USE OF SECONDARY WASTEWATER IN OIL AND GAS REFINERIES

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Annotation. The purpose of our research was to improve the efficiency of oil refining wastewater treatment through the use of new reagents, materials and technologies. To achieve this goal, it was necessary to solve problems of how to study the water consumption and water disposal systems of an oil refinery, determine the composition of wastewater, and analyze the sources of pollution of industrial waters with toxic impurities.

Keywords: Strategic Industry, Secondary Wastewater, Oil And Gas Refineries, Natural Resources, Ecological Situation, Petroleum Products.

At present, ecology is becoming a strategic industry that affects all areas of the political and economic well-being of the state. The huge natural resources of Uzbekistan, the quality, health and life expectancy of the population, the future of the country depend on the ecological situation.

The enterprises of the petrochemical complex are the largest polluters of the environment, including water bodies in Uzbekistan. Wastewater from oil refineries is distinguished by a variety of harmful, toxic substances, such as oil products, phenols, sulfides, which, getting into water bodies, cause great damage to nature and the population, even affecting the social side of life.

Petroleum products pose the greatest toxicological hazard to the aquatic ecosystems of Uzbekistan. Depending on the composition of oil products and the time of contact with water, their water-soluble and colloidal fractions (consisting of 90% of aromatic hydrocarbons) are found in water bodies at concentrations of 0.5-40 mg / l.

For the purification of oil-contaminated wastewater from dissolved and colloidal impurities at oil refineries, sedimentation, flotation, and biological methods are used. However, these processes do not always allow water to be purified to standard values, they do not work in optimal modes, new reagents, materials and water purification technologies are not used, which does not allow the principles of rational water use at enterprises. The development and application of new technologies, an increase in the efficiency of refinery wastewater treatment from soluble and dispersed organic pollutants under these conditions is very relevant.

Stabilization and improvement of water quality in natural water bodies by reducing anthropogenic load on them, including reducing pollution from wastewater that has been treated at treatment facilities.

This issue is especially acute in regions with a sharply continental climate. In such regions, due to the peculiarities of the natural and climatic conditions, water sources are particularly vulnerable. In significant periods of the year, the state of water bodies is completely determined by the quality of discharged wastewater.

Municipal waste water is currently, as a rule, treated by biological treatment. At the same time, no amendments are made in the conceptual diagram for the difference in the temperature regime of regions with different climatic conditions, although it is well known that temperature has a significant effect on the stability and efficiency of biological treatment plants. There is little data on the operation of biochemical treatment facilities in cold regions. There are almost no such data for regions with a sharply continental climate.

In the technological scheme of biological treatment facilities, there is a problem of advective removal of activated sludge due to its insufficient sedimentation capacity. In regions with a sharply

continental climate, the situation is aggravated and becomes critical for watercourses that receive wastewater during periods of low temperatures and its sharp daily fluctuations.

During biological treatment of wastewater, as a result of the vital activity of bacteria, wastewater is purified from the original organic impurities available to bacteria for assimilation, but at the same time, the wastewater is polluted with sludge particles with poor sedimentation properties, containing organic and inorganic metabolites, leading to the pollution of water bodies with bioorganic material.

The solution to the problem of improving the quality of natural waters in areas with a sharply continental climate should take into account the peculiarities of the formation and functioning of the biocenosis of the ecological system of activated sludge, associated with the natural and climatic temperature regime.

The operation of biological treatment facilities for biological treatment in a sharply continental climate is characterized by a cyclical nature that does not depend on the technological process, therefore, in the spring-autumn seasons, it is necessary to take measures to permanently minimize the flow of activated sludge into water bodies - sinks.

Protection of watercourses from the removal of activated sludge in a sharply continental climate is most effective with the use of flocculants, and the choice of the type of electrolyte is based on the maximum efficiency and optimal consumption of the flocculant for intensifying the sedimentation capacity of advectively removed activated sludge.

The proposed basis for an improved technological scheme, biological wastewater treatment for conditions of a sharply continental climate, is based on the supply of an effective mixture of flocculants at the entrance to the secondary sedimentation tanks and the supply of sludge treated with a flocculant to the "head" of the structures.

Conclusion.

The nature and scale of the environmental consequences of the impact of the oil refinery on the natural aquatic environment have been assessed. It is shown that under the conditions of Uzbekistan with a high background pollution of natural waters with salts of heavy metals, it is necessary to include in the standard industrial monitoring programs the control of these impurities that determine the toxicity of discharges.

As a result of the analysis of sources of pollution of industrial waters with toxic impurities, it was revealed that the main sources of pollution in the wastewater of the plant are sulfur production units with a monoethanolamine regeneration unit and loading and unloading racks.

The analysis of the operating technologies of the refinery treatment facilities and the analysis of the compliance of the composition of wastewater with the norms of discharge into the environment was carried out. Studies of the efficiency of the treatment facilities have shown that the flotation process is not carried out under optimal conditions; ineffective reagents are used.

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