

Interactive comment on “Importance of demand modelling in network water quality models: a review” by E. J. M. Blokker et al.

Anonymous Referee #2

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General comments:

This paper discusses various issues related to water quality and demand modelling in distribution and trunk main systems, which are very relevant and interesting topic. The authors have covered a wide range of topics related to water quality modelling. However the paper needs technical rigour. Furthermore there are grammatical errors throughout the paper. At the current state it is not acceptable to publish this paper in Drinking Water Engineering and Science. I recommend that the authors consider the following specific comments and resubmit the paper.

Specific comments:

This paper mainly reviews the application of the traditional demand model against the

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Poisson rectangular pulse model and End Use/SIMDEUM model. Also they discuss the application of ADR equation in both trunk main models and distribution models.

It is important that the authors introduce some rigor in their reviews by providing mathematical formulations and critical comparisons of the models discussed in the paper especially the PRP, NSRP and End Use models. Demonstration or evidence of the application of the End use model is also needed in order to justify the authors implication that the End use model is more robust than PRP and NSRP models.

This paper is a technical review, therefore requires clear descriptions of issues mentioned in the paper. For example the auto correlation and cross correlation of demands as mentioned in section 4 needs to be more clearly described with examples or graphical evidences. Also evidence for the impact of the simulation time step in water quality analysis should be presented.

It would be very appropriate to graphically demonstrate the relationship between Reynolds number and the probability of stagnation. This would not only help understand the flow regimes and the transport processes but also enhance the technical quality of the paper.

The authors have use some vague terminology, for example:

It can be concluded that a transport network can be accurately modelled) (Page 10, from line 14). The authors are making a statement without mentioning the certainty of their conclusion. Authors state that trunk main system can be accurately modelled with top down approach demand profile.

For a trunk main system, take off points of district meter area (DMA) act as demand nodes. The profiles for those nodes can be easily obtained by performing a demand analysis using the metered data and customer information. This is the usual process applied to develop bottom up demand profiles when modelling distribution systems. Authors need to comment and compare the impact and using bottom up and top down

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approaches before commenting on their accuracies.

Since this paper is a review, it is ideal to give typical values of the dispersion coefficients for the advection dispersion equation. Also the information should be presented in a tabulated form.

Presentation needs to be improved by including tables and graphs where appropriate. The language needs to be concise and grammatically correct. The authors must employ frequently used technical terms in the text rather than employing new terminology.

Interactive comment on Drink. Water Eng. Sci. Discuss., 1, 1, 2008.