Small Scale Plant Model

Location: computer facility or HLS 150

Major findings in summer 2013

- building with plexiglas was difficult, time consuming especially for angled pieces
- Producing multiple plants using plexiglass is impractical due to the large amount of labor required
- 3-D printing was easy and would make it possible to produce multiple small scale models quickly and to upgrade as new designs are created

Goals

Your goal is to produce an easily reproduced and updated scale model representation of the plant that makes it easy to explain and show how a full scale water treatment plant works. The production system that you develop must begin with the AutoCAD drawing of a full scale plant and then with minimal processing send that file (or pieces of that file!) to a 3-D printer.

- Abandon the plexiglass assembly approach because it requires too much labor
- Switch to 3D printing
- Explore options for switching colors while printing to emphasize different materials used to fabricate a full scale plant.
- Assess which components must be made using alternative methods or which components should be printed as separate items.
- Determine the minimum practical thickness for 3-D printing.
- If necessary reduce the scale of the model plant so that it can be printed more easily. The goal is that the final unit can be easily passed from person to person in a classroom.
- Determine whether suitable 3-D printing services are available or if AguaClara should purchase a 3-D printer.

We will use this model for teaching at Cornell, for conferences, and for teaching about the AguaClara technologies internationally. The final model must be easy to transport by airplane.