

# Fall 2012

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September 6, 2012

## Literature Review (09/04/2012–09/13/2012)

- Read research papers, prior team reports and AguaClara wiki about tube flocculator apparatus, PACl, alum, capture velocity and Process Controller.
- Read Dr. Karen Swetland's submitted paper to understand the underlying model and basic experiment setup for tube flocculator.
- Read Dr. Ian Tse's two published papers to understand FReTA, and prior work with this apparatus.
- Understand the mechanisms of coagulation and flocculation by reviewing CEE 4540 course notes and reading Chapter 5 and 6 in *Wastewater Engineering Treatment and Reuse (Metcalf & Eddy, 4<sup>th</sup> ed.)*
- Clarify my goals and find topics for future research through conversation with Professor Len Lion, Monroe Weber-Shirk and AguaClara team leaders.

## Develop fundamental understanding about the Tube Flocc Experiments (09/14/2012—09/28/2012)

- Familiarize with the fundamental experiment steps.
- Learn how to use FReTA, Process Controller and MathCAD.

## Tube Flocculator Experiment (09/29/2012—11/16/2012)

- Carefully repeat past experiments (select one method from Spring 2012 Tube Flocc Team's file) to get a standard curve of residual turbidity versus alum dose and use this curve as the baseline for further research.
- Consider alternative approaches to break flocs and evaluate the feasibility of their construction and insertion into the experimental apparatus.
- Set up floc breakup device onto the tube flocculator and run experiments using the same method.

**Technical Writing and Final Presentation (11/16/2012—12/08/2012)**

- Analyze the data, plot residual turbidity vs. alum dose curve and compare the curve after floc breakup with the baseline.
- Summarize my results and devise future work for next semester.
- Write final report and update team wiki page.