

***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**

Anonymous Referee #2

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General Comments

The authors’ describe a research study in which they attempted to identify the factors that influence sediment transport in drinking water networks. The authors examine the effect of unsteady flows on wall shear stress and the re-suspension of sediment particles. The analysis is based on three modeling approaches – quasi-steady, rigid column and water hammer at 1 second steps. The model predictions were combined with results from flushing experiments in the Purmerend Netherlands drinking water networks to support model validation.

The authors have addressed a very important issue and I strongly endorse their study,

however, I also found some major problems with the manuscript. For example, I found several references cited in the text which were not in the reference list. Specifically these are as follows:

- Rossman, 2000
- Deltares, 1993-2011
- Vardy and Brown, 2003

Clearly this needs to be corrected.

Specific Editorial and Technical Comments

Page 4, line 20: The study area is shown in Figure I and is critical to understanding the manuscript, however, I found the figure very difficult to understand. It was difficult to differentiate the colors and I suggest Figure 1 be redone.

Page 5, line 5: The terms and units for Equation 1 need to be defined.

Page 5, line 15: The authors state “Due to the fact that the test area includes two loops, the rigid column and water hammer models may lead to a different pressure and flow distribution than EPANET.” I don’t understand this statement and suggest that the authors elaborate and explain why they believe the statement to be true.

Page 5, line 24: The terms and units for Equation 2 need to be defined.

Page 6, line 9: The terms and units for Equation 3 need to be defined.

Page 6, line 14: The terms and units for Equation 4 need to be defined.

Page 6, line 17: The terms and units for Equation 5 need to be defined.

Page 7, line 8: The terms and units for Equation 6 need to be defined.

Page 7, line 10: The terms and units for Equation 7 need to be defined.

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Page 7, lines 21 to page 7, line 5: I found this paragraph very difficult to follow and I could not relate Figure 4 to Figure 1. I suggest that the test area be enlarged in a separate figure and that the term FTU be defined on Figure 4.

Page 8 lines 14-25: I found this paragraph very difficult to follow and found Figure 6 incomprehensible.

Recommendations

I believe the information contained in this study will be very useful to utilities and researchers but, in my opinion, the manuscript needs a great deal of work before it is ready for publication. I suggest the manuscript be returned to the authors for revision and then resubmitted.

Interactive comment on Drink. Water Eng. Sci. Discuss., 5, 121, 2012.

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