

Pruss, A., Pruss, P., Jedrzejczak, A. Hydraulic Losses Generated by Modern Drainage Systems During Backwash of Rapid Filters. *Ochrona Srodowiska* 2011, Vol. 33, No. 4, pp. 47–48.

Abstract: The objects under study were two-stage rapid filters (anthracite-sand and active carbon) operated by the Water Treatment Plant in Gruszczyn, which supplies municipal water to the cities of Poznan and Swarzedz. The filters were fitted with two types of advanced drainage systems, TRITON and SE-LOP. During modernization of the water treatment plant, measurements were conducted to determine the hydraulic losses caused by the two drainage systems at a varying rate of filter backwash water flow, and (for comparison) the hydraulic losses caused by the drainage systems alone. Actual hydraulic losses obtained with the drainage systems tested were compared with those calculated based on the manufacturers' specifications. Analysis of the hydraulic head losses specified by the manufacturers and those measured in the filter plant has produced the following finding: the actual hydraulic head losses caused by the SE-LOP drainage system alone are by approximately 50% higher compared to the calculated values, whereas the hydraulic head losses measured in the filter beds are comparable with the calculated ones.

Keywords: Rapid filter, drainage, hydraulic head loss, backwash, water flow rate.