

Interactive comment on “Algorithms for Optimization of Branching Gravity-Driven Water Networks” by Ian Dardani and Gerard F. Jones

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Received and published: 7 June 2017

We have the following responses and questions concerning the requested revisions:

1. Authors have incorporated some of the suggested changes. However, many of the rebuttals to the authors comments needs to be suitably incorporated in the manuscript.

Author’s Response: We are now reviewing the paper for places where our responses to the reviewer’s comments might be incorporated.

2. Manuscript has many loose ends. It is still looks like a first draft.

Author’s Response: Before we address this request, we will need guidance as to where in the paper the loose ends appear. Clearly, a general statement such as this needs to

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be supported by details before any actions can be taken.

3. Authors should clearly bring out the quantifiable difference with the Bhave's method.

Author's Response: Quantitative differences between the cost-minimization function in our paper and the one from Bhave are not the issue. It was never an intent of our paper to compare the two or encourage the use of one method over the other. Ours is simply an alternate equation, based on Taylor series fundamentals applied to a simple branch network, and embedded in an alternate method. We have proved that it works because the fundamentals are correct, and graphs of cost vs. nodal pressure heads around the optimal head have demonstrated this. The real issue is the basis for the Bhave equation vs. that for ours. Each method needs to stand on its own merit, which comes from how each was developed. We have made the development of our equation as clear as possible by explaining all assumptions and showing nearly every step in its development. In addition, we have explained in detail the differences that we see between the two, including the iterative method of Bhave vs. the use of a math-package-based nonlinear equation solver in ours. If you require further evidence of the correctness of our method, please advise us and we will be happy to include this in the paper.

4. Detailed description of different methods may be presented in tabular form. It would result in replacing many paras with a table.

Author's Response: We are unclear as to what this means. Perhaps the reviewer who requested this could point to a published example so we can determine the exact meaning.

Thank you.

Interactive comment on Drink. Water Eng. Sci. Discuss., <https://doi.org/10.5194/dwes-2017-7>, 2017.

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