

## ***Interactive comment on* “Comparison between constant and variable chlorine decay models applied to urban water supply network” by Ababu T. Tiruneh et al.**

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We are thankful to anonymous referee #2 for forwarding the comments posted in the interactive section and here is our response to those comments.

Here is our response to referee #2 comments:

1. On the claim by the referee of our research looking like "a research report" we dispute the claim and, as opposed to engineering reports that are commonly "procedural" we feel that our work is a research report that has engineering element in it and may probably intersect with an engineering report that has research element in it. We

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have followed a research protocol of developing a new model to describe the influence of initial chlorine dose on the chlorine decay rate kinetics and experimentally verified the results. We used this experimentally verified model of variable kinetics to test and compare against constant rate models using available water quality modelling program EPANET. We highlighted the regimes where significant differences are. We believe we addressed relevant research problem as such.

2. On the introduction being too long, we would like to refer the referee to the introduction section which only briefly highlights the relevant research achievements. Of course we only gave a brief background as is the case with almost all similar publications related to chlorine decay. Secondly we cited the single reactant pioneering model of Clark and highlighted where the initial chlorine dose affects the models. Thirdly we mentioned the Fischer model that improves to a two reactant model. Finally we highlight the alternative variable decay mode of Phillip (2009) and added our own contribution (Tiruneh et al, 2019). That is the introduction as far as it goes. All that were mentioned are brief and specifically only in relation to the research developments. There is no reference to any text book or report. It is a brief citation of research relevant works as they influence the theme of our particular research. It would be helpful to look at dozens of similar research papers dealing with chlorine decay and the approach and style of treatment of the introduction section in our paper is not any different.

3. On the question of novelty, we would like to refer the referee to our reply to referee #1 to avoid repetition in which we highlighted our contribution in this research. Since novelty is important in research paper evaluation yet is such a "loaded" term we suggest that it would be helpful to contextualise such comments with what has been done in the past and why this paper is not any different so as to avoid the risk of unfairly stereotyping what is otherwise a fairly relevant research output.

4. On discussion and new insights, we have included as far as we can and as far as the results of our research enabled us in the discussion and conclusion sections and have contextualised our research result with similar research done in the past and

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highlighted the need for further additional research.

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