

Analyzing effectiveness of the terrigenous reservoirs hydrofracturing at South-Romashkinskaya area of Romashkinskoe oil field at the late stage of development

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Abstract

The article reviews the geological structure and analyzes the current state of development of the South Romashkinskaya area of Romashkinskoye deposit. The main objects to be developed are the reservoirs a, b1 b2 of the Pashian Horizon D1. The South-Romashkinskaja area is a mature oil field. Deposit depletion is 86.1% of the initially-recoverable reserves. Oil recovery factor is 0.45 8, at project expected value of 0.475. The area has entered the final stage of development. The development is characterized by a slow decline in oil production (less than 2% of the initially-recoverable reserves), a large water cut and a complete transition to mechanized operation. The injection of water in order to maintain reservoir pressure in the area started in 1955. The amount of injected water increased each year until 1970. In this article, the conditions for the application of the hydrofracturing of the reservoir, the conditions for selecting the wells to carry out implement this technology were considered. The process of the hydrofracture was calculated and the technological efficiency of its application was determined. In some cases, especially at the late stage of the development of the deposit, the application of the HFR method solves the problems of restoring the hydrodynamic link to a productive reservoir in the extractive wells and contributes to the fuller development of oil reserves. As a result of hydrofracturing application, a double increase in oil debits has been received. It is shown that the high efficiency of this method, in the context of the considerable depo sition of stocks, low debits, and high water cut, can be provided in synergy with the technology of water shutoff treatment. Authors have identified basic requirements to the wells for hydrofracturing. Work also includes an analysis of the technological performance of the hydrofracturing in the producing wells that allows to intensify oil recovery.

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Keywords

Hydrofracture, Oil debit, Reservoir pressure, Water cut

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