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SANITARY-EPIDEMIOLOGICAL AND TECHNICAL REQUIREMENTS FOR SOURCES OF HOUSEHOLD WATER SUPPLY

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Water supply is a complex industry. A modern water supply system is a complex of buildings for natural water storage, lifting, water treatment, storage and distribution among consumers. Before being delivered to the consumer, water undergoes a complex process of disinfection and purification, but water treatment consists not only of disinfection and purification, but also of improving water quality. Methods of water purification were studied: precipitation, filtration, adsorption and coagulation.

The quality of tap water is under the strict control of the departmental laboratory of SCE "Astana su arnasy" and the Department of the State Sanitary and Epidemiological Department of Astana. The experimental laboratory is accredited in accordance with the standard ST RK ISO / IEC 17025 for technical qualification in the system of state technical regulation of the Republic of Kazakhstan.

Disinfection is a set of sanitary and technical measures for the elimination of infectious pathogens (bacteria, viruses, microbes) by physical, chemical and biological methods. I studied the methods of drinking water purification: precipitation, filtration, adsorption, coagulation.

Chlorination allows to purify water from unwanted organic and biological impurities, as well as to completely eliminate dissolved iron, iron and manganese salts. In addition, an important advantage of this approach is the ability to ensure microbiological safety at any time at any point in the pipeline on the basis of side effects. Another important disadvantage of this method is the presence of free chlorine in the treated water, which worsens the organoleptic properties of water and causes the formation of indirect halogen compounds: chloroform, dichlorobromomethane, dibromochloromethane and bromoform.

They are formed as a result of the interaction of chlorine with natural organic substances. As disinfectants used in chlorination, its compounds are used: sodium hypochlorite (NaClO), chlordioxide (ClO), chloramine and others. One of the most common methods of disinfecting water in industrial volumes is treatment with gaseous chlorine (Cl). Gaseous chlorine is an active element that reacts with organic substances dissolved in treated water. However, despite the effectiveness

of chlorine as a disinfectant, the various compounds formed on its basis are a factor that prevents its use in disinfection processes.

The FNS station in Astana is constantly working: water is chlorinated (to reduce bacteria), coagulated (used to reduce water turbidity), filtered through a special material (filtered, reduced concentration of heavy solids), re-chlorinated (to protect drinking water from external pollution and protection against the growth of microorganisms - disinfection).

The quality of tap water is checked at each stage of treatment. Microbiological indicators are checked once a day, organoleptic (odor, color, turbidity) - 12 times a day, residual chlorine - every hour. 800 chemical and 100 bacteriological tests are performed daily at the FNS. In case of non-compliance of drinking water quality with sanitary rules, the operational service of SCE "Astana su arnasy" immediately stops the distribution of water in the left part of the pipeline and carries out the necessary work (repair, replacement, disinfection, washing, etc.) [1].

Results of investigation

After the work, the laboratory staff must check the quality of water for chemical and bacteriological indicators, and if disinfection of the water supply system, the quality of chlorination is checked. Special attention is paid to the quality of drinking water in the spring, when the water in the reservoirs is replenished with melted salt water, but also deteriorates in terms of turbidity, color and odor. Chlorination of water supply networks is carried out annually from May on the basis of the schedule of network disinfection.

Employees of the experimental laboratory will be at the chlorination site: there they will determine the dose of active chlorine, determine the amount of residual chlorine during washing, and then take observations for chemical and bacteriological examination. According to the results of the analysis, it was determined that the parameters of drinking water quality meet the requirements of GOST 2874-82 "Drinking water" [2].

Turbidity is 1.3-4.0 mg / dm³ when water enters the FNS; color 15-20; ammonia - up to 0.10 mg / dm³; After complete cleaning, it enters the city water supply system with the following quality indicators: turbidity - 0.2 mg / dm³; color -10; ammonia - 0.05 mg / dm³, water hardness - 4.0 mg eq / dm³.

Conclusion

Provision of drinking water to the population of Astana is a daily activity of SCE "Astana su arnasy". 170 thousand m³ of drinking water is supplied to Astana every day. The filter-pump station treats surface water of the Astana reservoir and transfers it to the city water system.

Public institution "Department of Energy and Utilities of Astana" State Utility Company "Astana Su Arnasy" provides services between the regulated water and sewerage systems from September 1, 2011 to July 25, 2011 Department of the Agency of the Republic of Kazakhstan for Regulation of Natural Monopolies in Astana №90- In accordance with the order of the OD, the threshold tariff values were activated. This tariff considers the differentiation of consumer groups and the volume of water consumption of individuals with individual water meters.

Since 2000, Kazakhstan has held a number of events aimed at unified water consumption. Examination of physical and organoleptic characteristics of drinking water was conducted in Astana from 1991 to 2011. The Ministry of Natural Resources and Environmental Protection and the Agency of the Republic of Kazakhstan for Health issued a joint order on March 17-21, 2000 "On the introduction of a unified system for monitoring water quality." [3].

At present, the implementation of the sectoral program "Drinking Water" for 2002-2010 is of great importance to improve the condition of water supply facilities and provide the entire population with clean quality drinking water. The issues of renewal of interconnected resources and nature protection, as well as environmental safety of society need to be addressed urgently.

References

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