The methods of analysis of factors influence on the efficiency of intensification of oil-gas production

In connection with the high level of oil production and the decrease in the debits of wells, the intensification of oil production for the fields entering the second and third operating stages is an actual phenomenon.

The first stage of development of oil fields is associated with the use of natural energy of the ground. It is known that at the first stage of development, new deposits do not require intensification, and the extraction of carbohygens is carried out at the expense of the layer's own energy – the energy of the dissolved gas, the water supply, the gas cap and the potential energy of the gravitational force.

In the second stage of development of the fields, the second methods of intensification of production are used, which include the pumping of water and gas to maintain the level of sludge.

The third stage of development of deposits requires the application of methods of increasing oil production or third methods of intensive production, which are classified according to the types of working agents. The classification of oil production and procedding enterprices (OPPE), according to working agents is classified as follows.

Each of the existing methods of oil refining allows the extraction of oil at a certain level from the ground alone.

Keywords: *Economic, efficiency, intensification, quality, planning*

1.0 Intoduction

With the increase in the cost price of oil produced in our country oil production in the old fields is unprofitable. The main reasons for the importance of application of intensification are the volume of operational drilling and lagging of hydrocarbon production from the project level, intensive mastering of resources, small level of utilization coefficient of well exploitation, as well as high irrigation of ground.

At this point, the economic issues of intensification of oil production, the lack of assessment methods that allow to obtain accurate economic efficiency indicators, as well as the importance of determining economic efficiency, which increases the attractiveness of implementation of intensification. In this regard, improper determination of the effectiveness of intensification leads to a low quality of tactical and strategic planning.

In this regard, the problems of increasing oil output of ground (OOG), obtaining the maximum level of OPC, intensification of oil production (IOP) and their methods of increasing oil output coefficient (OOC) and methods of intensification of oil production (MIOP) are very complex, old and simultaneously active. In this regard, the improvement of methods for assessing the economic efficiency of intensification of oil production is actuality, and also has a very increasing theoretical and practical significance.

2.0 Methods of analysis of factors influence on the efficiency of intensification of oil-gas production

Intensification of combined complex geological, technical and technological measures that allow to increase oil and gas production. With the current technology of extraction, 31-36% of the oil alone is extracted to the surface of the Earth. However, there are also innovative opportunities to increase this percentage by intensifying oil production or artificially increasing pressure on the ground alone.

The "intensification" includes the introduction of more efficient tools and the expansion of production.

The decisive factors of intensification of oil production include the optimal use of production methods on the basis of modern achievements of science and technology, as well as the improvement of technical and organizational levels of production. Modern innovation allows the use of the latest achievements of scientific and technical progress (STP), as a result of which the technical level of production, as well as the role of intensive factors of development increases.

Of course, it is not possible to concentrate the natural weakening of the mineral-raw base with the implementation of intensification. However, today, intensification is the only possible alternative that ensures more efficient management of the country's resource base. By maximizing the oil from the ground up, also applies to the intensification of oil production, as well as the long-term operation of the fields and the ironing of reference gas for the production purposes of the condensate, which allows for a sufficient reduction of emissions of harmful substances into the atmosphere.

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In our view, when we talk about intensification of oil production, it is understood that "effective production" is a production that allows more economical use of the available resources, increasing oil and gas production and applying new achievements of STP to improve the latest results.

As a result, the increase in costs for the implementation of technical and technological innovations is paid at the expense of more efficient use of all resources.

In connection with the high level of oil production irrigation and the decrease in the turnover of wells, the intensification of oil production for the fields entering the second and third operating stages is an actual one.

The first stage of development of oil fields is associated with the use of natural energy of the reservoir. It is known that at the first stage of development, new deposits do not require intensification, and the extraction of carbohydrate is carried out at the expense of the ground's own energy – the energy of the dissolved gas, the water supply, the gas cap and the potential energy of the gravitational force.

The second method of intensification of production in the second stage of development of the fields is the application of water and gas to maintain the level of sludge. The third stage of development of deposits requires the application of methods of increasing oil production or third methods of intensification of production, which are classified according to the types of working agents. The classification of oil production enterprises according to working agents is classified as follows:

Each of the existing methods of oil refining allows the extraction of oil at a certain level from the ground alone.

Due to the large variety of permeability of oil, water, gas and deposits, there is no single universal method. All known methods are characterized by the ability to influence reserves. In this regard, studies in the field of intensification of oil production are constantly being carried out, increasing the number of methods of influence on the ground.

The application of different types of oil production enterprises varies in principle the technique, technology, the organization of production and the whole character. As a result of LNY measures, labour productivity is significantly increased in oil and gas production, as well as economic indicators of efficiency are rising.

On the one hand, the introduction of innovative oil processing enterprises allows to increasing the volume of extraction of carbon dioxide, on the other hand, the specific features of their application increase the size of important capital investment. Due to the high stock capacity of this industrial area, as well as the increase in the number of old deposits and hardly removable reserves, oil and gas production requires a larger size of investment every year. In this case, achieving economic efficiency of investment-innovation projects should be a prerequisite for the development of the oil and gas sector.

The industrial-innovative development of the Azerbaijan economy opens up great opportunities for the development of the country. The country is pursuing an effort to make effective use of its innovation potential, which allows in creating a competitive environment, to produce replacement products, to increase the volume of exports, to increase labour productivity and to improve production efficiency, and to solve issues related to it.

Investment in projects in the field of oil and gas should be involved in serious economic substantiated. In turn, the investment project can consist of several options that differ in the variety of technological decisions. Therefore, the comparison of several alternative options of the project in the consideration and adoption of investment decisions is of a principle matter. The choice of the proposed option for application should have the best efficiency indicators, based on the comparison of options among themselves.

The extraction of oil resources, which cannot be extracted in conditions of depletion, by industrial assimilation method, is 56-76% of the initial geological reserves in the earth alone.

Despite the development of LNY's innovative technologies all over the world, traditional oil fields still maintain their leadership. Thus, the old deposits of the Middle East remained dominant during the half-century and are still the most important in the world market of oil.

Operators of these very large deposits are making efforts to increase oil production. These fields continue to remain as major oil producers in the world due to innovative technologies and investment. The growth rate of demand for oil in the world testifies to the fact that consumption increases every year and this requires a proportional increase in carbohydrate production. All these are possible with the opening and mastering of new deposits or intensification of oil and gas production.

Due to the increase in demand for hydrocarbons and their limited use, the introduction of new technologies of oil production stands ahead as a matter of urgency, which allows to increase oil production in the already developed ground structure so that residual oil reserves cannot be extracted by traditional methods.

2% increase in oil production after intensification is equal to the opening of a very large reserve deposit. In the world experience, the application of various oil processing enterprises which allows to increase in the production of additional oil.

The oil and gas sector of Azerbaijan has a greater profitability compared to other sectors of the industry. However, the issue of increasing its efficiency remains in actual, and today this field needs investment for the introduction of new processing and innovation technology. Increasing the economic power of Azerbaijan and protecting national security requires increasing innovative activity. Therefore, the efficiency of oil and gas production is one of the main sources of financing the investment projects.

This section also provides an analysis of the results obtained by us from the application of oil recovery methods. Methods of intensification in the fields such as "hydrolysis of ground structure", "surfactants", "distribution of filtration flows" and other methods are considered. All these actions belong to the third methods of oil processing enterprises. According to the result of our reports, the economic efficiency of intensification has been determined.

The application of intensification to assess economic efficiency is taken into account, more precisely, in additional indicators such as change in the profile of oil production and cash flow. The change in cash flow is formed by comparing the revenue from the re-production of extra oil with the costs to the implementation of intensification. Thus, the result of economic efficiency is determined as a result of the difference in the additional costs.

We believe that the overall economic efficiency of the analyzed measures is high and contributes to improving the productivity of wells. Intensification methods, which are carried out with positive results in deposits, contribute to the increase of oil production and allow the enterprise to increase cash flows.

Production facilities are defined as opportunities to better use the resources of production-farm enterprises as a result of improvement of techniques and technology, elimination of production and labour, "weak places", as well as the introduction of previously unused production resources. At this time, losses are considered invisible to the eye. Thus, behind the reserve and losses there is a mutual straight and reverse connection.

3.0 Results and discussion

In our opinion, the possibility of good use of resources leads to efficient production. In this regard, the content of resources to improve production efficiency is reflected in the full and efficient use of potential in order to achieve the most profits.

Investment projects options may vary depending on the period of operation, method of operation, different well network and different ways of implementation of the lay pressure storage system:

The experience of designing oil and gas fields in Azerbaijan shows that there are significant differences between the specific density of the operational well network and the real density of the well network.

In recent years, in the world experience, the water-gas method (WGM), a relatively new technology that increases the oil yield coefficient of the ground structure, has found wide application for intensification. The effectiveness of method has been proven by studies conducted previously. In addition, it can repeatedly accelerate the process of interaction of oil and gas in the technology of degreasing surfactants – surfactants. WGM technology is a combination of the method of irrigation and the method of gas reflection, which can be used to carry out the oil gas extracted in the same field.

Taking into account the need for deeper economic justification of investment in the project, we conducted a comparative analysis of the operation of the deposit before and after the introduction of WGM. The practical application of Sgt-Industrial Works is characterized by positive changes - oil and gas production increases, oil yield increases and economic indicators are good.

The results show that economic efficiency is good in both options. However, the second variant of WGM is more attractive, as in this variant, a larger volume of cash flow will be obtained. In this case, the internal and internal profit norm of the Republic of Azerbaijan will be greater in the surf profit and discounted flow. The repayment period of capital investment will be the first year. The results of the analysis showed that the application of WGM will help in increasing in oil production and improve the indicator of economic efficiency. In this regard, the full implementation of WGT in the oil and gas fields of the Republic of Azerbaijan will give even greater results.

4.0 Conclusions

1. The industrial-innovative development of the Azerbaijan economy opens up great opportunities for the development of the country. The country is pursuing an effort to make effective use of its innovation potential, which allows to create a competitive environment, to produce replacement products, to increase the volume of exports, to increase labour productivity and to improve production efficiency, and to solve issues related to it.
2. Investment in projects in the field of oil and gas should be involved in serious economic justification. In turn, the investment project can consist of several options that differ in the variety of technical and technological decisions. Therefore, the comparison of several alternative options of the project and adoption of investment decisions are main process. The choice of the proposed option for application should have the best efficiency indicators, based on the comparison of options among themselves.

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