

Interactive comment on “Metals releases and disinfection byproduct formation in domestic wells following shock chlorination” by M. Walker and J. Newman

Anonymous Referee #1

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General comments: This is an interesting paper on high quality research relevant to the DWES community, which should therefore be accepted for publication after minor revisions. The conclusions (DBP formation control through purging and checking by chlorine strips) are valid and important to the water industry.

Specific comments: p179, line 5/6 contact times is not the correct wording, instead CT-value should be used. p179, line 20 degassing rate also depends (primarily) on turbulence, contact time etc. p180, line 2 and line 9 provide reference for MCLs p180, line 19/20 provide reference or delete the sentence as it is not relevant p180, line 18 (table 1) In table 1 there is a mistake in the data on treatment duration (25m etc??). Fur-

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thermore the degree of accuracy of temp and conductivity and OMP seems overdone (please limit it to 3 digits) p182, line 14 CARBONATE, this must be a mistake. I am sure you mean Total Inorganic Carbon (TIC, the sum of CO₂ and HCO₃⁻ and CO₃²⁻), which is something else than carbonate (CO₃²⁻). This mistake is also in other parts of the paper, eg table 7. Please check and change this throughout the paper. Also please check and mention the units (mg/l CaCO₃ or preferably mmol/l) p182, line 18-23, please provide info how the 200mg/l Cl was defined (as Cl₂ or as Cl) and how it was calculated. From the data given (6%, 8,9 ml/l) I cannot check it. p184, line 4 (table 4). Obviously the bleach solution will have a high pH and therefore it can be expected that the pH in the well increases. However this does not occur in well 182, where the pH even decreases from 8.5 to 7.5. This is a remarkable finding; one possible explanation might be that the bleach dosing induced the precipitation of CaCO₃ from the water. This may lead to scaling and well clogging. Did this occur? Two other remarkable findings in table1 are: 1. the sudden decrease in the ORP at well 142 after 2 well volumes (this coincides with the depletion of chlorine after 1 well volumes according to table 5)2. The low pH in well 142 after 0 well volumes (this seems to be a measuring error?). Also there is an error in the IP-4/IP table at well 51 for the ORP (should be much more than 117%). page 185, line 5-10 it seems to me that the arsenic levels are more or less constant throughout, the changes are minimal page 185, line 13-21 also here the changes are minimal and not very consistent. page 186, line 18 I believe the casing material is not very relevant here, so I would rephrase this sentence. page 188, line 25 what is meant by Cooperative Extension

Conclusions and Abstract: It seems to me that you could stress more strongly the main conclusion which are that DBP formation occurs and it can be controlled by purging and the amount of well volumes can be checked by chlorine strips.

Technical corrections please provide references throughout the paper, also including tables (eg table 3 EPA and SM are not referenced) table 4 contains a line between C and pH which should not be there

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