



DEPROIL
DETAILED OIL & GAS PROSPECTING

**85% -
SUCCESS RATE
25 fields
81 wells
166 well tests**

- ❖ The initial production rate for new wells
- ❖ Total and recoverable hydrocarbon reserves
- ❖ Stratigraphic level and contour of commercial hydrocarbon-bearing reservoirs
- ❖ Objective 3D model of rock density



**EXPLORATION, PROSPECTING,
PRODUCTION AND MONITORING
OF COMMERCIAL HYDROCARBON-
BEARING RESERVOIRS**

EXPLORATION

Geological task:

Mapping commercial hydrocarbon-bearing reservoirs within gas and oil bearing basins for licensing and prospecting.

- The unique algorithm of 3D gravity inversion
- Objective 3D model of rock density
- Multilayer hydrocarbon reservoirs

Solution:

Mapping the location of hydrocarbon-bearing reservoirs is provided by the unique technology and in-house software package GCIS aimed at the horizon-oriented mapping of multilayer gas and oil reservoirs. The technology is based on Joint 3D gravity data inversion with geological data and / or well data and / or seismic data. As a result, we obtain geologically consistent subsurface models of density with a lateral and vertical resolution of 100 m and up to 1 m correspondingly.

PROSPECTING

Geological task:

Mapping commercial hydrocarbon-bearing reservoirs within licenses and its ranking by the volume of total and recoverable reserves and initial production rate in new wells.

- Depth and contour of hydrocarbon reservoirs
- Shape and origin of hydrocarbon reservoirs
- 3D model of hydrocarbon reserves density

Solution:

Ranking hydrocarbon-bearing reservoirs by their prospecting priority and defining the order of new wells drilling is performed with considering estimated volumes of total and recoverable hydrocarbon reserves and initial production rates for new wells. Estimation of these parameters is based on the suggested by DEPROIL LTD 3D model of hydrocarbon reserves density, which contains information about the amount of hydrocarbons per reservoir rock volume unit. In other words, it shows commercial hydrocarbon reserves within the reservoir and free of any geological and petrophysical factors.

PRODUCTION

Geological task:

Mapping production-induced changes within gas reservoirs: pressure drop, gas saturation change, gas-water contact rise, identification of the unswept zones.

- 3D model of porosity and hydrocarbon saturation
- 3D model of hydrocarbon reserves density
- 3D model of initial production rate in new wells

Solution:

Choosing optimal location for drilling new production wells is carried out by creating 3D petrophysical models and 3D model of hydrocarbon reserves density, which reflect an internal heterogeneity of reservoir rocks properties within inter-well space. It is achieved by joint active inversion of gravimetric, well and seismic data.

MONITORING

Geological task:

Mapping reservoir changes within the gas field or underground gas storage underw hile its operation: change of pressure, gas saturation, location of dynamic gas reservoirs, working gas pathways.

- 4D gravimetric observations
- 3D model of pressure, temperature, porosity and gas saturation
- Quantitative estimation of changes within the reservoir

Solution:

Control over production-induced changes within producing gas reservoirs or underground gas storages is carried out basing on 3D models of pressure, temperature, porosity and gas saturation resulted from joint 4D + 1D inversion of gravimetric and well logging data. Created models are being permanently updated by time-lapse high-precision gravity survey and calibrated by density model, hydrodynamic and production data.

OUR CLIENTS:



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