

Aquatec Maxcon and Charters Towers Regional Council's "Collaborative Design Approach and Use of Innovative Process Technology to Upgrade the FEJ Butcher Water Treatment Plant" was shortlisted as a finalist in the 2021 Australian Water Association (AWA) Queensland Water Awards for the Infrastructure Project Innovation (Regional) Award.

The Infrastructure Project Innovation Award (Metro and Regional) recognises significant and innovative infrastructure projects within the water industry that drive prosperity and sustainability. Projects that may be included in this award are those which involve new or upgraded infrastructure (physical or digital) which have delivered improved outcomes for the organisation, community and/or industry.

Judging criteria for the award includes the following:

- Project is original and/or innovative or has other outstanding features which sets it apart from common practice among comparable projects
- Project has relevance to the Australian water industry and is future focused
- Demonstrates tangible benefits - social, economic, environmental and/or cultural
- Evidence that the initiative was carried out or completed during the two years preceding the nomination date

Whilst we did not win the award this year, we are extremely proud of what we have achieved at Charters Towers and we are thrilled to have been nominated and been presented with the opportunity to share our achievements with a wider audience.

A little bit about the Charters Towers Water Treatment Plant Upgrade Project

When put out to market during December 2017, the Charters Towers contract was originally a refurbishment project. The initial aim was to reuse the already existing assets present in the plant without building new infrastructure. Had this original plan gone ahead, the plant is likely to have struggled to achieve quality targets. Aquatec Maxcon's alternative offers incorporated innovative, modern and more efficient technologies as alternatives to the requested refurbishment.

The Alternative Options presented by Aquatec Maxcon were as follows:

- Alternative Option One involved the construction of brand-new clarifiers and gravity filters.
- Alternative Option Two involved reusing the existing clarifiers but utilising brand new gravity filters.

Both of these alternative options meant that new assets would be constructed whilst the existing plant was still running. Once the new assets were commissioned, the old assets would then be taken off line, with no interruption to supply.

Charters Towers Regional Council considered the options available and agreed to select a revised process for the construction of the new plant.

The Benefits of the Alternative Options

The new direction offered several benefits to the region including:

- Building new assets allowed the current plant to remain in operation whilst construction proceeded.
- Increased water stability to the region through modern design with consideration to future legislation.
- Securing long term economic certainty by providing reliable water under all weather conditions.
- Protecting public health through the use of new technology.

Through this innovative and collaborative process, the project teams of Aquatec Maxcon and Charters Towers were able to interactively identify and replace process bottlenecks before the final design was completed. Aquatec Maxcon worked openly and collaboratively with Charters Towers Regional Council. Major process equipment items, in particular the filters, were identified as inherently limiting to the plants capability and, even when refurbished, would likely restrict the plant's capacity compared to alternative approaches.

Successes and Benefits of the Project

- The alternative option selected by Council delivered the water treatment plant project without imposing any water restrictions on the residents of Charters Towers. The original plan would have seen water restrictions for up to 12 months. This success can't be understated in a remote and regional area of Queensland, considering the original solution of 12 months restrictions was originally accepted as the only solution.
- Later stages of the project were successfully delivered during the evolving COVID-19 pandemic of 2020, an unprecedented event that disrupted operations on a global scale. Aquatec Maxcon managed to deliver the project despite global upheaval.
- The residents of Charters Towers now possess a new, efficient water treatment plant that surpasses the capacity, flexibility and security that Council originally set out to achieve. The water supply will support a historical gold mining industry in the region

catering to many tourists. (In addition to tourism, two significant gold mining operations located nearby Charters Towers City (Ravenswood Gold and Pajingo Gold) employ many of the town's locals.)

- The innovative use of lamella plate technology used in the Charters Towers Water Treatment Plant has a much smaller footprint compared to larger and more conventional clarifiers.
- The newly upgraded plant is energy efficient and eliminates water wastage. The previous plant possessed no digital feedback or monitoring facility for the key raw water quality parameters that would call for a process adjustment in order to maintain water quality. The former plant consumed an excess of chemicals and power in stark contrast to the modern technology present on site today.
- Aquatec Maxcon invested almost 30% of the contract value of the new treatment plant into local north Queensland and Charters Towers businesses that was then redistributed throughout the community.
- Charters Towers has a rich and varied cultural history. Approximately 10% of the Charters Towers population is made up of Aboriginal and Torres Strait Islander people. Aquatec Maxcon worked with local companies that represented local Aboriginal people who were engaged to work on the project
- Charters Towers enjoys a thriving tourism industry built around its cultural history. The upgraded plant helps to secure the future of Charters Towers tourism through the secure supply of consistent and high-quality treated water.

Aquatec Maxcon is proud to have been nominated and presented with the opportunity to share our achievements at Charters Towers.

