Abstract

Water systems often allow efficient water uses via water reuse and/or recirculation. The design of the network layout connecting water-using processes is a complex problem which involves several criteria to optimize. The use of the water pinch approach to define which of the effluents from unitary operations are most convenient to reuse is a good alternative used by some practitioners. Previously papers have presented an approach to minimize the freshwater consumption and infrastructure cost, which had been tested with real data from the Cuernavaca city water distribution network with good results (Mariano2005, Mariano2007). One of the challenges identified from previous work, was the necessity to incorporate the dynamic behavior of distribution systems. In this paper the response of the optimization model to changes in the mass charges of contaminants effluents from unitary operations is presented. The test scenario is the distribution system of the city of Cuernavaca in México.

Keywords

Multiobjective optimization, water pinch, water reuse.