

Full Scale Floc Breakup - Detailed Task List

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Task List

1. Design a Full Scale Floc Breakup Device
 - (a) Research methods to increase energy dissipation with minimal head loss
 - (b) Review CEE 4540 Flocculation notes
 - (c) Meet with Monroe to discuss
 - (d) Complete engineering calculations to determine an optimal jet (pore) size
 - (e) Create a list of design constraints including: cost, dimensions, desired floc size etc.
 - (f) Brainstorm possible solutions - mesh, pipes, wood
 - (g) Go to the hardware store and browse McMaster Carr to get ideas for possible materials
 - (h) Compare costs of materials
 - (i) Design attachment mechanism to the plant
 - (j) Calculate head loss per floc breakup
 - (k) Model the time required for broken flocs to reform to maximum size for conditions of low turbidity and maximum turbidity based on estimates of collision times
 - (l) Design for min and max turbidity of Atima plant
 - (m) Determine if there is a disadvantage of using the number of breakup devices for maximum turbidity
2. Design and Test Fabrication Techniques
 - (a) Consider locally sourced materials
 - (b) Ensure the design can be easily implemented in a built plant
 - (c) Prototype fabrication techniques

- (d) Design methods to do preliminary tests on device in the lab
 - i. Clogging
 - ii. Ability to withstand force of water (stays in place)
 - (e) Lab test the final product
3. Work with APP to test design
- (a) Contact Drew Hart at APP to begin the process
 - (b) Have Drew double check to determine availability of materials as necessary
 - (c) Design testing method
 - (d) Have Drew carry out tests