

SUMMARIES

Dubiel S.: **Procedures of Oil Filed Testing with DST in the Process of Drilling-up** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

Basing on literature data and own industrial experience, the author gives procedures of: DST technique; making up a test kit, depending on the hole conditions and planned testing technology; interpretation of the results of a short test of bottom pressure rebuild with the Horner method; determining reservoir parameters and evaluation of reservoir conditions on the example of the oil field Osobnica.

Keywords: well testing; formation tester; Drill-Stem Test (DST); pressure build-up in wells; metod Horner and metod log-log

Fąfara Z.: **Analysis of Filtration Rate Variability with ANOVA Method** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

The results of analyses of influence of selected factors: ground model, type of used hydrocarbon mixture and level of moisture in the porous space of the ground-water medium on the vertical filtration rates of oil products in the ground obtained in laboratory condition are presented in the paper. A method of one-factor variance analysis method was applied. The calculates were realized at two stages. In the first stage data were selected in view of information about grouping levels which correspond to definitely differentiated filtration properties of the ground models and properties of oil products. In the second stage all these data were accounted for. Similar conclusions were obtained in both cases. They revealed a strong influence of selected factors on the defined variable.

Keywords: soil, hydrocarbons migration, analysis of variance

Macuda J., Łukańko Ł.: **Environmental Noise Measurement in Oil and Gas Industry Conditions** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

Acoustic measurements in the oil and gas industry conditions are made in the immediate vicinity of the devices and installments used for hydrocarbons exploitation and distribution. In majority of cases these studies are aimed at determining the noise level and working out measures for minimizing their environmental impact.

The principles of noise measurement around oil and gas devices and systems localized in areas varying in their development and morphology of landscape. The results of measurements of acoustic climate around a reduction-measurement station I⁰ and a gas treatment station in KGZ Bonikowo are presented in the paper.

Keywords: noise, natural gas regulation station, underground gas storage, natural gas mine

Rychlicki S., Stopa J., Wojnarowski P.: **Possibility of Mature Oil Fields Revitalisation** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

The development of such new EOR technologies as VAPEX or LTO and the increasing pressure on reducing anthropogenic CO₂ creates favorable conditions for increased interest in EOR methods accompanied by CO₂ sequestration also in Poland. The spectacular development of multilateral well technology significantly increasing

recovery rates and enabling management of small reservoir is of special interest. One of the newest EOR methods, i.e. the SAGD is process described in this paper. This technology links the EOR method with multilateral well technology is applicable for gravity production reservoirs.

Keywords: petroleum, production, EOR

Twardowski K., Traple J.: **Compaction of Geologic Formations** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

The papers tackles the problems of compaction of geologic formations The most important notions referring to mechanical (geometric) compaction and chemical (mineral) compaction have been discussed. The most relevant regularities in sandy and clayey beds have been characterized. A mathematical model describing irreversible changes in porosity with depth has been analyzed for sedimentary rocks. A good congruence of modelling and empirical data prove that the model can be treated as a universal mechanical rocks compaction model.

Keywords: compaction, geologic formations, diagenetic processes, mathematical models

Twardowski K., Traple J.: **Flow of Water-Oil Emulsion in Porous Media** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

Some peculiar properties and physicochemical properties taking place in liquid dispersion systems representing water-oil emulsions are presented in the paper. These systems were characterized with special emphasis on their viscosity and the oil and water decomposition and coalescence processes. The structure of a two-phase oil-water flow in ducts and changes in viscosity and flow resistivity of a two-phase stream are discussed. Attention has been paid to the possibility of using the effect of a two-phase diffusion-phoresis to the extraction of oil from capillary-porous media.

Keywords: porous media, water-oil flow, water-oil emulsions, diffusion-phoresis

Wojtanowicz A.K., Hernandez J.: **Un-recovered Oil by Vertical Wells with Water Coning – Assessment, Prediction and Remediation** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

Water invasion mechanism – called water coning – affects vertical wells completed above the Oil-Water contact (OWC) in oil reservoirs with bottom water. The objective of this study was to quantify the amount of by-passed oil for a variety of the bottom water well-reservoir systems with water invasion to wells and to assess feasibility of downhole water sink completions to reduce oil by-passing. A large statistical population of possible reservoirs with bottom-water has been created using databases of actual reservoir properties worldwide. Dimensional analysis coupled with Monte Carlo method allowed converting statistics of reservoir properties into dimensionless group distributions. Then, the amount of by-passed oil was correlated with the dimensionless groups using three-level full-factorial designed experiments conducted with a reservoir simulator. A reservoir – well system with bottom water was modelled using a commercial black oil simulator with two concentric radial layers of oil pay and the aquifer zone having different sizes and properties.

The resulting dimensionless correlations determine the expected value of by-passed oil at the end of well's operation. The correlations are general as they cover a wide range of reservoir-well systems. When the correlations are coupled with the reservoirs' population the results show that, for example, more than 25 percent of movable oil volume could be by-passed in one half of all the bottom-water reservoirs. The study also identifies dimensionless groups that mostly control water invasion – the end-point mobility ratio and well spacing. The results also reveal two mechanism of water invasion: coning or uniform OWC advancement.

Numerical reservoir simulation is also used to investigate the well completion's length and placement that would minimize oil bypassing and optimize recovery. Single completions of different penetration (length) are compared to dual well completions with Downhole Water Drainage/Sink (DWS), for new wells and marginal (watered-out) wells. The results show that the best completion strategy for both the new and the marginal wells is the use of (or intervention with) DWS completions. DWS would delay water breakthrough, stimulate oil inflow by reducing water saturation around the well, and maximize Net Present Value by accelerating recovery.

Keywords: *un-recovered oil, contact oil-water, water coning, numerical simulation*

Wysocki S., Śliwa T.: **Analysis of fiberglass tubing and casing use for exploitation wells with hydrosulphide inflow** • Drilling Oil and Gas 2008 • Volume 25 • No. 1

On the Faculty of Drilling, Oil and Gas AGH University of Science and Technology in Cracow in the years 2001–2005 made research on packer fluids corrosion in exploitation wells with hydrosulphide inflow. The research shown casing and tubing corrosion process in standard packer fluids which with H₂S become aggressive. It cause an idea to analyse of H₂S inflow and interaction in that conditions for wells build of steel and fiberglass pipes. In the article shows considered the possibility of use and denger connected with use described construction of wells.

Keywords: *corrosion, fiberglass Pipes, hydrogen sulfide, packer fluids, borehole constructions*