

Task Details

Due: Monday September 15, 2014

- Read and understand the report from the summer – five days
- Read literature on flocculation

Due: Wednesday September 24, 2014

- Get used to process control and MathCAD – two weeks

Due: Wednesday October 6, 2014

- Testing the laminar tube flocculator – two weeks
 - Repeat Summer '14's trial for 1.05 mg/L dosage of PACl and see if we can repeat results
- Testing the water supply - confirm that water supply and PID control system work effectively
- Figuring out how to control run time of the process
- Understanding the method file that the summer team left
- Graphing the already collected data for the lowest concentration trial (1.05 mg/L)
- Analyze data

Due: Wednesday October 15, 2014

- Round 1 of experiments – two weeks
 - Capture velocity 0.12 mm/s
 - Range of PACl doses: 0-4.0 in 0.5 increments
 - Base case of 0.5
 - Loading time of 35 minutes
 - SWaT time of 12 minutes
 - Tube settler flow rate of 5 mL/sec, assuming that 90% of effluent water will be directed to the tube settler
 - Residence time in the tube settler is 9.66 minutes
- Discuss results with Professor Lion and Monroe – two days

Due: Monday October 20, 2014

- Prepare for mid-semester symposium – two days

Due: Monday November 3, 2014

- Round 2 of experiments – two weeks
 - Repeat and see if results can be duplicated if desired results are obtained in the first round of experiments
- Discuss results with Professor Lion and Monroe

Due: Monday November 17, 2014

- Round 3 of experiments
 - Repeat again and see if can be duplicated once more
- Discuss results with Professor Lion and Monroe

Due: Monday December 1, 2014

- Find literature for report

Due: Friday December 5, 2014

- Final report draft due

Due: Friday December 12, 2014

- Final report – one week

Experiment Details

- Repeat experiments with a new range of PACl dosages that produces pC^* from 0 to 2 or lower than the desired value of 5 NTUs. These tests are designed to produce a set of data that is similar to that obtained [by Karen Swetland](#).
- Compare the results obtained using the SWaT system with the previous results obtained using FReTA (Flocculation residual turbidity analyzer) and plot them on the same graph. Explore the possibility that the PACl precipitate diameter is much smaller for the liquid PACl than it was for the granular PACl.
- Find the range of flocculator performance from worst to best