

## SUMMARIES

---

Knez J., Knez D.: **The influence of chosen calculation parameters on the total volume of the LNAPL product estimated in a mathematical model.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 4

There is a number of mathematical models applied to simulate the migration of oil-derived pollution, with the LNAPL (Light non-aqueous phase liquid) volumes in the saturation and aeration zones being analysed in two-phase modeling. A number of hydrogeological parameters and the parameters describing the second phase consisting of oil derivatives are assumed for the sake of the simulation. A part of the data predetermined for the mathematical model is applied on the basis of direct investigations in the field or laboratory, whereas some data are based on a literature analysis or are used by analogy to similar areas. The model data should be additionally verified and validated in the mathematical model. In the case of the LNAPL remediation system being simulated, it is the parameters related to the ground-water environment and the parameters defining the free product of oil that are very important in determining the volume of the recovered LNAPL. With a good deal of data applied for the remediation process simulation one may expect model solutions of different levels of reliability.

**Keywords:** *light non-aqueous phase liquid LNAPL, groundwater flow simulation, oil derivative product, two-phase modelling, the parameters characterizing the liquid phase*

---

Zwierzyński A.J., Wróblewski T., Wiśniowski R., Stryczek S.: **Selected methods of measuring drilling mud settling.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 4

Methods of measuring settling rate of drilling muds have been selected and the basic theoretical data on this process are addressed in the paper. A brief discussion is also given on the negative influence of settling in drilling mud on the stability of wellbore and formation of potential drilling complications. The results of an analyses of the settling processes taking place in oil-based muds made according to 8 recipes are presented. The direct weighing method has been used in the measurements.

**Keywords:** *particle settling, barite sag, drilling muds, drilling fluids*

---

Rybicki Cz., Chromik M.: **A feasibility study of synthetic substances used for the sealing of old workings transformed into underground gas storages.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 4

In the now both in the world and in Poland grows the meaning of underground gas storages. Except storages located in depleted gas reservoirs salt caverns the attention deserve storages in mining-excavations. In this type gas storages it exists the problem of the seal of the rock massive. For that purpose comply different methods among other things the housing with the steel-cloak and the water curtain. Authors of the article propose the innovative method of sealing up of the rock massive at the use of plastics as composites. The article has a general character because in practice this method was not applied. In opinion of authors this method seems to be interesting and effective.

**Keywords:** *mining excavation, mining well, composite material, sealing up of rock mass*

---

Pavlenko A.M., Koshlak H.V., Vytyaz O.Y.: **Study of the stability of methane hydrates in normal conditions.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 4

The problems of accumulation, transport and storage of gases and gas mixtures exist in many cases. Often the existent technologies appear ineffective for transporting his with pipelines, as condensate or compressed gas. Therefore, the transportation and storage of gas in hydrate form can be an alternative to traditional technologies. Preservation of gas hydrate blocks can store them for some time at the no equilibrium conditions. The thermodynamic parameters of forcibly conservation of gas hydrate blocks theoretically are determined and experimentally verified.

**Keywords:** *storage of gas, gas hydrates, hydrate block, thermal conductivity, forcibly preservation, equilibrium conditions*

---

Chernova M.Ye., Kuntsyak Ya.V.: **Study of the stress strain of rock massif in the crooked wellbore.** AGH Drilling, Oil, Gas 2014 • Vol. 31 • No. 4

We investigated the stressed-deformed state of rock mass in a deviated borehole. There were received the analytical dependencies for the determination of circular and radial stress that allows for a science-based approach to the design of a borehole profile during the drilling process in the uneven horizon of rock mass of such reservoirs as Dnipro-Donetsk Depression and Black Sea Shelf and the construction of hydroacoustic directional energy devices with controlled parameters.

**Keywords:** *borehole, stress, drilling, rock*