

Study on the Typical Construction of the “Oil Company” Model in Old Areas

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Abstract: The typical construction of the “oil company” old area model is a necessary way for Chongqing Gas Mine to break through barriers and realize high-quality development. By sorting out the dilemmas faced by Chongqing Gas Mine in the process of constructing the model of “the oil company” in the old area, and drawing on the successful practical experience of other oilfields, we constructed the framework of Chongqing Gas Mine’s “oil company” old area model from the three dimensions of “top of the model, pillar of the model, and base of the model” and analyzed its characteristics. The conclusions of the study provide important theoretical guidance for Chongqing Gas Mine to build the model of an “oil company” in the old area and realize the goal of accelerating production.

Keywords: Chongqing Gas Mine, “oil company” model, typical of the old area

1. Introduction

As one of the most representative and competitive petroleum enterprises in China, China National Petroleum Corporation (CNPC) has long been playing the role of a state-owned enterprise as the “pillar” of the national economy, and assuming the important responsibility of guaranteeing national energy security^[1]. With the changing international oil and gas market conditions and increasing geopolitical uncertainty^[2], PetroChina Southwest Oil and Gas Field Branch adheres to the deepening of the group’s “oil company” model reform tasks and continues to promote the modernization of the corporate governance system and governance capacity^[3]. Chongqing Gas Mine, as one of the oldest gas mines under the Southwest Oil and Gas Field Branch, also bears the great responsibility of guaranteeing the production and supply of natural gas, but its development has been more than 40 years, facing multiple challenges such as insufficient resource reserves, high safety risks, difficulties in efficiency development, aging personnel and so on.

The existence of the above problems makes Chongqing Gas Mine face a series of difficulties and challenges on the road to high-quality development. Against this background, the “oil company” model of the old region, characterized by efficient operation, production intelligence, streamlining of institutions, and talent training, will be the way to break through barriers and realize high-quality development of Chongqing Gas Mine. Chongqing Gas Mining strictly follows the Group’s decision to deepen the reform of the “oil company” model, combines the characteristics of its old areas, and carries out the construction and reform of the model of the old areas of the “oil company”, and strive to accelerate the production and high-quality development in the second three years of “14th Five-Year Plan” (2021-2025).

2. The dilemma of building a model for “oil company” in old areas

2.1. The gap in the pace of development

Chongqing Gas Mine has gone through a development cycle of more than 60 years, experiencing the exploration and start-up phase from 1958 to 1978, the continuous growth phase from 1979 to 2008, the controlled decline phase from 2009 to 2016, and the stabilized recovery phase from 2017 to the present. The natural gas production decreases with the increase of the development cycle, and the overall resource reserve is insufficient, there is an obvious gap between the production target of 5 billion for Chongqing

Gas Mine and the overall production target of the branch. How to improve its production and ensure stable production has become one of the primary issues that Chongqing Gas Mine needs to face and solve.

2.2. Pressure to stabilize and increase production

The overall production status of the Chongqing gas mine presents the remarkable features of “two highs, three lows, and two more”. The “two highs” refer to the high degree of extraction (78.44%) and the high risk of pipeline operation; the “three lows” refer to the low SEC reserves (16.492 billion mcf of SEC reserves, with storage to extraction ratio of 7:1), low wellhead pressure (67.3% of the total number of wells with <2MPa), and low single-well production (gas wells with <20 mcf/d account for 67.0% of the total number of wells); “two more” refers to the high number of wells with measures (91.8% of the total number of wells in production) and the high number of hard-to-utilize reserves (45,648 billion mcf, accounting for 35.13% of the remaining proved geological reserves). The characteristics of “two highs, three lows, and two more” have led to the fact that Chongqing Gas Mine will face greater pressure to stabilize and increase production in the future.

2.3. Shortcomings in quality and effectiveness

Problems such as the large number of personnel and organizations and aging staff not only lead to low output and low efficiency but also make Chongqing Gas Mine face difficulties in developing efficiency and realizing high-quality development. Chongqing Gas Mining should improve the cultural level of its personnel, and support future high-quality development with a “highly educated and youthful” team.

2.4. Challenges in strengthening management

The large scale of Chongqing gas mine production system, wide distribution of operation areas, long production years, and high proportion of sulfur-containing gas mines have led to serious problems in its production and operation, such as many risks and hidden dangers, and the aging of the composition of the personnel structure has also made the staff’s awareness and ability not fully matched with modern production, and risky events such as failures and leaks occur from time to time, which can easily lead to production and safety accidents and cause a subversive impact.

3. Typical construction experience of the “oil company” model in the old areas of other oilfields

3.1. Experience in Jilin Oilfield Construction

Jilin oilfield was founded in 1961, and is a real old oilfield, due to the geological structure and other natural conditions, Jilin oilfield exploitation is difficult. Through a series of initiatives, such as the pursuit of stable production and efficiency, green development, and innovation-driven, Jilin Oilfield has successfully made the “old oilfield secondary development of a new model” [4].

In terms of stabilizing production and increasing efficiency, they will actively change our working idea, adhere to the working concept of “old area is not old, a small block is not small”, combine with the actual situation of resource potential in the old area of Fuyu Oilfield, adhere to the basis of playing high-yield wells, high-efficiency blocks, further deepen the study of residual oil, and increase efficiency in the northern part of the Fuyu Oilfield. In terms of green development, following PetroChina’s three-step overall deployment of “clean substitution, strategic succession, and green transformation”, based on the region’s resource advantages, they have entered the new energy business, injecting new “green” energy into the transformation and upgrading. In terms of innovation leadership, they have implemented the Group’s work deployment of “accelerating digital transformation and boosting high-quality development”, formed a low-cost Internet of Things (IoT) technology model with its characteristics, and relied on IoT technological innovation to fully implement digital transformation and intelligent development, which has played an important role in promoting quality and efficiency improvement. In terms of modern governance, the company adheres to the development direction of “oil company”, optimizes the layout of its business structure, concentrates its advantageous resources on strengthening its main business and refining its auxiliary business, and establishes a new control system and mechanism.

3.2. Experience in Liaohe Oilfield Construction

Liaohe Oilfield, which has been in operation for 53 years, has been producing 10 million tons of oil and gas for 37 years. In the face of the dual challenges of sustained production in old oilfields and green transformation in the context of “carbon peaking and carbon neutrality”, Liaohe Oilfield is showing a new image and new responsibility through the comprehensive development of steady production, green development, innovation drive, and modern governance.

In terms of a steady increase in production, focusing on the policy of “consolidating the Liaohe local area, expanding new areas, and enlarging and strengthening the gas storage group”, They will concentrate on strengthening the main businesses of oil and gas exploration, oil and gas development, scientific research and technology, injection, extraction, storage and transportation, and the construction and operation of gas storage tanks, to enhance the ability to increase storage and production and increase efficiency. In terms of green development, they will closely follow the Group’s “three-step” deployment of the new energy business, incorporate new energy into the company’s main business, systematically formulate medium- and long-term plans for the development of new energy, and build a regional green and low-carbon center in the process of transitioning to a comprehensive energy company. In terms of innovation drive, they have constructed the “Liaohe Oilfield Digital Transformation Demonstration Base”, and set up expert instructor groups on “infrastructure and network technology, Internet of things and intelligent technology, information system and big data technology”, which provides a guarantee for system management and operation and maintenance[5]. In terms of modern governance, they have accelerated the transition to the modern “oil company” model, continued to promote the development of business nucleation, and at the same time, vigorously promoted flat management and the construction of a new type of oil and gas production management area.

4. Typical model of Chongqing Gas Mine “oil company” old area construction

4.1. Connotation of Chongqing Gas Mine “oil company” model of old areas

After summarizing the advanced experience in the construction of old oilfields and the “oil company” model, this study believes that Chongqing Gas Mine’s “oil company” model in old areas refers to: Chongqing Gas Mine is based on the requirements of the new era and its characteristics, and centered on the reform work deployment of Southwest Oil and Gas Field Branch. Adhering to the concept of system, correctness and innovation, and problem orientation, it places the model of “oil company” in the context of the old area and old gas field, and takes it as a new type of operation and management model to accelerate production and transformation and development.

4.2. Characteristics of the framework of the “oil company” model in the old area of Chongqing Gas Mine

Based on the overall construction goal of the Chongqing Gas Mine “Oil Company” old area model, the model framework of Chongqing Gas Mine “Oil Company” old area is constructed from the three levels of “Model Top - Model Pillar - Model Base”. The model framework (Figure 1) is analyzed as follows:

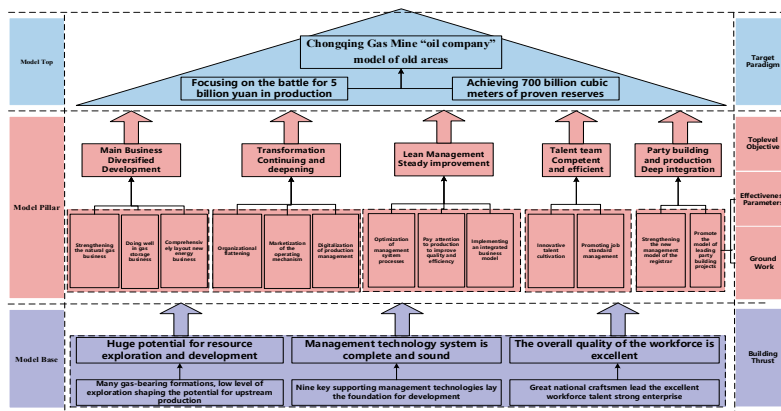


Figure 1: Chongqing Gas Mine “oil company” model of old areas.

(1) The “Model Top” establishes the target paradigm of Chongqing Gas Mine’s “Oil Company” model framework in the old area.

The overall goal mainly includes two parts: focusing on the battle of producing 5 billion and striving to realize 700 billion cubic meters of proved reserves. The determination of this goal paradigm is not only a summary and planning of the current development stage of Chongqing Gas Mine but also a clear and leading direction for future development.

(2) The “Model Pillar” is an important support in the construction of Chongqing Gas Mine’s “Oil Company” model in the old area.

Based on the overall goal of focusing on the battle for 5 billion yuan of production and striving to realize 700 billion cubic meters of proved reserves, Chongqing Gas Mine, based on the current situation, determines the specific goals and directions of efforts from the bottom up in terms of diversified development of the main business, sustained in-depth change and transformation, steady improvement of lean management, competent and efficient human resources, and in-depth fusion of party building and production, and formulates a feasible plan. At the same time, it is necessary to determine in detail the effectiveness parameters for realizing these goals to ensure the realization and advancement of the goals. These initiatives aim to provide detailed target setting and action plans for the model construction of the Chongqing Gas Mine “oil company” in the old area so that it can effectively promote the model construction and realize the sustainable development of the enterprise.

① Diversified development of main business. Firstly, we will expand our natural gas exploration and development business, and launch some specific measures with this as the core objective; secondly, we will focus on strengthening our natural gas sales business to provide solid support for the Company’s production and high-quality, high-efficiency development of gas mines; thirdly, we will optimize our gas storage business, and build a competitive “ten-billion-yuan storage” in the Southwest region; and fourthly, we will actively lay out our new energy business and promote the accelerated development of new energy business to achieve green and low-carbon transformation.

② Continuing the transformation. First, we promoted the flattening of the organization. We can improve management efficiency by compressing management levels; at the same time, optimizing internal institutions to further improve management effectiveness and resource utilization efficiency. The second is to promote the marketization of the operation mechanism. It is effective to shorten the construction cycle, improve the construction quality and reduce the construction cost by promoting the marketization of engineering services. By adhering to the market-oriented competition mechanism, Chongqing Gas Mine can preferably select social service providers and reduce service costs. The marketization employment mechanism is established and improved, and the human resource structure of the gas mine is constantly improved. Third, we promoted the production management “digitalization”. We will improve the digital coverage of wells and stations to better monitor and manage the production process; complete the digital transformation of the entire business chain to make the entire production process more intelligent and efficient; and establish the intelligent control center of the operation area featuring “comprehensive perception, automatic control, intelligent prediction, and continuous optimization” to realize intelligent management and control of the production process.

③ Lean management has been steadily improved. Through optimizing and simplifying the system and process, we have improved the efficiency and quality of organization and management, optimized and simplified the work links, and solved the problem of mismatch between the system requirements and the current situation of management. With a series of measures such as optimizing the program, controlling and reducing management and financial costs, and reducing procurement costs, Chongqing Gas Mine has effectively established a benefit-forcing mechanism to ensure that it reduces investment costs, presses down investment, and pays close attention to improving quality and efficiency. At the same time, the company comprehensively implemented the amoeba business model to improve the independent management ability of the work team and the ability to create efficiency.

④ The talent team is competent and efficient. First, we should strengthen the value creation of the talent team, give full play to the advantages of the gas mine management heritage, the quality of the workforce, etc., and constantly improve the professional ability of the talent and the management level, while establishing expert studios, skills training bases and other platforms to provide learning and exchange opportunities for skilled personnel, and promote the cultivation and growth of the technical talent team. Secondly, the company promotes the management of job standards, optimizes the layout of job structure, reasonably sets up all kinds of jobs, ensures that all work can be carried out smoothly, and ensures that the value of each job can be quantified and compared by evaluating the value of the job, which provides the basis for the establishment of scientific and reasonable remuneration system.

⑤ Party building is deeply integrated with production. Firstly, we have strengthened the “1+1”

management mode of party branch secretary and station manager. The party branch secretary and station manager are closely integrated to form a linkage effect. At the same time, we realize integrated operation and assessment by promoting close cooperation between the party branch and the work team, which improves the overall operation efficiency and management level of the enterprise. Secondly, we promote the application of Party building project leading mode to maximize the role of Party members in the front line to overcome difficulties, compete for production, innovate open source and seek benefits, and fully mobilize the enthusiasm and creativity of Party members by setting up a series of projects related to Party building to improve the productivity and economic benefits of the enterprise.

4.3. The “Model Base” is the basic premise in the construction of the model of the Chongqing Gas Mine “oil company” in the old area

Chongqing Gas Mine to build an “oil company” model of the success of the old region can not be separated from its basic advantages and strengths, specifically manifested in three aspects.

(1) Chongqing Gas Mine has huge potential for resource exploration. There are as many as 18 sets of oil and gas-bearing formations in the eastern part of Sichuan, however, the current 3D seismic coverage and the resource proving rate is less than 30%, which implies that there is a huge potential for oil and gas exploration and resources, and provides a wide space for future resource development.

(2) Chongqing Gas Mine has a sound management technology system. In decades of exploration and practice, Chongqing Gas Mine has formed nine key supporting management techniques, and the soundness of these management techniques not only provides a reliable guarantee for the high-quality development of the enterprise but also provides strong support for coping with various complex production and operation environments.

(3) Chongqing Gas Mine has a staff team with excellent quality. Enterprises continue to practice the concept of strengthening enterprises with talents. In this team, some experienced, well-qualified, hard-working, and practical leading talents have emerged, such as Liu Hui, Wang Chuanhong, and other “Great Country Craftsmen”, whose existence not only provides solid talent support for the development of the enterprise but also injects new vitality into the construction and inheritance of the enterprise’s culture.

5. Conclusion

Under the current development requirements of modern enterprise and market-oriented competition, the construction of an “oil company” model in the old area is conducive to the optimization of Chongqing Gas Mine’s organizational structure, reduces production costs, improves efficiency, helps stable production and production, and it is a must for it to achieve high-quality development. This paper builds the framework of the Chongqing Gas Mine “oil company” model in the old area, the “Model Top” establishes the overall goal of 5 billion cubic meters of production and 700 billion cubic meters of proved reserves, and clearly defines the direction of future development. the “Model Pillar” covers the diversified development of the main business, sustained transformation, steady improvement of lean management, competent and efficient talent team, deep integration of party building and production, and other specific goals and action plans. the “Model Base” emphasizes the basic advantages of the resource exploration potential, management and technical system, and the quality of the workforce. Through comprehensive analysis and summarization, the conclusion of the study provides systematic guidance for Chongqing Gas Mine to build a model of an “oil company” in the old area.

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