Abstract

The primary goal of the water supply system is the protection of human health by providing microbiologically and chemically safe drinking water. Significant changes in water quality require sufficiently robust systems for water preparation, performances of which are unaffected by present variations and changing operational conditions. Water turbidity is an important parameter of water filtration control and efficiency of disinfection. The efficiency of turbidity removal in the drinking water treatment plant “Vodovod” in Banjaluka with normal operating conditions, with a maximal detected value of 25 NTU and emergency operating conditions, with a maximal detected value above 240 NTU was examined in this paper. Evaluation of the water clarification system robustness was done individually for periods of normal and emergency operating conditions (during and after emptying of the accumulation). A more strict goal value of quality of filtered water (0,5 NTU), than required by active legislation, was used for calculating the robustness index, which represents a new criterion for risk analysis in an existing practice. Data processing results indicate the high operational stability of technological units in normal conditions. A significant impact of the plant´s operational conditions on filtered water turbidity in emergency conditions was observed. Optimization of emergency working conditions could be done with adequate monitoring of water sources. That way, the potential risk of pathogen presence in drinking water would be lowered.

Key words: water turbidity, robustness, filtration, normal and emergency operational conditions