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Hydraulic modelling of drinking water treatment plant operations

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Abstract. The flow through a unit of a drinking water treatment plant is one of the most important parameters in terms of a unit's effectiveness. In the present paper, a new EPAnet library is presented with the typical hydraulic elements for drinking water treatment processes well abstraction, rapid sand filtration and cascade and tower aeration. Using this treatment step library, a hydraulic model was set up, calibrated and validated for the drinking water treatment plant Harderbroek. With the actual valve position and pump speeds, the flows were calculated through the several treatment steps. A case shows the use of the model to calculate the new setpoints for the current frequency converters of the effluent pumps during a filter backwash.

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