or other technological calculations. According to the further second method the skin factor, in terms of its value, is equivalent to additional filtration resistance which in due time was introduced by V.I. Shchurov and built on the basis of electro-dynamic analogy in order to take into account a well imperfection influence on a formation opening (change of natural permeability of the well bore zone of a formation, etc.).

The submitted results of calculation examples served the basis for proving the fact that while applying the skin factor determined by the results of geophysical well logging it is expedient to consider a number of factors discussed in detail in the paper to assess the changes of natural permeability of the well bore zone of a productive reservoir.

Key words: skin factor; Darcy's law; hydraulic resistance; formation fluids; flow rate potential; friction forces; Reynolds number.

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DEVELOPMENT OF THE NEW TECHNOLOGY OF MULTI-VARIANT PREDICTION OF OIL AND GAS CONTENT BY SEISMIC DATA (p. 47)

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The generalized seismic-geological model of Perm territory is built. Structural attributes of reflecting horizons are computed. Quantitative characteristic of interrelation of structures, possessing different reflecting horizons, with oil and gas fields is given. Multivariate probability model, predicting availability of oil and gas content is suggested.

Key words: oil and gas content; localized structure; seismic exploration; trend analysis.

UDC 553.98

GEOLOGICAL GEOPHYSICAL MODELS OF THE DEEP STRUCTURE OF NEPSKO-PELEDUSKY ARCH AND THE ADJOINING PART OF NYUYSKO-DZHERBINSKY DEPRESSION (p. 55)

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The new geological-geophysical arguments, indirectly confirming the legitimacy of B.A. Sokolov’s hypothesis about possible connection of hydrocarbon deposits in the territory of Nepsko-Peledusky arch with sedimentary formations under the foundation’s allochthone blocks, conceptual model of a deep structure and tectonic nature of its crystal foundation are obtained and discussed.

Key words: Nepsko-Peledusky arch; Nyuysko-Dzherbinsky depression; geophysical fields; "Batolit" geoline; seismic section; relic plate; crystal foundation; allochthone block.

UDC 553.98.04

CARDINAL ARGUMENTS SUPPORTING THE THEORY OF HYDROCARBONS ABIOTIC ORIGIN (p. 64)

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The paper considers the theory of oil non-organic origin, oil and gas generation and formation of oil and gas fields as one of the manifestations of more extensive natural process, namely, the Earth’s degassing.

Key words: abiogenic theory; deposits generation; field; oil and gas origin.