Lebkowska, M., Pajor, E., Rutkowska-Narozniak, A., Kwietniewski, M., Wasowski, J., Kowalski, D. Microbial Growth in Cement-lined Ductile Cast-iron Water-pipe Networks. *Ochrona Srodowiska* 2011, Vol. 33, No. 3, pp. 9–13.

Abstract: Bacterial growth in water-pipe networks and related infrastructure is influenced by a variety of factors such as the disinfectant concentration in the water being treated, the hydrodynamic regime, the rate of nutrient utilization by the microorganisms, and the presence or absence of corrosion scales and deposits. This paper presents the results of model investigations into microbial growth in non-disinfected groundwater during flow and stagnation in a cement-lined cast-iron pipe. Diverse bacterial species were identified and their counts were assessed not only in the water before inflow and during residence in the experimental set-up, but also in the biofilm collected from the pipe interior during water stagnation and during water flow with a velocity of 0.1 m/s. It was found that the number of microorganisms increased significantly both in the water residing within the experimental set-up and in the biofilm growing on the internal surface of the pipe, specifically under conditions of water flow. It was also observed that the iron content of the water decreased with the increase in the number of Fe(II) oxidizing bacteria in the water and the biofilm.

Keywords: Water-pipe network, cast-iron pipe, cement-lining, stagnation, biofilm, microorganisms.