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Improving the Operational Conditions of "ULUGNOR" Pump Station

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Abstract: *Today, the Republic of Uzbekistan is a leader in Central Asia in the use of pumping and power equipment for reclamation purposes at pumping stations. Therefore, ensuring the operation of pumping stations is a priority for the development of agriculture in our country. The location of agricultural lands in Uzbekistan in need of irrigation in arid zones (ie, low and unstable humidity) necessitates the use of regulated local flows for irrigation and so on. In modern conditions of use of reclamation systems it is necessary to take measures to prevent a decrease in the efficiency of irrigated agriculture.*

Keywords: *Pump; pump station; turbid nozzles; nanos; clarifier; cleaning gallery; aggregate; stuffing box*

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Introduction. Currently, out of 1,688 pumping stations that are on the state account, 24 are large pumping stations. These pumping stations were built and put into operation in the 70-80 years of the last century. Due to long-term operation, the efficiency of many pumping stations has decreased. This is due to the fact that the operation of pumping stations in the republic in difficult conditions, the presence of sediments in the composition of water from intake sources and their immersion to the bottom of the channel, changes in the hydraulic parameters of the pumping station in the intake channel lead simultaneously to abrasive and cavitation wear of water intake parts of pumping stations, moral and physical wear of equipment and equipment.

Ulugnor pump station was launched in the 1980s. The pump station was reconstructed in 2010-th year, the capacity to extract water is equal to 800m3/H. With the help of aggregates consisting of a capacity 2500kwt engine and 400sdk branded pump, the water is raised to a height of 45 m. The attached land area is 4088 hectares. Scientific novelty of the study: Methods of reducing the turbid discharge entering the ulugnor pump station have been improved; The design of the cleaning Galerie, which constantly cleans the tin from the Nanos, has been developed.

The results of the study. Pump failures are constantly observed in the water intake channel of pumping stations taking water from the Ulugnor canal. A large amount of sediment in the river can be indicated as the main reason. In order to exclude sediments trapped in the channel, to maintain the design parameters of the channel, the channel is constantly cleaned with the help of a dredger. In some cases, the dredger operation is not organized properly, or their technical malfunction is caused by power outages, because sediments that need to be cleaned sit for a long time at the bottom of the channel and have an increased level of rigidity. As a result, the change in the design hydraulic parameters of the channel negatively affects the operation mode of the pumping station.

The main purpose of the research is the effective management of hydraulic and alluvial water flow modes of the inlet channel of the pumping station. One of the main factors disabling pumping units is the formation of an irrigation trough in the channel bed, which serves to retain solid particles-sediments in the flow. Parameters of the gasket. Based on the results of the calculations, it was recommended that the parameters of Tinder be as follows: Hopper capacity: W_t=2214,912 m^3. For 1 day, 70% of total discharges are deducted in the bunker: M = 13,397 tons, m is the mass of effluents. The volume of accumulated turbidity for 1 day W_l = 33 058 M ^ 3. T= 67 days. This solution will eliminate the ingress of sediment on.

Conclusion. 1. In the conditions of the Ulugnor pumping station, the technical condition of all hydraulic structures that are part of this pumping station has been studied. 2. Water supply in order to improve the technical condition of the channel, it is necessary to reduce the amount of transverse rotation (circulation) of the flow, making the turns of the channel smooth, smooth. And in order to reduce the process of wastewater flushing in these areas, it is necessary to carry out work to protect these areas with a concrete coating. 3. The results of the studies showed that large weathering zones are formed in large areas in the ante-chamber on both sides of it, and cases of formation of islands with a large accumulation of precipitation have also been observed.

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