

## **IMPROVEMENT OF GEOLOGICAL AND MATHEMATICAL OIL FIELD MODELS AS THE BASIS FOR INCREASING OF OIL RECOVERY FACTOR.**

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At present the authors propose the technology for improvement of oil field mathematical models and the quality to develop heavy recoverable reserves. The results of mathematical simulation of traps, reservoirs and fields heterogeneity in general can be presented with models of fields, reflecting qualitative parameters of sedimentation - facial, structural and permeability-porosity heterogeneity of traps and also tectonic anisotropy and hydrodynamic communication of reservoirs. While geological and mathematical simulation of fields the following problems are being solved: 1. Reserves estimation according to similar zones of productivity in pools and establishment of order in their development; evaluation of residual oil reserves. 2. Optimization of the distances between injection and producing wells, the choice of producing wells for transforming them into injection ones and forecast of zones with the utmost encroachment rate, possible ways of edge and bottom water breakthrough. 3. Regulating of oil withdrawal in separate operating wells depending upon their location in the zones susceptible to premature encroachment. 4. Control over the volumes and regimes of water injection and wells fluid withdrawal, gradients of pressure between injection and withdrawal zones. 5. Evaluation and forecast of uniform regime of water withdrawal and water injection along pools area, wells interfeeration, hydrodynamic bond between operating and injection wells. The technology proposed provides uniform oil-water contact in fields preventing their breaking into fragments; permits to avoid different rates of reserves working out, selective flooding and premature removal of wells from operation; increases final oil (gas) recovery factor for fields. The examples illustrating the technology of mathematical simulation of traps and reservoirs heterogeneity are given for some oil fields.