OIL PRODUCTION TECHNOLOGY IN THE FIELD

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Abstract

Oil and gas collection and preparation in the field is completed by sequentially changing the state of the products of the oil wells and separating them according to their individual composition and obtaining commodity raw materials. Thus, the technological process separates well products into two streams of raw materials: oil and gas. The technology of collecting, cleaning and using groundwater is considered separately as special processes. This process consists of three consecutive stages: separation; collect; bringing the oil and gas installed for commodity raw materials to their normalized properties. In the third stage, the oil stream is cleaned of formation water and mineral salts, and the hydrocarbons contained in it are separated to stabilize the oil, as a result of which the loss on the roads for sending the oil to processing is avoided. During this stage, hydrocarbons are separated from the gas streams (for degasification) and the product converted into gas and liquefied hydrocarbons. Thus, the third stage is the last stage of oil and gas collection - it is called oil and gas development stage. When oil and gas are processed, their chemical and physical properties change profoundly. Do not confuse recycling with such processing. The movement of oil and gas from measuring devices to their processing point (oil gathering point, gas processing plant) is called oil and gas gathering, and oil and gas transportation is called oil and gas transportation.

Keywords: Field, product, high oil viscosity, carbonate reservoirs, geologic model, waterflooding, kerosene.

Introduction

The technological scheme of oil and gas gathering and processing is understood as a graphical representation of the process of separation of the state of oil and gas raw material flows in a continuous sequence and the extraction of commodity oil. The oil and gas collection and processing system includes a set of devices, mechanisms, machines and structures that are connected in series and interconnected with each other, and the work specified in the technological schemes is carried out. The following processes are carried out in the technological schemes of the oil and gas collection and processing system:

- storage of gas and oil finished hydrocarbons for use in the national economy;
- transportation of oil and gas to standard commodity raw materials;
- taking into account the separation of oil and gas into raw materials and products by type after extraction.
- ensuring the control of product yield of each well.

At the same level, when doing this in one field, attention is paid to the technological scheme of oil and gas with high technical and economic indicators, or to the collection system and

indicators of processing. The main technical indicators include: technical and economic indicators of oil and gas gathering and processing; the level of system automation; relative consumption of metal; number of service personnel, comparative consumption of electricity, etc. Oil collection in the fields is carried out according to the systems of common meters, pumps, pipelines and oil collection points. It is not necessary to install all of the above elements, as their number may be small. For example, the pump, raw material reservoirs and meters are elements of individual or group devices, and the production of the well is carried out when the gases are separated. If the system consists of individual devices - it is called individual devices of the oil collection system, if there are group devices in the system - it is called group devices of oil collection. If gas is collected together with oil through one pipeline, it is called a combined oil and gas system or one-pipe system. The difference between it and the system is that oil is collected through one pipe, and gas is collected through another pipe. Based on the demand for oil processing, oil collection systems are installed separately for each type, mixing of oils of different composition is not allowed. In fields, unwatered oil is sometimes collected through a separate system and is called clean oil and is fed directly to the main line without dehydration and desalination.

The movement of oil in a non-pressurized system depends on the difference between the starting and ending points of the system, and the flow movement occurs under the influence of gravitational force. If a free surface appears above the oil in the pipe, the flow moves through the incomplete surface and is said to be pressure free. If there is no free surface, it is called pressurized flow. Most of the time, there is a non-pressure flow, free flow in one section, and pressure flows in the other section. Unpressurized flow of oil occurs due to the difference in the geometric heights of the collection system, and no pumps are used for collection. In the pressure system of oil collection, oil moves under the influence of pressure and centrifugal or piston pumps are used for driving.

In the movement of oil in pressure systems, the energy of the formed layer in the fountain arch of the well or gas separators is also taken into account.

Two-pipe non-hermetic non-pressurized gathering systems are widely used in older mines. A characteristic feature of the self-flowing system is that the liquid moves after the measuring devices due to the difference in the geodetic marks at the beginning and end of the pipeline and is directed to the intermediate reservoirs and leads to a large evaporation of oil (from 3% to 5%). In order to eliminate the loss of light hydrocarbon fractions in the oil, all new fields are equipped with a hermetic system during the collection, preparation and transportation of well products.

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