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Oil Production

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Oil is a natural fossil fuel, which is an oily liquid of cloudy yellow or light brown with a specific smell. Due to the content of a significant amount of various hydrocarbons in the composition, this raw material occupies a leading position among other energy resources [1]. Oil appeared as a result of processes that took place in the bodies of deceased ancient animals under great pressure of rocks. To detect oil, geologists pass ultrasonic pulses through rocks and due to the various acoustic properties of these rocks, they can present a picture of what is underground. When they find a reservoir of oil, the development of the field begins. If there is doubt that there really is oil, a test mine is drilled in order to make sure of the result. When the presence of an oil horizon is confirmed, the main mine is drilled. The oil horizon is the rock from which oil is extracted. The mine can reach several hundred meters in depth. Steel pipes are immersed in it, their diameter is smaller than the diameter of the shaft itself, and concrete is pumped into the resulting cavity between the pipe and the rock under pressure. Sometimes there is a pipe next to oil rigs, at the end of which a fire is burning. Thus, the accumulated gas is burned out. After that, a powerful charge is lowered to the depth of the intended occurrence, which explodes and makes perforated holes in the pipe. Then oil begins to flow through these holes [2]. Oil production methods are divided into three types: primary, secondary and tertiary. In the primary extraction method, the oily liquid leaves its place of residence as a result

of the influence of natural forces of nature. Usually its place is taken by water or gases. If the existing pressure is not enough for the oil to come out by itself, then special pumps are connected. Once the primary method of oil production has been exhausted, it is replaced by the secondary method, which involves artificially pressurizing the reservoir. This is done by injecting water from nearby freshwater reservoirs or naturally occurring gases (air and its separation products, associated or natural gas) into the reservoir. Such technological solutions increase oil recovery by up to 30 per cent. The next stage in increasing oil production, which can increase productivity by up to 45%, is the tertiary method. It is based on the effects that increase the energy level of the underlying natural resource. This is, first, an increase in temperature, leading to an increase in pressure [1]. Oil storage facilities are used to store the extracted oil. These are large tanks, ranging in volume from several cubic meters to several hundred cubic meters. Reservoirs are divided into three types: ground, semi-underground and underground [2]. The uniqueness of oil lies in the fact that products used in all sectors of the national economy are obtained from it through processing: from industry to everyday life. It is quite obvious that, despite limited reserves, oil will retain its leading position as the main natural energy resource of the world economy for quite a long time [1].

References:

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