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INCREASE IN THE FUNTION OF WELLS ACCOUNTED FOR IN THE PRODUCTION OF OIL RESERVES.

KHEYRABADI QAZALA[1], ABISHOVA REBIYE[2]
[1,2,]Azerbaijan State University of Oil and Industry
E-mail: [1]qezale@mail.ru; [2] rabiya.abishova@mail.ru;

Abstract: In the period of depletion of reservoirs, an increasing proportion of residual reserves goes into the category of hard-to-recover. The use of traditional methods does not bark the desired result. The top priority problem is the method of improving the efficiency of operation of the drilled fund in combination with the use of various types of MOU and GTM. Therefore, the efficiency of using the mining well stock is becoming extremely important for the oil industry.

Keywords: *oil and gas field , development indicators, evolutionary model ,criterion of well operation efficiency.*

Development of methods to improve the efficiency of well stock operation, in combination with the application of various types of MOR and geotechnical treatment is one of the urgent tasks of oil production.

The problem "oil recovery factor - well grid density" is canonical in oil science. There are a large number of methods, approaches, models describing the influence of well density and their location relative to each other on the oil recovery factor (ORF).

Mutual location and distance of wells relative to each other, as well as to the direction of man-made fractures, operation mode and applied technologies affect the watering process. Thus, research is underway to make a high-tech compromise between eliminating lingual watering and sealing well meshes.

With a dense grid of elevator locations (200-300m spacing), the positions of fracture propagation during hydraulic fracturing play a major role.

The analysis of the studies shows that well shut-in and well abandonment, which leads to a disruption of the well grid, is a significant aspect affecting production efficiency.

A number of field facilities with a long history of operation have a large number of abandoned and reclassified injection wells. Many of them were shut down before the possible recoverable reserves were exhausted. As a rule, this is due to a number of technical reasons: accidents of downhole equipment, loss of well tightness and so on.

However, with the abandonment of these wells, large areas have been taken out of the development process and sections of the reservoirs are being withdrawn from the development area, although they have significant hydrocarbon reserves.

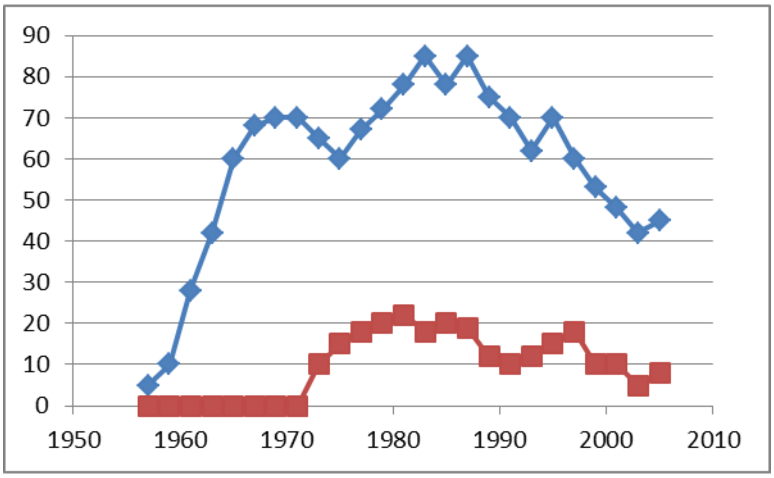

Fig.1. Dynamics of the stock of production and injection wells

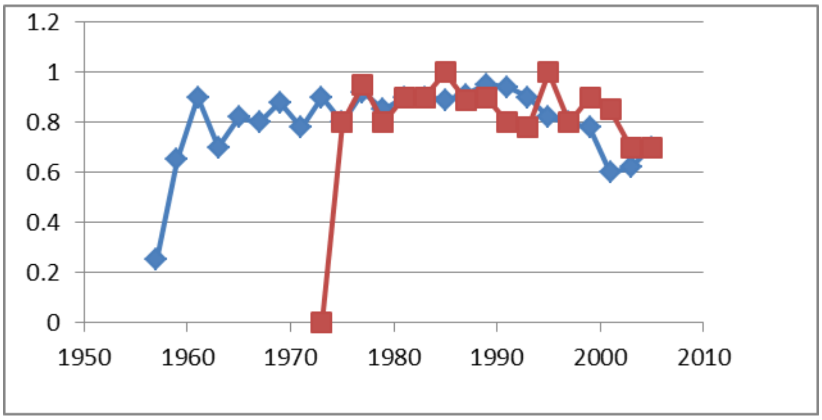

Fig.2. Dynamics of production and injection well stock utilization rate.

Wells are being abandoned for the following reasons:

1. production water cut to the established maximum permissible level;
2. wear and tear of the well, downhole or wellhead equipment. 3.
3. Subjective factors.

A number of facilities with significant operating life contain a large stock of abandoned and transferred wells. Most of these wells are decommissioned before they reach their potentially recoverable reserves. This process occurs due to various circumstances: breakdown of downhole equipment, leakage and other reasons. With the loss of these wells, vast areas of reservoirs characterized by significant hydrocarbon reserves are removed from the development process.

The study of the dependence of the indicator of well operation efficiency on the oil flow rate has shown the existence of a trend describing this indicator, which is in good agreement with generally accepted ideas. However, this dependence is not unambiguous, due to the processes of well abandonment and losses in potential oil production.

Figure 3 shows the lines corresponding to the average well efficiency and production rates, which divide the study population of wells into four regions.

The first region corresponds to wells with below-average flow rates and above-average operating efficiency. For them, the downtime is significantly less than the operating time for the period under consideration (or equal to 0). Wells located in this area are the least problematic.

The second area includes wells with flow rates and operating efficiency below average. These are low-yield wells with a large number of repairs and downtime. This area is characterized by the maximum deviation from the trend. Wells located in the 2nd region are the most problematic.

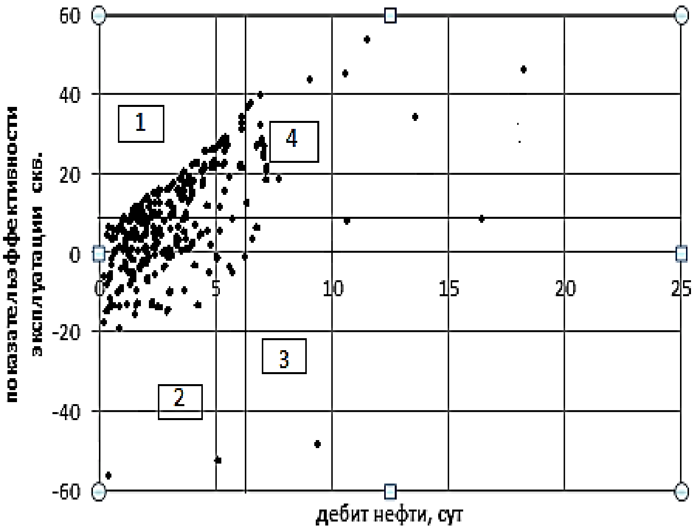

Fig.3. Dependence of the efficiency of oil production wells operation on their flow rate.

The third area is characterized by wells with oil flow rates higher than average and performance below average.

The number of such wells is small and constitutes an insignificant part of the entire sample. These are high-yield wells burdened by long downtime and a large number of repairs.

The fourth area contains high-yielding and highly profitable wells, the exploitation of which brings substantial profit to the enterprise.

Consequently, measures to optimize the operational well stock should be primarily directed at wells 2 and 3 areas of the diagram. The decision to continue operation of unprofitable fund should be accompanied by a set of such measures that allow to transfer these wells from unprofitable to conditionally profitable and profitable funds.

Conclusion

The peculiarities of the development system require assessment of the forecast workability of the existing well stock, targeted and economically justified formation of measures to bring the idle stock out of inactivity, to increase the efficiency of utilization of the operating stock as a whole. This approach will make it possible to increase the oil recovery rate without harming and polluting the environment.

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