THE ROLE AND IMPORTANCE OF INJECTION WELLS IN MICROBIOLOGICAL IMPACT ON THE FORMATION.

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Abstract

Research is being conducted on the use of microorganisms to increase the oil yield of the formation. The interesting aspect of this method is, first of all, its simplicity of implementation, minimal capital costs and environmental safety.

Keywords: *Microbiological effect, biopolymer, viscous oil, thermal method, heat transfer, hot water, steam extraction, microorganisms.*

HAYDOVCHI QUDUQ ORQALI QATLAMGA MIKROBIOLOGIK TA'SIR ETISH

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Annotatsiya

Qatlamning neftberuvchanligini oshirishda mikroorganizmlarni qo'llash usuli ustida tadqiqotlar olib borilmoqda. Bu usulning qiziqarli tomoni shundaki, birinchi navbatda uni tadbiq qilishni soddaligi, minimal kapital xarajatlar va atrof muhit uchun xavfsizligidir.

Tayanch so'zlar: *Mikrobiologik ta'sir, biopolimer, qovushqoq neft, issiqlik usuli, issiqlikni tashuvchanlik, issiq suv, bug' haydash, mikroorganizmlar.*

There are two main areas of application of non-technological processes in the field of increasing oil recovery. First, known technologies are used to produce surface reagents and apply them to the layers. Substances in this class include biopolymers, carbonic anhydrite, sometimes surfactants, solvents, emulsifiers, etc. In the second case, microbiological products that increase the compressibility of oil are extracted directly from the oil-bearing layers. Let's take a closer look at the second direction.

It is known that active living microorganisms that occur in reservoir conditions and have the property of maintaining them are divided into aerobic, which requires dissolved oxygen for their vital activity, and anaerobes, which do not require oxygen, or else, using residual oil as an organic substrate (nutrient medium), a number of substances are produced (carbonic anhydride, methane, fatty acids, alcohols and other solvents, biopolymers) to increase the oil yield of the reservoir.

In addition, some aerobes oxidize oil and convert the complex carbon compounds that make up the oil into very simple hydrocarbons. Some other organic substances appear as a result of oxidation, become foam formers, and reduce the interfacial tension forces at the oil-water interface. At the same time, the overall performance of the oil is improved due to the reduction in viscosity. The important aspect of methane-forming bacteria in the composition of anaerobes is that the additional amount of methane in the formation increases the reserves of free or dissolved gases contained in the oil, depending on the location conditions.

Microbiological impact technology should be targeted to these zones to activate existing microorganisms and provide the highest efficiency. There are two main options for influencing the layer in this way. One of them is to introduce specially selected microflora and maintain or activate the activity of existing microorganisms. In both cases, the well is pumped with fresh water. The process is such that the total number of bacteria and their activity are related to the activity of the living organisms, so that the development of microorganisms is significantly better in fresh water than in mineralized aquifers.

The most intensive aerobic microbiological process occurs around the driving well. The further away from the well bottom zone, the lower the oxygen content of the pumped liquid, and the oil oxidation reaction changes to an anaerobic process. As shown, aerobic products of oil degradation, as well as ammonium and phosphates, when added to it under weak mineralization conditions, activate the activity of methane-producing bacteria many times over.

Currently, various problematic aspects of the impact of microorganisms on oil-bearing formations are at the stage of comprehensive study, and specific technological recommendations have not been developed, but general ideas are being expressed. Thus, based on research conducted in laboratory conditions and research conducted in field conditions, and based on experiences with microbiological influence, the following can be proposed in terms of biotechnology for increasing oil recovery. In the first stage, microorganisms are introduced into the formation through pilot wells, and specially aerated fresh water

with nitrogen salts and phosphorus additives is pumped into the well. Bunda quduq tubi zonasidagi qoldiq neftning bir qismida aerobli oksidlantirish faollashtiriladi.

The fluid injected into the formation affects distant zones of the formation with such enriched products. Such enriched products include CO_2 and water-soluble organic compounds, with practically no dissolved oxygen. In the second stage of action, anaerobes are activated in the “anoxic” zones, which partially form methane. Thus, the enhancement of oil compression is achieved through the complex interaction of many forms of substances, which ultimately shape the activity of microorganisms.

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