

PART 3: WATER TREATMENT

Water treatment is a part of the water supply system that generates a lot of controversy. This week we are going to explain *how* we treat the water, *why* we treat it and some of the problems we face when trying to provide clear safe potable water.

There are four Water Treatment Works (WTW) situated around the island. The largest is the Red Hill WTW which supplies water to Half Tree Hollow, St Pauls and surrounding areas. The second largest is the Hutts Gate WTW which supplies the Longwood, Bottom Woods and Alarm Forest areas. The Levelwood WTW supply Levelwood and the Chubbs Spring WTW supply Jamestown, the Briars and Rupert's Valley.



Red Hill WTW



Filters at WTW's

The method of treatment is the same across all of the Water

Treatment Works. It is a two stage system that starts when raw / untreated water is pumped through a series of sand filter vessels, with their function being to filter out any debris or small suspended particles found in the raw water. This process is known as rapid sand filtration, which is the most recognised and widely used water treatment process worldwide. The filters consist of multiple layers of sand of varying grain size in order to ensure that most of the suspended solids in the raw

water get removed. Although the filtration systems are entirely automated, they have certain limitations when it comes to filtering out very small suspended particles of 1 micron in size and smaller.

In WTW's serving larger populations, equipment called Flocculators are installed upstream of the WTW. The Flocculator settles small suspended particles through a process that causes them to clog together, thus making them easier to filter out. Due to the high installation and operational cost of Flocculators, we will be installing alternative equipment on St Helena, called Clarifiers. Clarifiers are more compact units and are ideal for pre-treatment filtration. The Clarifiers are on order and will be installed at each of the WTW before the end of the financial year. Once operational, the smaller suspended particles in the water will be reduced before the sand filtration treatment. This will further improve on the clarity of the water supplied to you.

The second stage of the process is to chemically treat the water and kill any bacteria that may be present. It should be noted though, that when treated water appears to be discoloured, it does not mean that the water is now unsafe to drink, as all treated water supplied have been disinfected and tested prior to its distribution. The water is treated at all of the WTW with an antibacterial agent, namely Chlorine. This is done in accordance with the World Health Organisation (WHO) standards, as well as complying with Water Quality Standards agreed with the Environmental & Health Services and the St Helena Utilities Regulatory



Chlorinating Machine

Authority. In order to maintain a minimum of 1% of Free Chlorine in the water throughout the treated water distribution network, dosing at the WTW is done to counter Chlorine decay along the various pipelines, which might result in consumers closer to the WTW experiencing the upper threshold of Chlorine dosed.

As the Chlorine in the water distribution system decays quickly in the heat, sometimes we have to spike the Chlorine levels further down the line so that it is safe for consumption. This can sometimes cause the water coming out of your tap to have an unusually high Chlorine level, which generally affects the smell and taste of the water, which you can overcome by merely allowing the water to settle a bit before use.

6 August 2015

