



# **AQUATEC MAXCON GROUP** **CAPABILITY STATEMENT**



**Aquatec Maxcon**  
Group

# Key Personnel

## Directors

Greg Johnston	(Technical Director)
Peter Gilchrist	(Executive Chairman)

## Managers

Peter Ferrando	(Managing Director)
Monita Naicker	(QLD State Manager)
Grenville Delfs	(NSW State Manager)
Anthony Davey	(VIC and TAS State Manager)
Peter Grbin	(Maxcon Industries Manager)
Lawrence Cheung	(Design Manager)
James Jackson	(MPA Engineering General Manager)

## Company Secretary

Philip Coghlan	(Financial Controller)
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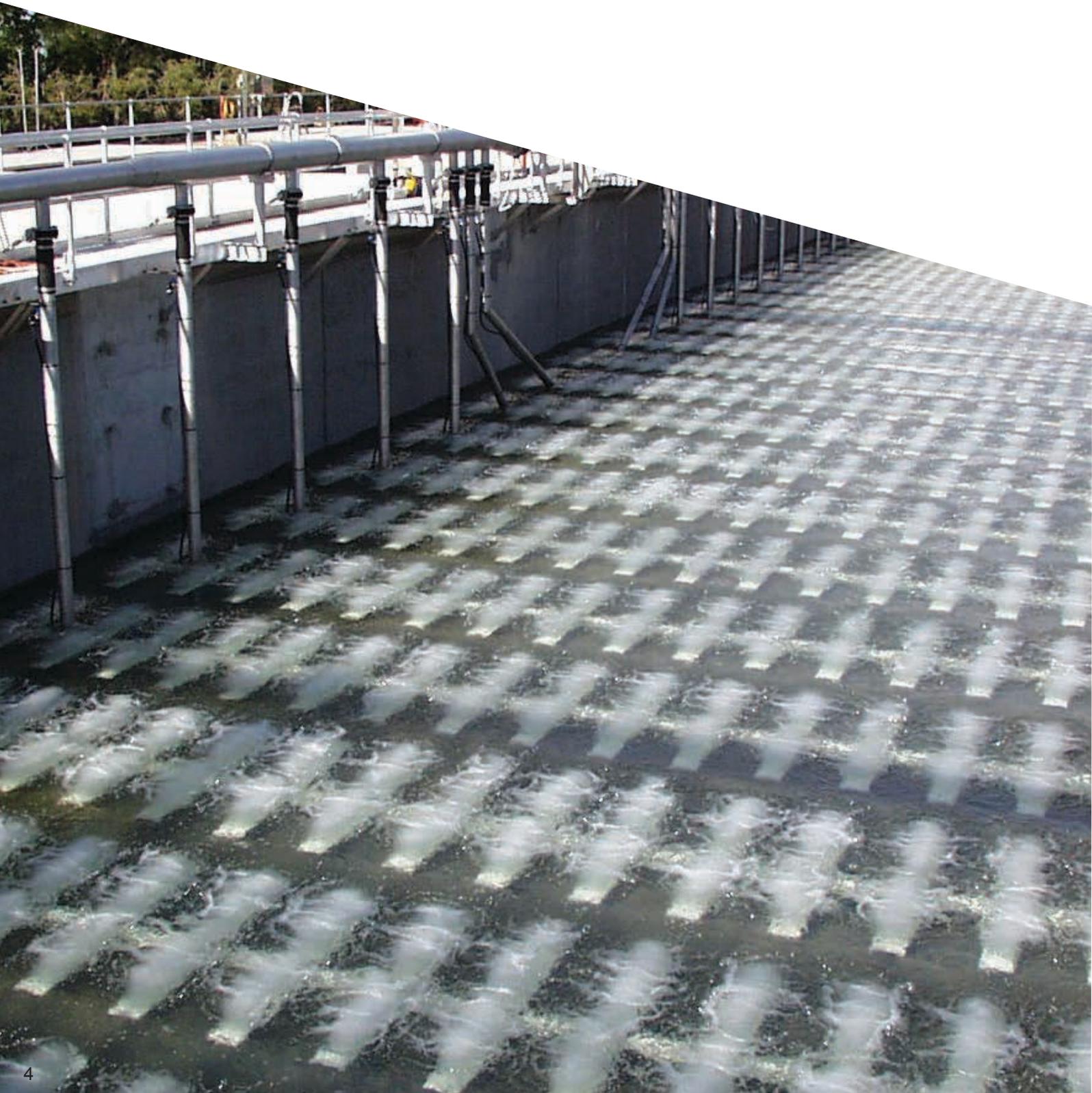


Ipswich Chamber of Commerce  
2017 Business of the Year Award



## 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



# Company Overview and Background

Aquatec Maxcon Group commenced operations in 1970 and has since developed into a leading provider of water and wastewater technology and equipment. We are a vertically integrated company offering complete capability in the delivery of these technologies from our in-house companies; Aquatec Maxcon Pty Ltd, Maxcon Industries Pty Ltd, MPA Engineering Pty Ltd and Aquatec Services 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, New Zealand and internationally, supported from offices in Brisbane (Ipswich), Sydney, Melbourne, Indonesia and Thailand. The Group employs over 330 people and has successfully completed international projects in New Zealand, Papua New Guinea, Indonesia, Singapore, India, Fiji, Vietnam and China.

The Head Office located in Ipswich, Queensland is situated on a total land area of 11 ha and provides, in addition to the office and manufacturing facilities, a substantial capacity for storage and loading/unloading of equipment for transportation.

From inception, Aquatec Maxcon sought to develop high quality market leading technologies better suited to the relatively severe Australian conditions. We have spent over 15 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 wastewater technology available in Australia.

We offer complete capability in the delivery of these technologies as well as in the delivery of water and wastewater treatment plants and pumping stations. We are able to provide process selection and design, fabrication, civil construction, mechanical and electrical equipment, installation, commissioning and maintenance services. This allows us to be a “one-stop-shop” for both industrial and municipal clients, reducing the number of interfaces as well as offering practical and cost effective overall solutions.



1970



2016

# 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, Brisbane.
- 1984 First major Australian design and construct WWTP (Cameron Bay, Tasmania, 30,000 persons).
- 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 anaerobic reactor and oxidation ditch for world's largest powdered milk factory, 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 – 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 Maroochydhore.  
Selected for further alliance for Coffs Harbour Water Reclamation Plant and Karangi Water Treatment Plant. Approximate 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 facilities 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.
- 2010 Successful commissioning of a three 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 Association "Infrastructure Project Innovation Award" for the successful delivery of the Kingaroy Wastewater Treatment Plant upgrade.



Nereda® Plant commemorative stamps by Netherlands Post

# Industry and Project Awards

- 2006 Winner. Project Management for BWEA, Sandgate WWTP Upgrade, 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, AD&B 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.
- 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.



Yarra Valley Water's Waste to Energy Facility, designed and built by Aquatec Maxcon, awarded "Best International Commercial Plant, 2017" by the British Anaerobic Digestion Association at the AD&B UK AD & Biogas Industry Awards.

# Company Divisions



Aquatec Maxcon is the process, mechanical, civil 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. Aquatec Maxcon's head office is located in Ipswich, QLD and also has offices in Sydney and Melbourne. 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.



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 manufacturers worldwide that has the facilities to fabricate large scale vacuum insulated pipes.



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's head office is based in Ipswich, QLD, but also have offices in Caboolture, Melbourne, Sydney and Thailand. 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.



Aquatec Services is the site installation branch of the Aquatec Maxcon Group. They specialise in civil and mechanical installation, service and maintenance in the water and wastewater industry. Aquatec Services carries out work all over Australia, including remote locations such as Hughenden in Far North Queensland and Leinster in Central Western Australia. Aquatec Services head office is in Ipswich QLD and has offices in Sydney and Melbourne. They are committed to the service and maintenance of all its equipment installations with dedicated product managers and factory trained service technicians and tradespeople who support a wide range of the group's products.

# Company Information

## Financial Summary

The Aquatec Maxcon Group adopts a conservative financial strategy with a substantial asset base. The Group has Net Assets over \$48 million and have had audited accounts prepared annually since 1985. The company is an unlisted public company with 570 Shareholders.



## QSE Information

The Aquatec Maxcon Group operates a fully integrated Management System for Safety, Quality and Environment. We are committed to safe outcomes for our staff, subcontractors, customers and the community. We are third party accredited to ISO 9001:2015; AS/NZS 4801:2001; BS OHSAS 18001:2007; and ISO 14001:2015.

The Aquatec Maxcon Group are focused on continually improving our Quality, Health, Safety and Environmental performance to deliver excellence in outcomes, minimise risks and safeguard our employees, subcontractors, clients and the community.

Aquatec Maxcon has been certified by the Federal Safety Commissioner for Australian Government Building and Construction WHS accreditation.



# Research and Development

Aquatec Maxcon 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, fitters and turners to continually improve both our products and our manufacturing capabilities.



## The AquaBlade Suite and Aeration Test Facility

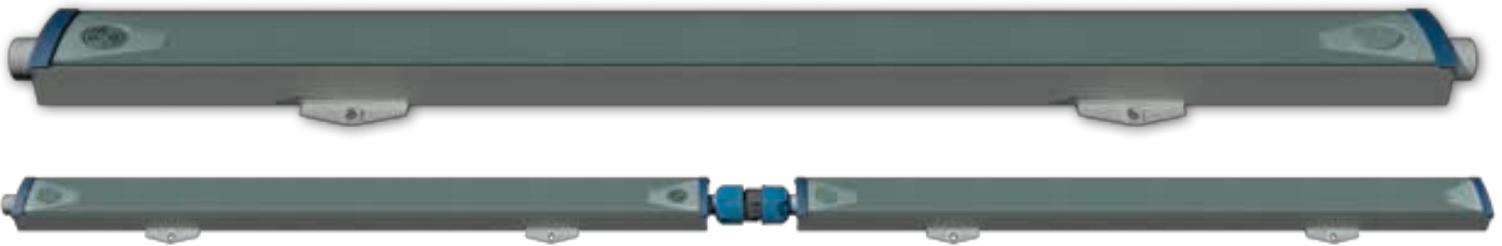


The AquaBlade suite of fine bubble membrane diffusers are the only Australian designed and manufactured diffusers on the market. They have been proudly developed by Aquatec Maxcon as a result of over 30 years of aeration design, research and development experience.



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 components 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.

In early 2018, Aquatec Maxcon welcomed the latest addition to the AquaBlade suite. The AquaBlade L is a strip diffuser (shown below as a single blade and as a 12m strip coupling) is an evolutionary development of our AquaBlade diffusers, continuing 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 the electron donor. In turn, offering great advantages compared to conventional nitrogen removal processes, with lower operational costs and a smaller carbon footprint.

Aquatec Maxcon has been successful in growing granular Anammox® in high strength nutrient wastewater. Aquatec Maxcon has continued to pilot and grow granular Anammox® with the focus on seeding and upscaling larger installations.

Anammox® Granules



## Project Management and Construction

Aquatec Maxcon has been the Principal Contractor for projects valued up to \$120m. Our staff and systems have been recognised for the excellent project outcomes achieved, through State and National Project Management Awards.

The Aquatec Maxcon Group have internal resources to deliver all aspects of the delivery of water and wastewater treatment facilities including:

- Process design and performance guarantee.
- Detailed design of mechanical, electrical and control components.
- Manufacture of mechanical and electrical components including SCADA programming.
- Installation of mechanical and electrical systems.
- Commissioning works.
- Maintenance and service works to ensure optimal operating conditions.
- Plant operation, process support and reporting.

# Community Engagement

Aquatec Maxcon 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 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 operate are suitable for their operational requirements while being excellent value for money.



Finding and relocating wildlife



Environmental silt fencing and rock check dams

## Local Environmental Engagement



Aquatec Maxcon 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.

Addressing local suppliers regarding project opportunities



Sponsorship of local school colouring competition





Banksia Beach WTP, QLD



Treated effluent, Kingaroy WWTP

# Service and Maintenance

At Aquatec Maxcon, 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. The Aquatec Maxcon Service department is well resourced and a highly skilled service provider who has learnt what asset owners need through almost 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 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 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
- Shutdown planning, management and execution
- Facilities management



# Manufacturing and Electrical

## Manufacturing Facilities

The Aquatec Maxcon 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 requirements
- 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



## Electrical Facilities

MPA Engineering, our electrical contracting division, 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 OEMs, 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 specialises in electrical engineering and installations, design and drafting, switchboards, renewable energies, electrical service and maintenance.



# Key Projects

## BWEA ALLIANCE



Client: Brisbane Water  
Location: Sandgate, Wacol, Wynnum, Oxley  
Capacity: 300,000EP  
Value: \$270 M  
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.

## YARRA VALLEY WASTE TO ENERGY



Client: Yarra Valley Water  
Location: Wollert, VIC  
Capacity: 100m<sup>3</sup> of waste  
Value: \$21 M  
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.

## KINGARROY



Client: South Burnett Regional Council  
Location: Kingarroy, QLD  
Capacity: 12,500EP  
Value: \$18 M  
Completion Date: 2016

Kingarroy WWTP is the first Australian Plant to utilise Nereda<sup>®</sup> 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  
Value: \$3.2 M  
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 of Great Barrier Feed Marine Requirements.

## COFFS HARBOUR



Client: Coffs Harbour City Council  
Location: Coffs Harbour, NSW  
Capacity: 72,000EP  
Value: \$92.5M  
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.

## BCAA ALLIANCE



Client: Brisbane Water, Cab Water, Seqwater  
Locations: Sunnybank, Runcorn, Algester, Chandler, Forest Lake, Enogerra, Banksia Beach  
Capacity: 28 ML/d  
Value: \$120 M  
Completion Date: 2007

Aquatec Maxcon delivered seven water treatment plants as the Principal Contractor. The first five plants were built and operational within one year.

## CLEVELAND BAY



Client: Townsville CitiWater  
Location: Cleveland Bay, QLD  
Capacity: 126,000EP  
Value: \$65.6 M  
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; a programme of 26 projects.

## XXXX BREWERY



Client: Castlemaine Perkins  
Location: Milton, QLD  
Capacity: 2.2ML/d  
Value: \$12 M  
Completion Date: 2008

Aquatec Maxcon was the Principal Contractor and process designer for one of the most significant drought mitigation projects in SE 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  
Value: \$3 M  
Completion Date: 1999

Largest SBR Plant in southern hemisphere at it's time. Alongside mechanical works, we provided 40,000 Fine Bubble Diffusers to the plant.

## KARANG PILANG



Client: Government Of The Republic Of Indonesia  
Location: Surabaya, Indonesia  
Capacity: 160 ML/d  
Value: \$6.7 M  
Completion Date: 2004

Aquatec Maxcon's largest water treatment plant to date. Aquatec Maxcon provided civil, mechanical and electrical works.

# 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.



### 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.



### Clarifier and Thickener

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



### 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.



### Gravity Thickener

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



### 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.



### Nereda<sup>®</sup> Aerobic Granular Sludge

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



### Anaerobic Digestion

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



### Blowers

High speed turbo compressors offer unequalled efficiency while dual point control delivers turn-down to 40% at near constant efficiency. Currently over 150 installations in Australia.



### 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 thickening.



### 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. Test tank to verify design.



### Grit Removal

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



### 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.



### 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.



### 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.



### 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.



### 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.



### Sludge Hydrolysis

Energy self-sufficiency, a positive energy footprint, decreased greenhouse gas emissions, reduced reactor volumes and operating costs are some of the benefits from this technology.



### Surface Aeration

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



### 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).



### UV

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



### Package Plants

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



### 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.



### Sludge Dewatering

Gravity sludge drainage decks, rotary screen thickeners, belt presses and centrifuges are offered to optimise dewatering outcomes.



### 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.



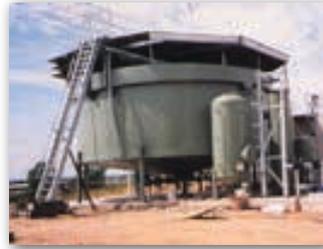
### Pressure Media Filter

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.



### 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, micro-organisms and high MW organic matter.



### 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.



### 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.



### 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.



### 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.



### UV

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



### Chemical Dosing

Dosing of a wide range of different chemicals is one of the more challenging aspects of water treatment, requiring extensive knowledge of the properties of the chemicals to ensure safe, reliable dosing systems.



### 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.



### Inline Static Mixers

For effective coagulant mixing or disinfection, an inline Statiflo static mixer can be used. Static mixers provide very low headloss, no mechanical equipment, no maintenance and no power supply.

# 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 harmful 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.



### MBBR

This technology utilises thousands of biofilm carriers in suspension within aerated wastewater tanks. The bio carriers increase the efficiency of the tank to support the growth of certain bacteria in large amounts.



### Struvite

Australia's first struvite precipitator recovers nutrients from sewage as granular slow release fertiliser.



### Thiopaq

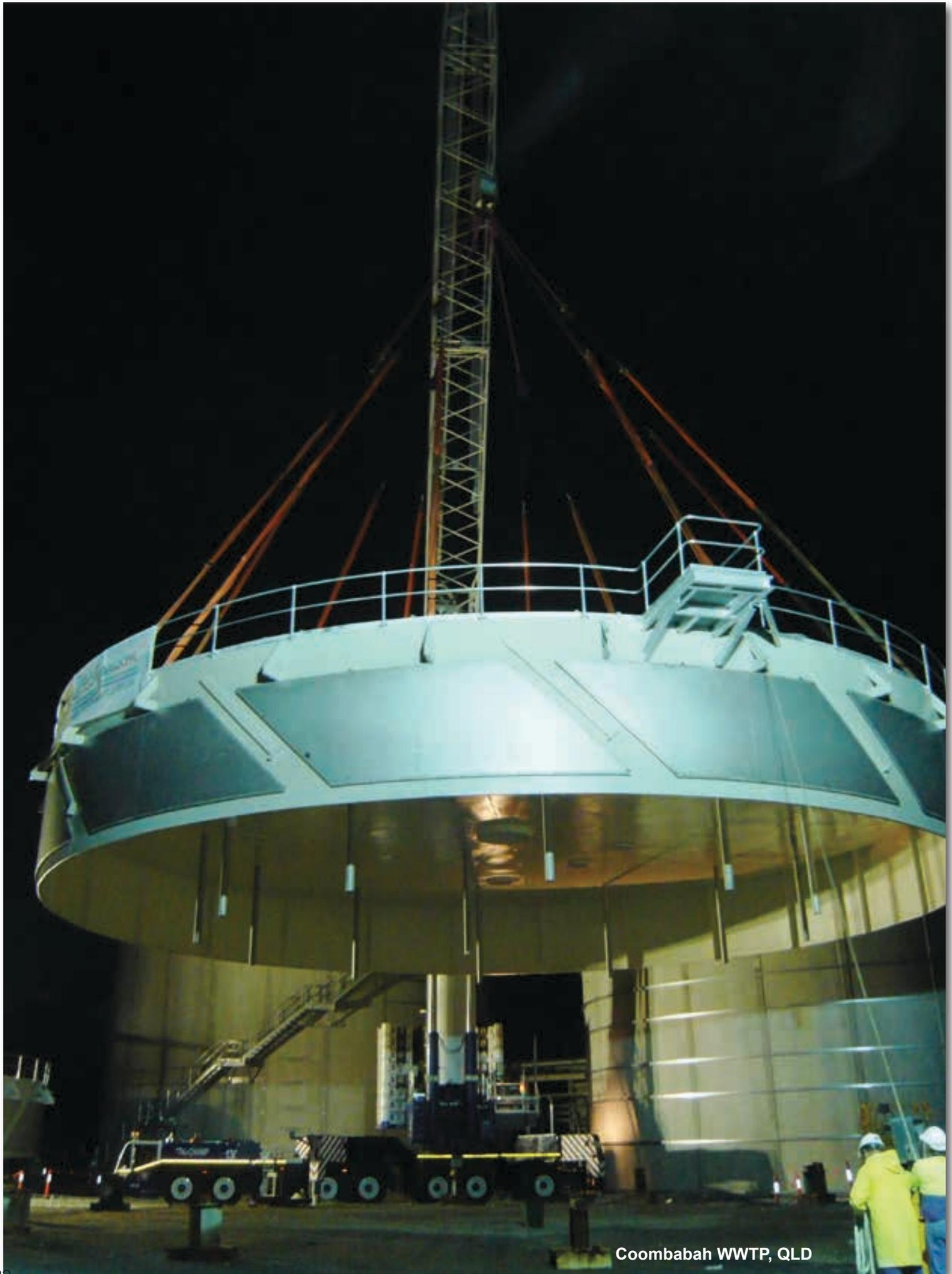
Paques world leading Thiopaq technology enables the biological treatment of streams containing hydrogen sulphide to produce elemental sulphur.



### 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.





Coomabah WWTP, QLD



Kingaroy WWTP, QLD



Nereda Tanks, Kingaroy WWTP, QLD



# Aquatec Maxcon

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