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ASSESSMENT AND PROCESSING OF THE HYGIENIC PROPERTIES OF WATER

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Abstract: In this article, the protection of water sources it is almost always the best way to ensure that drinking water is safe and that in order to make water usable before use, it is preferable that the need to clean polluting sources in advance, when necessary, determine the health risk, assess the availability of alternative sources. To decide on the possibility of water supply from this water source, it is said to consider the necessary corrective measures.

Keywords: sewage, wastewater, hanging substance, mechanical cleaning, biological cleaning, sediment, decontamination.

In recent years, the quality of water in the catchment areas has not undergone significant changes. The number of open water sources that do not meet sanitary regulations and norms (45.7%) will be 2.5 times higher than the number of groundwater sources, while the number of water samples that do not meet hygienic standards according to microbiological indicators is -3.4 times higher. The number of samples in which infectious pathogens have been detected (0.5%) also remains high.

In general, currently only 2% of water sources in the Republic guarantee the receipt of drinking water of the necessary quality at the level of availability of water preparation technology.

Pollution of open water bodies spreads over a very wide range and even causes significant contamination of groundwater, including drilling well water. And pollution of the waters of this group plays a significant role in the growth rate of diseases (kidney, oncological and acute infectious diseases), leads to an increase in the mortality rate, including children's mortality. The anthropogenic effect also leads to soil contamination (salinity, poisoning with toxic substances, pesticides, fertilizer residues, heavy metals) and has an impact on the health of the population.

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Currently, the republic requires a 14% replacement of the sewer network. Studies have shown that the absence of a centralized sewer system in a number of urban and rural residential regions creates conditions for irreversible water loss, aggravates the sanitary and environmental situation, prevents the formation of new residential regions. Although in recent years the level of disposal of enterprise wastewater into an open body of water, into a sewer network has decreased, but the level of their treatment is not high enough. Low operational efficiency (50-70% of project capacity) of water treatment plants leads to increased concentrations of contaminants in surface water sources and subsurface areas. The treated wastewater contained an increased concentration of ammonium and nitrates. The situation is more serious in the regions of the Republic of Karakalpakstan, Khorezm and Bukhara regions, where there is a shortage of water, as well as in the regions of Tashkent, Fergana, Samarkand and Navoi, where there is a high concentration of industrial enterprises. Therefore, the middle and lower reaches of most regional rivers are characterized by high levels of water minerality, as well as increased amounts of sulfates, chlorides, fluoride, Mercury, phenol, and silicate substances, which are constantly in a concentration close to or exceeding REM. The inability to use the main water sources in the country as drinking water is considered one of the most serious problems. From the population of the city of Tashkent, which entered the status of major cities, 3 million 500 thousand m3/day will be allocated for household and enterprise wastewater. To clean them, Salar, Bozsu and Bektemir wastewater treatment aerostations operate in Tashkent. Among them, the Salar Air Station is the largest, with a capacity of 250,000 m3/day.

The Salar Aerasty station (SAS) is the largest Nature Conservancy facility in the Central Asian region and is designed to treat wastewater from the residents and manufacturing enterprises of the city of Tashkent. The complex is made up of a system of necessary sequences of mechanical, biological cleaning facilities. Wastewater disinfection is carried out using hypochloride sodium obtained from technical table salt. Treated and decontaminated wastewater is transported through a piping system to an open body of water, the Salar. The installed capacity of SAS is 960,000 m3 / day. The first turn of the facility was commissioned in 1961, and the second in 1980. The total land area of the station is - 96,4m2. The station will be brought to purify the wastewater generated by the residents of the six – Yakkasaroy, Mirabad, Mirzo-Ulugbek, Chilonzor, Sergeli and New Life districts of the city of Tashkent and production enterprises operating in these districts.

After the wastewater enters the station area through the city's sewer collectors, it initially passes through mechanized fences and gets rid of the large hanging substances it contains. Large hanging substances, which are caught here, fall into horizontal containers. Solid waste comes to the conveyor to press and bring it to a compact hole. In the hot season of the year, the waste in the container is neutralized with hypochlorite sodium. Then the waste water falls into the primary clarifiers, where the suspended substances precipitate and the hom precipitate is formed. Primary tinctures are used as preaerators, the main reason for which is to reduce the amount of suspended substances in the wastewater coming into the SAS to 60-100 mg/l. Then wastewater with this weak concentration is sent to aerotenks. The function of primary clarifiers is to extract suspended substances up to 45% of the waste water content. The duration of the division of wastewater in primary clarifiers is equal to 1.5 hours. The sediment trapped in the funnels is pumped twice under its hydrostatic pressure into a raw sediment reservoir with a hajmi of 100 m3, from where it is driven to the stabilizer by pumps with a capacity of 100 m3/h. The infused wastewater is sent to the biological treatment stage. The amount of suspended substances in wastewater after the mechanical cleaning phase is 40-50 mg/L. Aerotenks are biological treatment facilities that neutralize organic pollutants in ammonium nitrogen and wastewater under the influence of active aerobic microorganisms (nitrifying process–the transfer of ammonium nitrogen in wastewater, first into nitrate and then nitrite forms).

In order for the active content of microorganisms to breathe and permanently mix them with wastewater in the aerotenk, air is supplied from the air sprayers by Polymer aerators d-120 mm, the air is supplied to the wastewater composition by dressing small bubbles with a size of 2-3 mm. Raw sediment with a moisture content of up to 97% from primary clarifiers is driven into the stabilizer using RSO pumps. The khajmiy ratio of raw sediment and excess active Il is 1:2. The stabilization time is 8-10 days. The stabilized mixture is then driven into the cleaner using pumps, where it is compacted to 96-97% moisture for 8-12 hours. At the same time, technical water is supplied to the cleaner to the ratio of the sediment charge, such as 1:1 or 1:2. The treated wastewater from the cleaner is fed to the head of the device using pumps, while the compacted sediment is sent to the decontamination area using pumps. The production capacity of SAS fields is 5-6 m3/m2 per year, with sediment drained to 70% moisture being used as fertilizer for technical plants.

In conclusion, it can be said that in the current period, the number of factors that pose a serious threat to ecology is increasing day by day, on the basis that the demand for clean drinking water is progressing, which further increases the demand for water treatment facilities. Performance sanitary rules and norms of Salar Air Station devices comply with sanitary technical and hygienic efficiency requirements in accordance with the requirements of 0315-18 “Protection of open water bodies of the Republic of Uzbekistan”.

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