

Demonstration Plant

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Abstract

AguaClara has a need for an updated demonstration plant. The demonstration plant will be used as a portable demonstration unit for education and to advertise the AguaClara technologies. We need to fabricate several demonstration units and therefore need to refine fabrication and design methods.

1 Introduction

The demonstration plant is an excellent resource that makes it easy for students to learn how the AguaClara technologies work. The current demonstration plant has all of the unit processes of an AguaClara plant and it is used at Cornell for outreach activities as well as by implementation partners as they promote the AguaClara technologies to municipalities.

2 General Considerations

The demo plant should be easy to operate, easy to assemble and transportable as a carry-on luggage item. The unit processes should be easy to disconnect and clean. The plumbing connections must all be leak tight to prevent spills. The water level in the plant must be controlled with an exit weir from the filter. The plant should be both professional looking and low cost so that we can afford to make multiple units. The existing demo plant at Cornell has many failure modes. We need to analyze these modes and determine the best way to remedy them.

3 Improvements for The Demonstration Plant

1. Evaluate a method to manufacture the flocculators to avoid overflow.
2. Increase capacity of stock tanks in order to achieve a run-time of 15-30 minutes without intervention.
3. Evaluate alternative materials for the pipe frame including PVC and 80/20 Bar.