

Problems in Sewage Drainage Systems of Industrial Enterprises in the Republic of Uzbekistan

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ABSTRACT

This article provides information on the problems and solutions to the wastewater discharge systems of industrial enterprises in the Republic of Uzbekistan.

One of the most global problems of our century is the development of engineering communications, the provision of clean drinking water to consumers, the purification of discharged wastewater at the level of demand, and the prevention of pollution of water bodies. Due to the lack of sewage systems in the rural areas of our country, almost all sewage is absorbed into the underground water without further treatment. This leads to the pollution of groundwater, which is our source of drinking water.

Today, great importance is attached to the prevention of pollution of water bodies. Domestic and industrial wastewater is treated in certain facilities and discharged back into water bodies. As a result, water bodies are polluted to a certain extent. In recent years, a number of decisions have been made by our government, which are mainly aimed at improving the supply of quality drinking water, lack of wastewater, and the sanitary condition of surface and underground water bodies.

Rapid development of small and medium-sized industrial enterprises, rapid construction of rural housing, is one of the main factors of surface and underground water pollution. Along with discharge of a large amount of wastewater into the water body, maintaining their purity is one of the important tasks of ecology, hydrogeology, and utility management. Therefore, it is necessary to choose the correct methods of wastewater treatment, to ensure the sanitary condition of water discharged into water bodies and full compliance with the requirements of sanitary standards.

Wastewater from small and medium-sized industrial enterprises contains a lot of organic and mineral substances, especially organic pollutants in their composition, which create favorable conditions for the development of bacteria. Therefore, one of the important factors in wastewater treatment is the separation and neutralization of organic substances contained in them.

Waste water is cleaned by mechanical, physico-chemical, biological methods. To eliminate disease-causing bacteria in wastewater, it is disinfected with chlorine, sodium hypochlorite, ozone and other disinfectants.

Mechanical cleaning is the separation of undissolved impurities in wastewater by filtering, filtering, and filtering.

The chemical treatment method consists in adding chemical reagents to the wastewater. Reagents allow sedimentation of undissolved, colloidal and solute particles in wastewater.

The biological treatment method is based on the living conditions of microorganisms in wastewater, and these microorganisms serve to oxidize and regenerate organic substances in wastewater.

The waste collected in the facilities is fermented, dehydrated and neutralized based on appropriate technologies. It is one of the most urgent issues to design all these methods in compact devices, requiring less space and money.

The development of small and medium-sized businesses is considered one of the priorities at the state level. Taking this into account, it is important to study the issues of wastewater treatment from small and medium-sized industrial enterprises and disposal into water bodies without affecting the environment.

The following issues need to be resolved in the water supply and sewage systems:

- ✓ Prevention of pollution of underground and surface water bodies;
- ✓ Reconstruction of waste water discharge and treatment systems;
- ✓ Replacement of unusable water and sewage networks, introduction of new technologies into the system;
- ✓ Timely elimination of faults in networks;
- ✓ Water supply and sewage pipes, complete replacement with pipes made on the basis of new technologies;
- ✓ Prevention of water losses as a result of accidents;
- ✓ To prevent unreasonably increasing the cost of drinking water;
- ✓ Increasing the profitability of work in the utility sector;
- ✓ Replacing energy-consuming equipment with energy-saving new generation equipment;
- ✓ Attracting qualified personnel in the field.

As a result of the rapid development of textile, chemical and cotton processing enterprises, it is necessary to maintain the following substances in the composition of the waste water coming out of them. The concentration of allowed substances at the time of discharge of treated industrial wastewater into the water body at wastewater treatment plants is as follows.

1. Aniline-0.005 µg/l;
2. Butyl alcohol-1.4 µg/l;
3. Silvery soft metal-0.025 µg/l;

4. Copper-0.1 µg/l;
5. Margimush-0.2 µg/l;
6. Lead-0.42 µg/l;
7. Zinc-0.06 µg/l;
8. Formaldehyde-1.65 µg/l;
9. Alkylsulfonate-0.87 µg/l;
10. Methanol-4.6 µg/l;
11. Oil and oil products - 0.7 µg/l;
12. Carboic acid-0.05 µg/l;
13. Styrene-0.6 µg/l.

The increase in demand and complexity of water supply and wastewater systems puts new issues in front of the systems operation services, that is, labor protection and environmental protection in the use of water supply, sewage systems and facilities, economy, industry and other provision of water to consumers, discharge and purification of waste water, disinfection, organization of automated water management in facilities is one of the main issues.

Recently published data on natural and drinking water quality and water treatment efficiency in water treatment plants have focused on increasing contamination of water supply sources with industrial and domestic wastewater and insufficient efficiency. Mainly, the use of new methods for organic pollutants in water treatment facilities is presented. [8]

It is usually not possible to disinfect water 100% in practice [9] so it is now common to express decontamination efficiency as 99%; 99.9% and others, which corresponds to a reduction in the number of microbes in the purified water. The formation of organohalogen compounds in water chlorination is a complex and time-consuming process.

During the disinfection of drinking water using chlorine, the following can be found in the water: chloroform, carbon tetrachloride, bromodichloromethane and dibromochloromethane, their concentrations are several or even tens of times higher than the limit permissible concentration (MAC).

Scientific analyzes have shown that only 1% of chlorine goes to disinfection, and the remaining 99% is spent on oxidation and interaction, most importantly, on interaction with organic substances.

Despite the many disadvantages of chlorine and its compounds, in large water treatment plants in Tashkent and other regions of the republic, they cannot be completely abandoned in the near future, because there is no method (except for chlorine and its compounds) that has the desired effect, which improves the quality of water in distribution networks. important for storage.

Today, not only gaseous chlorine, but also other substances containing active chlorine are used for water chlorination. For example, bleach, hypochlorites, chloramines, chlorine dioxide.

Today, chlorine is used in large water treatment facilities in Tashkent and other regions of the Republic of Uzbekistan.

The main disadvantage of the chlorination method is the presence of free chlorine in purified water, which destroys its organoleptic properties and is the main reason for the formation of by-products containing halogen compounds. Trihalomethanes (THMs) – chloroform, dichlorobromomethane, dibromochloromethane and bromoform – account for the majority of HCC. Their formation is caused by the interaction of active chlorine compounds with organic substances of natural origin.

A very important and valuable quality of using chlorine is its after effect. If the chlorine level is 0.3-0.5 mg/l residual chlorine in the water after passing through certain treatment facilities, secondary growth of microbes is not observed in the water.

Summary. The following conclusions can be made by studying the existing technologies for the preparation of drinking water:

- introduction of new water preparation and purification technologies into practice, as the existing traditional methods of water purification do not give satisfactory results in terms of the main technological parameters when entering the water supply network;
- it is advisable to take specific measures, such as influencing the dose of the disinfectant under the working conditions of the water supply system, choosing the optimal dose of active chlorine, taking into account the quality of the source water, the technological scheme of its purification.
- parallel development of engineering communications while small industrial enterprises are developing can be the main solution to prevent future utility problems.

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