North Richmond Water Filtration Plant

Sydney WATER

North Richmond Water Filtration Plant is one of nine water filtration plants that supply fresh drinking water to homes and businesses in Sydney, the Illawarra and the Blue Mountains.

The plant draws raw water directly from the Hawkesbury-Nepean River at North Richmond. It is the only Sydney Water filtration plant that receives water straight from a river, rather than a dam or similar water storage.

Bar screen

On entering the plant, raw water passes through a bar screen that captures any fish, eels, leaves and debris.

Mixing chamber

We add chemicals such as sodium hydroxide, ferric chloride and polymers to help the filtering process. These cause small particles to group together (coagulate) so they will be easier to remove.

The water then flows to either the clarifier or dissolved air flotation.

Clarifier

In the clarifier particles settle to the bottom of the tank and water is drawn from the top of the tank.

Dissolved air flotation

If the river contains algae, dissolved air flotation is used. Dissolved air is injected into the water from below, forcing the particles to the surface where they can be easily removed. Water is drawn from the lower part of the tank to be filtered.

Filtration

The water passes through dual media filters made of layers of sand and anthracite (crushed coal). The smallest particles are trapped and water flows out the bottom of the filter.

Adsorption

The water flows to the activated carbon filter, which contains granular activated carbon (GAC), which helps remove any taste and odour in the water. This is similar to the method used in many home water filters. This water flows to the clear water tank.

Providing drinking water to the Hawkesbury region

Cleaning the filters

We regularly backwash the filters to keep them working efficiently. Air scours the filter from the bottom to break up the compacted filter media and dislodge the flocculated particles. Clean water flows in from the bottom of the filter bed and the particles are washed out.

Filter backwash lagoon

We send the backwash water from the top of the filter to lagoons to settle. Particles sink to the bottom of the lagoon and the clear water on top is returned to the beginning of the process. The particles from the bottom of the lagoon are beneficially re-used.

Disinfection

Water flows from the clear water tank to the chlorination process, where it is disinfected with sodium hypochlorite. The amount of chlorine needed depends on the quality of the raw water and varies throughout the year. Residual chlorine levels are managed according to the *Australian Drinking Water Guidelines (ADWG)*.

Fluoride

We add fluoride as directed by NSW Health *(Fluoridation of Public Water Supplies Act 1957)* to improve dental health.

We test the drinking water at every stage: in the catchment, before, during and after treatment, in distribution pipes and at customers' taps.

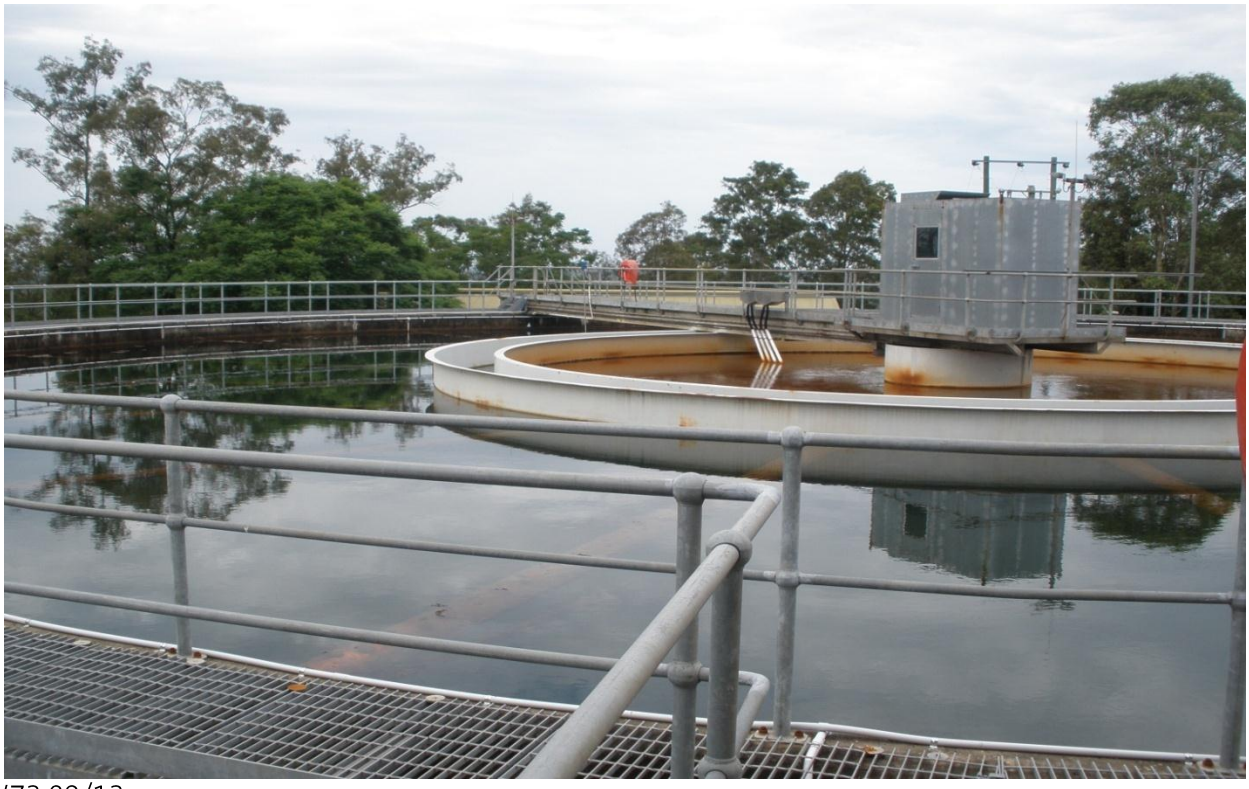
This testing ensures drinking water meets the *Australian Drinking Water Guidelines*.

Reservoirs

The water is stored in large on-site reservoirs, from where it can supply smaller reservoirs throughout the community.

Laboratory

At the North Richmond Water Filtration Plant laboratory, we test the water for many parameters, including colour, turbidity, pH, residual chlorine and fluoride.



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