

Interactive comment on “Design methodology to determine water quality monitoring strategy of surface water treatment plants” by Petra Ross et al.

Petra Ross et al.

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The authors would like to thank the Referee for its thorough review and comments provided. We have reviewed the comments and below our remarks and adjustments made in the paper are indicated.

GENERAL COMMENTS This manuscript can be described as a highly applied research paper, bringing together formerly published concepts and applying them to two treatment units of specific drinking water treatment plant. Taking into account the importance of the topic, and the applied character of the journal, I am of the opinion that its publication will be valuable for many practitioners.

I agree with Referee 1 that a weakness of the paper is that real plant application and related improvements were not proven. However, coming back to the drinking water practitioners, the value lies in demonstrating the 7 step framework in a very easy way. Most likely, not many drinking water plants have made such structural exercises, and this paper can lower the barrier of doing so. Hence, the objective of publishing this paper is not necessarily to present novel knowledge, but to show how to set up apply a monitoring framework in practice. It is important that the authors therefore reframe the paper as such, that it does not promise to provide the reader with a methodology that was proven to optimise a plant. It has the potential for that. The focus should be on illustration of practical use of such a framework, and the offering of a methodology to structurally question's one's train monitoring and control strategy.

We have modified the objective, discussion chapter and conclusions of the paper in line with above suggestions. The objective has been changed to: "Therefore, in this paper a design methodology is described which helps to develop a water quality monitoring scheme. This will be explained by means of a case study for the WTP Weesperkarspel in the Netherlands."

The discussions have been changed to address advances in on-line water quality monitoring, reliability of the data and on-line water quality monitoring strategy instead of direct control based on water quality.

The first paragraph of the conclusions have been changed to: "The main objective of this paper was to develop a design methodology supporting the development of a water quality monitoring strategy. A seven step approach was defined, and each step was demonstrated for the treatment processes ozone and BAC filtration. It was shown how the previous on-line water quality monitoring program of the treatment plant Weesperkarspel was adjusted based on a better understanding of the processes taking place.

SPECIFIC COMMENTS There are very recent efforts going on with regard

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to on-line bromate sensor development, based on fluorescence measurement. This might be mentioned. The company Metawater is working on this (https://www.metawater.co.jp/eng/product/rd/sensor_technology/bromic_acid.html).

Fluorescence as a means of characterising NOM properties has not been mentioned. However, one-wavelength sensors are now being introduced on the market. Their benefit compared to UV-VIS might be their sensitivity at low DOM levels

We have included a general message on ongoing developments and chosen to include only references to published work. A reference to fluorescence has been included in the paper in the section required water quality parameters addressing the characterization of NOM.

TECHNICAL CORRECTIONS Some references are missing in the reference list. Examples: are Rieger et al., 2004; van der Helm et al., 2009. Please check for completeness. Potentially others are missing. -This paper is probably part of a PhD thesis.

Amended, full paper has been checked and missing references added.

Remove any references to that, such as p4, line 27 ('Chapter') Amended to 'paper' typo at p4, line 16: 'imbedded' should be 'embedded' - Amended p5, line 11: title should be Treatment step objectives, instead of treatment plant objectives: - Amended typo at p7, line 22: 'in the first columns' - Amended typo at p7, line31: 'evaluation of available on-line sensors and their ...' - Amended p10, line24: 'cheap' →describe more scientifically - Amended to low cost

Please also note the supplement to this comment:

<https://www.drink-water-eng-sci-discuss.net/dwes-2019-8/dwes-2019-8-AC2-supplement.pdf>

Interactive comment on Drink. Water Eng. Sci. Discuss., <https://doi.org/10.5194/dwes-2019-8>, 2019.

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