

# Chemical Dose Controller

The goals of this team are to refine the design of the constant head tank, work with the design team to create labels and scales for the various components, and work with AguaClara LLC to determine if the dose controller will be packaged and sold by AguaClara LLC or built in country.

## Linear Chemical Dose Controller (LCDC/LFOM)

The linear Chemical Dose Controller (LCDC) is a critical piece of the AguaClara technology which couples the plant flow rate with the flow rate of the coagulant or disinfectant stock solution. The result is a semi-automated system in which the plant operator only needs to set a dose for the chemical and it will be administered automatically as the plant flow rate varies.

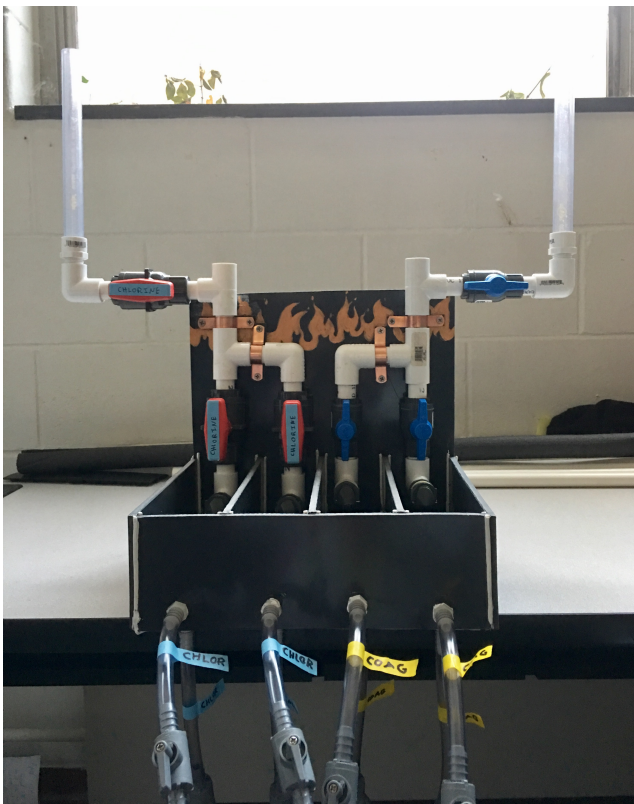
The system has evolved steadily with major advances every year. The ability to accurately and predictably control the alum and chlorine dosages without electricity sets AguaClara apart from other water treatment technologies.

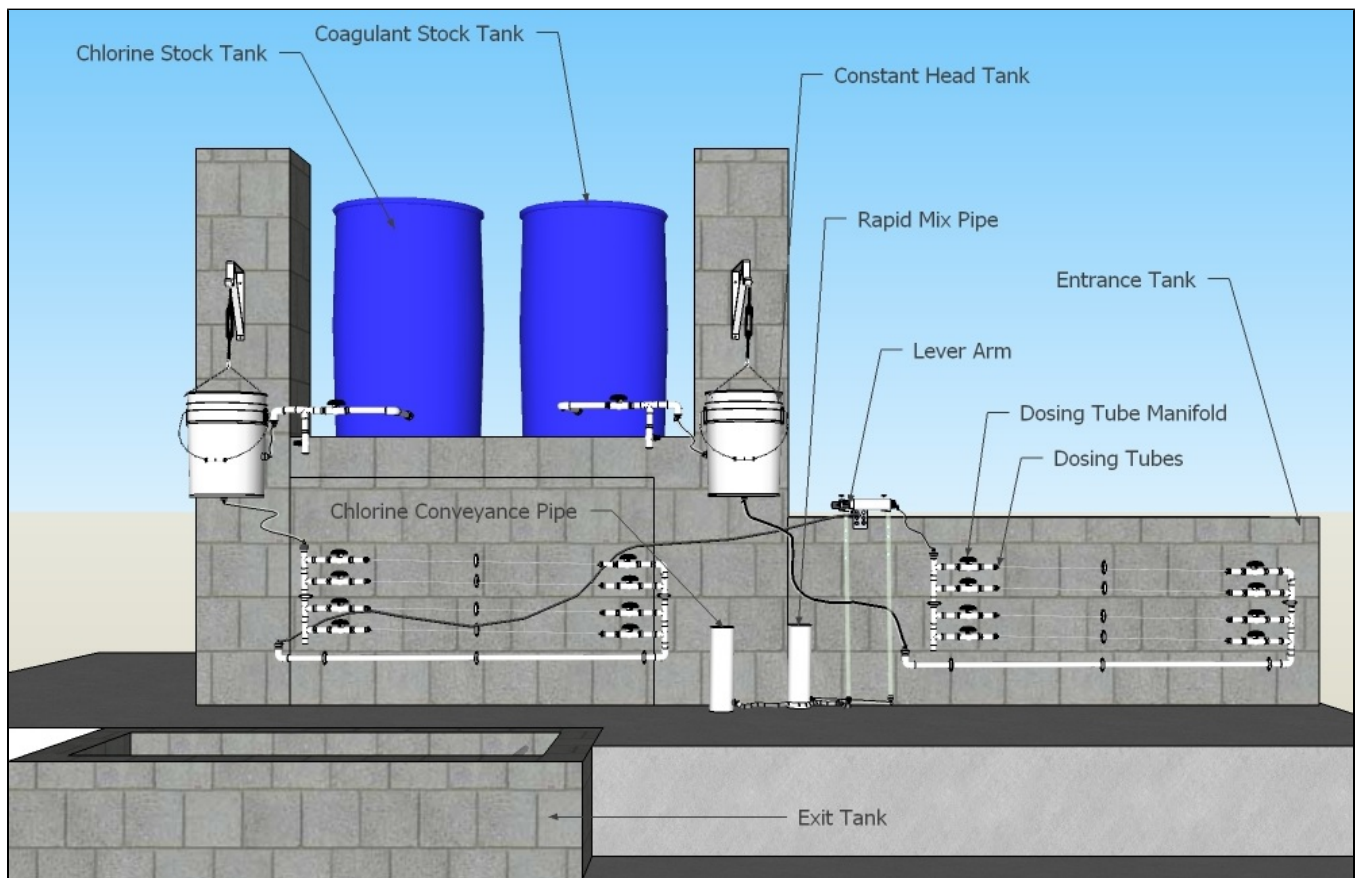
Fall 2016: This semester the CDC team redesigned the CHTs so that all four tanks are connected to each other, and so that the calibration columns are attached to the CHT module. Additionally, the team recreated and modified the modular CDC system designed in past semesters to address the goals of being fully chemical resistant, compact, and simple in operation and maintenance. The new CHT will be demonstrated and eventually implemented in Honduras.

The chemical dose controller consists of four total stock tanks, two calibration columns, and four constant head tanks. There are two stock tanks for chlorine and two stock tanks for polyaluminum chloride. If one tank for a particular chemical runs out, the second stock tank serves as a backup. The two chlorine stock tanks have individual outlet tubing but this tubing joins together into one tube. At this point, there is a diverted pipe that leads an upright rigid clear PVC pipe which serves as our calibration column. There is one calibration column each for chlorine and for polyaluminum chloride.

The calibration columns serve to measure the dosage of the chemicals being added to the treated water. The calibration columns function by first closing the valve to the CHT and then opening the valve to the calibration column from the stock tank. The plant operator allows the calibration column to fill, closes the valve to the stock tank, then opens the valve to the CHT. The operator then measures how much time it takes for a predetermined amount of chemical to drop and based off this, determines the dosing rate.

The design of the second and final iteration for the semester maintained the same basic structure as the first iteration of Fall 2016, save for the alterations in plumbing orientation. In the second iteration, the tanks were extended in the direction of the float valves, so that the plumbing can be vertically oriented in the back of the CHT and attached to the wall as opposed to being horizontally oriented through the back of the CHT.





LCDC Video

<http://www.youtube.com/watch?v=nA824OvTNrs&feature=youtu.be>

Team Members

Anna Doyle

Cynthia Chan

Annie Cashon



Susan McGrattan

Karan Newatia

[Email Team](#)

[Documents](#)

	Challenges	Tasks	Symposium	Final Presentation
S p r i n g '17				
F a l l '16				
S p r i n g '15				

F a l '14		? Unknown Attachment	? Unknown Attachment	? Unknown At
S p r i n g '14			? Unknown Attachment	? Unknown At
F a l '13	? Unknown Attachment	? Unknown Attachment		? Unknown At
S u m m e r 2 0 1 3				? Unknown At
S p r i n g 2 0 1 3		? Unknown Attachment	? Unknown Attachment	? Unknown At
F a l 2 0 1 2	? Unknown Attachment	? Unknown Attachment		? Unknown At
S p r i n g 2 0 1 2	? Unknown Attachment		? Unknown Attachment	? Unknown At
F a l 2 0 1 1		? Unknown Attachment	? Unknown Attachment	? Unknown At
S u m m e r 2 0 1 1	? Unknown Attachment	? Unknown Attachment	? Unknown Attachment	? Unknown At
S p r i n g 2 0 1 1	? Unknown Attachment	? Unknown Attachment	? Unknown Attachment	? Unknown At

See also:

[2011 High Flow Dose Controller](#)  
[2009 Rapid Mix](#)  
[2008 Linear Chemical Dose Controller](#)