



Wetalla Recycled Water Treatment/Power Generating Reuse Project

Toowoomba, Queensland, Australia

Municipality: Toowoomba Regional Council

Company: New Acland Coal

Project Fast Facts

Flowrate: 1736 gpm (394 m³/hr)

Industry: Power

Use: Industrial Water Supply

Conveyance: Pumped rising main, 40 km

Record drought conditions in Australia reduced potable water supplies in many states to alarmingly low levels. In southeast Queensland, the potable water supplies were also threatened further due to the region's increasing population. Many municipalities have implemented large indirect potable reuse projects using technologies such as nanofiltration, reverse osmosis, and advanced oxidation to produce purified water for replenishing potable water supply dams and reservoirs around country. However, as showcased in Toowoomba, located some 81 miles (130 km) west of Queensland's state capital, smaller reuse plants are also being used to offer a simplified approach

to saving potable water supplies by treating wastewater to non-potable levels suitable for industrial and agricultural use, thereby reducing potable water demand.

After entering into a contract to provide Class A+ water to New Acland Coal for industrial use, the Toowoomba Regional Council constructed an advanced water treatment plant (AWTP) at its Wetalla Wastewater Treatment Plant (WWTP) site to produce an initial 2.5 million gallons per day (mgd) of reuse water supply. Expandable to 4.2 mgd with no major rework, the design included simple and reliable plant operations with maximum flexibility to cater to the varying demand and available secondary effluent. Feed to the AWTP serves as the final effluent from the WWTP.

In an Alliance agreement, CH2M HILL, as a follow on to the biological nutrient removal WWTP provision, helped design, construct, and commission the new AWTP, which includes an inlet diversion pit, feed pumping station, pH pre-correction, auto strainers, equalization tanks, microfiltration membranes, and chlorination. Wastewater from the membrane cleaning activities is collected, neutralized, and pumped to the head of the WWTP.

The WWTP feeding the AWTP has surpassed effluent performance requirements, achieving less than 0.1 milligrams per liter (mg/L) ammonia nitrogen and less than 0.5 mg/L total phosphorus without the need for chemical addition. This has reduced nutrients discharged to the Murray Darling basin by approximately 50 tons of phosphorus per year and 300 tons of nitrogen per year.



The Wetalla AWTP provides Class A+ water to New Acland Coal, achieving exceptional nutrient removal prior to discharge to the Murray Darling basin, which is by far the most significant agricultural area in Australia.

**Our motive is simple: to promote beneficial wastewater reuse around the world today.
Join us and help make matches happen. Because no water should be wasted.**

