



## Coffs Harbour Dissolved Air Flotation and Filtration Water Treatment Plant Process Description

Step	Procedure
1	Lime (Ca(OH) <sub>2</sub> ) is dosed to raise alkalinity and buffer pH levels. This occurs at Karangi Dam.
2	At the DAFF plant, Carbon Dioxide (CO <sub>2</sub> ) is dosed in the Contact Tanks for pH correction
3	Various chemicals are added to treat high levels of iron, manganese, organics and algae or taste/odour problems. However, we have no such problems with the raw water quality at the moment and these steps in the treatment process are not required. They may be required at times when CHW finds it necessary to harvest a lesser quality raw water (due to drought, Karangi Dam or Shannon Creek Dam contamination, algae bloom in the dam or river, etc.)
4	Aluminum Sulphate (Al <sub>2</sub> (SO <sub>4</sub> )) is added at the start of the Rapid Mix Tanks to assist in coagulation of sediment particles (flocculation)
5	Air saturated water is pumped into the DAFF cells so the floc floats to the top of the water as a scum
6	Scum is removed by a skimmer and sent to the Washwater Tank <i>(see Washwater Tank process on next page for further details about the Washwater Tank)</i>
7	Water is filtered through a 3 layer media filter - a) filter coal; b) fine sand and c) gravel support media
8	UV irradiation to kill bacteria and microorganisms, including viruses, etc for disinfection in the UV Gallery
9	Fluoride is added at this stage, as per NSW Health directive.
10	Sodium Hydroxide (Caustic Soda) (NaOH) is added for final pH trimming
11	Chlorine (Cl <sub>2</sub> ) is added to ensure that disinfection is maintained in all reticulation pipes

<b>12</b>	Drinking water is sent to the on-site treated water storage tank
<b>13</b>	Water is then pumped to the Red Hill Balance Tanks and then gravity fed into the various reservoirs and from there gravity fed into our homes, schools, businesses, etc.

### ***Washwater Tank Process***

<b>Step</b>	<b>Procedure</b>
<b>6a</b>	Scum and backwash water from the DAFF cells ( <i>step 6 previous page</i> ) are sent to the Washwater Tank;
<b>6b</b>	Dirty water from the Washwater Tank is sent to the Sludge Thickener;
<b>6c</b>	The liquids (supernatant) from the Sludge Thickener are sent to the Inlet of the WTP or Karangi Dam for reprocessing. The thickened sludge from the Sludge Thickener is spun in a Centrifuge for de-watering;
<b>6d</b>	Sludge solids from the Centrifuge are disposed to landfill. The liquids (centrate) from the Centrifuge are returned to the Washwater Tank for reprocessing.