

GEOLOGICAL MODELING OF GUNASHLI OIL FIELD WITH THE PURPOSE OF THE DEVELOPMENT OPTIMIZATION

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At present time intensive exploration and development a new carbohydrogen resources of Caspian Sea in Azerbaijan is being started.

SOCAR (State Oil Company of Azerbaijan Republic) has a problem as analysis of oil field development, obtain and processing of geological and field information, preparation and realization necessary arrangement for purpose of optimization oil recovery.

Due to assimilate the experience and using up to date software is pressing problem.

The purpose of this paper is optimization of development of Gunashli Oilfield, located in Caspian Sea at distance of 120 km from Baku and was discovered in 1979-th year. Gunashli field has been modeled by collaborators of Expedition of Offshore Oil and Gas Field Development Control. It has been used in GRID, SURFER, PRODUCTION ANALYST and ECLIPSE 100 softwares for building geological model and analysis of development main productive horizons X and Pereriva.

Geophysical survey results in 60 wells has been operated. With method of sequence stratigraphy has been existed correlation and separated horizon X and Pereriva. Having results shows that productive strata consist of 13 interlayers: 7 of them are oil saturation, 6 of them – argillaceous. In figure 1 is shown pattern “architecture” of sedimentation.

Porosity, oil saturation, thickness and other parameters variation maps has been made up. These maps allow to analyse filtration process.

Geological modeling consist of following stages:

1. Description of geological structure reservoir and make up structure maps.
2. Description of filtration properties of reservoir.
3. Simulation of variation reservoir.
4. Make up grid model of rocks faults conductivity.

Gunashly field tectonics has been determined with the mathematical research procedures.

The water-oil contact has been investigated.

Thus simulation reservoir is base to calculate filtration (fig. 2). Therefore the follow stage in building complete hydrodynamic model of development of X horizon and Pereriva will be built 3-D model with ECLIPSE 100 software. This model will be used for optimization of development and oil recovery increasing.