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Methods of Oil Production and Extraction

It is widely known that oil is the leader in global fuel and energy sector. Its share in the total consumption of energy has increased steadily. Oil is the basis of energy balances of all economically developed countries.

There are different methods of oil production known in the world. For example, in the USA earlier a method of distillation was applied. The first product obtained by the distillation of petroleum is gasoline, followed naphthenes separated and kerosene. The disadvantage of this method lies in the fact that hydrocarbons, characterized by minimal molecules weight, are evaporated even at low temperatures, whereas in order to distill larger molecules considerably higher temperature is required.

To increase the production rate of products obtained from distillation, a method of thermal cracking was developed. In the process of cracking large volumes of crude oil are heated to high temperatures under high pressure. As a result, large hydrocarbon molecules are split into smaller ones. Thus, the percentage of gasoline derived from crude oil, is also increased. The efficiency of this process was limited due to the high temperature and pressure required for cleavage except that in the reaction vessel too much carbon residue is remained.

In our country the Dnieper-Donets oil and gas region was formed on the Left Bank of Ukraine. There, in Sumy, Chernigov and Kharkiv region high-grade oil deposits are explored and exploited. Some of them contain significant amount of accompanying natural gas used for the gasification of the surrounding towns and villages. In Ukraine, methods applied for operating oil wells are the following: spurt operation, compressing, pumping. The phenomenon of oil extraction rise from the well to the surface under reservoir is called energy flowing and the method of its operation as fountain (or fountain lava). With the decline of reservoir energy value fountain wells are decreased. At the moment, when there is not enough energy in the reservoir to drive an oil layer onto the surface, the process of flowing wells stops.

The process of flowing can be recovered. To feed the shoe, it is lowered into the well tubing with the compressed air or gas. Since the latter ones help to the process of artificial flowing, the way it uses these agents is called compressor (or compressing). The essence of this method lies in the operation of wells that are placed in the borehole plunger pump, which is driven by a surface drive using the column bars. It is indisputable that oil is one of the most valuable natural resources in the world but those ones remained in Ukraine, as the experts say, will be harder to find and develop because they lie at large depths, very specific and require advanced extraction technologies.