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Oge Anyene's Individual Contribution Page

Spring 2016 Semester Contributions

High Rate Sedimentation Team 1 (Floc Blanket)

This semester I will be working towards my subteam's goal of increasing the upflow velocity in the AguaClara sedimentation tank by a factor of 2 to 10 without degrading the functionality of the floc blanket. In order to achieve the maintenance of a floc blanket at the desired upflow velocity we will be investigating and performing the following tasks:

- Designing a simple geometry and experiment to test the hypothesis that sloped surfaced in a floc blanket can be used to increase the floc blanket concentration.
- Experimenting with the geometry and capture velocity of plate settlers in the floc blanket.
- Investigating what type of plate settler operates best in the floc blanket (round, pours, solid, etc.)
- Evaluating the transportation of flocs to the floc hopper when there is a high upflow velocity in the sedimentation tank

Fall 2015 Semester Contributions

High Rate Sedimentation Team

The current model of the AguaClara sedimentation tank has a residence time of approximately 24 minutes, making it the rate limiting step of the water filtration plant. This semester I will be working towards my subteam's goal of increasing the upflow velocity in the AguaClara sedimentation tank by a factor of 2 to 10 without degrading the performance of the tank. This will significantly decrease the residence time of the sedimentation tank; therefore, the water filtration plant process will be expedited. In order to achieve this desired upflow velocity we will be considering and experimenting with the following parameters:

- The geometry of the overall sedimentation tank
- The geometry and capture velocity of the plate settlers above the floc blanket
- The geometry and capture velocity of the potential plate settlers in the floc blanket
- The correlation between the plate settlers with a capture velocity of 1 mm/s and the plate settlers with a capture velocity of 0.12 mm/s
- The transportation of flocs to the floc hopper when there is a high upflow velocity in the sedimentation tank