EFFICIENCY OF USING NEW TECHNOLOGY IN CLOSED HORIZONTAL DRAINAGE CLEANING

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Abstract: The article analyzes many years of scientific research based on the processes of washing and cleaning drainage pipes and their problems, and as a result, a new technology for cleaning drainage pipes is recommended.

Key words: drainage, machine, mechanism, conical auger, cleaning, sediment, pipe, horizontal, electric motor, shot, mud, hydraulic pressure, cable, technology**.**

Another way to protect closed horizontal drains is to clean them in the indicated periods. As a result of the use of drainage, the growth of all kinds of foreign plants in the drainage pipes and the deposition of various sediments will reduce its surface, and as a result, it will not be possible to use it effectively. Drainage pipes should be cleaned every two to three years in order to clean them from grass and other sediments. In addition, it is necessary to preserve, clean and protect the control wells installed to check the drainage operation[1]. The task of control wells is to check the functioning of the drainage and to clean the drainage pipes every three years. Creation and application of modern technologies of drainage cleaning is one of the urgent problems of today

Currently, widely used cleaning machines and their work technology are as follows. In the closed horizontal drainage construction project, control wells were installed every 100 m in previous years, but now, from the point of view of economy, they are installed every 400 m, and for their cleaning, they are subjected to extremely high pressure (1.6...1, 8 MPa) using a PDTP-200 machine (Fig. 1)[2].

Figure 1. ПДТП-200 drainage pipe cleaning machine: 1 tractor; 2nd carriage frame; 3-water pump; Pressure pipe of the 4th pump; 5th reel; 6-rubber pipe wrap; 7th cart wheel; The machine consists of suction pipe connectors of the 8th pump and performs the following operation process[1]. It is known from the literature that two people take part in the operation of the machine, one of them directs the drainage head into the pipe, and the other controls the water pump and spool. After the washer head is directed into the drain pipe, the spool is actuated to spread the rubber pipe wraps on the spool along with starting the water pump. If the drain pipe is cut, broken, or blocked, it will not move to the head, in which case the cleared path of the head is measured, and the head and the rubber tube connected to it are removed by turning the spool upside down. The distance from the upper layer of the drainage where the head is blocked is measured, the upper part of this place is dug with the help of an excavator, and the drainage is opened. After the defects are corrected, the cleaning work will be continued from this place. If the groundwater rises and fills the excavated trench with water, it is sucked up with the help of water pumps, and after the repair work and drainage pipe cleaning are completed, the damaged drainage pipe and filters are restored, and the trench is reburied and compacted. . Based on the above analysis, the following new cleaning technology is proposed.

In the process of construction of drainage pipes according to the new technology, a cleaning device for drain pipes with an active working element made of stainless material with an auger working body is used, that is, when the time comes for cleaning, a special cleaning device inside the drain pipe falls into the control well. wounded. Drainage pipes are cleaned by moving with a rubber walking device inside the pipe through a special device. A recommended closed horizontal drain pipe cleaner is shown in Figure 2.

a) b)

Figure 2. Picture 2. A drain cleaning device with an active device.
a) side view b) general view

A device for cleaning drainage pipes with a complex design of working equipment. It is used when the inside of drainage pipes is filled with sediment and roots of various grasses. The working device is in the form of a conical auger mounted on an electric drive, placed in a special frame, and receives the rotational movement from the electric drive. During the movement of the working device in the work process, pressurized water is sent from small slits on the front side.

The water, in turn, turns the dislodged sediment into a mixture and is taken out of the control well through an additional pipe. At the back of the conical auger is a rotating drum with a shot of a certain length, which rotates with the auger and provides high-precision cleaning of the inside of the drainage pipes. The movement of the device inside the pipe is ensured by 3 crawler walking devices installed at an angle of 120° to the frame. Special vacuum forming rubbers are installed on the surface of the crawler walking devices, which adhere to the inner walls of the pipe and provide movement. A separate electric motor is installed for each walking section.

To keep the device working inside the pipe, electricity is transmitted by a shielded cable, and control is also carried out through a control well. Based on the information given above, it can be concluded that by using this device, it is possible to ensure the continuous operation of drainage pipes for many years.

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