

Laminar/Turbulent Tube Flocculator Detailed Task List

Shreya Jain, Tanya Peifer, Nadia Shebaro, and Luke Zhu

June 11, 2014

Friday 6/20/14

- Create system that keeps temperature of water tank at room temperature for both the laminar and turbulent apparatuses (all team members)
- Incorporate PID control for laminar tube flocculator (all team members)
- Literature review due (Tanya will proofread)

Friday 6/27/14

- Confirm that water supply and PID control system work effectively (Tanya and Shreya)
- Test the laminar and turbulent tube flocculator apparatus to make sure that flocs slide down the tube settler and are removed at the bottom of the tube by the water that flows past the bottom of the tube and on to waste. Confirm that capture velocity is 0.12 mm/s, and if not adjust the system accordingly. (Nadia)
- Research report due (Nadia will proofread the report)

Thursday 7/3/14

- Begin running experiments for laminar tube flocculator. Experiments will have PACl dosages of 10, 20, 40, 80, 160 μM as Al and 50 NTU raw water. Run two trials at both 10 and 20 μM as Al (Tanya and Shreya)
- Ensure that there is positive pressure throughout the turbulent apparatus. (Nadia)
- Measure the flow rate through the turbulent flocculator. (Nadia)

Friday 7/11/14

- Measure head loss and energy dissipation rate in the turbulent tube flocculator (Tanya and Shreya)

- Determine maximum clay stock concentration that can be pumped through a peristaltic pump and implement pumping system. (Nadia)
- Continue testing Laminar tube flocculator. Run two trials at both 40 and 80 μM as Al (Nadia)
- Research report due (Shreya will proofread the report)

Friday 7/18/14

- Brainstorm ideas for a clay metering system for the tube flocculator to ensure a mass flow rate that results in 500 NTU. (all team members)
- Continue running experiments at various PACl dosages for the laminar tube flocculator (Tanya and Shreya)
- Install peristaltic pump to remove air from the SWaT in the turbulent tube flocculator apparatus (all team members)

Friday 7/25/14

- Final Report draft due (Nadia will proofread the report)
- Continue experimentation on laminar tube flocculator. Begin tapered flocculation for the laminar tube flocculator. (all team members)
- Design 12 hour experiments for turbulent tube flocculator (all team members)

Friday 8/1/14

- Final Research Report due (Tanya will proofread the report)
- Continue experimentation on laminar tube flocculator. Compare results to previous results from FReTA. If results are worse come up with hypothesis for why SWaT does not perform as well. (all team members)
- Conduct experiments on turbulent tube flocculator and determine if reliable, consistent results are received. (all team members)