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Hydrodynamic studies of wells as a tool for adjusting geological data and assessing the influence of underlying water on the development of Reservoir PK1-3 of the East-Messoyakhskoye Field

Kovalenko Igor Victorovich, Listoykin Dmitriy and **Aleksandrovich**
GAZPROM NEFT Science & Technology Centre, Russia

The paper presents the experience of well test results for geological and simulation models correction at the stages of experimental industrial exploitation and industrial exploitation of the heavy oilfield with a system with horizontal wells. The potential for each borehole can be influenced by the geological structure of the reservoir (boundaries, facies, water-oil contact, gas-oil contact, etc.) and the perfection of technological completion (contamination of the bottom zone, lack of inflows from the horizontal segment, etc). An instrument to clarify the structure of the reservoir and the perfecting of the autopsy is the conduct of the well test. As a result of the studies carried out, the PK1-3 reservoirs were characterized by characteristics contrary to the standard approaches of the well test in horizontal wells. The theoretical reasons for these features are discussed in the paper.

The most important issue for decision-making on the further development of the deposit is the introduction of a reservoir-pressure system. The question of the need to introduce the injection wells or to work in elastic mode? In the case of pumping, drilling to the target well reservoir or to the water of the saturated power? At the initial stage of development, these issues are one of the main concerns in connection with the active drilling of the field and significant selection of the mining fund. Thus, the process of reducing pressure on the reservoir may lead to irreversible phase transitions associated with the allocation of gas. This article discusses a comprehensive assessment of the well test structure of the reservoir, an approach to estimating the aquifer. In the joint work of the wells, there is a parallel influence between the boreholes and the interference of the pressure through the well. In relation to the relationship and response value, the "total" capacity was calculated and the areas with the greatest influence of the aquifer were identified, and the geological relationship of the neighboring Wells was refined. Similarly, the rate of pressure drop in the work of the aquifers has been calculated and conclusions reached. A conceptual strategy has been developed for reservoirs of similar abundance in order to reduce prematurely the risks of reduced reservoir pressure. In addition, the latest achievements in the field of hydrodynamic studies of wells designed for the study of horizontal wells with multistage hydraulic fracturing in a low-permeability reservoir will be presented.

Speaker Biography

Kovalenko Igor Victorovich working as the Head of programs of Nadym-Pur-Tazovskiy region (projects: Yamburg, Pestsovoe, En-Yaha, and Arcticgaz) in GAZPROM NEFT Science & Technology center, Tyumen city, Russia. And he also involved in Management of projects Yamburg, Pestsovoe, En-Yaha, and Arcticgaz in the area of geology and reservoir engineering and Building efficient interactions between license holders of these oil and gas fields and science & technology center.

e: kovalenko.iv@gazpromneft-ntc.ru

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