

## Resource Development International - Cambodia Ceramic Water Filter Factory - Clay Mix Automatic Water Spray System

Prepared by Engineers Without Borders Australia in Partnership with Resource Development International - Cambodia.

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## Introduction

RDIC has developed and implemented an automatic water spray system for its ceramic water filter clay mix system. This is an easily operated system that evenly distributes a set amount of water through the clay mix. The operator also has the ability to adjust the volume should additional water be required during hot conditions by adjusting the level of the overflow pipe.

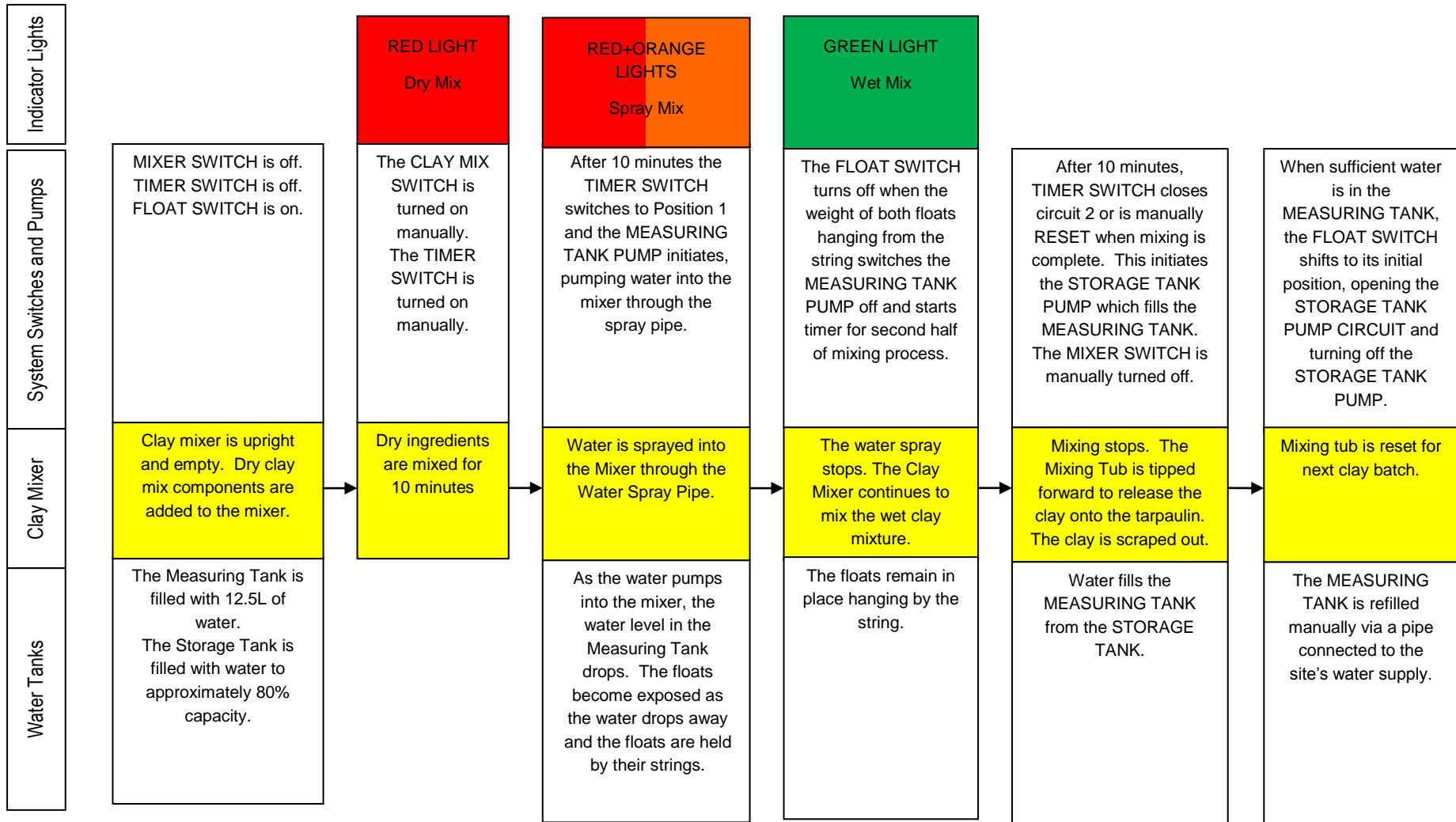
The system is set up to allow:

- 10 minutes of dry mixing
- 12.5 L of water is sprayed into the mixer
- Then 10 minutes of wet mix occurs before mixing is stopped and the mixer emptied.

Core components of the Clay Mix Water Spray System are:

<p>1) The SPRAY PIPE- a length of plastic pipe with holes cut along the length which is fitted to the inside of the clay mixer on the upper back surface to distribute water into the clay mix.</p>		<p><b>Figure 1</b> Measuring tank (left), Storage tank (right)</p>
<p>2) The MEASURING TANK - a 15 L (21cm diameter) length of tubing sealed at the base which holds the preset 12.5L of water needed for a single batch of clay in the mixer. An overflow valve can be tipped to modify the fill height if required.</p>		
<p>3) The STORAGE TANK - a 50L tank that ensures sufficient water is available to fill the storage pipe.</p>		
<p>4) The STORAGE TANK PUMP located at the bottom of the Storage Tank is used to fill the Measuring Tank.</p>		<p><b>Figure 02</b> Measuring Tank with Floating Switch Visible</p>
<p>5) The MEASURING PUMP TANK, at the bottom of the Measuring Tank feeds the preset amount of water through the spray pipe to the mixer.</p>		
<p>6) The FLOAT SWITCH in the measuring tank that sets a circuit to commence pumping, and complete pumping of water. As it empties to floats become exposed. The weight of both floats out of the water will set the switch off.</p>		
<p>7) The TIMER SWITCH that is pre-programmed to establish different circuits through the mixing cycle.</p>		
<p>8) The MIXER SWITCH which is a simple manual on/off switch.</p>	<p>The system operates with a timer switch for the water spray system and a manual switch for the clay mixer. The switch operates with a red, orange and green light to tell the operator where the process is up to. The sequence of operation on the following page, details the system.</p>	

## *RDIC Clay Mix Automatic Water Spray System - Sequence of Operation:*



*Diagram of switch circuits through the mix process.*

