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Annotation:

When the production of the oil fields falls below the economic value, that is, when the class of layer pressure decreases, when the energy becomes unable to raise the oil, that is, when the reservoir production stops at its natural capacity of the energy, in this case energy must be added to the reservoir and the oil field production should be developed to increase productivity.

Keywords: bacteria, reservoir, productivity, economics, Diopi equation, MEOR

DEVELOPING OIL FIELDS BY BACTERIA (MEOR)

When the field production falls below the economic value, that is, when the class pressure decreases, where the stratified energy becomes unable to raise the oil that is, when the reservoir production stops with its natural energy, it becomes necessary to add additional energy to the reservoir to develop the field’s production and increase its yield. the application of investment methods supported in the development of fields, which depend on controlling the parameters of the Diopi Equation to increase Productivity. Q={2KHΔP}/{μ LN(RK/RC)}

Q : Productivity rate . K : Permeability . h : Layer thickness . ΔP : Pressure difference μ : Viscosity . RK : Radius of the reservoir. rC : The radius of the well. Either we increase K or Δp or decrease μ.

One of the enhanced modern methods of extracting crude oil, which has received great attention, is the use of some strains of bacteria, as the activity of these microbes is exploited to liberate the heavy oil stuck in the rocks and reduce its viscosity, which leads to the resumption of pumping oil from the wells that have stopped their production(1). The

principle of this technology is based on the use of microorganisms and their metabolites, wherever they can from them obtain surfactants, polymers, solvents and gases and enzymes, which are in principle the same chemicals that are used in processes Improved petroleum recovery, but in this case it results from the activity of bacteria in the reservoir, meaning that their rate is lower in the reservoir and it takes a long period to form a comparison. By direct injection operations. Nutrients such as cane molasses are usually injected. To contribute to feeding bacteria in the reservoir. Although this technique is not very popular, thought about its use and experiments the priority on it dates to the turn of the twentieth century, and the technology is based on that Bacteria can ferment the oil to produce gases like CH4, CO2, and H2. These are gases the product in the reservoir raises the pressure and can also be dissolved in oil and reduced to his wife. Bacteria also produce acids such as acetic acid and Propionic acid, in addition to acetone and ethanol the acids dissolve the carbonate rocks, which increases the permeability of the reservoir. The initial picture of bacterial use might look bright, but there are some Precautions that sometimes pose a stumbling block, especially when reducing bacteria are present Sulfate-reducing bacteria, and hydrogen sulfide gas is a byproduct Metabolism, as the presence of this gas raises acidity the reservoir, in addition to its other known effects on equipment wear and its dangerousness on Life. These bacteria are known for their ability to survive without food for a very long time, it becomes smaller and smaller, which makes it able to pass through tiny pores for rocks. And when the well is contaminated with it, especially if sea water is used in some operations Injection, they recover and start their life cycle again, bringing problems to the reservoir. There are also several criteria for using this technique related to the physical properties the chemical properties of the reservoir and the oil present in it, as the bacteria are the same as other organisms. It needs special conditions to be able to carry out its vital operations, and when these are not available Conditions, their intended activity and effectiveness decrease, and some species may even die if the appropriate medium differs (2). However, this method has several disadvantages, including: 1. The danger to humans. 2. Its effect is delayed, and consequently, the lost time is large(1). The success of this biotechnology is related to the ability of genetic engineering to modify some strains of bacteria to be able to improve and raise the productivity of oil wells, and the ability of these microorganisms to with improving high temperatures in the depths, high pressure and high salinity inside wells, and this calls for researchers to supply these organisms. With special genes that enable it to withstand

these harsh conditions. Moreover, the technology of using bacteria to enhance the production of crude oil is safe, as it does not use harmful chemicals as in some other methods of enhancing productivity, as these materials used may pose a danger to those in charge of the oil extraction industry and may cause great damage to drilling equipment and pipelines. And the environment. It is noteworthy that the use of "MEOR" technology to improve the productivity of oil wells is done after the pressure of the well is greatly reduced following the extraction of about 50% of the oil present in it in a conventional manner, and after the application of secondary treatment such as injection with water, natural gas or carbon dioxide gas. And others. The great progress in the use of biotechnology in the oil industry is not currently limited to enhancing productivity. Rather, this promising technology has been resorted to in the field of detecting crude oil deposits, removing oil pollutants, improving the quality of oil products, and producing unconventional energy alternatives.(3)

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