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Briana Li-Vidal's Individual Contribution Page

I am a grad student working on my M.Eng. in Geological Sciences. My undergrad degree was a B.S. in Geology from Middle Tennessee State University.

Fall 2016 Contributions

This is my first semester working with AguaClara and I am on the Fluoride subteam. Thus far in the semester, we have fabricated a new bottom insert for the reactor that utilizes a sloped geometry which allows a smooth expansion into the reactor and promotes continued circulation at the base of the reactor. At the present time, we are determining the length of PVC pipe that should be used below the weir to accommodate the floc blanket in our reactor. Previously, the reactor had ~61 cm of PVC below the weir, which contained the whole floc blanket, but it seemed like the floc blanket was stable well below this height. Therefore we fabricated a new reactor with only ~5 cm PVC below the weir to test the hypothesis that the reactor did not need a deep floc blanket to effectively remove flocs. However, a floc blanket still formed in the shorter reactor and flowed above the weir and into the tube settler, producing higher concentration of flocs in the effluent.

Spring 2017 Contributions

I am returning to the Fluoride subteam this semester. This semester we have further modified the bottom geometry of the floc blanket reactors so that regardless of concentrations in the reactor, settling will not occur at the base. The design utilizes a flat, sloped plane to minimize the convergence of flocs which in the past caused buildup in the base on the reactors. We also began testing the system with low red dye to PACl ratios because, in the field, arsenic and fluoride tend to have low concentrations and require higher concentrations of coagulant to be removed. These tests often resulted in blocks of PACl and flocs forming in the middle of the reactor and building up, regardless of recirculation occurring at the base. To resolve this issue, the subteam reintroduced the addition of clay to the influent to reduce the amount of PACl that was sticking together. This produced positive results, and now the team is moving forward with running the system with fluoride instead of red dye so that lower effluent concentrations can be accurately measured with a fluoride electrode and we can begin to quantify the effectiveness of 1 vs. 2 reactors when actually removing fluoride.