

Interactive comment on “The effect of a loss of model structural detail due to network skeletonization on contamination warning system design: case studies” by Michael J. Davis and Robert Janke

Anonymous Referee #1

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The reviewer read the manuscript thoroughly and decided accepted subject to a minor revision. This manuscript tried to evaluate the design effect of contaminant warning system (CWS) for the different levels of network details (e.g., all-pipes model vs. skeletonized model). The object and the content of this paper are appropriate for this journal. As the author reviewed in the manuscript, the researchers are still curious about the performance of the CWS from the impact of skeletonization of network model. The authors represented the influences on the performance of the CWS using the skeletonized models made from a commercial software (specific software was not revealed

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in the manuscript). However, it is unclear for the reviewer to understand the term of 'the quality of the network model' used in the manuscript (p.2 line 10). A network model is one of physical representation of infrastructures and has different purpose of usage as there exists different levels of representation of network models. For instance, the skeletonized model used typically in the planning purpose and the detailed model (e.g., all-pipes model) used for the operation. Also, the authors used four cases of trims (0 cm, 20 cm, 30 cm, and 40 cm) for each network model to show the performance influences on a CWS design, but didn't provide the hydraulic aspect of analysis. The reviewer recommends the authors to consider the hydraulic influences of skeletonization of network model in the manuscript. As the motivation of this study came from 'the uncertainties in the nature of the network itself (p.2 line 18)', it would be necessary to check the accuracy of the network model for the each skeletonized trim before the application of CWS design.

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