



Bore water treatment solutions from Waterco

Private bores are a vital source of water across the Perth metropolitan area, a region where rainfall is particularly unreliable.

Bore water is an attractive alternative to scheme water however, it is vulnerable to contamination.

Waterco's high-quality filtration

solutions not only achieve an acceptable mineral profile but also help protect valuable infrastructure. And, for the water treatment experts at [Earth & Water](#) — one of the city's leading water, landscaping and construction companies — that means designing and installing systems they can rely on.

“Waterco’s communication is unparalleled within the water industry,” he adds, “and maintaining a personable relationship between companies is what Earth & Water values in Waterco. ”

Effects of untreated, bore water

Like many residences and businesses, Joondalup Primary School irrigates using bore water and sprinklers. Joondalup is a northern suburb that sits on the Swan Coastal plane and experiences exceptionally high levels of iron and calcium in its ground water.

Raw, untreated bore water with this high mineral concentration causes heavy, ingrained, visible red, yellow and even black staining of surfaces. It is often accompanied by a rotten egg smell due to hydrogen sulphide.

Bore water's dark orange-brown stain colour comes from the iron as it mixes with air and oxidises. It becomes a problem when it binds to calcium. When calcium mixes with air it calcifies and hardens, causing the iron to accumulate on surfaces over time.

"Wind picks up this untreated bore water and spreads it on buildings, pavements and playgrounds close to the sprinkler irrigated areas," explains Oliver Thompson from Earth & Water.

Consequently, the water treatment specialists at Earth & Water had two objectives:

- Remove existing stain
- Design and install a bore water treatment system that stops it coming back

Bore water treatment system

Earth & Water's bore water treatment system had to be designed and installed before removing the stain.

"This is because the stain would immediately return in a short time if the bore water was not treated and filtered clean," says Oliver.

The first challenge, therefore, was treating the water to achieve an acceptable mineral profile.



A wall that has been exposed to sprinklers three times a week for several years. Each day, the stain is marginally worse than the day before.

"To do this we take bore water samples and send them away for external laboratory analysis," he explains.

Laboratory analysis of the water sample results, measured in milligrams per litre (mg/l), revealed:

- Calcium: 113 mg/l
- Iron Total: 6.5 mg/l

"This showed that the school's bore water has a very high iron concentration in its ground water," says Oliver. "These test results aligned with the heavy visible staining and became the basis of the water treatment system that was designed.

"The goal was to remove iron out of the water and capture it in a separate tank," he adds. "This prevents iron from being used in the school's irrigation."

Technical components in this particular bore water treatment system includes:

- Dual tank sand traps that oxidise and separate the iron from the water



"The goal was to remove iron out of the water and capture it in a separate tank," he adds. "This prevents iron from being used in the school's irrigation," says Oliver

- Water conditioner that improves the ionic structure of water, helping plants to absorb nutrients better
- Chlorine micro dosing that periodically delivers miniscule amounts of chlorine that changes the iron from a dissolved iron to oxidised iron ready for separation

“The first objective is reducing the iron’s concentration by forcing it to oxidise and separate out before it is distributed through irrigation and sprayed over the school’s buildings and paving,” Oliver explains.

Based on the initial bore water mineral profile we designed a system composed of three sophisticated water technologies:

- Dual standing Waterco sand filters containing catalytic sand media
- 50mm water conditioner unit
- Chlorine micro dosing unit

After installation, the bore water was tested again by an external laboratory, which revealed:

- Calcium: 103 mg/l – a reduction of 9%
- Iron Total: 0.14 mg/l – a reduction of 98%



Dual standing Waterco sand filters traps that oxidise and separate the iron from the water.

Water treatment specialists rely on Waterco

Students and teachers at Joondalup Primary School now have an effective bore water treatment system that successfully removes iron, calcium and other minerals. The result is clean and balanced water which protects valuable infrastructure.

“Waterco is one of Earth & Water’s top suppliers and together both companies have collaborated to improve and fine tune their already exceptional water filtration systems,” Oliver explains. “From an installer perspective it is important to be confident in the product you are using with the knowledge that it is technically advanced and tested thoroughly.

“Waterco’s communication is unparalleled within the water industry,” he adds, “and maintaining a personable relationship between companies is what Earth & Water values in Waterco.”



Students and teachers at Joondalup Primary School now have an effective bore water treatment system by Waterco and Earth & Water.

Waterco Ltd. Sales Consultant

Andy Gale
0414 149 648
andy.gale@waterco.com
www.waterco.com.au

Earth & Water Water treatment specialists

Nigel Thompson
0427 980 971
nigel@earthandwater.com.au
www.earthandwater.com.au

Waterco   

Manufactured from the highest grade of non-corrosive materials and employing the latest in fibreglass winding technology, Waterco’s Micron Commercial Fibreglass Filters are designed and built for many years of trouble-free operation.

The effect of deep media bed improves the filtration efficiency over standard high-rate filters by providing enhanced in-depth filtration and increased dirt capacity for specialist media such as DMI65. In addition, the greater bed depth permits efficient use of mixed bed filter media and water treatment media such as granular activated carbon.