Kateryna Sukha
I.I. Klimkina, research supervisor
S.I. Kostrytska, language adviser
National TU «Dnipro Polytechnic», Dnipro, Ukraine

The Water Management Complex of the Dnipropetrovsk Region

Pollution of water is a matter of serious concern for Ukraine. The water management complex of the Dnipropetrovsk region is characterized by significant technogenic pollution due to the operation of the mining and metallurgical industry.

The initial data for the environmental assessment of water quality in large, medium and small rivers are the result of systematic monitoring of surface waters in control areas located on the territory of each region of Ukraine. A large number of enterprises in the region greatly influence the hydrochemical state of the Dnipro river and its reservoirs. In addition to polluting enterprises, water quality of its tributaries is affected by the water quality of the Dnipro River, Samara River and Mokra Sura River. The highly mineralized mine waters of the Zahidny Donbass and the sewage of enterprises of Dnipro also affect the state of the Dnipro River. The high content of iron, manganese, nickel, chromium, cobalt and cadmium is observed at the level of several Maximum Allowable Concentration (MPC) for fisheries. In the river flow of Dnipro not significant changes in the quality of its water but within the Dnipro the content of petroleum products rises to the level of 2 MPC for cultural and domestic water use. The Samara River is highly polluted with suspended substances, iron, oil products at the level of 1.3 - 2.5 cultural and domestic MPC. The content of manganese, nickel, cobalt and cadmium is 3 times higher than the standards MPC for fisheries. In some sections of Samara, there is an increased content of nitrites (up to 2.7 mg / dm3) and ammonium (up to 2.5 mg / dm3).

The analysis show that small rivers in the Dnipropetrovsk region are 10 times more polluted than large rivers. This is due not only to low water content, but also to insufficient protection. The level of water purification is extremely low. Existing treatment facilities, even with biological treatment, remove only 10-40% of inorganic substances and do not remove heavy metals. 370 million cubic meters of contaminated wastewater, or 14% of their volume in the country, are annually unloaded to the Dnipro.

To protect water from pollution, the following measures are proposed: (i) to introduce demineralization technologies for sewage from mines and quarries to reduce the negative impact on the surface waters of the Dnipro Basin; (ii) to limit the discharge of industrial wastewater from sewage into rivers, lakes and other natural water bodies; (iii) to clean stream channels from water bodies from debris; (iv) to update and implement innovative technologies and technologies for waste processing; (v) to put in practice a strong control over the application of fertilizers.