Production operation management of the oil-producing unit

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Abstract. The article examines the approaches to the management of the production divisions of oil companies based on the peculiarities of their functioning: both branch-wise and comprised by the oil-producing complex. There has been recommended an adjustment of planned and estimated figures of producing units, as well as imposing responsibility in accordance with the proposed formation plan of production responsibility centers. There are reflected the results of the assessment of the expected effects of the proposed corrective measures based on the use of expert opinion.

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Introduction

Under modern conditions one of the factors of progressive development of the integrated oil companies is a constant adaptation of organizational structure and corporate management tools to changing conditions of functioning, and its focus on both innovation of administrative functions and optimization of production processes by means of structural-organizational transformations [1]. High level of performance of any integrated company depends not only on the quality of general management, but in many respects is determined by the performance of individual production units. In turn, the evaluation of the performance of production units should be carried out on a qualitatively new level, ensure the consistency of goals and tasks of the divisions with the objectives of the organization as a whole, as well as efficient use of production-resource potential of the oil company. This causes the need to review the approaches to planning, accounting and supervision of activities of departments, of both the main and the auxiliary production [2]. Besides, the continuous development of technical level of production, forms and methods of management, the need for a rapid response to market conditions and the rapidly changing economic situation, also require restructuring the internal microeconomy of the enterprise and innovation of management processes [3].

Despite the fact that quite a large number of works [e.g. 4, 5] are dedicated to the issues of management of production and resource potential of individual divisions of industrial enterprises, in particular through the application of key performance indicators, some specific issues, outlining management of producing units of Russian oil companies, remain unresolved, which led to the choice of the topic of this work.

Methodology

In the process of analyzing the correspondence of applied performance indicators of an oil producing unit of the oil company to the objectives of management effectiveness, the technique of "rapid assessment" of the production potential of the enterprise [6], allowing to estimate the production unit potential, was used. The method of determining the level of the production capacity of the enterprise has a number of advantages, among which are: the suitability of the methodology to be used by both a separate oil-producing company (division), and in complex study of the trends in the industry, region, etc.; the structure, which allows identifying and formulating the problems in the production potential management to be resolved; availability of understanding the results to all the personnel of the enterprise. At the same time an adjustment of the estimated indicators for certain production units, reflecting the specificity of each of them is required.

Expert evaluation method was selected as a method of evaluation of the expected effectiveness of the adjusted system of performance indicators of the production division. The choice of this method is justified by the fact that the choice, the determination of suitability and the assessment of the results of the implementation cannot be made on the basis of accurate calculations. In order to increase the validity of decisions on the implementation of the new management concept and take into consideration the numerous factors affecting their results it is required to make a comprehensive analysis, based on both calculations and reasoned judgments of managers and specialists familiar with the state of affairs and prospects of development in this subject area.

Body

For effective work of a complex economic structure the issues of development of quality management system of the structural subdivisions are urgent for Russian energy companies. Under modern economic conditions of functioning and development of the energy sector, special attention should be paid to the effectiveness of management of the basic production units at each stage of the technological chain of development of oil and gas resources.

Based on the specific features of the production processes at each stage it is required to solve the problems of choice of rational tools and identification of the conditions ensuring the most successful activity of industrial divisions and, accordingly, the whole company. To the specific features of the oil industry, impacting directly the organization and management of production, as well as the level of the resulting indicators of activities (oil production, production costs, the cost per ton of oil, profits, and other) we refer: geological and climatic conditions of resource development; territorial unequal distance and isolation; the level of development of industrial and social infrastructure on the territory of functioning of oil-producing companies; the continuity of the production process, requiring round-the-clock control over the technology and organization of production by forces of operational services under the conditions of remoteness of the objects and the underground part of the equipment from direct observation and control; limited cumulative oil and gas production as compared with the field development project etc. Thus, the process of oil production within the production cycle of development of oil and gas resources has definite features, typical for only this type of production and characterizing the level of complexity of organization of the process, and defining the basic parameters of production and priority directions of actualization of the management system by both an oil and gas company in whole and its separate divisions.

The objective of managing an oil and gas enterprise and its main production units is maximization of profit from sales of products. Therefore, the management tasks are reduced to estimation of operating efficiency of the enterprise (units); optimization of oil and gas production; assessment of effectiveness of the selected management tools. All the enterprises and structural units entering the gas and oil production Association perform certain functions assigned to them. Restraint of the performed functions as a rule, strictly limited to production tasks should be referred to as peculiarities of functioning of oil production units. Participation of all production systems in achieving the ultimate goal of a complex economic structure is reached as a result of establishment of certain relationships between them and coordination of their activities. With a well-established system of economic relations the enterprise can use its production capacities in full due to provision of a smooth and efficient activity. As rule, apart from its own auxiliary divisions, the services on provision of the production process with necessary technical and technological conditions and service support, are provided by commercial organizations and municipal institutions of various kinds of activity: drilling of development wells, production rig-up operations; capital construction, reconstruction of objects (pad structures and complexes); current and capital repair of wells; maintenance and repair of equipment; transport services and cargo transportation; energy supply of objects of oil production [7].

The production process at the oil-producing enterprise is a complex of efficient organization of production: sequential actions, well-coordinated work of professionals, high level of technical equipment, ensuring effective industrial-economic activity of the field assigned to it. The work describes approaches to management of the oil producing enterprise within its core unit –oil-and-gas production department, the main activity of which is oil production. To analyze the efficiency of the division management system and estimation of quality characteristics of its activity diagnosis of the existing state of production unit activity was performed.

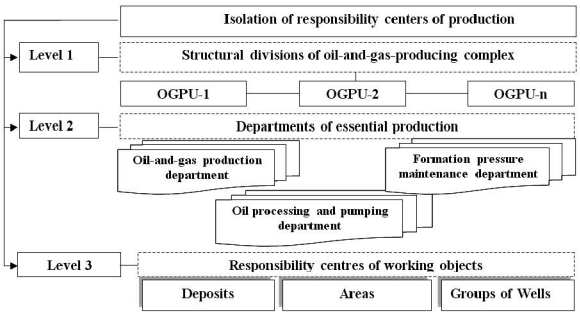
As the performed analysis showed, the existing in the organization system of management of divisions is effective, but it does not fully allow predicting the activities of the unit in the perspective under the conditions of instability of external and internal environment; providing flexibility of its operations in order to adapt to the new conditions of operation; anticipating potential problems in the field of production and prevention of their occurrence; improving functioning of the unit by means of increasing production volumes. As a result, the management system acquires the so-called lost opportunities (benefits, reserves for increasing the efficiency of production) from the activity of the managed system.

As a variant of modernization of approaches to the management of oil and gas producing units one can select adjustment of the system of planned and estimated figures (PEF) of the division activity and its structural units (departments) on the basis of selection of the most characteristic and qualitatively effective ones from the list of suitable PEF, as well as imposing responsibility for the achievement of adjusted indicators by means of isolation of appropriate centres. Thus, for assessment of the oil production unit

performance there may be a shift from traditional separate technical-economic indicators to the indicators characterizing the use of producing capacity: the level of use of production capacity, the percentage of accomplishment of the production program, the level of efficiency of functioning. The presence, due to the specific character of oil and gas production, of close relationship of the industrial component of the potential with its economic, financial and innovative elements, as well as the dependence of quantitative and qualitative economic parameters and the results of activity of the enterprise on the level of use of capacities on extraction of oil and gas make the production potential the most important subject of management [8].

Apart from the basic planned and estimated figures of the use of production capacity there are a number of supplementary figures that are to be introduced into the system of planned and estimated figures to determine the efficiency of the production capacity of the unit. Auxiliary figures of production capacity efficiency estimation include the following factors: ensuring annual production by production capacity; the excess (decrease) of the current production capacity as compared with the planned one; the impact of the use of production capacity on changing volumes of production; reserve (under-utilization) of production capacity; output growth by increasing the level of capacity utilization reaching the rated value of production. The planned and estimated figures of the production program for oil production are the tools of management of the activity of structural units and the company as a whole.

The variants of isolation of responsibility centers of production in the formalized form are presented in the picture:



Picture. Variants of isolation of responsibility centres of production

The isolation of responsibility centers of production allows observing the production process continuously, coordinating their activities in order to obtain maximum output. Structuring of production on the principle of isolation of responsibility centers allows developing multiversion programs for its management, aimed at optimization, helps to the streamline production costs as well as distribution of production capacities of the units and, as a consequence, to increase the efficiency of industrial activity of all structural links of the technological chain of oil production [9, 10].

The proposed directions of increase in management efficiency of oil-producing units cover all the main production processes within the entire division and its structural units, enabling monitoring the efficiency of production at all stages of production (extraction). The result is a systemic view of the division, which will enable revealing the strong and weak sides, and creating a comprehensive plan for future development on this basis.

The analysis of management efficiency on the basis of the given figures aims at comparison of the current values with the basic and project figures of a department, similar departments within an organization, the entire organization or with the figures of an organization of the similar profile. If the deflections are positive, we can regard this as a sufficient level of management of the unit. If the deflections are negative, there is a need to improve the management system [11].

As a result of implementation of the proposed measures, the potential positive changes evaluated by the method of expert estimations are as follows: effectiveness of management of the production potential of the unit, including the level of capacity utilization and the level of implementation of the production program will increase; the effectiveness of implementation of industrial underused reserves will increase; flexibility of management of the unit activity in order to adapt to the changing conditions of functioning will be provided; the ability to predict the potential problems in the field of production and to prevent their occurrence will appear; production losses will be reduced; the production cycle will be reduced; timing of performance will increase; decentralization of production management and tracking manufacturing processes at all levels of management will be implemented; structuring of production will allow developing a multi-variant program of management aimed at optimization or increase in production, including those due to redistribution of responsibility for operational results.

Conclusion

The quality of production processes and, consequently, the results of activity of production divisions and the whole company depend on the applied approaches and management tools. In case that the existing concept of management has insignificant shortcomings the enterprise management should correct it by introducing additional «elements».

When identifying significant shortcomings the concept should be replaced by a more efficient one from a number of alternative options (choose one or combine several into a single management system, creating a complex activity management model, capable of improving the performance of the subordinate production units). The management system of the units should be flexible, i.e. changeable on the basis of functional tools exposed to the changes in the external and internal environment. The amendment mechanism should optimize the activity of the entire division and the response time of a particular production system to the new demands of the external and internal environment should be reduced [12, 13].

The management of the operation of the oil-producing unit as part of a complex economic structure (oil-producing complex, which is mainly an open joint-stock company or holding) is considered in the context of management of industrial activity. This is due to the fact that under the current conditions, the area of responsibility of the production units and their structural divisions is basically the process of oil production, namely oil production and increase in the volume of production (extraction) on the allocated field within the license areas. Based on the results of the diagnosis of the production condition the structural unit effectiveness is evaluated. So the identified underused reserves (loss of production due to the influence of external and internal factors of production: high level of water invasion, depletion of the reserves, downtime and others) serve as a signal for the development of appropriate management decisions on increasing the performance of oil-and-gas-producing divisions.

According to the author's logic it is appropriate to use the adjusted system of planned and evaluated figures of the production program implementation efficiency and the use of production capacity in the oil-producing unit, which will allow defining more clearly the level of functioning of the unit and coordinating the activities of the unit on achievement of optimal results on the object covered by the work.

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