EURASIAN JOURNAL OF ACADEMIC RESEARCH
Innovative Academy Research Support Center
UIF = 8.1 | SJIF = 5.685 www.in-academy.uz

TECHNOLOGY FOR INCREASING THE PRODUCTIVITY OF WELLS IN HIGH VISCOSITY OIL FIELDS

[1]Safarov Ikram Rajabaliyevich,
[2]Ruzimurodov Zoir Husniddinovich,
[3]Khujamov Bobodust Qurbonturdi ugli,
[4]Ashurov Murodullo Kholboyevich
[1,2,3,4] Karshi engineering-economics institute.
https://doi.org/10.5281/zenodo.7460788

ARTICLE INFO

Received: 10th December 2022
Accepted: 19th December 2022
Online: 20th December 2022

KEY WORDS

ABSTRACT

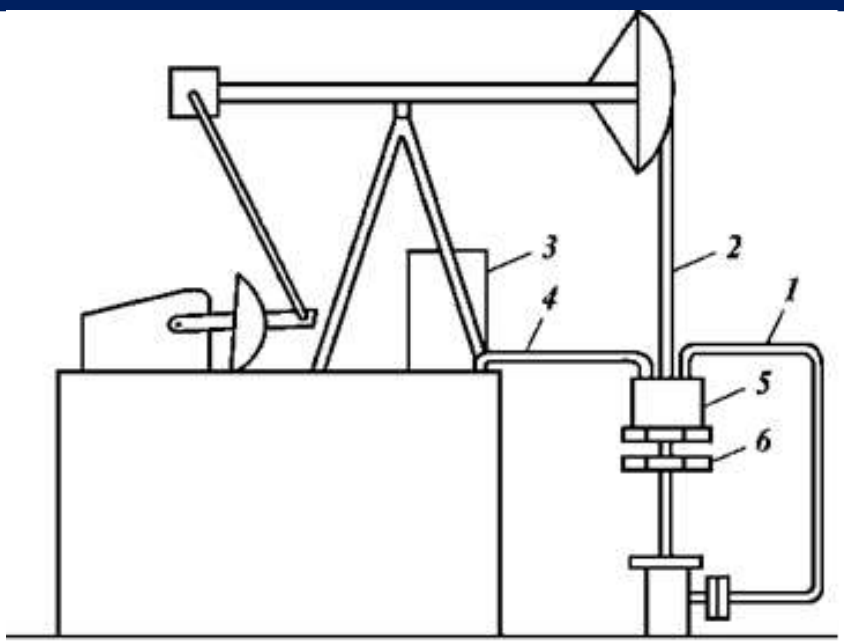
The efficiency of oil and gas wells and the permeability of driving wells mainly depend on the permeability of the rocks that form the productive layer. The higher the permeability of rocks in the movement zone of a particular well, the higher the efficiency or permeability of the well.

The main part. The permeability of rocks in one layer can vary dramatically in its different zones or sections. Sometimes, when the general permeability of the formation is good, some wells are opened in the zones of low permeability, as a result of which oil and gas flow to it becomes worse.

The natural conductivity of rocks can deteriorate over time under the influence of one or another reason. When drilling and completing wells, their bottom zone is often contaminated by seepage of clay solution. This causes the pores of the layer to be closed and the natural permeability of the rocks to decrease. In the process of exploitation of oil and gas wells, the permeability of the rocks can suddenly deteriorate due to the blocking of the pores in the bottom zone of the well by paraffin and tar layers, as well as the entrapment of clay particles. The surrounding area of the bottom of the driving wells is contaminated with various mechanical impurities (ml, clay, iron oxides and others) present in the driving water. The permeability of rocks in the area around the bottom of the wells is improved by artificially increasing the size and number of drainage channels, increasing the cracks in the rocks, and cleaning paraffins, tars and dirt stuck on the walls of porous channels.

The methods of increasing the permeability of rocks in the area around the bottom of wells can be divided into conditional mechanical, chemical, thermal and physical types. Often these methods are used together or in sequence to get good results. The choice of the method of impacting the area around the bottom of wells is determined by the formation conditions. Chemical exposure methods give good results in low-permeability carbonate rocks. They are also widely used in cemented sandstones containing carbonate compounds and carbonate cementing substances.

EURASIAN JOURNAL OF ACADEMIC RESEARCH
Innovative Academy Research Support Center
UIF = 8.1 | SJIF = 5.685 www.in-academy.uz



4 pictures. A device for transferring liquid reagents to the well.

1-driver pipe; 2-suspension wing; 3-vessel; 4-suction pipe; 5-dosing pump; 6-suspension rope traverse.

Mechanical processing methods are usually used to increase fracture toughness in layers consisting of strong rocks.

Thermal methods of exposure are used to remove paraffin and resins from the walls of porous channels, as well as to intensify chemical treatment methods.

The effectiveness of acid treatment depends on the composition, concentration and amount of the acid solution, the mineral composition of the rocks that make up the pen, the presence of natural cracks, the degree and character of the well bottom surrounding.

Based on the geological and physical characteristics of the Amudarya mine, hot acid treatment of the wells is considered appropriate and gives positive results. When using high-paraffin and tar oil layers, paraffin-tar materials accumulate in the bottom zone of the layer, delaying fluid leakage and reducing the productivity of oil wells. In order to remove the accumulated paraffin oil substances from the well bottom zone, several methods are used to melt them: steam, hot water or oil, heating the well bottom zone with various heaters. But using these methods requires a lot of time and equipment. This is due to the need to carry out special work on the ashing of highly efficient and expensive equipment, special preparation of water for steam extraction, prevention of accidents and complications in wells. When the bottom of the well is heated with heaters, the high temperature occurs only at the bottom of the well and in the insignificant depth of the layer, relatively long zones remain unheated. Furthermore, the transfer of these events involves additional waiting and unloading operations. "TatNIPIneft" and IFING institutes have developed a method of thermochemical treatment of wells in order to increase the efficiency of treatment of layers around the well bottom in high paraffin and tar oil oil fields. In this case, granular or powdered magnesium is introduced into the bottom zone of the layer.

The content of the method is as follows: GRP is introduced into the well

bottom zone of the layer according to the scheme, with or without magnesium sand in granular or powder form. A salt-acid solution in a volume greater than that required for a complete chemical reaction is pumped into the sun. The reaction of magnesium with acid is an exothermic reaction, so the layer is well; the bottom zone and the acidic solution, which has entered into a chemical reaction with magnesium, is heated from 100 °C to high temperature. This layer leads to the dissolution of solid components of oil in cracks and crevices in the bottom zone of the well, and in carbonate reservoirs. - causes rapid dissolution of carbonates in caustic acid solution. As a result, the permeability coefficient of the well bottom zone of the formation increases, and the productivity of the wells increases.

The described method of thermochemical treatment has existing disadvantages, the impact on the formation is in the oil and water part of the formation, often after the treatment, the water content of the wells increases. In this regard, excellent technological schemes of thermochemical treatment of the well bottom zone of the formation were developed. In order to deal with the above-mentioned complications, the following measures are taken:

1. Special gas and sand anchors are used to protect against the effects of satellite gas and sand. These anchors are connected below the pump, the sand contained in the liquid sinks in them, and the accompanying gas is directed to the rear part of the pipe due to local separation.
2. Use of special sand-injectors.
3. Use of tubular (i.e. hollow) bars. When these rods are used, the pump efficiency increases up to 1.3 - 1.6 times.
4. Paraffin solidified on the pipe wall can be removed using heat methods.
5. Special roller couplings are used to reduce the friction between the rods and pump-compressor pipes in wells with sloping walls.

References:

1.Jonkobilov, U., Jonkobilov, S., Bekjonov, R., & Norchayev, A. (2021). Shock wave velocity in two-phase pressure flow. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1030, No. 1, p. 012129). IOP Publishing.

2. Бекжонов, Р., & Норинов, Ф. (2022). НЕФТ ВА ГАЗ КОНЛАРИДА ЕР УСТКИ ЛАНШАФТИНИ ҲИМОЯ ЭТИШ. *Involta Scientific Journal*, *1*(5), 279-285.

3. Arifjanov, A. M., Jonkobilov, U. U., Jonkobilov, S. U., & Bekjonov, S. R. The Hydraulic Impact Wave Propagation Speyed Study in a Two-Phase Flow. *International Journal for Innovative Engineering and Management Research*, *9*, 94-100.

4.Bekjonov, R., & Norchayev, A. (2022). Shock wave velocity in two-phase pressure flow. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1036, No. 1, p. 023129). IOP Publishing.