SUMMARIES

Skrzypaszek K., Stryczek S., Wiśniowski R.: **The influence of ash from fluidized--bed combustion of lignite on rheological properties of cement slurries.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 3

Cementing jobs are a very important element of drilling technology considering the completion of a given field. The selection of an appropriate recipe for sealing slurry is a challenge for the cementing services and research units. Both fresh and set slurry should meet a number of technological requirements.
Various chemical, physical and mechanical properties of the ground and rock mass media to a different degree influence the technological parameters of the injected fluid.
The sealing slurries have to meet certain criteria if the high efficiency of works is to be provided. The first of them is the criterion of physicochemical congruence with the environment. The second condition stems from the criterion of pumping the slurry. It is realized by selecting an appropriate rheological model and rheological parameters of the sealing slurry. The third requirement is connected with the need of providing suitable strength and durability of hardened sealing slurries as a result of the physicochemical processes. The fourth condition should account for the economy and ecology factors.
The selection of recipes for sealing slurries should not be accidental or an output of unfinished laboratory tests. The correct sealing and reinforcing of the rock mass are prerequisites of further engineering works performed in the wellbore.
The results of laboratory experiments on the concentration of ash from the fluidized-bed combustion of lignites on rheological parameters of fresh sealing slurries based on drilling cement class G (HSR) Dyckerhoff (API Class G HSR – Black Label) for various water/cement ratios are presented in this paper.

Keywords: *drilling cement G, ash from fluidized-bed combustion of lignite, rheology, rheological models, cement slurries*

Kremieniewski M., Stryczek S., Wiśniowski R.: **Correlation of parameters describing microstructure of hardened cement slurry for the purpose of increasing tightness of cement mantle.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 3

The results of laboratory experiments on fresh cement slurries are presented in this paper. The samples of hardened cement slurry were hydrated for 28 days in wellbore-like conditions and then analyzed for parameters describing their microstructure. The obtained results created a basis for a correlation analysis of parameters of microstructure of hardened cement slurries. The dependences having the biggest effect on increasing the tightness of the cement mantle were also addressed to.

Keywords: *permeability, porosity, hardened cement slurry, threshold diameter, threshold radius, threshold pressure, boundary effect*

Chernova M.Ye.: **Influence of low frequency vibrations on drillstring dynamics.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 3

During the drilling process, between the drilling bit that ruins the rock in the bottom-hole and the energy source located on the ground surface is the drillstring that has certain length and small cross cuts that define the dynamics of the drilling bit work.
Along with the development of science, for optimization of drilling processes were developed and continue to be elaborated mathematical models that use empirical dependencies based mainly on laboratory data which are very far away from the real conditions of well construction and fail to take into account all the peculiarities of this process.
Thus, the management of the drillstring dynamics related to an increase in the effectiveness of deep directional and horizontal wells drilling process through the minimization of torsional and longitudinal low frequency vibrations of drilling instrument is a matter of topical interest nowadays.

Keywords: *drilling, well, vibrations*

Moisyshyn V., Borysevych B., Vytyaz O., Gavryliv Yu.: **Development of the Mathematical models of the integral drilling indices based on the Dimensional analysis.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 3

The dimensional analysis method was used to estimate the influence of the axial static load on the bottom-hole, angular speed of the drill bit rotation, stiffness, and damping of the drilling tools on the integral indices of well drilling. The mathematical models of the mechanical drilling speed, average values of torque on the bit, and energy consumption for the rock destruction process on the well bottom-hole were developed for two interlayers of the Vorotyshchenska formation with the hardness of 1440 and 2050 MPa.

Keywords: *axial static load on the well bottom-hole, angular speed of the drill bit rotation, stiffness and damping of the drilling tools, mathematical model, mechanical drilling speed, average value of torque on the bit, energy intensity for the rock destruction process on the well bottom-hole*

Rybicki Cz.: **Well testing in shale gas reservoir – new idea.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 3

Generally hydrocarbons reservoirs can be divided into conventional reservoirs and unconventional reservoirs. Conventional reservoirs belong these reservoirs which can be used directly after the discovering process. Unconventional reservoirs – reservoirs which after the discovery process have to be prepared to be effective. Unconventional gas resources are targets for development in order to contribute to a national energy mix. Better recognition of the unconventional gas reservoirs allow us to obtain good results after discovering them.
The main subject of this paper is giving some details about the testing methods of unconventional reservoirs and their properties and characteristics.

Keywords: *shale gas, micropores, mezopores, nanopores, kerogen, bitumen, capillary condensation, buildup test, drawdown test, injection/falloff tests, Langmuir isotherm*