**Drinking Water
Engineering and Science
Discussions**

Interactive
Comment

Interactive comment on "Natural organic matter removal by ion exchange at different positions in the drinking water treatment lane" *by* A. Grefte et al.

Anonymous Referee #1

Received and published: 10 August 2012

General comments

The paper compares three options of incorporating IEX in a conventional treatment train, should better NOM control be desired. The three options differ in terms of the position of IEX in the train – before coagulation, before ozone, and as a final step after slow sand filtration. The sizing of the IEX units is targeted to obtain the same DOC = 1 mg/l after treatment. The options are evaluated in terms of their effect on biological stability, and on cost. A laudable feature of the cost comparison is its inclusivity – capital costs, maintenance costs, chemical requirements, waste chemical disposal costs, and the savings on other treatment processes.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Specific comments

Cost estimates, by their very nature, are approximate only. The difference between the lowest and highest estimates is 7%, and between the lowest and second-lowest estimates only 1%. A conclusion that the options are approximately equal with little to choose, would be better substantiated. IEX removal of NOM is differential, meaning that not all fractions are removed equally (evidenced by the changes in SUVA). The basis for Table 1, which assumes that other processes always remove the same percentage of NOM, is therefore questionable. Such an assumption is necessary for the development of the paper, and this is not an argument that it should be removed. But it does introduce a further element of uncertainty, which strengthens the recommendation made in the previous paragraph. Although the unit costs for IEX treatment are comprehensively estimated and presented, the practical value of the paper, especially for those in other parts of the world, would be enhanced if the incremental costs of IEX could be presented with the overall treatment cost. It would be most useful to see by what percentage the overall treatment would be increased by IEX.

Corrections

p376 line 25 Extend = extent p377 line 17 Regeneration misspelt p380 line 14 mm = μm p382 line 26 than = then p384 line 26 treatement = treatment p394 third last line Why comma?

Interactive comment on Drink. Water Eng. Sci. Discuss., 5, 375, 2012.