World Bulletin of Management and Law (WBML)
Available Online at: https://www.scholarexpress.net
Volume-35, June -2024
ISSN: 2749-3601

METHODS FOR INCREASING HYDROCARBON PERFORMANCE OF PRODUCT RESERVOIR

Abdirazakov Akmal Ibrahimovic h
dotsent Karshi Engineering and Economic Institute,
Karshi city, Republic of Uzbekistan
E-mail : akmal/abdirazakov@bk.ru
Axmedov Muxtor Muzaffarovich
Shurtan Oil and Gas production department
S and UOGK shop duty engineer
Do'stmurodov Abdumannon Norqobilov o'g'li
Master, Karshi Engineering and Economic Institute,
Karshi city , Republic of Uzbekistan

Article history:

Received: 30th March 2024
Accepted: 4th May 2024

Abstract:

This article provides brief information on the application of methods for extracting hydrocarbons from gas and gas condensate fields, specific methods for applying methods for increasing gas condensate and gas yield, taking into account reservoir properties in the late stage of development

Keywords: Condensate, Field, Filtration, Reservoir, Permeability, Hydrocarbon, Formation, Reserve.

INTRODUCTION

The most important problem in developing a hydrocarbon-containing productive formation is achieving the maximum possible gas condensate recovery . Methods for developing gas and gas condensate fields were created that ensure increased hydrocarbon recovery from the formation. Many of these methods have been field tested in the fields of Russia and Uzbekistan. A number of methods have been introduced or are currently being implemented on an industrial scale

MAIN PART

The main proposed methods for increasing gas condensate recovery are described in this section.

When developing hydrocarbon deposits of the gas-condensate type with a high initial content of condensate ($C_{5+\text{ fraction}}$), the most difficult problem is achieving sufficiently high condensate recovery coefficients from the formation. Development practice shows that in fields containing $C_{5+\text{ in the formation mixture}}$, more than 250-300 g/m³, as a rule, it is possible to select no more than 30-40% of this fraction. As a result, the bulk of the initial reserves of high molecular weight hydrocarbons form unrecoverable reservoir losses. Thus, only in the depths of the gas condensate field, by the end of development in the depletion mode (the only one used until recently in domestic gas field practice), reservoir condensate losses will amount to about 100 million tons.

During development in depletion mode, as reservoir pressure decreases and condensate falls out, filtration resistance in the bottomhole zones of production wells increases, which negatively affects the gas recovery of the formation . In conditions of low-permeability reservoirs (with permeabilities of the order of 10-15 m²), the reduction in gas recovery can amount to tens of percent of reserves.

Thus, in order to achieve sufficiently high values of gas condensate recovery in low-permeability reservoirs with an initial condensate content of more than 250-300 g/m³ in the formation gas, it is necessary to develop the object with an impact on the formation. Impact at the initial stage of reserve selection by maintaining reservoir pressure at a level equal to or close to the pressure at which condensation of the reservoir mixture begins allows for the most complete recovery of both gas and condensate; There are examples from foreign practice when such a cycling process made it possible to select more than 90% of gas and more than 80% of condensate from reserves. However, as a rule, influencing the formation for long-term maintenance of pressure of several tens of megapascals is not practical according to technical and economic indicators.

Gas condensate fields, including those with a high condensate content, are developed in depletion mode. To date, many of the large gas condensate fields have entered the final stage of extraction of hydrocarbon reserves or are close to this state. In this regard, there is an objective need to create methods for influencing gas-condensate formations that can significantly

World Bulletin of Management and Law (WBML)
Available Online at: https://www.scholarexpress.net
Volume-35, June -2024
ISSN: 2749-3601

increase the recovery rates of gas and especially liquid hydrocarbons, and methods that would be practically easy to implement at relatively low reservoir pressures, i.e. relatively easily technically feasible, requiring minimal financial and material costs.

The authors and their collaborators, based on the results of an extensive multi-year program of experimental and theoretical research into mass transfer processes in a developed gas condensate formation, including the impact on the deposit, proposed a set of methods for increasing the efficiency of the extraction of gas and condensate reserves from the bowels of an exploited gas condensate field. The methods involve influencing the formation by injecting gaseous and liquid solvents and make it possible to increase the degree of extraction of formation hydrocarbons by involving retrograde condensate of the bottomhole zones of wells and the interwell area of the formation into active development. The physical basis of the methods is a forced shift of equilibrium in a two-phase gas-condensate system towards either the liquid or gas phase, depending on the specific physico-chemical properties of the gas-condensate mixture and the thermobaric characteristics of the formation. The purpose of shifting the equilibrium towards the liquid phase is to impart mobility (or increase mobility) to this phase at a sufficiently high saturation of the pore space of the formation with precipitated condensate and a relatively high formation pressure. The purpose of shifting the equilibrium towards the gas phase is to evaporate part of the precipitated condensate into the injected gas, which, due to its initial composition, should be purely nonequilibrium with respect to the reservoir liquid phase. Thus, when the equilibrium in the system shifts towards both the liquid and gas phases, at least part of the retrograde condensate is involved in the filtration process. Physical and mathematical modeling, as well as field tests, indicate that as a result of exposure to a partially depleted gas condensate formation, it is possible to extract at least 10-15% of the retrograde liquid phase from the interwell zone of the formation and increase the productivity of production wells by 10-20%.

Thermohydrodynamic studies and practice of gas condensate field development indicate a close connection between the intensity of interphase mass transfer processes in a gas condensate formation and the composition of the hydrocarbon mixture, in particular with the content of intermediate components (ethane, propane, butanes). So, the more of these components in the mixture, the lower the pressure at the beginning of condensation and the less condensate falls when the pressure in the system decreases.

CONCLUSION

To obtain relevant specific information and create methods of influencing the gas-condensate formation, which would use the natural features of intermediate hydrocarbons in order to more effectively extract the precipitated condensate by evaporation, A.I. Gritsenko and R.M. Ter-Sarkisov and their colleagues carried out large-scale experimental and analytical studies. In this The article presents the results of these studies, from which it follows that a new promising direction has been chosen for improving the development of gas and condensate fields with impact on the reservoir.

LITERATURES:

1. Вяхиров Р.И., Грищенко А.И., Тер-Саркисов Р.М. Разработка и экспулатация газовых месторождений. – М.: ООО «Недра-Бизнесцентр», 2002. -880 с.:
2. Азиз Х., Семмари Э. Математическое моделирование пластовых систем. М.: Недра, 1982. 407 с.
3. Бузинов С.Н., Николаев В.А., Оприц М.А. и др. Термодинамические физико- химические исследования проб продукции скважин месторождения Булла море. М.: ВНИИГАЗ, 1980. С. 4 23.
4. Гриценко А.И., Николасс В.А., Тер Саркисов Р.М. Компонентоотдача пласта при раз
1. работке газоконденсатных залежей. М.: Недра, 1995. С. 139 147
5. Гриценко А.И., Тер Саркисов Р.М., Шандрыгин А.Н., Подюк В.Г. Методы повышения продуктивности газоконденсатных скважин. М.: Недра, 1997. С. 6 35; 38 68: 73 121.
6. Желтов Ю.В., Мартос В.Н., Мирзаджанзаде А.Х. Степанова Г.С. Разработка и эксплуатация нефтегазоконденсатных месторождений. М.: Недра, 1979. С. 7 27.