

alb373

Abigail Brown's Individual Contribution Page

Summer 2014 Contributions

This summer, I was on the AguaClara Foam Filtration team. Our main goal of the summer was to design and build a new foam filtration system based off of what we learned from the previous semester's design. Initially, I worked on integrating a chemical dosing system into the original model and generally learning how the foam filter works. As the summer progressed, we as a team turned our full attention to building a new filter with large-scale modifications- specifically to the clean out cycle. During this process, I mainly worked on fabrication and on troubleshooting problems that arose as we underwent the building process. Additionally, Ji Young Kim and I made design specifications for the filter.

Fall 2014 Contributions

During Fall 2014, I worked with the Ram Pump Team. We made the lab set up easier to use so that we can perform extensive testing on the pump, specifically on pressure levels, head loss and run time. This semester marked the transition to a spring based vertical ram pump system. This system was chosen because it was smaller and easier to tune and fabricate than the larger weights based system. The team and I then worked on testing springs to see which made the pump a viable option.

Winter 2015 Contributions

The following winter, some fellow members of the Ram Pump Team and I integrated this system into the Jesus de Otoro plant in Honduras to work on field testing. The ram pump did work, but at an almost insignificant flow rate, we believed due to an inefficient spring for the system.

Spring 2017 Contributions

After an extended hiatus due to studying abroad and related requirements, I returned to the Ram Pump Team during senior spring. The team advanced significantly in the past few years, particularly in adding a distribution system and another air chamber to the testing module. The focus of this semester was to figure out how to effectively tune the ram pump for low driving head values, which occurs in some of the plants in Honduras. As a group, we tested how the variation of top standoff displacement, bottom standoff displacement and spring constant affected the pump performance at low driving heads. We then proceeded to formulate a mathematical model to be used to calculate spring constant from available driving head. We left the model in its beginning stages as the semester ended.

Thank you to Monroe, all of the amazing students I have been fortunate enough to work with and learn from and the team in Honduras, for all working hard to provide clean water in a sustainable manner. This has truly been one of the best experiences of my time at Cornell and I am so thankful to have been able to be a part of it!