CEE 690K
Environmental Reaction Kinetics

Homework #4

Use the kinetics program Aquasim to expand upon the standard model for chloramine decomposition. You may work in groups of 3 on this assignment. Also, I will provide you with the generic standard model input. This includes the single unknown labelled as "I", which you may need or prefer to change. Before beginning this work, I'd recommend that you try the "Biochemical Process Simulation" in Chapter 2 of the AQUASIM Tutorial Manual.

Please select at least one of the following options to develop and explore:

a. Bromide catalysis, examining impact of varying bromide levels from 0-1 mg/L (See: Zhang & Lin, 2013)
b. Lead solubilization, assuming varying pipe diameter and Pb(IV) suface coverage (See: Zhang & Lin, 2013)
c. Reactions with nitrite, presuming variable nitrification rates and nitrite concentrations from 0-0.1 mg/L (See: Zhang & Lin, 2013)
d. Impact of cometabolism of monochloramine assuming various concentrations of biomass in the form of *Nitrosomonas europaea* (See: Maestre et al., 2013)

In each case develop an expanded Aquasim model and propose a set of logical scenarios that might occur in drinking water distribution systems. Using the expanded model, calculate the concentration of all modeled chemical species versus time over a range of reaction times up to 1 week.

Assigned: 25 Nov 13
Due: 5 Dec 13