



METHODS OF USING OIL FIELDS IN THE RECENT PERIOD

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Abstract

Most of the oil fields in the Fergana Valley were launched on an industrial scale in 1940-1950. During this period, the geological structure of the oil deposits and their physical properties were naturally not sufficiently studied, and the water pumping systems were changed several times during their use. These include: moving the waterline closer to the oil field, it is necessary to launch additional driving wells, temporarily stop water pumping, and in a number of cases completely abandon the current system.

Keywords: South Olamushuk, heterogeneity, Rotaflex , Fergana Valley , Economic norms, horizons, water injection.

Introduction

The following methods of pumping water into oil piles are used in Uzbekistan: near the water-oil border, combined (near the border + inside the border), inside the border. Water pumping near the border was first used in the V - VI horizons of the South Olamushuk field in 1952, and 90% of the Fergana Valley oil deposits were tried. However, after not achieving good results in some mines, this method was used in combination with the method of pumping water into the heap.

The main reasons are as follows:

- 1) Deterioration of reservoir properties and heterogeneity of rocks around the initial water-oil boundary;

- 2) Poor hydrodynamic communication between individual parts of the oil pile due to the diversity of reservoirs, the presence of tectonic and lithological disturbances;
- 3) Low conductivity in terrigenous and carbonate reservoirs and a large number of clay layers in their section.

Currently, water pumping near the border is used in the N, VII, VIII horizons of the Khojaabad mine, in the KKS horizon of the South Olamushuk mine. For the above reasons, in order to accelerate the process of water injection, in 1960-1962, the following forms of the combined method were mastered: injection of water near the border and furnace-like, near the border and along the axis of the field, near the border, and gas into the upper part of the pile dome.



Figure 1. General view of the Rotaflex lathe.

The first form of combined water pumping was mastered in terrigenous collectors of the N horizon (eastern field) of the Andijan field and in the same horizon of the Khojaabad field, the application of this method in many oil piles was, firstly,



the effective use of pumped water, secondly, the coordination of formation pressure across the field, and thirdly, the oil pile tectonic and lithological blocked sections were influenced by water pumping.

The third form of combined exposure proved to be more effective than other methods when used in the VI horizon of the Cho'gara-Galcha mine and the VIII horizon of the North Sokh mine. Water injection into the boundary is considered one of the less used methods, and it is used in horizons V+VII of Maylisu-IV mine and horizon III of South Olamushuk mine. Thus, since 1952, in order to increase the oil yield of the heaps, a large-scale industrial experiment was conducted in Uzbekistan in order to master and apply water suppression methods in the conditions of the Fergana Valley.

A number of practical works are being carried out in the North Ortabulok field in order to increase the oil yield coefficient in different periods of the pile's operation.

The oil yield coefficient of the piles is a technical and economic indicator, and its size depends on the geological and physical characteristics and diversity of the layers, the used condensate extraction technique and technology, depends on the economic norms and effective criteria of mines. According to the analysis of the changes made in 1980-2003 to the recoverable reserves of the liquid hydrocarbon reserves of Uzbekistan, these changes were only related to the change in the oil yield coefficient of the formations.

In order to justify the coefficient of oil yield of the layers, the initial data are the results of exploration work in the field, test operation of wells and heaps, and study of reservoir rock-volumetric and oil properties.

The coefficient of the ability to give condensate to layers at different stages of mine operation should be based on different calculation methods, depending on the completeness and quality of the initial data, the operating system being introduced and the methods of impacting the layers. Production rate is an indicator that changes over time and is determined by the ratio of current oil production to initial recoverable reserves. Naturally, the pressure is different in individual areas of the layer.

When the pressure is high near the driver wells, it is lower near the receiving wells (this is called a funnel of depression). Therefore, when we talk about formation pressure, we usually mean the average formation pressure over area or



volume. It is necessary to take into account the pressure at the specific points of the formation as indicators of the pile working process.

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