AQUATEC MAXCON GROUP
CAPABILITY STATEMENT

Artwork by Yuluwirree
(Debbie Scott)

Key Personnel

Board

Peter Gilchrist	(Executive Chairman)
Peter Ferrando	(Managing Director)
Scott Mobsby	(Company Secretary/Director)
Lawrence Cheung	(Director)
Monita Naicker	(Director)

Managers

Monita Naicker	(QLD State Manager)
Denham Melder	(Southern Regional Manager)
Dean Grbin	(Maxcon Industries General Manager)
Danial Cox	(MPA Engineering General Manager)
Paul Kwong	(Proposals Manager)
Zak Floydesmith	(Service & Standard Products)

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Ipswich Chamber of Commerce 2017 Business of the Year Award

Weld Australia Fabrication Award 2018 presented to Maxcon Industries

Aquatec Maxcon's Wujal Wujal Water Treatment Plant Disaster Recovery Team

Company Profile

WE AIM TO BE

- A leading global water technology company
- In business in 100 years time
- Responsible and ethical with fair sharing between shareholders, employees, clients and community

Treated effluent from Kingaroy Wastewater Treatment Plant

Company Overview and Background

Aquatec Maxcon Group commenced operations in 1970 and has since developed into a leading provider of water and waste water technology and equipment. We are a vertically integrated company offering complete capability and delivery of these technologies from our in-house companies; Aquatec Maxcon Pty Ltd, Maxcon Industries Pty Ltd and MPA Engineering Pty Ltd.

Our company provides a range of services to the water industry including pilot plant and treatability studies, process selection and equipment design, project management, complete in-house manufacturing, commissioning, operations and maintenance. Projects are undertaken in all states of Australia and New Zealand as well as internationally, supported from offices in Brisbane (Ipswich), Sydney, Melbourne, Adelaide and Thailand. The Group employs over 150 people and has successfully completed international projects in New Zealand, Papua New Guinea, Indonesia, Singapore, India, Fiji, Vietnam and China.

From inception, Aquatec Maxcon sought to develop high quality market leading technologies better suited to the relatively severe Australian conditions. We have spent over 90 million dollars on research and development of designs that have been refined using input from our workshop, field installation crews and operations staff to ensure the production of reliable and robust equipment. Together with leading technologies sourced internationally, this has now become the most comprehensive range of water and waste water technology available in Australia.

Aquatec Maxcon offer complete capability in the delivery of these technologies as well as in the delivery of water and waste water treatment plants and pumping stations. We are able to provide process selection and design, fabrication, mechanical and electrical equipment, installation, commissioning and maintenance services. This allows us to be a single resource for both industrial and municipal clients, reducing the number of interfaces as well as offering practical and cost effective overall solutions.

Aquatec Maxcon workshop pictured in 1970

Aerial photograph of Aquatec Maxcon premises

Company Milestones

1970 Company formation

1972 First municipal wastewater equipment manufactured.

1975 Shift to current principal manufacturing site in Ipswich, west of Brisbane

1979 8 off 42.7m diameter clarifiers provided for Luggage Point STP, Brisbane.

1984 First major Australian design and construct WWTP (Cameron Bay, Tasmania, 30,000 persons).

Nereda® Plant commemorative stamps by Netherlands Post incorporates Kingaroy WWTP

1986 First major anaerobic industrial wastewater plant completed (Golden Circle Cannery, Brisbane) and first municipal potable plant constructed in Brisbane.

1990 First contract for plant operations.

1993 First major industrial process water project (Stanwell Power Station).

1998 Aquablade - first Australian fine bubble membrane diffuser and test tank.

1999 IC anerobic reactor and oxidation ditch for world's largest powdered milk factory in Te Rapa, New Zealand

2001 First Australian membrane bioreactor for treatment of sewage (Magnetic Island, QLD).
First Alliance contract with Maroochy Water to build a sewage plant extension.

2003 Selected for Brisbane Water Enviro Alliance - three (3) sewage treatment plant upgrades - Oxley Creek, Sandgate and Wacol (QLD).
Initial sum of $175m expanded to over $260m with Wynnum re-use
Selected for Coffs Harbour WRP Alliance. Total value $23m

2005 Awarded the Townsville Citiwater Alliance contract to upgrade Horseshoe Bay, Cleveland Bay and Mt. St. John WWTP's. Case Earth award for projects >$10m in NSW was awarded for the Coffs Harbour Alliance.

2006 Selected for repeat alliance at Maroochydore.
Selected for further alliance for Coffs Harbour Water Reclamation Plant and Karangi WTP. Approxmate value $160m.

2007 Selected as the principal constructor for the Brisbane Caboolture Aquafier Alliance to treat the water from six (6) water borehole fields around Brisbane and Caboolture Shire with a contract value of $93.7m
Purchased electrical contracting business, MPA Engineering Pty Ltd.

2008 Initial orders from the coal seam methane industry for 120 micro-turbines and MF/RO for water treatment.

2009 Delivered major industrial water re-use faciities for Castlemaine XXXX, Visy Smithfield and Smiths Snack foods.
Brisbane Caboolture Aquifuture Alliance expanded to include the Enoggera WTP, three (3) pump stations and chlorination plant.

2009 Received 'Australian Institute of Project Management, 2008 Project of the Year National Winner' for Brisbane Water Enviro Alliance

Company Milestones

2010 Successful commissioning of a three (3) megawatt power station to run a reverse osmosis water treatment plant for the coal seam gas industry. Further MF/RO skids for the coal seam gas industry. Commissioning of Australia's first microturbine power generation facility at Surbiton Park Sewage Treatment Plant in Victoria producing renewable energy from the biogas from the sludge digester.

2011 Successful delivery of several turnkey projects including all aspects of process design and proving, mechanical, electrical controls and civil construction for projects in industries serving municipal water and wastewater treatment and coal seam gas membrane filtration facilities.

2012 Successfully delivered 170 micro-turbines to remote coal seam gas industry.

2014 Successful delivery of several design and construction projects including a second brewery plant for National Foods at Tooheys in Lidcombe, NSW, 14ML/d Water Treatment Plant for Centennial Coal and wastewater treatment plants at Hughenden and Miles.

2015 Awarded first Nereda® aerobic granular sludge wastewater treatment plant at Kingaroy, QLD and selected for demonstration of Nereda® technology at Melbourne's Western Treatment Plant.

2016 Awarded Yarra Valley Water 100T/d biomass digestion facility; the first municipal facility of its type in Australia.

2016 Completion of the Kingaroy Wastewater Treatment Plant, QLD and winner of the 2016 IPWEA Engineering Excellence Award for Projects over $10 million.

2017 Kingaroy Wastewater Treatment Plant, the first Nereda® plant in Australia, commemorated in stamp form by Netherlands Post.

2017 Aquatec Maxcon develops a novel anaerobic Membrane Bioreactor (MBR), which in collaboration with Trisco Foods, receives government funding to increase the pilot plant to commercial demonstration scale.

2017 Aquatec Maxcon receives Australian Federal Government Safety Office WHS accreditation.

2017 Winner of the 2017 QLD Australian Water Assocation "Infrastructure Project Innovation Award" for the successful delivery of the Kingaroy Wastewater Treatment Plant upgrade.

2019 University of Queensland Scholarship (Master of Engineering - urban water) donated by Aquatec Maxcon.

2022 Burwood Beach Aeraton Plant using state of the art AquaBlade L.

2023 Quakers Hills UV/OP - the first for Sydney Water

Industry and Project Awards

2006 Winner. Project Management for BWEA, Sandgate WWTP Upgrade, Engineers Australia (EA) Engineering Excellence Awards.

2007 Commendation. Project Management High Commendation, BWEA Oxley Creek WRP, EA Engineering Excellence Awards.

2008 Commendation. Honourable Mention - Excellence in Major Project/Capital Alliances, Alliance Contracting Excellence (ACE) Awards.

2008 Finalist. Major Project Division, BCAA, Alliance Contracting Excellence (ACE) Awards.

2008 Winner. National Project of the Year, BWEA Project, Primavera Project Management Awards.

2008 Winner. National Construction/Engineering, BWEA Project, Primavera Project Management Awards.

2008 Commendation. Project Management High Commendation, BWEA, EA Engineering Excellence Awards.

2008 Winner. Queensland Project of the Year, BWEA, Australian Institute of Project Management.

2008 Winner. Forward osmosis for water desalination in gas mining, Queensland Sustainable Energy Innovation Awards.

2012 Winner. Healthy Waterways Award, Canungra STP MBR Upgrade, Queensland Government.

2012 Finalist. Infrastructure Innovation Award, Canungra STP MBR Upgrade, Australian Water Association, QLD.

2014 Finalist. Infrastructure Project Innovation Award, Rochester WTP Upgrade, Australian Water Association, VIC.

2016 Finalist. Infrastructure Project Innovation Award, Kingaroy WWTP, Australian Water Association, QLD.

2016 Finalist. Infrastructure Project Innovation Award, Kingaroy WWTP, IPWEA Excellence Awards.

2016 Winner. Excellence Award for Water Innovation, Gordonbrook WTP, IPWEA Excellence Awards.

2016 Winner. Excellence Award for Public Water Works Projects over $10 million, Kingaroy WWTP, IPWEA Excellence Awards.

2017 Winner. Best International Commercial Plant, Yarra Valley Waste to Energy, ADBA UK AD & Biogas Industry Awards.

2017 Winner. Outstanding Corporate Initiative in Collection/Processing Marketing, Yarra Valley Waste to Energy, VIC AORA Awards.

2017 Finalist. Environmental Protection, Yarra Valley Waste to Energy, Victorian Government, Premier's Sustainability Awards.

2017 Winner. Infrastructure Project Innovation Award, Kingaroy WWTP, Australian Water Association, QLD.

Industry and Project Awards

2017 Winner. Banksia Leadership in the Circular Economy Award, Yarra Valley Waste to Energy, Banksia Sustainability Awards.

2017 Winner. Business of the Year, Ipswich Chamber of Commerce and Industry.

2017 Finalist. Infrastructure Project Innovation Award, Aurora Waste to Energy Facility, Australian Water Association, VIC.

2018 Winner. Maxcon Industries. Fabricator of the Year Award, Weld Australia, NSW.

2020 Winner. Yarra Valley Waste to Energy Facility chosen as winner of Australasian Infrastructure Project Innovation Award at the Australian Water Association 2020 Online Awards Event.

2021 Finalist. Infrastructure Project Innovation Award (Regional) 2021, Charters Towers FEJ Butcher Water Treatment Plant, QLD Water Awards (Australian Water Association).

2022 Winner. Research and Development Excellence Award, Algae Research, Australian Water Association Qld Water Awards

2023 Winner, Supplier Contribution Award, Qld Water Directorate

2023 Winner. Best Value Partner Trojan UV, Trojan Technologies, Trojan UV High Growth markets Channel Partners Sumit

Yarra Valley Water's Award-winning Waste to Energy Facility, designed and built by Aquatec Maxcon

Company Divisions

AQUATEC MAXCON

Aquatec Maxcon is the process, mechanical and environmental engineering branch of the Aquatec Maxcon Group. It is one of the only broad based water companies in Australia and provides a complete range of in-house services. The company's diverse services to the water industry includes: pilot plant and treatability studies, process selection and equipment design, project management, engineering (all disciplines), drafting, commissioning, operations, service and maintenance.

mpa

MPA Engineering is the electrical engineering branch of the Aquatec Maxcon Group. MPA Engineering are one of the leading specialists in the field of machine and plant automation in Australia. Established in 1990, MPA Engineering is a highly competent and customer focused organisation dedicated to providing superior design, manufacture, installation and commissioning of electrical control and safety systems to some of Australia's most prominent manufacturers and process companies as well as providing a complete range of in-house services.

MAXCON INDUSTRIES

Maxcon Industries is the fabrication branch of the Aquatec Maxcon Group. It specialises in large volume steel fabrication projects including highest quality one off custom pieces and multiple complex objects, with specialist welding and manufacturing experience and the ability to deliver, design and manufacture. Maxcon Industries factories are located in Ipswich (Head Office), Indonesia and Thailand. Maxcon Industries is one of only four (4) manufacturers worldwide that has the facilities to fabricate large scale vacuum insulated pipes.

Aquatec Maxcon Asia operates four (4) workshops in Rayong Province, Thailand, each with unique specifications and capabilities to cater to diverse manufacturing and fabrication needs. The workshops' floor areas range from 720m2 to 2,520m2, with widths varying from 16m to 30m and lengths ranging from 60m to 94m. Additionally, each workshop is equipped with overhead cranes of varying sizes, totalling over 150T collectively. This facility is capable of complex steel fabrication of large-scale items that can be quickly transported worldwide using Antonov cargo planes.

Our People

Lawrence Cheung
Project Design/Projects Manager
21 Years

Denham Melder
Southern Regional Manager
21 Years in industry

Monita Naicker
Process/State Manager
24 Years

Paul Kwong
Proposals and Design Manager
37 Years

Zak Floydesmith
Service & Standard Products Manager
15 Years

Archimedes Dolliente
Design/Drafting
17 Years

Our dedicated employees at Aquatec Maxcon are the backbone of our success. With their wealth of knowledge and experience, they play a crucial role in upholding our company's culture, history, and mission. Not only do they serve as mentors and role models for new team members, but they also build strong relationships with our customers, clients, and stakeholders. These relationships are essential for the continued success of Aquatec Maxcon Group.

Thomas Davis
Mechanical Site Supervisor 7 Years

Marcus Antal
QHSE Manager
18 Years in industry

Peter Ferrando
Managing Director
30 Years

Yeting Niu
Draftsperson
13 Years in industry

Dean Grbin
Mechanical Workshop & Installation Manager
26 Years

Scott Mobsby
Finance & Procurement Manager
24 Years

Danial Cox
Electrical General Manager
21 Years in industry

Russell Forsyth
Specialist Procurement
24 Years

Courtney Handy
Office Manager
11 Years

Al Sanchez
Design/Drafting Lead
31 Years

Jason Ramsey
Switchboard Manufacturing 6 Years
13 Years in industry

John Blake
Installation Expert
53 Years

Steven Axelsen
Draftsperson
21 Years in industry

Duane Campbell
Welding Specialist
22 Years

Research and Development

Aquatec Maxcon Group is dedicated to research and development and has worked collaboratively with universities and government organisations to test and develop new technologies in the water industry. We have designed, supplied and/or operated several pilot plants including UASB, Forward Osmosis, Upflow Anaerobic Bioreactors, MBR Pilot Plant, UF Pilot Plant, Anammox and Nereda® etc. In addition, our team of engineers are working constantly with the in-house designers, boilermakers and fitters and turners to continually improve both our products and our manufacturing capabilities.

The AquaBlade Suite and Aeration Test Facility

1996	1998	1998	1999	2002	2004	2008	2011	2017	2018	2019
Aquatec Maxcon introduces Fine Bubble diffused air technology	AquaBlade - first Australian fine bubble membrane diffuser	Aquatec Maxcon builds Australia's only full scale testing facility for diffused air systems	AquaBlade installed by Brisbane Water at Wacol plant in Stages 1 & 2 Bega SC installs at Eden WTP	AquaBlades now installed in over 25 plants for major customers in Australasia	China purchases diffusers	Chinese Patent obtained	AquaBlades have been installed at Branxton plant for over 11 years	Australian Patent obtained	Research and development of AquaBlade L	Trial of the AquaBlade L at Kingaroy WWTP First installation at Bundaberg WWTP

The AquaBlade suite of fine bubble membrane diffusers are the only Australian designed and manufactured diffusers on the market. They have been proudly developed by Aquatec Maxcon as a result of over 30 years of aeration design, research and development experience.

AquaBlade diffusers are extensively performance tested and design verified at our dedicated aeration test facility, prior to market release. Tests include oxygen transfer rate, corrosion resistance, membrane back pressure and mechanical property testing of all compontents and whole assemblies. The aeration test facility, located at our premises in Ipswich QLD, includes a 13m trough and a 10m deep tank for full scale testing of the diffusers, allowing Aquatec Maxcon to confidently design, predict and prove diffuser performance for almost any application. The test tank also enables us to carry out comparisons between different diffusers as well as end-of-life diffuser performance. The AquaBlade has been installed at the Branxton Wastewater Treatment Works since 2012 a period of over 11 years.

In early 2018, Aquatec Maxcon welcomed the latest addition to the AquaBlade suite. The AquaBlade L is a strip diffuser (shown above as a single blade and as a 12m strip coupling), an evolutionary development of our AquaBlade diffusers, demonstrating our ongoing commitment to research and development.

Nereda® Demonstration Plant

Aquatec Maxcon designed and manufactured a 500EP Demonstration Plant for the Nereda® Process. The demonstration unit has been in successful long term use at a number of treatment plants. The unit is easily transportable and is adaptable for use in municipal or industrial applications. Aquatec Maxcon can also provide operations staff and onsite support if required.

Anammox®

Anammox® is a commercial process developed by Paques BV in the Netherlands, which offers a cost-effective and sustainable way of removing ammonium from wastewater. The Anammox® process short-cuts the nitrogen cycle by oxidising ammonium directly to nitrogen using nitrite as an electron donor. Anammox® offers great advantages when compared to convential nitrogen removal processes, with lower operational costs and a smaller carbon footprint.

Aquatec Maxcon has been successful in growing granule Anammox® with the focus on seeding and upscaling larger installations

Anammox® Granules

Algae Research and Development Plant

The Algae Research and Development plant delivered an entirely new, low-cost treatment solution, specifically targeted at regional and remote facilities. At the heart of the project is the integration of two technologies:

- Up-flow Anaerobic Sludge Blanket (UASB) anaerobic process; and
- High-Rate Algae Ponds (HRAP),

as a retrofit opportunity for current Waste Stabilisation Ponds (WSP). While the developed technology is cost competitive with existing technology, it provides significantly better environmental performance, operational outcomes and resource recovery.

The research program included over 30 months of pilot operation at Urban Utilities' Innovation Precinct and delivered two full-scale demonstration plants: one at the Helidon resource Recovery Centre Queensland and the other at the Leanyer-Sanderson Wastewater Treatment Plant, Northern Territory.
The project brought together national and international contributors to develop key operating parameters and fundamental research discoveries, enabling full-scale application as well as new knowledge for this field of research.
Aquatec Maxcon is proud to partner with Urban Utilities, Department of Environment and Science, Northern Territory Power and Water and University of Queensland in this Research and Development Project.

Community Engagement

Aquatec Maxcon Group prides itself on our local industry participation and the positive impact our operations have on local communities. We understand the economic, social and environmental benefits of utilising local resources and labour. The integration of local industry assists in providing projects with an element that is unique to the region.

Aquatec Maxcon Group has a procurement policy for local industry participation which ensures that we purchase locally sourced goods and services, where value for money, performance, quality, "fit for purpose" and other evaluation criteria are comparable. Our policy has been structured to align with the guiding principles outlined in various State Government policies for local content involvement and participation. Our community communication policy promotes harmonious relations with community stakeholders and addresses any concerns or feedback they may have.

We actively share our knowledge and industry experience with our customers to assist them in utilising and implementing this information on future infrastructure projects. An advantage of our business longevity and our commitment to continuing in the industry for the long-term is we actively partner with international technology providers to introduce advanced technologies into Australian industry, conduct research and development on our own products, as well as constructing and operating pilot plants to demonstrate the effectiveness of new or improved equipment. Our customers can use this as leverage in the future to ensure the technologies they procure are suitable for their operational requirements while being excellent value for money.

Rescuing and safely relocating wildlife

Environmental silt fencing and rock check dams

Local Environmental Engagement

Aquatec Maxcon Group places great value in local community engagement and the protection and sustainability of the environment, inclusive of flora, fauna and wildlife. We are committed to the management and mitigation of all environmental impacts associated with our activities and tailor our project-specific Environmental Management Plans to continuously improve our environmental performance and ensure positive environmental outcomes.

The benefits of utilising local labour and businesses, and engaging local communities in project and plant activities, means those stakeholder groups are more invested and take more personal accountability in these positive outcomes.

For example Aquatec Maxcon Group's crew at the Black Gully Project donated $100 to the Emerald Tigers Junior Rugby League Football Club to contirbute to fund an enclosed trailer to carry their gear to away games and donated some plywood to the Emerald Gymnastics and Trampoline Club for a new indoor climbing wall.

Addressing local suppliers regarding project opportunities

Sponsorship of local school colouring competition

Celebrating over 50 Years in Business

2020 marked our Golden Anniversary - we have been in business for over 50 years!

From our beginnings in 1970, Aquatec Maxcon Group have sought to develop high quality market leading technologies better suited to the relatively severe conditions we experience here in Australia. We have spent over **90 million dollars on the research and development** of designs that have been refined using input from our workshop, field installation crews and operations staff, thus ensuring the production of reliable and robust equipment. Together with leading technologies sourced internationally, we now have access to the most comprehensive range of water and wastewater technology available in Australia.

1970 - 2020
50 YEARS
SERVING THE WATER INDUSTRY
Aquatec Maxcon
Group

For over 50 years, Aquatec Maxcon have designed, installed and commissioned almost every type of water and wastewater technology and have delivered these contracts under various types of project delivery methods. These have varied from purely supply, supply and install, design and construct, BOOT and alliance based projects. Although our capability to deliver complete municipal and industrial projects has increased over time, a large proportion of these projects are still supply and install with a number of these projects being delivered to overseas customers.

Our Company has changed and evolved so much since its formation in 1970 but some things will never change about Aquatec Maxcon Group. We will always aim to be a leader in water treatment technology, we will always aim for business longevity and we will always strive to be responsible and ethical towards our shareholder, clients, employees and the general community.

In the early 1980's, Aquatec Maxcon Group started search and development into fine bubble diffusers and has now developed and marked the Aquablade Blue and Aquablade L. In addition to Aquatec Maxcon Group's commitment to research and development, Aquatec Maxcon Group is committed to staying on the forefront of technology and has successfully introduced to Australia the new Nereda® technology process, now installed at Kingaroy QLD, Longford TAS and Quakers Hill NSW.

As we celebrate this important milestone, we are incredibly honoured to have served our customers, clients and the wider community with passion and integrity for half a century. We are proud of everyone on our fantastic team and our company's award-winning projects. We plan to uphold our commitment to excellence for many years to come.

Aquatec Maxcon Group's Main Building and Workshop in the 1970s.

Maxcon Industries Workshop being built in 1974.

Service and Maintenance

At Aquatec Maxcon Group, we focus on adding value to our customer's businesses by delivering superior long-term solutions across all stages of an asset lifecycle, improving plant reliability and uptime.

By engaging a highly skilled specialist team to oversee or conduct the maintenance of key equipment, asset owners and managers can reduce the total cost of their operations. Rather than utilising several contractors to conduct servicing of key equipment, significant economies of scale can be realised by engaging one specialist partner like Aquatec Maxcon Group. The Aquatec Maxcon Service Department is well resourced and a highly skilled service provider who has learnt what asset owners need through more than 50 years of uninterrupted experience in the Australian Water Industry.

Our Service Department is proud to have a national team of multi-disciplined, internationally trained technicians who are specialists in high risk/high value equipment servicing, maintenance and asset lifecycle solutions. Our experienced technicians are available for scheduled and planned maintenance and asset, plant and performance optimisation services. We also offer relief staff for plant operators and 24/7 emergency call out services.

Aquatec Maxcon Group holds an extensive stock of genuine specialist parts for immediate emergency dispatch and has the ability to custom design and fabricate hard to find or discontinued parts.

- Genuine parts, reliable service, seven days per week
- Scheduled maintenance services and reporting, emergency servicing and call outs
- National team of multi-discipline, internationally trained technicians
- Reducing operational cost through proactive key asset maintenance
- Plant commissioning support

Off Gas Testing

UV

Our experienced technicians are available for scheduled maintenance and plant and performance optimisation services.

Manufacturing and Electrical

Manufacturing Facilities

The Aquatec Maxcon Group's premises in Ipswich, QLD is located on 11 hectares of land. In addition to our offices, laboratories and test facilities, it houses our manufacturing, switchboard, blasting and painting workshops and has a substantial capacity for storage, assembly, loading and unloading of equipment for transportation.

Maxcon Industries, our fabrication division, specialises in large volume steel fabrication projects, quality one-off custom pieces and other complex equipment. Our workshops are able to fabricate any components capable of road transport and produce any kind of plate work and general structural work.

Our manufacturing and painting services include, but are not limited to:

- Specialist welding and fabrication
- Abrasive Blasting (from Whip to Class 3) of structural and mechanical steel work
- Application of protective coating systems
- Preparation and application of coatings to mild steel, stainless steel, galvanised steel, concrete, GRP and many other substrates and structures
- Supply of appropriate Quality Assurance and Warranty documentation as required by customer
- Cryogenics maintenance and repairs
- On-site installation, maintenance and repairs, including abrasive blasting and painting

Aquatec Maxcon Thailand Factory

Manufacturing and Electrical

Electrical Facilities

MPA Engineering, our electrical contracting division, is a multi-disciplined engineering, project delivery and electrical contracting company undertaking projects across Australia and internationally. It is one of Australia's leading electrical systems integrators specialising in sophisticated machine and plant automation solutions.

MPA Engineering services has a large switchboard manufacturing workshop capable of industrial and commercial switchboard design, manufacture, testing and repairs. From the very largest of motor control centres to smaller control panels for Original Equipment Manufacturer, the workshop teams build high quality switchboards to Australian Standards and client specifications which include mild steel, stainless steel, aluminium, push button stations and type tested switchboards, from small local control panels to Form 4b>12m back to back.

MPA Engineering has over 33 years' experience in delivering specialist electrical engineering solutions and specialises in electrical engineering and installations, design and drafting, control, switchboards, renewable energies, electrical servicing and maintenance.

Our highly trained and experienced team of engineers, technicians and trades people are able to execute a diverse range of projects from concept through to commissioning and delivery. Additionally, our dedicated customer focused staff have the capability to provide ongoing support and maintenance services for the complete operational life cycle of a project or facility.

QSE Information

Aquatec Maxcon Group is third party certified to ISO 9001:2015; ISO 45001:2018 and ISO 14001:2015 and has been certified by the Federal Safety Commissioner for Australian Government Building and Construction WHS Accreditation.

Key Projects

DOUGLAS WTP CLARIFIER MODULES 3 & 4

Client: Townsville City Council
Location: Douglas, QLD
Capacity: 1100 L/sec

Upgrade of the Douglas Water Treatment Plant by an additional Clarifier Modules 3 and 4 ensures Townsville City Council is reliabliy able to meet and exceed the treatment capacity of the facility providing for an improved, modern and user-friendly control system.

FRESHWATER CREEK WTP FILTER UPGRADE

Client: Cairns Regional Council
Location: Cairns, QLD

Aquatec Maxcon refurbished the filters and provided the AWI underdrain system with very low profile.

GLADSTONE WWTP BIOSOLIDS HANDLING UPGRADE

Client: Gladstone Regional Council
Location: Gladstone, QLD

Design and construction of a new sludge handling processes from collection on site to processing on-site, storage and loadout to improve reliablity and efficiency and allowing for an increase in sludge due to population growth. In addition, providing an anaerobically digested Grade B Stablisied biosolids with low odour that is easily marketable for beneficial reuse.

BURWOOD BEACH WWTP AERATION

Client: Hunter Water Australia Pty Ltd
Location: Merewether, NSW

To meet Environmental Protection licence requirements of the largest Hunter Water plant servicing approximately 30% of their clientele, Aquatec Maxcon designed, supplied and commissioned the Aquablade L installation, a patented fine bubble diffuser that utilises a concave structural fibreglass base plate to transfer the feed air from the header along the diffuser before being fed into a second diffuser with only one feed and a span up to 12 metres.

PRINCE OF WALES PRIMARY DIGESTER ROOF UPGRADE

Client: TasWater
Location: Derwent Park, TAS
Capacity: 16.8m diameter

Design, detail, fabricate, supply, assemble, paint and install a floating roof gas holder on the Primary Digester. The floating roof consisted of a top late and central thrust ring interconnected by top beams with a total of 16 segments. An external beam on top of the roof instead of the truss under the roof prevents condensation and corrision of the structure.

QUAKERS HILL AEROBIC GRANULAR SLUDGE UPGRADE

Client: Sydney Water
Location: Quakers Hill, NSW
Capacity: 155,000EP

The Quakers Hill plant is the second largest treatment plant servicing western Sydney. A new plant was designed, supplied and commissioned using the Nereda® technology which provided for less maintenance, smaller footprint, low energy costs and reduced chemical consumption.

Key Projects

RIVERSTONE ODOUR CONTROL FACILITY

Client: Sydney Water
Location: Vineyard, NSW
Capacity: 46,000 Nm3/h

Aquatec Maxcon, together with BioAir, designed and constructed an odour control facility which comprised a 46,000 m3/h bio-tricking filter plant followed by activiated carbon polishing filters and an auxiliary plant. Foul air extracted from various odour sources was treated to meet a 500 OU emission limit prior to discharge to the atmosphere.

CHARTERS TOWERS WATER INFRASTRUCTURE UPGRADE PROGRAM

Client: Charters Towers Regional Council
Location: Breddan, QLD
Capacity: 22MLD

To improve performance of the existing plant, Aquatec Maxcon designed, supplied, constructed and commissioned two Lamella Clarifier Trains to replace the existing Modules 1 and 2 Clarifiers and 4 Dual Media Gravity Filter Trains.

WARRIEWOOD UV

Client: Sydney Water
Location: Northern Beaches, Sydney

The Trojan UV installed at Warriewood WRP disinfects up to 595 L/S at a very low transmissivity of 42%. The specialised Trojan UV system installed at Warriewood utilises a special chemical mechanical cleaning system that determines when the system requires cleaning then instigates an automatic cleaning cycle.

LONGFORD SEWAGE TREATMENT PLANT UPGRADE

Client: TasWater
Location: Longford, Tasmania
Capacity: 20,000 EP

The upgrade uses Nereda® water treatment technology with capital cost savings as well as overall carbon footprint with significant reductions in power usage and operating costs.

BOWEN SEWAGE TREATMENT PLANT UPGRADE

Client: Whitsunday regional Council
Location: Bowen, QLD
Capacity: 14,000 EP

The upgrade doubles the capacity of the original sewage treatment plant and allowed the new facility to treat a greater volume of quality Class A recycled water, which can be reused for irrigation in Bowen's parks, ovals and golf courses.

YARRA VALLEY WASTE TO ENERGY

Client: Yarra Valley Water
Location: Wollert, VIC
Capacity: 100 ton of waste per day
Completion Date: 2017

The Waste to Energy facility is self-powered using biogas derived from the digestion of organic wastes to fuel generators with up to 80% of excess electricity exported to the grid.

Key Projects

KINGAROY

Client: South Burnett Regional Council
Location: Kingaroy, QLD
Capacity: 12,500EP
Completion Date: 2016
Kingaroy WWTP is the first Australian Plant to utilise Nereda® aerobic granular sludge technology, which delivers more sustainable outcomes as it uses smaller structures and requires less energy and chemicals

PICNIC BAY

Client: Citiwater
Location: Townsville
Capacity: 2,000EP
Completion Date: 2003
Aquatec Maxcon was selected to construct the first MBR Plant in Australia at Picnic Bay. The plant achieved a total nitrogen of 3mg/L and was awarded an Engineering Excellence Award as it met and exceeded the Great Barrier Reef Marine Requirements.

COFFS HARBOUR

Client: Coffs Harbour City Council
Location: Coffs Harbour, NSW
Capacity: 72,000EP
Completion Date: 2009
Aquatec Maxcon was selected in the CIA Alliance at Coffs Harbour to provide all mechanical works for the complete water and wastewater treatment plants.

CLEVELAND BAY

Client: Townsville CitiWater
Location: Cleveland Bay, QLD
Capacity: 126,000EP
Completion Date: 2008
Aquatec Maxcon was an integral part of the Water Matters Alliance that delivered Australia's largest MBR Plant at Horseshoe Bay STP as part of a programme of 26 projects.

XXXX BREWERY

Client: Castlemaine Perkins
Location: Milton, QLD
Capacity: 2.2 ML/d
Completion Date: 2008
Aquatec Maxcon was the Principal Contractor and process designer for one of the most signficant drought mitigation projects in south east QLD that included the first Circox Aerobic Granular Plant to treat industrial wastewater to Class A Reuse Standards

BLACK ROCK AERATION SYSTEM

Client: Barwon Water
Location: Black Rock, VIC
Capacity: 50 ML/d
Completion Date: 1999
Largest SBR Plant in southern hempisphere at it's time. Alongside mechanical works, we provided 40,000 Fine Bubble Diffusers to the plant.

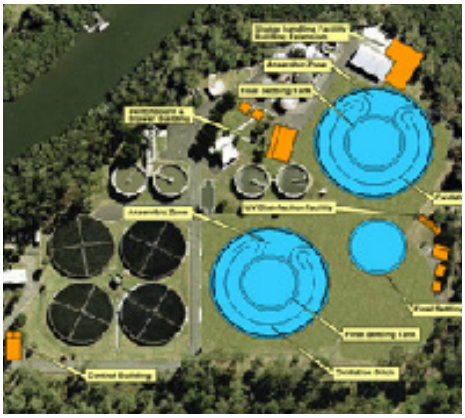
Key Projects

BWEA ALLIANCE

Client: Brisbane Water
Location: Sandgate, Wacol, Wynnum, Oxley
Capacity: 300,000EP
Completion Date: 2008

Aquatec Maxcon was selected as a partner by Brisbane Water in delivering the Oxley, Wacol, Sandgate and Wynnum Treatment Plants in the BWEA Alliance. The project was at the forefront of facilitating innovation in design and construction. The Sandgate Circular Outside Oxidation Tank Arrangement (SCOOTA) is a great example. After the target cost estimate was agreed the EPA would not accept the proposal to take part of the plant offline. This was a client risk but the Alliance team rallied and started an innovation process to find the best solution. An innovation workshop was conducted and 10 options were formulated to solve the problem which were narrowed down to four. A decision tree for the four options was put together, pricing all branches to narrow down to the preferred option. Risk analysis (Monte Carlo) was utilised for all four options and two were eliminated. Process design was engaged to do a concept design on two of the options, fully priced.

The preferred SCOOTA was selected and is illustrated on the right.



The Project was constructed in two stages with the first tank taking 14 months to complete and 2 months behind schedule.

Another innovation workshop was facilitated by Peter Ferrando, the Project Manager, and a new plan was reached to stretch target milestones. The revised construction method completed the second tank within 7 months.

Other innovations were:

- use of thermo hydrolysis (CAMBI) to improve digester performance
- Struvite Reactor - the only plant of its type to remove phosphorous from the

BCAA ALLIANCE

Client: Brisbane Water, Cab Water, Seqwater
Location: Sunnybank, Runcorn, Algester, Chandler, Forest Lake, Enoggerra, Banksia Beach
Capacity: 28 ML/d
Completion Date: 2008

Forrest Lake

Aquatec Maxcon was Principal Contractor for seven water treatment plant providing all civil, mechanical and electrical/control works. The first five plants were built and operational within one year. The plants provided supplementary supply of high quality drinking water to consumers in times of low traditional water resource reserves. The main elements were:

- Borefield pumping stations and reticulation to respective WTP sites
- Aeration tower for CO2 gas stripping and pH control
- Pre treatment chemical dosing including pre caustic soda, coagulant and pre sodium hypochlorite
- Pressure filtration equipment including automated control valving and monitoring instrumentation
- Post treatment chemical dosing including post caustic soda, chlorination and calcium chloride
- Treated water storage tank and pump station
- Wastewater handling system including washwater holding tank and transfer facilities
- Complete electrical and control works

Chandler

Algester

Sunnybank

Runcorn

Key Technologies

Wastewater Process Technologies

Aerobic Digestion

Aerobic digestion is a biological process that uses long-term aeration to stabilize and reduce the total mass of organic waste by biologically destroying volatile solids.

Nereda® Aerobic Granular Sludge

RHDHV's Nereda® process allows extensive biological treatment of wastewater in very cost effective compact bioreactors with 25-35% less energy consumption than conventional treatment processes.

Anammox®

The Paques Anammox® process allows removal of nitrogen using dramatically less carbon and energy, offering the potential of carbon neutral or even carbon positive wastewater treatment.

Anaerobic Digestion

Anaerobic digestion is a series of biological processes in which micro-oganisms break down biodegradable material in the absence of oxygen. The resulting biogas can power gas engines to deliver green energy.

Clarifier and Thickener

Single, double or triple bridge scraper and syphon type sludge removal systems for tanks up to 55m in diameter.

DAF (Dissolved Air Flotation)

Circular or rectangular DAF systems offer simple, reliable solids separation and thickening of up to (5-7) % DS. Aquatec Maxcon has performed installations for industrial separation and municipal

Decanter

Decanters are primarily used in SBR tanks in the wastewater treatment process. Solids are allowed to settle deeper into tanks while the decanters are generally lowered to remove clearer water (supernatant) from the surface.

Diffused Aeration

Fine bubble membrane type plate diffusers, membrane and ceramic type disc diffusers as well as tubular diffusers, all of which provide the highest available efficiencies uses a Test tank to verify design.

Gravity Thickener

Gravity sludge thickeners offer simple pretreatment of sludges. Covers are available for effective odour control.

Grit Removal

Vortex, aerated and constant velocity grit channels together with grit separating and washing devices.

HBNR (Hybrid Biological Nutrient Removal)

Hybrid BNR has all the benefits of conventional extended aeration processes and is able to achieve both biological nitrogen and phosphorus removal with excellent settling capability. Aquatec Maxcon has over 1000 installations worldwide.

MBR

Aquatec Maxcon built Australia's first MBR using membranes that directly deliver microfiltered water which have achieved Class A+ recycled water. It has also been involved in MBR projects over 120,000 EP.

Key Technologies

Odour Control System

We provide effective solutions to treat air streams to meet the needs of facilities ranging from lift/pump stations to dewatering/sludge-drying operations.

Waste to Energy

The digesters produce renewable energy from a variety of different waste sources. The biogas is used directly for producing heat or combined power and heat (CHP).

Oxidation Ditch

We provide high efficiency surface aerator and low energy diffused aeration and mixing in straight or circular basins. Also available with submersible mixers or flow boosters.

UV

Trojan Technologies is the world leader in UV disinfection offering high efficiency lamp technology with validated disinfection for both water and wastewater.

SBR (IDEA/IDAL)

SBR offers the advantage of complete treatment in single or dual bioreactors. High levels of biological nutrient reduction is achieved at lower capital and operating cost.

Package Plants

Extended aeration, hybrid biological nutrient reduction and membrane bioreactor technologies are selected to deliver quality water.

Scum Harvester

Wastewater treatment often suffers from waste oils or bacteria that causes floating scum which is difficult to treat. Scum harvesters are used to efficiently collect floating scum.

Screens

A wide range of coarse and fine inlet screens to suit all applications including climber, chain type, semi rotary, step screen, drum screens and the Aquatec Band Screen.

Surface Aeration

Vertical shaft surface aerators provide aeration and mixing for biological reactors including IDAL, IDEA, SBR, oxidation ditches and aerobic digesters.

Solar Dryer

Solar sludge drying systems offer drying of sludge to any desired dry solids level using solar energy. The automated system uses a sludge turner to transport, stockpile and discharge dried sludge.

Key Technologies

Potable Water Technologies

Gravity Media Filter

A range of mono, dual and multi-media filters with combined or separate air scour through our proprietary filter nozzles and underdrain systems are offered to suit differing water qualities.

Membrane Systems (RO/UF/MF)

We offer a range of microfiltration and ultrafiltration membrane solutions, optimised to a range of applications for removal of turbidity, large colloidal particles,

DAFF

DAFF technology results in a process capable of responding well to changing conditions and is particularly suited to treatment of algae bearing water sources.

Clarifier - Rectangular Scraper

A wide range of conventional, solids recirculation, sludge blanket, tube settler and lamellar clarifiers to suit differing water qualities and site constraints.

Pressure Media Filter

Low turbidity waters may be filtered directly without extensive pretreatment to deliver the simplest and most cost effective solution with multimedia or continuously backwashed filters.

DAF

A clarification process that relies on flotation of floc particles to the surface. It is suited to particular quality raw water streams - generally low turbidity, coloured waters.

Lamella

This process is where the flocculated water stream is separated into a clarified water stream and a concentrated sludge system. The usual purpose is to reduce the solids load on the subsequent filtration stage.

UV

Trojan UV-Oxidation systems are simple and effective for taste and odour, Algal Toxin treatment with simultaneous disinfection.

Package Treatment Plants

All the conventional water treatment process steps have been incorporated into one package plant. One package treatment plant suits the potable water demand of mine sites and small towns all across Australia.

Key Technologies

Industrial Technologies

Anammox

Anammox offers great advantages compared to conventional nitrogen removal processes including lower power consumption, no additional carbon source required, low cost, and less harm to the environment.

Circox

Paques Circox process utilises unique aerobic granular biomass for treatment of industrial waste including polishing UASB effluent streams. The plants have the smallest possible footprint, offering excellent process stability and deliver very low COD product.

Thiopaq

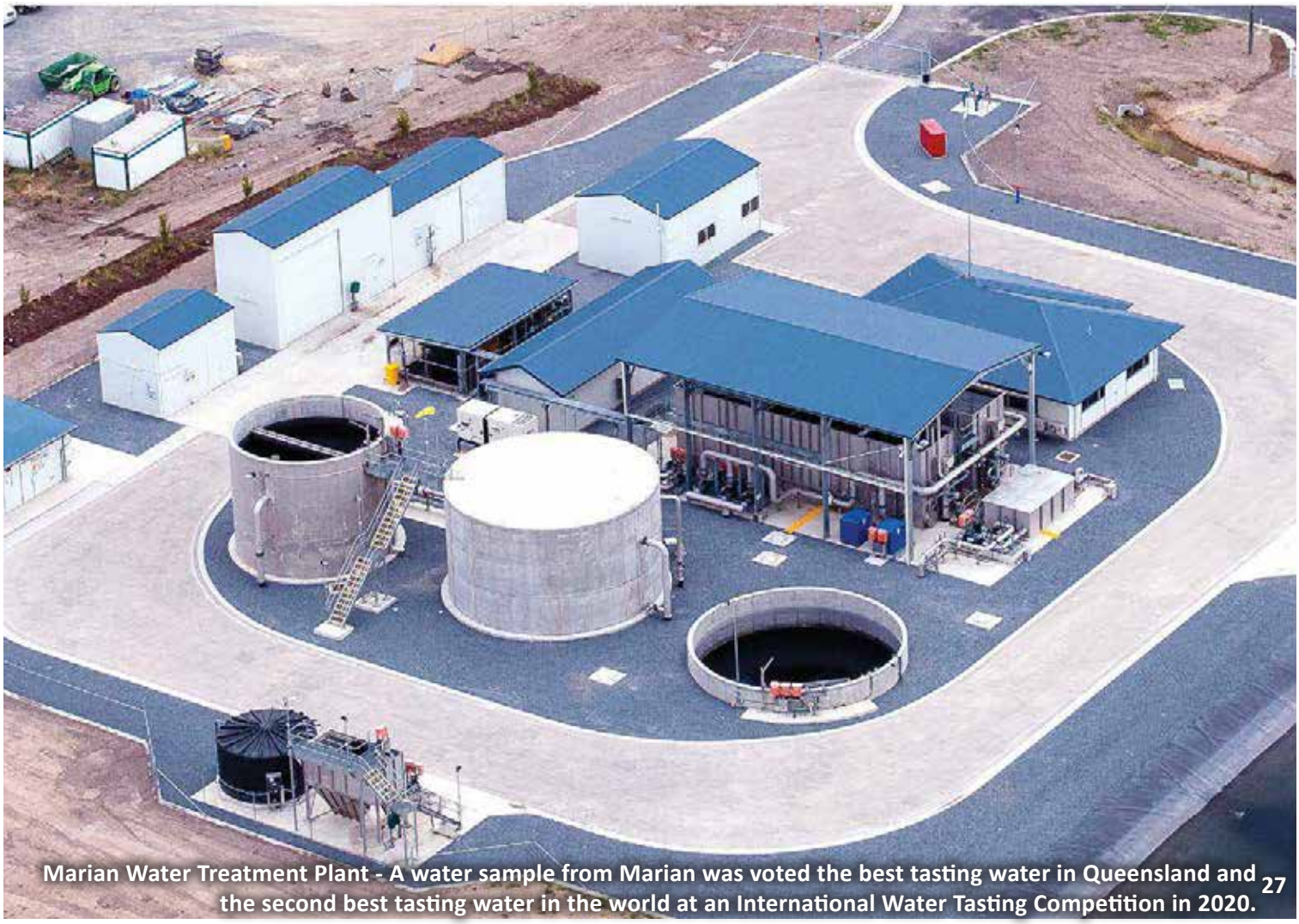
Paques world leading Thiopaq technology enables the biological treatment of streams containing hydrogen sulphide to produce elemental sulphur.

UASB

Paques UASB systems are the world's leading technology using granular biomass for the treatment of high COD waste streams which frequently emanate from food, beverage and similar factories.

Coffs Harbour DAFF

Riverstone Sewerage Treatment Plant Odour Control



Marian Water Treatment Plant - A water sample from Marian was voted the best tasting water in Queensland and the second best tasting water in the world at an International Water Tasting Competition in 2020.

Aquatec Maxcon

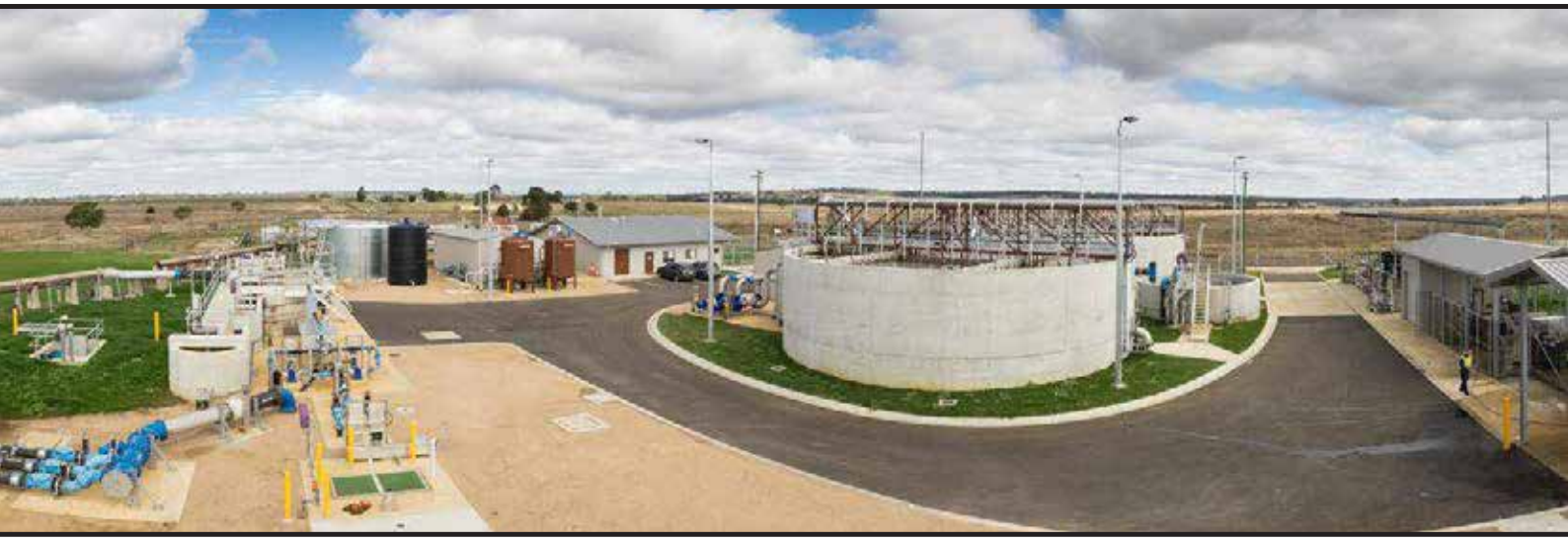
Group

Ipswich, QLD (Head Office)
119 Toongarra Road
Wulkuraka QLD 4305
P: (07) 3813 7100

Sydney, NSW
Unit 63/2 O'Connell Street
Parramatta NSW 2150
P: (02) 8603 5200

Melbourne, VIC
Unit 10/64 Oakover Road
Preston VIC 3072
P: (03) 9480 8000

Thailand
7/241 Moo.6 Tumbon Mab
Yang Pong, Amphur, Pluakdeang
Rayong Province, Thailand
P: (+66) 38 650 375



AQUATEC MAXCON | MAXCON INDUSTRIES | mpa

www.aquatecmaxcon.com.au | enquiries@aquatecmaxcon.com.au

April 2024