Electronic Supplementary Material (ESI) for Environmental Science: Water Research & Technology.

Screen versus cyclone for improved capacity and robustness for sidestream and mainstream deammonification

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Supplemental C:

Proof for Equation 14.

$$f_{deam} * \frac{S_{TIN,in} * Q_{in}}{2.32 * V} * \left(1 - \frac{S_{TIN,out}}{S_{TIN,in}}\right) = \mu_{min,AnAOB}\left(\frac{SRT_{AnAOB}}{HRT}\right)\left(\frac{(S_{NH_4^+,in} - S_{NH_4^+,out})}{1 + \theta_{AnAOB} * b_{AnAOB}}\right) \Leftrightarrow$$

$$f_{deam} * \frac{S_{TIN,in}}{2.32 * HRT} * \left(1 - \frac{S_{TIN,out}}{S_{TIN,in}}\right) = \mu_{min,AnAOB}\left(\frac{SRT_{AnAOB}}{HRT}\right)\left(\frac{(S_{NH_4^+,in} - S_{NH_4^+,out})}{1 + SRT_{AnAOB} * b_{AnAOB}}\right) \Leftrightarrow$$

$$\mu_{min,AnAOB} = \frac{f_{deam} * \frac{S_{TIN,in}}{2.32} * \left(1 - \frac{S_{TIN,out}}{S_{TIN,in}}\right)}{(S_{NH_4^+,in} - S_{NH_4^+,out})\left(\frac{SRT_{AnAOB}}{1 + SRT_{AnAOB} * b_{AnAOB}}\right)} \Leftrightarrow$$

$$\mu_{min,AnAOB} = \frac{f_{deam} * \frac{S_{TIN,in}}{2.32} * \left(1 - \frac{S_{TIN,out}}{S_{TIN,in}}\right)}{\left(f_{deam} * \frac{S_{TIN,in}}{2.32} - 0\right)\left(\frac{SRT_{AnAOB}}{1 + SRT_{AnAOB} * b_{AnAOB}}\right)} \Leftrightarrow$$

$$\mu_{min,AnAOB} = \frac{\left(1 - \frac{S_{TIN,out}}{S_{TIN,in}}\right)}{\left(\frac{SRT_{AnAOB}}{1 + SRT_{AnAOB} * b_{AnAOB}}\right)}$$