

Interactive comment on “Dynamic hydraulic models to study sedimentation in drinking water networks in detail” by I. W. M. Pothof and E. J. M. Blokker

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Response to Reviewer #1: Reviewer #1 has highlighted a number of more fundamental issues to which we intend to respond as follows: 1) Yes, the paper is in two parts, which made sense for the conference paper. However, focus is wanted for DWES. We propose to focus on the hydraulic modelling part and discuss an application with respect to discolouration in a more generic way. This means that only limited extra information will be added to the turbidity data, i.e. a brief explanation of the method to determine the spatial turbidity distribution from the turbidity data during a flushing procedure. 2) No flow measurement data is available for this area. In general it is

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not easy to obtain flow measurement data on such short time scales (1 second) and small spatial scale (with a street of only dozens of homes). The simulation results of SIMDEUM were compared to measured flow patterns and this part is validated. The hydraulic modelling is a more theoretical approach. It shows that the added value of including water hammer has limited added value on the level of the distribution area, but there is an extra unsteady shear stress in the order of 0.1 Pa due to unsteady flow accelerations of 2 cm/s². This result has not been verified in practice yet. 3) We will rephrase the conclusions regarding material accumulation: + cohesive behaviour of sediment is required to accumulate any material + applied shear stress during flushing is sufficient to mobilise the cohesive particles. + Zones with multiple flow reversals during the peak demand hours (Stagnant zones) are susceptible for sedimentation.

Response to Reviewer #2: Reviewer #2 has given very specific comments. All comments will be addressed in the revised submission.

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