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## **OBTAINING A GUIDE OPERATOR OF WASTEWATER TREATMENT BY SBR PROCESS USING SIMULATION AND SENSITIVITY ANALYSIS**

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### **Abstract**

The main aim of this paper was to obtain, on the base of sensitivity analysis, a guide for correct operation of the sewage treatment plant at Eforie Sud which uses sequential batch reactors (SBRs). For this purpose several original procedures were realized. An initial regression model was obtained using the SBR simulation with STOAT 5.0 software, confronted with the process data collected on-line. As it was expected, the range of these data was small, corresponding to the usual domain of SBR exploitation. Another original idea was to extend this database by random generation of 100 sets of process data, and the values of effluent pollutants concentrations for each set were calculated using the simulator STOAT 5.0. Using an original two/step regression based on these data, good equations for the effluent pollutants concentrations were obtained. The last original idea was to use these equations in the framework of a sensitivity analysis by Monte Carlo simulation and to establish several quantitative results important for correct process operating: when the effluent pollutant concentration increases over the accepted value, the corresponding value of input concentration must be decreased by dilution with fresh water, and/or by increasing the reaction time. The simulation of these actions can be made with the corresponding regression equations.

*Keywords:* SBR process, simulation, sensitivity analysis

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