

FACT SHEET



Buchan Water Treatment

Background

During 2006 and 2007 four water treatment plants were constructed for Bemm River, Buchan, Cann River and Swifts Creek. The work was carried out by Laurie Curren Water Pty Ltd, a Victorian based water treatment company engaged by East Gippsland Water under a design and construct contract. The cost of the Treatment Plants and associated works was approximately \$6 million, excluding GST.

Water supply systems

Water supply for Buchan is diverted by pumping from the Buchan river.

Raw water from the river is generally low in turbidity but can be high in colour, caused by catchment characteristics and vegetation - typical of most East Gippsland water supplies.

Water Treatment process

Full water treatment of the raw water is carried out by a in filter/dissolved air flotation process, more commonly referred to as a DAFF water treatment plant or process. The capacity of the water treatment plant at Buchan is 8 litres per second.

High quality treated water from the plants is achieved by adding chemicals to the raw water for coagulation of the microscopic colour and dirt particles, forming larger visible particles (floc) by a process of flocculation. Water containing dissolved air is then introduced, forming small bubbles to which the floc can attach and rise to the surface where they are skimmed off as sludge. The water then gravitates through a dual-media filter of sand and anthracite (filter coal) which polishes out any remaining particles.

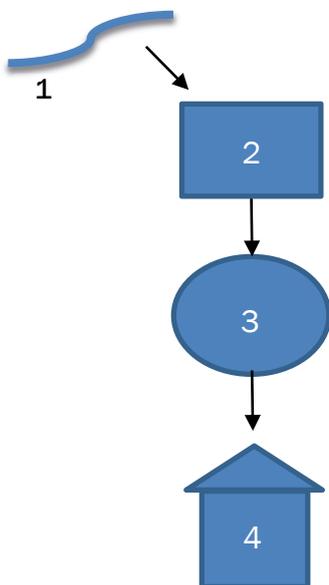
The treated water is pumped to a 585,000 litre clear water storage for supply to Buchan. At each site and before entering the reticulation system. All water is disinfected using sodium hypochlorite.

Backwash recycling

As the filter would be eventually blocked it is periodically backwashed to the sludge system. The sludge is thickened and de-watered using a geotube made of fabric that allows water through but retains the dirt/chemical particles. This reclaimed water is not wasted but is returned to the plant for treatment.

Monitoring Plant Control

The water treatment plant incorporates control equipment which are able to monitor all system parameters, including clearwater storage levels. The equipment allows fully automatic sequential operation of all of the treatment processes involved including an alarm function if equipment malfunctions. Operators can dial-in via a computer link, remotely view plant performance and if necessary make adjustments.



Legend:

1. Water pumped from Buchan River
2. Water Treatment Plant
3. Clear Water Storage
4. Town

Objectives of the full treatment process

The full water treatment process aims to provide water of the following quality:

Colour: less than 5Pt/Co units

Turbidity: less than 0.3 NTU

PH: 6.5 - 8.5

Odour and taste: unobjectionable

Definitions

Coagulation: the process whereby suspended solids and organics are chemically altered (disestablished) by the addition of a coagulant - thereby reducing the inter-particle forces of repulsion that keeps the particles in suspension. Coagulation of suspended colloidal particles is achieved by the addition of an aluminium based chemical, aluminium chlorohydrate.

Flocculation: is the gentle agitation of microscopic particles encouraging them to collide and agglomerate to form larger visible particles (floc) that can be removed by the air bubbles and filter.

In-filter/dissolved air flotation: A proven water treatment process is dissolved air and a filter to remove floc particles. Both processes take place in the same compartment of the treatment plant.

For more information-

Contact East Gippsland Water on 1800 671 841 or email egw@egwater.vic.gov.au

Alternatively, Visit the Bairnsdale office at 133 Macleod street, Bairnsdale on weekdays during business hours.