Operator

February 2022 The Water Industry Operators Association of Australia Magazine

TWEED RETICULATION TEAM WINS WIOA TEAM OF THE YEAR

BEST TASTING **TAP WATER IN AUSTRALIA** RECOGNISED

KWATYE AWARD FOR INDIGENOUS WAR MEMORIAL MURAL

CORPORATE MEMBER NEWS

SPECIAL CELEBRATION of Ixom 2021 Water Taste Tests

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From the MD's Desk - George Wall

Welcome to 2022 and our first edition of Operator for the year.

The year hasn't started exactly as we had hoped, with the Victorian conference being postponed from February to June due to impacts of the Omicron variant.

WIOA has a Duty of Care to protect the health, safety and welfare of all our staff, members and stakeholders. Following feedback from NSW Councils, sponsors and exhibitors, the WIOA Board has made the very difficult decision that attendance at the WIOA NSW and Victorian Conferences will be restricted to fully vaccinated persons only. The Board understands that this decision may disadvantage some members and stakeholders, but delivering safe and successful events is considered a higher priority for the long term sustainability of the Association.

Armed with the knowledge from staging the Queensland conference in 2021, there will be changes in how we run all our events to make sure that they are COVID safe and that we meet the requirements of the various health regulators.

We expect that everyone attending our events will be understanding and will support us to deliver safe events.

All the state based Advisory Committees met in early February and with water service suppliers managing their operational staffing very carefully, the appetite for arranging face to face events is not high at present. We do hope that conditions will improve in the coming months and we can return to providing development opportunities and sharing information face to face with our Members later in the year. In the meantime, the Advisory Committee members will be assisting with content and delivery of the WIOA Talks webinar series.

The WIOA Inc AGM will be held online on 21 April with Committee nominations closing in late March. If you are interested in helping WIOA with the important work we do in the operational side of the water industry, please consider nominating.

WIOA is now managing the production and distribution of WaterWorks internally, including all advertising.

We are always on the lookout for articles and if any Corporate Members would like to advertise, feel free to contact us at the office.

Our 2021 Annual Review was recently distributed to Members. The Review provides an excellent snapshot of our organisation and provides the opportunity to celebrate the achievements of many of our members. We hope you will enjoy reading it.

Until next time.

February 2022

Cover Richmond Valley Council, Trainee Operator, Serena Tomkins working with samples at the Casino Water Treatment Plant in NSW.

Operator is produced by the WIOA
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Managing Editor George Wall

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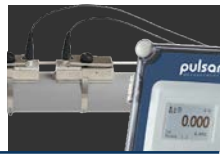

In this issue

Member Profile - Ashleigh Meadows

Assistant Wastewater Treatment Plant Operator

Employer Tweed Shire Council

Nickname Ash

Favourite team Gold Coast Titans

Pets An Aussie Shephard x Mini Poodle named Davey
Favourite food Burgers

Least favourite food Cucumber

Favourite TV show Homeland or Designated Survivor

Worst TV show Married at First Sight

Favourite Movie Anything Marvel Universe!

Favourite Musical artist/s The Weeknd

Ambition To be happy and content in whatever I do

Hobbies Beach walks and spending time with family and friends

Best Trait My drive and passion

Worst Trait Stubbornness

Who do you admire? My Mum and Dad, so hard working and always there when you need them.

Favourite saying Everything happens for a reason.

Four people you would invite to dinner Elon Musk, Kim Kardashian, Meghan Markle & Richard Branson as they are all very influential people in the world for different reasons so collectively you could have some interesting conversations!

Ashleigh at work in the lab.

How long have you been a WIOA member? Only about 2 months now, I am new to the industry altogether but I have just joined the Diversity and Inclusion Group and can't wait to listen to and share ideas with people from the industry.

Your involvement with WIOA, what contributions are you hoping to be able to make? I'm really looking forward to being a part of the D & I group, being a young female operator in a male dominated environment I believe gives me great perspective on what else we can do to encourage more diversity in the industry.

How long have you worked in the water industry and what attracted you to it? I've been in the industry for 4 months now, I previously came from retail operations – so very left of field – however so far I am loving every minute of it. I work in an awesome crew under great leadership and the opportunities for growth and knowledge expansion within council are amazing. I had exposure to the industry through my partner who is an electronics technician and found the pieces he would teach me very fascinating so thought why not jump ship out of retail and do something new – so glad I did!

What do you enjoy most about your job? The people I work with and the diversity in tasks we have in our day to day for sure. Our crew of 3 are lucky to look after 4 WWTP's on the Far North coast of NSW. Our plants are all different in configuration and provide different challenges.

What are the major challenges in your current role? Being new to the industry, the biggest challenge would be the steep learning curve. There is so much to learn and soak in as far as operation of the different plants. I am looking forward to expanding my knowledge and gaining confidence which my colleagues are so great at enabling me to do.

Thoughts on the water industry at the moment The water industry is a bit of an underdog, so many people don't even realise the work that goes on to provide essential services such as drinking water and sewage treatment but it is an industry that can provide great opportunities for growth and work in some fantastic locations.

How do you relax? A good Netflix show/movie on the couch or a walk on the beach with my partner and dog are my go to!

Where do you live and what's the best thing about it? I am incredibly lucky to live on the Tweed Coast, our whole Shire has some beautiful beaches and bushland and I love that within a 15 to 20 minute drive your scenery can change so immensely but be so stunning still.

WIOA Team of the Year Award Winner 2021

The Team of the Year receive copies of the WIOA Practical Guides to the value of $2,000 for the use of operations staff.

The WIOA Team of the Year Award came about following discussions with organisations about nominating individual operators for the Operator of the Year Award. Many were hesitant to single out an individual operator for recognition, when the provision of services to a community is reliant on a team of operational people.

The creation of this new award sponsored by TRILITY, gives water organisations the opportunity to nominate a whole team for recognition.

There were two finalists for the inaugural WIOA Team of the Year Award. The Walcha Council water and wastewater operations team and the Tweed Shire Council water and wastewater reticulation operations supervisory group, both from NSW.

The judges reviewed the applications for the contribution to and impact with their community; initiative shown; teamwork displayed; and innovations identified and implemented.

The winner for 2021 is the Reticulation Supervisors Team from Tweed Shire Council: Chris O'Dwyer, John Anderson, Anthony Pearse, Jeff Holt, Dale Hickey, Gary Cain and Peter Bruggy and they were nominated by Peter Haywood.

The team is responsible for the delivery of operations and maintenance of the water and wastewater networks through their 50 field staff that serve 80,000+ customers.

The team has an enormous amount of experience with a cumulative total of 215 years at Council's disposal and an average service of over 30 years each.

The team is responsible for dealing with more than 230 customer requests each month; along with the routine tasks associated with water & wastewater operations.

These include:

- meter reads, new services installations and meter replacement programs,
- manhole inspections and repairs,
- pipe breaks,
- blockages and overflows,
- junction repair and installations,
- hydrant testing and inspections and on top of all of that, cutins for capital works.

The group have always had the customer first approach and they receive regular customer praise for their staff performance. This group also participate in after hours work as first responder to the average 70 after hours calls per month.

The water industry has come a long way since many of the team members were first employed. There have been massive changes in safety and managing how the job is done. Add to this the introduction of digital technology, computers, iPads, phones, GIS and the like has required all the team members to be able to learn, adapt and keep pace with the changing times and technology. The team has a long list of specific achievements and they are truly deserving of the 2021 award.

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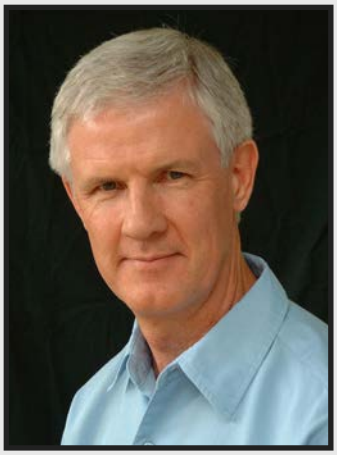
Vale - Chris Davis

I'm sure that everyone in the water industry who had the good fortune to meet Chris Davis would be saddened to hear of his recent passing. Chris was the CEO of the Australian Water Association from 1992 until 2007.

He was a true gentleman, a really nice guy, one who had those magnetic qualities that automatically drew people to him. Always calm and thoughtful, he never had a bad word to say about anyone.



He made time for everyone, no matter how busy he was.

I had the privilege of serving on several national Committees and various project working groups with Chris over the years.

What remains with me now is how devoted Chris was to the water industry and how he was a staunch advocate for obtaining the best outcome for the industry in all situations, without fear or favour. I looked forward to the regular occasions where we could meet, catch up for a chat, or the times where I could pick his brain on a particular topic.

On a personal level, I looked up to Chris and admired the way he did things. He was a great role model for myself and I'm sure, many others in the water sector. He called it the way he saw it and his sage advice was something of great value.

Our condolences are extended to Chris' family at this sad time along with his extended water industry family, everyone who was lucky enough to have known him.

The AWA website has more information on Chris' career along with the reflections of several people he has worked with along the way.

https://tinyurl.com/yuepvjsk

Contributed by George Wall, WIOA MD.

Charity Donation

WIOA staged a very successful Interest Day and TRILITY Charity Bowls in Cairns in October 2021.

A total of $2,200 was raised from the day and this money was donated recently to the Cairns Regional Domestic Violence Service. The cheque was passed over to Sandra Keogh, CEO of the Cairns Regional Domestic Violence Service by WIOA Queensland Advisory Committee member, Shane Bandiera.

Shane Bandiera (R) presenting the cheque to Sandra Keogh and Cairns Mayor Cr. Bob Manning.

In accepting the donation in the office of Cairns Mayor, Sandra confirmed that the donation will allow them to directly provide support and assistance to survivors of domestic and family violence and their children in practical ways, within the Cairns, Tablelands and Douglas Shire regions. Support such as this will provide material assistance to victims and their children experiencing domestic and family violence.

WIOA 2022 AGM

GET INVOLVED

The WIOA Annual General Meeting (AGM) for members will be held online on Thursday 21 April 2022 from 2pm to 3.30pm (AEST).

The online platform enables all members to be a part of the meeting and have your say on the direction of the Association.

Nominations are sought for members to be part of the WIOA general committee. Five elected positions are available to allow members the opportunity to contribute to the association. Have your say, get involved, nominate, and register to attend the AGM at:

wioa.org.au/about-wioa/agm/

Network Operators Development Program

NODP participants take part in a leadership challenge.

The year was 2020 and I, a fresh faced and enthusiastic student commenced WIOA's Victorian Network Operator Development Program (NODP). Now, some 24 months later and perhaps a few more greys, I have completed the normally 8-month long program after it was interrupted several times by COVID.

For those unaware of the NODP program, it is an opportunity for the network operators of both water and wastewater systems to collaborate, develop their skills and to then share with their fellow team members in their own workplaces.

The 8 month NODP took 24 months to complete with masks being the norm thanks to COVID.

The program brings together a committee of knowledgeable and committed Victorian water industry professionals, to develop and deliver a high-quality program of learning and networking.

Each month the program was held at a different water Corporation, where participants were exposed to a field visit of interesting and unique aspects of each region. The formal program is held the next day and would commence with a welcome from the Corporation's MD, and then delve into the topics of the day.

I came into the program thinking that all water authorities would have the same issues and challenges in the networks area, and therefore would have a similar approach towards those challenges. I was wrong. But for this reason, I think that is why this program is so important and why it has such a wide variety of topics covered.

All businesses are strong in some areas and have challenges in other areas, and by networking within the group, everyone is able to lever off the learnings and advancements across the sector. The willingness to share ideas, strategies and entire project justifications allows participants at all levels to be a voice for change. The social sessions, after training, were invaluable, these were the opportunities to talk about everyday 24/7 network issues, such as rosters, vehicles, plant & equipment, weather events and even the COVID response.

I now walk away from this program a more confident, knowledgeable network operator, who has a solid connection with other course participants to draw on for information and inspiration. Having participated in the course I would strongly recommend it to anyone, who has a good baseline of water and/or wastewater network knowledge and experience and is looking to further themselves in the Water Industry.

Contributed by Mathew Leehane, Central Highlands Water.

20 Year Members - Congratulations to you all

WIOA recognises any individual or corporate members who have maintained their membership for 20 or more consecutive years, presenting them with a special Membership lapel pin.

This year there are another 11 Individual and 9 Corporate Members who have qualified for the 20 year recognition pin. The Individual recipients of the pin in 2022 are: Ronald (John) Allen, Simon Aquilina, Shane Bandiera, Dean Braden, Owen Braybrook, Colin Ellett, Michael Goulding, Steve Hunter, Rodney Norman, Eddy Ostarcevic and Steve Rickwood. The Corporate recipients are Goldenfields Water County Council, Greater Western Water, Murray River Council, Tamworth Regional Council, Westernport Water, C-Tech Services, Fosroc ANZ, Piping & Automations Services and Snowy Monaro Regional Council.

Team makes Casino Proud

Judging of the Ixom Best Tasting Tap Water in Australia saw all state winners battle it out for the top prize in Tasmania, where last year's national champion and the winner of the 2021 Berkeley Springs International Water Tasting Competition hails from. Representing their states were:

ACT/NSW	Richmond Valley Council
	Casino Water Treatment Plant
South Australia	SA Water / SUEZ
	Anstey Hill Water Treatment Plant
Western Australia	Water Corporation
	Wyndham Water Treatment Plant
Victoria	Westernport Water
	Ian Bartlett Water Purification Plant
Tasmania	TasWater
	Rocky Creek Water Treatment Plant
Queensland	MackayRegional Council
	Marian Water Treatment Plant.

The judging was live streamed on Facebook from Risdon Brook dam in Hobart, were TasWater CEO Mike Brewster, Derwent Estuary Program CEO Ursula Taylor, and guest judge George Bailey, who is the national chairman of selectors for the Australian Men's International Cricket Team.

Bailey shared that he could not pick much difference between the six samples' clarity or colour, suspecting the glasses were too clean.

Taking home the national title, the sample from Casino will go on to represent Australia at the Berkeley Springs International Water Tasting Competition, held in West Virginia, USA.

Winning smiles all over the Casino WTP team.

Drawing water from the Richmond River has its challenges but the team at the Casino Water Treatment Plant has done their town proud.

The town water supply, this year named as the Ixom 2021 Best Tasting Tap Water in NSW/ACT, and has then been acknowledged as having the Best Tasting Tap Water in Australia.

Cricket Australia selector George Bailey helps select Australia's best water in 2021.

Water is pumped through more than three kilometres of rising main to reach the treatment plant, just on the outskirts of Casino in northern NSW. Servicing a community of more than 11,000 people, the plant currently runs with one operator and a trainee and is monitored 24 hours a day. The facility supplies an average of six megalitres a day, with capacity to provide 23 megalitres.

The plant is a standard coagulation flocculation sedimentation process, with the filter media being a standard sand and filter coal configuration.

Pumping from the river source brings its own sets of challenges, including blue-green algae and manganese. Full-time dosing occurs with activated carbon to alleviate taste and odour issues associated with the Richmond River. The operational team increase the activated carbon dose during summer months when dealing with blue-green algae, and potassium permanganate is periodically dosed for manganese issues.

The plant is in the process of trialling enhanced coagulation to further reduce natural organic material. The benefit is having to use less chlorine and minimising by-products in the drinking water.

Richmond Valley Council, and in particular the Water and Sewer Services teams are very proud of the small but dedicated crew who work hard to provide a quality service for the town. The award is great recognition for the team and provides additional motivation to further improve the processes at the treatment plant.

The team at the Richmond Valley Council were absolutely rapt just to have won the NSW competition, let alone to win the Australian one.

Contributed by David Cash, Richmond Valley Council.

Best Tasting Tap Water Competitions State Winners

NSW/ACT

Richmond Valley Council

Source	Richmond River
Facility	Casino Water Treatment Plant
Community	Casino
Population	10,500
Treatment	PAC dosing, coagulation, flocculation, filtration, disinfection

South Australia

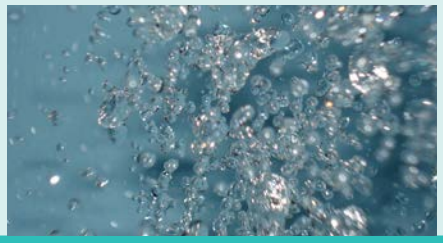
SA Water/Suez

Source	River Murray or the Milbrook reservoir (River Torrens catchment)
Facility	Anstey Hill Water Treatment Plant
Community	Adelaide
Population	642,000
Treatment	Conventional: coagulation, flocculation, sedimentation, media filtration and chlorination

Tasmania

TasWater

Source	Rocky Creek which flows off the rear of Mt Wellington Park
Facility	Rocky Creek Water Treatment Plant
Community	Huonville / Ranelagh
Population	500
Treatment	UF Membrane, GAC, calcite, UV, hypo



Grand Finalists

- Orange City Council
  - Icely Road WTP
- Richmond Valley Council
  - Richmond WTP
- Sydney Water/Veolia Water
  - Sydney Desalination Facility

- SA Water/SUEZ
  - Anstey Hill WTP
- SA Water/TRILITY
  - Swan Reach WTP
- SA Water/TRILITY
  - Waikerie WTP

- TasWater/TRILITY
  - Bronte Park WTP
- TasWater
  - Ferntree WTP
- TasWater
  - Rocky Creek WTP

In the search for the Best Tasting Tap Water in Australia

Victoria

Westernport Water

Source Candowie Reservoir

Facility Ian Bartlett Water Purification Plant (IBWPP)

Community Phillip Island, San Remo, Kilcunda, Dalyston, Corinella.

Population 22,000

Treatment Combination of oxidation, adsorption, flocculation, coagulation, dissolved air flotation, filtration, pH correction, fluoridation and disinfection

- Coliban Water/Veolia
  - Kyneton WTP
- North East Water
  - Wodonga WTP
- Westernport Water
  - Ian Bartlett Water Purification Plant

Western Australia

Water Corporation

Source Moochalabra Dam

Facility Wyndham Water Treatment Plant

Community Wyndham

Population 780

Treatment Coagulation, microfiltration, UV and chlorine discinfection

- Busselton Water
  - Busselton WTP
- Water Corporation
  - Wyndham WTP

Queensland

Mackay Regional Council

Source Pioneer River

Facility Marian Water Treatment Plant

Community Marian and Mirani

Population 6,000

Treatment Clarification, filtration and chlorine disinfection

- Bundaberg Regional Council
  - Bundaberg Scheme
- Mackay Regional Council
  - Marian WTP

Richmond Valley Council

BIRDS EYE VIEW

Facilities Members Operate

Casino Water Treatment Plant

Casino WTP team form left to right - Shannon Clapham (Administration Support), Sandeep Chugh (Operations Coordinator), Serena Tomkins (Trainee Operator), Michael MacRae (Treatment Plant Operator) and David Cash (Operations Supervisor).

1. Alum Dosing
2. Fluoride Dosing
3. Chemical Dosing
4. Alum Store
5. 4 Filters
6. Travelling Bridges
7. Sedimentation Tanks
8. Flocc Basins
9. Poly Dosing
10. Chlorine Dosing
11. Finished Water Tank
12. Sludge Lagoon

Kwatye Award for Indigenous War Memorial Mural

Jason Van Der Heyden from Wannon Water and the team of Troy Lovett, Emily Falla and Craig Kelson are the winners of the 2021 Kwatye Award for their project titled: **The Heywood Water Tower – Indigenous War Memorial Mural.**

For many years the Heywood community and Indigenous elders have spoken of the achievement and sacrifice made by the Gunditjmara servicemen and women and how they could honour their heroic efforts. Their vision can now be brought to life through the application of a large-scale mural on the locally recognised Heywood Water Tower.

The mural will proudly acknowledge the commitment of our Gunditjmara servicemen and woman, while serving as a conversation piece that unites our community.

BEFORE: A blank canvas.

AFTER: Magnificent mural.

This project will contribute positive steps toward reconciliation between Indigenous and non-Indigenous members of community.

The project includes:

- Truth telling and education; supporting a national conversation around recognition of Indigenous servicemen and women, honouring their service and achievements
- Community empowerment; providing a place for the community to honour and heal together
- Acknowledgement; the recognition of the many Gunditjmara servicemen and women who have made significant contributions and sacrifice for their country

Located at the gateway to the Budj Bim World Heritage listed Landscape, the project creates the opportunity to extend a growing Great South Coast Arts Trail and Silo Art Trail.

The sacrifice exhibited by Heywood's Indigenous servicemen and women is recognised within the armed forces and in their proud community, with Gunditjmara men and women serving our nation since the first World War.

Amongst those, are four Lovett brothers who served Australia in both the first and second World Wars and returned home alive. In total, 21 Lovett family members have served in the Australian Defence Force since the First World War. The four brothers have now come to symbolise the commitment and determination of our Gunditjmara servicemen and women.

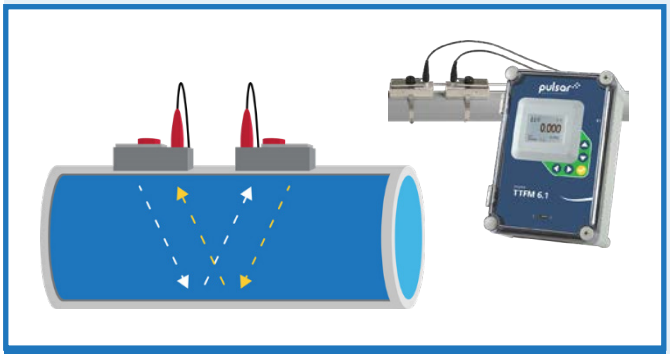
As winner of the Kwatye award, the opportunity to donate the $1,000 prize to the charity or program of their choice was provided to Jason and team on behalf of sponsor, TRILITY. They chose Loved & Shared, a project that is working towards providing essential items to struggling families within their local community as the donation recipient.

Two Technologies for Flow Measurement

Doppler and Transit Time are two popular types of flowmeter for flow measurement in full pipes. Often confused these technologies are both ultrasonic and measure flow by using sensors clamped onto the outside of a pipe. Installation success depends on understanding the differences and making the right choice.

Ultrasound is generated above the human hearing range, both Doppler and Transit Time flowmeter technologies are called “ultrasonic” because they operate far above the frequencies range that we can hear.

At the heart of each ultrasonic transducer is a piezoelectric crystal. As the crystal is energised the transducer emits an ultrasonic beam at an angle designed to pass through a pipe wall. The returning echo impacts a second passive crystal and creates electrical energy, this is the received signal.



Transit Time flowmeters have a pair of transducers. One transmits sound while the other acts as a receiver.

Transit Time transducers typically operate at 1-2 MHz frequencies. Higher frequencies are normally used in smaller pipes, lower frequencies for large pipes Importantly operators must select transducer pairs/frequencies according to the application.

Transit Time flowmeters measure the time it takes for an ultrasonic signal transmitted from one sensor, to cross a pipe and be received by a second sensor. With no flow, the transit time would be equal in both directions. With flow, sound will travel faster in the direction of flow and slower against the flow.

Doppler transducers usually operate at 640 kHz to 1 MHz frequencies and work on a wide range of pipe diameters.

Doppler flowmeters use a single head sensor which includes both transmit & receive crystals in the housing.

Doppler flowmeters use the principal that sound waves will be returned to a transmitter at an altered frequency if reflectors in the liquid are in motion. This frequency shift is in direct proportion to the velocity of the liquid and is precisely measured by the instrument to calculate the flow rate.

Transit Time flowmeters work with clean liquids like water, oils, and chemicals, flowmeters work best in dirty or aerated liquids like wastewater and slurries.

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FLASHBACK SA Under Street Sewers- 1867

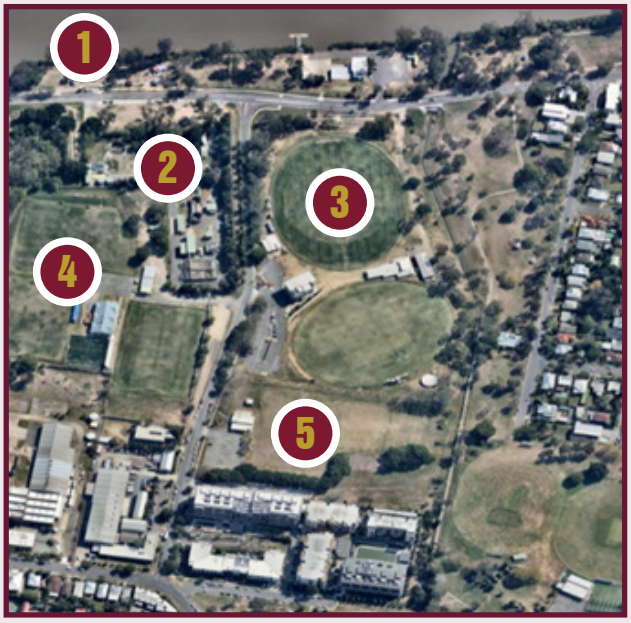
In 1867 Adelaide in South Australia was the first Australian city to adopt a water-borne waste disposal treatment system, with sewers laid under city streets.

The Mayors of Sydney and Melbourne even visited to see their pioneering approach!

Rain Events - a Fact of Life

While many communities received an unusual volume of rain filling dams and reservoirs and in some instances causing flooding across Australia, we thought it would be interesting to share the 2011 flooding of Brisbane through these images as supplied by Urban Utilities.

Fairfield Sewage Treatment Plant and surrounds.



1. Brisbane River
2. Fairfield STP
3. AFL sporting field (recycled water)

During the 2011 Brisbane Flood.

4. Soccer sporting field (recycled water)
5. Cricket sporting field (recycled water)

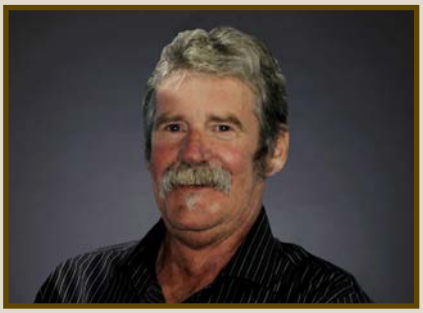
Contributed by Bill Collie from Urban Utilities.

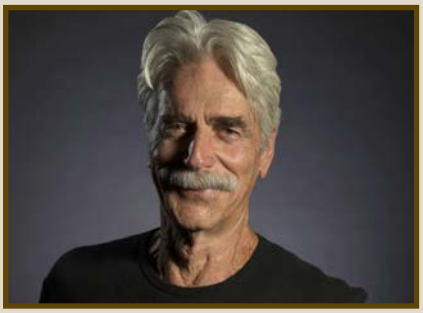
Look-a-Like

If you looked up the word "cowboy, but a bit more likable" in the dictionary you would likely see a picture of Sam Elliott.

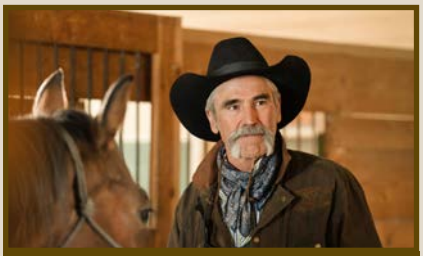
Blessed with an iconic moustache and a remarkably deep voice, Elliott is one of the best known character actors who made his film debut in Butch Cassidy and the Sundance Kid on 1969, and has been a regular fixture in Westerns since the 1970's. His recent work has been on the series Yellowstone where he plays Shea Brennan.

We think WIOA NSW Advisory Committee member Lindsay Walsh would not look out of place along his side as an American cowboy.





Lindsay Walsh, MidCoast Council.



Sam Elliot, American actor.

Opportunity of a Lifetime

My story of caring for my 1 year old son Finn.

At the start I was very nervous on how I would go, but really looking forward to the challenges not only looking and caring for Finn but taking on the household duties cooking cleaning washing. I went in with a plan, I even had a list of jobs to do around the house whilst I was off. However, my wife quickly reviewed it and added **"KEEP FINN ALIVE!"** In capital letters at the top - fair point.

I like to think of myself not as a Mr Mum, or stay-at-home dad, but a professional dad. Like all professionals I had a uniform, although it wasn't Hi-Viz, or completed by a tie. Mine was a pair of shorts, the T-shirt I slept in, and runners. This is an outfit that has me ready for the day in 30 seconds flat, just enough time to stop Finn throwing something down the toilet or eating the dogs food.

As every primary carer of toddlers knows, even simply brushing my teeth is a luxury. A morning shower is out of the question, unless I put both kids in with me, and risk Archie missing the school bus.

Monday morning 10am, swimming lessons.

Days are filled with giggles and tantrums, feeding and changing, cleaning the floors continually, demands for water and more food, and negotiating with a 1-year-old as to why he can't eat a rock. The job is seven days a week, with my workday starting at 7.00am and finally over around 8.30pm, when the kids go to sleep.

Despite the never-ending chores, this has been one of the most rewarding things I have ever done. To spend time with my son watching him grow up every second of the day is time I will never forget. When you're at work your missing huge chucks of your children lives growing up, sometimes only seeing them for a couple of hours before they go to bed. To be there for them the moment they wake up to the minute they go to bed was an amazing and rewarding experience.

I now have this amazing bond with both Finn and his brother Archie that we will have forever. I feel proud that I was able to take on the house so my wife could return to work without worrying about the boys.

Camp cook up - Jamie, Archie Finn and the dog.

All of these experiences are ones the huge majority of mothers will know intimately. For women with kids, none of this is new. There's a lot of talk that men need to take a more active role in caring for very young children and the barriers that often prevent them doing this: inflexible workplaces and career paths, inadequate paid paternity leave, financial stress, and even in some cases, sadly, simply a lack of interest.

When our sons were born my wife was asked about the birth, breast feeding, and how she was coping. The first question I was asked after their birth was, "When do you go back to work?". There is a change in society that thankfully is coming, but we all need to take a part to make it the norm. I am so glad that I was given the opportunity to be a part of that change. Being a male dominated industry we still have a lot of work to make it customary for dads to take time off to care for their young children and something we should all encourage. When the opportunity is available, I hope more dads will swap their work boots for a nappy bag.

To any dad that has the opportunity to take an extended period of time off work to care for a newborn or a very small child, I guarantee it will change yours and your child's life forever.

We are lucky to be in a very supportive time when dads can now take paternity leave, however we still have along way to go to make it an equal responsibility.

Contributed by Jamie Rossato from North East Water.

PROFESSIONAL DAD

Under the Pump over Sewage Leaks, TasWater Turns to IoT

Tasmania's state water and sewage network operator TasWater has pilot tested a new Internet of Things (IoT) system that has the potential to reduce sewage spills by detecting overflows within seconds.

Blockages or 'chokes' in the sewer network – sudden inflows of large quantities of water during storms – are common and can overwhelm sewer systems, resulting in overflows that can cause environmental problems that take weeks or months to resolve.

Given the remoteness of much of the company's state-wide network – as well as the challenges created by terrain such as mountains, lakes and rivers – TasWater maintenance staff had limited visibility of the day-to-day operation of the network and relied on expensive regular maintenance visits to 780 sewage pump stations.

Those stations are each linked by an average of 15 sewer risers, which are ground-level access points to the underground sewer mains. If there is a flow restriction or blockage, sewage can escape via these risers.

Inundations or blockages can quickly become problematic, and the company sometimes only found about sewage overflows when members of the public called its hotline.

In line with its goal to be a trusted and respected provider of essential services that is making a positive difference for the state, TasWater considered a range of options to improve its visibility and management of the network.

Back to base

It soon became clear that a network of IoT sensors could help TasWater centrally monitor conditions in remote pump stations in real time. As a proof-of-concept trial, the company installed 30 high-level detection floats, which sit inside the sewer risers and trigger the IoT sensors when sewage rises past a certain level. The sensors, powered by batteries with an estimated three-year life, communicate wirelessly via nearby powered antennae that are typically embedded within nondescript road markers.

Sensor data is transmitted via one of several networks back to TasWater's data centre, where it is aggregated into the PI System, a leading industrial operations data management platform by OSIsoft, now part of AVEVA.

That system has provided a central repository for operational data, with 12 to 16 data points collected per device and alerts automatically generated to trigger remediation.

During the pilot program the PI System proved capable of alerting operational staff of potential overflows within three seconds. Its PI Notification module triggered notification emails containing pertinent details including the asset ID, details of the device, GPS location and time of incident.

With that information, the responsible staff can remotely trigger pumps to empty the tanks, then organise a site visit

by a maintenance team – enabling them, on average, to respond 13 hours faster than the previous method, which relied on a completely reactive response.

By implementing the PI System, TasWater has been able to keep and manage operational data, removing the need to retrieve data from third-party data repositories.

With the operational data collected, TasWater was able to create powerful visualisation displays in minutes using PI Vision's intuitive drag-and-drop tools. These dashboards are tailored for different employee personas and accessible on any company device with a web browser.

Cost-competitive change

The work performed during this pilot program has helped TasWater confirm and quantify the benefits of a full-scale rollout of the IoT technology. If rolled out at large scale, the IoT architecture will allow TasWater to install high-level sensors for approximately a quarter of the cost of other commercial solutions.

"Saving the cost of a response to a single sewage spill will pay for around 500 IoT devices alone," said Anthony O'Flaherty, Manager of Data and Analytics at TasWater, "not to mention avoiding the potential for environmental damage and the associated financial consequences."

The platform is also set to drive cultural change by democratising access to this critical management information. "Internal cultural barriers no longer exist between departments," O'Flaherty said, "as all data is freely available within TasWater."

By continuously monitoring the sewer main riser levels, he added, "this project not only provides TasWater with the data needed for a rapid response to the event; it also assists in adding to the 'knowledge database' of asset integrity."

"From this, TasWater is in a much better position to make risk-based decisions on future investment, whilst protecting the environment."

Contributed by Matt Jordan, Taswater.

Toowoomba Interest Day

In November 2021, I had the pleasure of attending an Interest Day arranged by Toowoomba Regional Council (TRC) in conjunction with WIOA.

We visited the Pechey WTP, the Perseverance Dam Water Pump Station and the Cressbrook Water Pump Station.

There was a great roll up with more than 70 people attending the day with representatives from 6 local Councils and around 10 product and service supply companies. At sign on we were greeted by the very friendly team from TRC's Water Services Team.

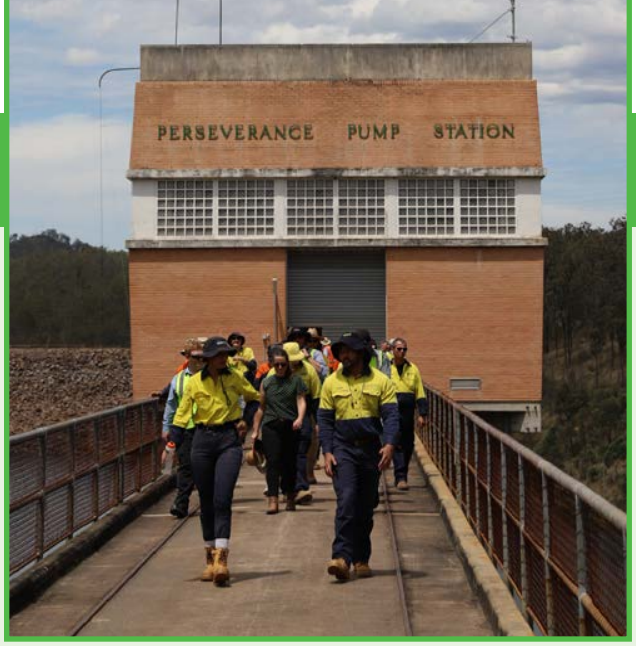
After being addressed by John Mills, the head of the Water Services Group, we were loaded into 2 buses and headed off to each of the sites for the day.

My interest in attending the tour was 2-fold. I was keen to take in as much information as possible from both an electrical and mechanical perspective at each site.

The presenters were quite engaging and keen to give quality answers to questions which included how each piece of infrastructure was integral with each other. If they couldn't answer the question, they would pass us on to someone who could.

The one site which was a standout was the High Lift Pump Station at Perseverance Dam with project commencement in 2020 and completion in mid-2021 adjacent to the old tower structure.

The dam's existing pump station was located inside an old tower structure, within the dam itself, below water level. With confined spaces that were difficult to access and aging infrastructure needing replacement, TRC commissioned a new pump station for Perseverance Dam.



This project presented a range of geotechnical and construction challenges, including:

- Complex and sloping ground conditions
- A site bounded by live services that needed to be kept operational, including an HV cable and a major substation
- The site's location in an overland water flow path.
- It was indicated in their presentation that other issues they had to deal with was the COVID influences with resourcing and changeover from the old functioning pump station to the new infrastructure.

The pump station's massive dual 2 stage pumps are driven by equally massive 2 x HV pump motors.

This pump station enables approximately 550 litres of raw water per second to be delivered to nearby Pechey Road Reservoir, and ultimately to tens of thousands of homes and businesses in the Toowoomba region out of a 110km 2 dam catchment area.

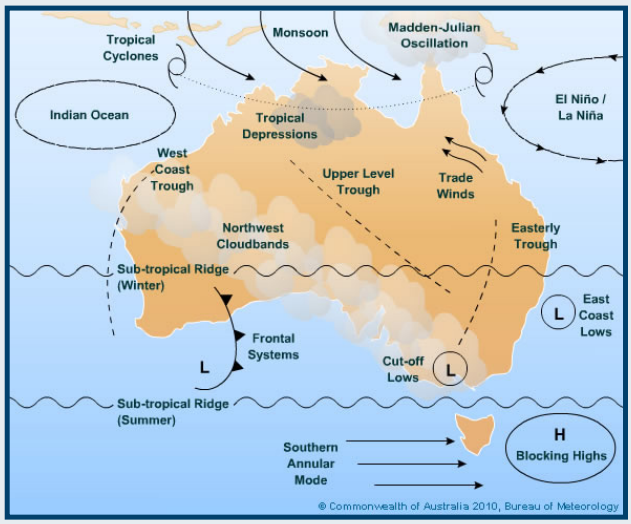
They did, also, state that storage capacities at each site were down on average percentages and had very minimal exposure to the rain events we had in the latter part of 2021. The catering on the day was top shelf with plenty of water available to cope with the hot weather.

The Interest day was an amazing opportunity to see some of the excellent water infrastructure, particularly the high lift pump station at Perseverance Dam, that TRC has in their network and to catch up with like-minded suppliers and the reps from other Councils who made it along on the day.

Contributed by Paul O'Kane, McBerns.

BOM - Climate Influences

Australia's climate can vary greatly from one year to the next. The figure below shows the main – but not all – influences upon the Australian climate. Influences will have varying levels of impact in different regions at different times of the year.



Australians living in the Eastern states are most likely aware of the El Nino and La Nina conditions. They relate to the warming and cooling conditions within the tropical Pacific Ocean which leads to major shifts in weather patterns across the Pacific.

During La Nina events, trade winds strengthen, increasing the temperature of the warm water north of Australia. Cloudiness and rainfall north of Australia are enhanced, typically leading to above average winter–spring rainfall for eastern and central parts of the country, and a wetter start to the northern wet season.

During El Nino events, warmer surface water builds up in the central Pacific. Cloudiness and rainfall north of Australia are supressed, typically leading to below average winter–spring rainfall for eastern parts of the country, and a drier start to the northern wet season.

The other prominent climate influencer is the Indian Ocean Dipole. Sea surface temperatures (SSTs) in the Indian Ocean can influence the rainfall patterns over many parts of Australia. Warmer than average SSTs in the eastern Indian Ocean can cause changes in the tracks of weather systems to Australia's south, and provide more moisture for frontal systems and lows crossing Australia.

The difference between SSTs of the tropical western and eastern Indian Ocean is known as the Indian Ocean Dipole, or IOD. The IOD is one of the key drivers of Australia's climate, and can have a significant impact on southern Australian agriculture because its strongest impacts generally coincide with the winter crop growing season.

Although the two climate influencers from the Pacific and Indian Oceans are probably the most familiar to Australians, there are a range of other influencers that we occasionally hear about but probably don't understand as well. Blocking highs and East Coast lows are a couple of influencers that can impact the weather patterns and depending on their strength can lead to either very dry or very wet conditions.

If you are interested in understanding more about our weather patterns, the BOM website provides a good description of all the individual climate influencers and how they interact with one another.

bom.gov.au/climate/about/

2022 WIOA TALKS

The WIOA Talks webinar series will continue in 2022.

Utilising the expertise of our Members, a WIOA Talks webinar will be staged on a monthly basis commencing in March 2022. The webinars will run for around one hour and will share practical information on a range of operational topics.

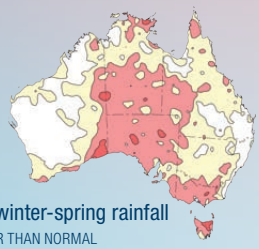
The March event is being managed by WIOA's Diversity and Inclusion Group and will discuss key moments of people's careers. Discussion will concentrate on what brought people into the water industry and what kept them in the industry. It will be held on 23 March from 11.00am and is open to everyone.

With many of the facilities still under COVID lockdown to visitors, all the Advisory Committees have decided to postpone any face to face events until at least the middle of the year. Each Advisory Committee will be assisting with the organisation and hosting of webinars up to July.

23 March	The most important job of the world Diversity & Inclusion Group host
13 April	Underground technologies Queensland AC host
18 May	Towards zero carbon SA AC host
15 June	Realware/VR & advanced technology NSW AC host
6 July	Indigenous water Coinciding with NAIDOC week

INDIAN OCEAN DIPOLE IN AUSTRALIA

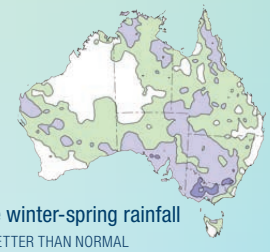
TYPICAL IMPACTS IN A POSITIVE PHASE



Average winter-spring rainfall
RED = DRIER THAN NORMAL

- **LESS RAINFALL** OVER CENTRAL AND SOUTHERN AUSTRALIA
- **WARMER DAYS** IN WEST AND SOUTH
- **WARMER NIGHTS** IN SOUTHWEST, **COOLER** IN NORTH
- **SHORTER SNOW SEASON,** LOWER SNOW DEPTHS
- **INCREASED FIRE RISK** IN SOUTHEAST

TYPICAL IMPACTS IN A NEGATIVE PHASE



Average winter-spring rainfall
BLUE = WETTER THAN NORMAL

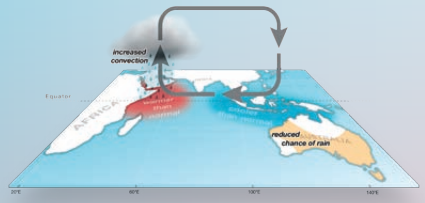
- **MORE RAINFALL** OVER EASTERN AND SOUTHERN AUSTRALIA
- **COOLER DAYS** IN SOUTH
- **WARMER NIGHTS** IN NORTH
- **INCREASED CHANCE** OF FLOODING
- **MORE** NORTHWEST CLOUD BANDS

WHAT IS IT?

The Indian Ocean Dipole is the difference in ocean temperatures between the west and east tropical Indian Ocean, that can shift moisture towards or away from Australia.

POSITIVE PHASE MORE LIKELY TO COINCIDE WITH EL NIÑO

1982 SOUTHEAST AUSTRALIA HAD ITS **DRIEST** YEAR ON RECORD WHEN A **POSITIVE IOD** COINCIDED WITH **EL NIÑO**



WHEN DO THEY OCCUR?

THE IOD CAN IMPACT FROM **MAY** TO **DECEMBER**

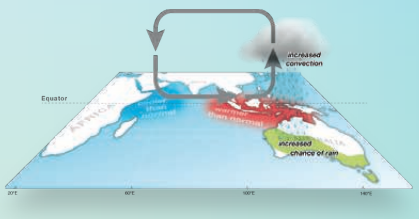
AND LAST FOR

2 TO 7 MONTHS

THE IOD DOESN'T FORM DURING SUMMER **DUE TO THE AUSTRALIAN MONSOON**

NEGATIVE PHASE MORE LIKELY TO COINCIDE WITH LA NIÑA

1974 AUSTRALIA HAD ITS **WETTEST** YEAR ON RECORD WHEN A **NEGATIVE IOD** COINCIDED WITH **LA NIÑA**



Australian Government
Bureau of Meteorology

www.bom.gov.au

Steph Spreading the Word

"I love that work I do helps to protect our environment and the ecology of local waterways."

Steph Badger is a Wastewater Treatment Technologist. She loves gaining hands-on skills out in the field and facing new challenges each day. Steph studied microbiology at uni and puts her degree to work by leading a small team to optimise plant performance, solve operational issues and engage new technologies to drive process efficiencies. It's just one of the places a science degree can take you.

Gippsland Water is supporting female FedUni Gippsland students with two scholarships worth up to $9000, plus the opportunity for paid work experience. Find out more and apply:

lnkd.in/gHZjgSV7

WorkSafe Tasmania Award Winner
Excellence in implementing a work health and safety solution

After the outbreak of the pandemic, the World Health Organisation recommended that workers monitor themselves for symptoms and take their temperature twice a day.

Given their foundations with temperature measuring scanners, a light bulb moment sparked a life-saving opportunity: adapt the traditional scanners as a safe and user-friendly COVID19 indicator.

The small scanners featured an infra-red sensor and thermal imaging cameras that could detect forehead temperatures. While large camera sensors took body temperatures of up to 16 moving people.

On 19 March 2020, Temtrol received their first shipment of over 100 small scanners and over 20 large sensors. But the small scanners needed adapting from a fixed industrial environment to a portable public environment so the team:

- Added a LED light indicator and buzzer alarm that changes colour if a person's forehead temperature exceeded 37.3°C.
- Integrated date-stamped facial recognition cameras with photo identification software.
- Enabled portability via wheelable floor stands.
- Extended the battery power to 40 hours of continuous use in foyer environments.

Scanners set up for action in Tasmania.

Kevin Dejonge of Temtrol Technologies receives the safety award from Tasmanian MP, Elise Archer.

By tailoring the existing devices, a solution was fast-tracked and prevented the delays of manufacturing such devices from scratch.

Word-of-mouth ensured that requests from the essential services sector such as health, transport and public service were received. Airport staff advised that the high-speed portable devices enabled them to process hundreds of passengers at a time, which would have been unmanageable with a hand-held thermometer.

Temtrol Technologies encountered no resistance from companies about trialling a novel solution. They recognised that the innovation enabled them to keep their doors open.

Instead of suspending employees, this project enabled Temtrol to recruit three new employees. Continually adapting to the new normal, the team is now poised to detect other illnesses that may be spread in workplaces.

The solution was awarded as the Winner of the 2021 WorkSafe Tasmania Award for Excellence in implementing a work health and safety solution.

temtrol.com.au

CONTRIBUTE TO CORPORATE MEMBER NEWS

WIOA's quarterly publication Operator is produced in February, May, August and November each year and is an effective way of keeping the WIOA community in touch.

Each edition we feature a number of news items from corporate members on new products or services to the industry. Content is not to be overtly promotional like an advertisement or advertorial, but more information that would be of interest to our members.

wioa.org.au/publications/operator.htm

Operator

Energy Efficient Sludge Dewatering Technology

The new Lowood STP located in the Somerset Region of South East Queensland was recently commissioned as part of key environmental infrastructure delivered to secure the region's population growth.

Membrane Bioreactor (MBR) technology was selected for the treatment process which provides high-quality discharge to the benefit of local waterways and allows the opportunity for water reuse.

Hydroflux EPCO supplied and commissioned two HUBER QPRESS units to dewater the biosolids generated from the MBR process. The units achieve a greater than 95% volume reduction for this application which minimizes the associated off site transport/ disposal costs.

Two units at the Lowood STP.

Operating at less than 1rpm, the machines consume a fraction of the energy as compared to high-speed centrifuges, which also leads to reduced maintenance costs. An equivalent sized high-speed alternative would emit over 12,000 t/a of additional CO2.

QPRESS is an inclined screw press used to dewater sludge produced from sewage treatment plants. It results in high volume reduction of the raw liquid sludge that is wasted from the treatment process, leading to a reduction in sludge transport and disposal costs. Fabricated from stainless steel to resist corrosion, together with its low energy usage, the technology provides a low carbon footprint and a low maintenance regime.

1300 417 697
info@hydroflux.com.au
hydrofluxepco.com.au

Bearing Solutions

The turbocompressor has become a mainstay of modern water and wastewater treatment technology, offering a mechanically simple design, reliability and good energy efficiency. Today, the market is dominated by two rival technologies: air foil bearings and active magnetic bearings.

Air Foil Bearings

Air foil bearings are a type of gas bearing, with a design that uses the pressure in a gas film to hold the moving and stationary surfaces apart, allowing low-friction, high-speed rotation. The pressure necessary for the operation of a gas bearing can be supplied externally, or generated internally by the rotation of the bearing itself. Air foil bearings use the latter approach and as such they are a type of dynamic gas bearing.

Air foil bearings are cost effective but require well filtered air & experiences friction on Start & Stop.

Magnetic Bearings

Magnetic bearings support the rotating shaft using magnetic levitation. Most magnetic bearing designs use magnets arranged around the bearing housing and a shaft containing ferromagnetic material.

This design uses electromagnets powered by an electronic control system that can adjust the forces they generate.

Magnetic bearings have excellent reliability & can handle higher forces.

Sensors in the housing continually monitor the position of the shaft and a control system alters the power delivered to the magnets to keep the shaft in the optimal position.

Simplicity v Flexibility

Air foil bearings and magnetic bearings are viable solutions for high speed applications. The two designs have different strengths and weaknesses, and those differences can have significant implications for the selection of the most appropriate bearing technology for a given application.

ramandeep.saroya@sulzer.com
sulzer.com

New Members

Welcome to the following people and companies who have recently joined our Association as a Member or Corporate Supporter.

New Individual Members

Jordan Boyle, Adam Studd, Bridget Elliott, Tanya Rhyne, Jeff Bailey, Tony Page, Gary Todd, Adam Blackwell, Brock King, Coby Ruddell, Corwin Billingham, Josh Wright, Kim Woods, Luke Warren, Matthew Scholz, Oliver Joost, Rohan Burgess, Chris Antonie, Samuel Mowat, Clinton Fellows, Zeke Stapleton, Garrick Lai, Dan Slocombe, Stephen Dickons, Joshua Smith, Mark Freebody, Des Dalton, Ryan Davis, Royce Evans, Shane Gillespie, Darryl Gundry, Jody Hallyburton, Alex Hart, Graham Harvey, Rebekah Kasidiaris, Karen Muir, Aaron Wilson, Nigel Wynn, Kyle Whalan, Dale Anderson, Adam Green, Michael Healy, Brent Grayling, Richard Harker, Mitchell White, Anthony Burton, Rohan O'Callaghan, Aaron Stewart, Nathan Rogers, Tori Roberts, Steve Borszeky, Shah Kader, Susan Runciman, Aaron Bowkett, Dylan Merrett, Cody Cox, Wesley Wagner, Corrine Tencate, Matt Gosper, Alex Blanch, David Braby, Jochen Witt, Roman Thomas, Gavin Stacey, Brendan Butler, Shane Stuart, Anthony Towning, Christopher Cornell, Rob Marshall, Sarah Weber, Corey Wilkinson, Ifan Martin, Mark King, Patrick Freyer, Matthew Leach, Chris Murphy, Nazli Ghadi, Raymond Radcliffe, Christopher Peel, Adam Fapani, Michael Malaoi, Jason Kleier, Zak Matthews, Marco Bracchi, Byunghae Lee, Tyler Dempsey, Kevin Ye, Ashleigh Meadows, Darryl Pain, Dona Tantirimudalige, Robert Brito, Scott Daly, James Gibson, Jeff Waters, Matt Hopf, Neil Barrett, Mark Clarke, Murray Rolfe, Scott Taylor, Tim Watt, Kyleigh Victory, Laxmi Pandey, Michael Sleaman, Warren Adams, Frank McCorry, Matthew Garner, Barry Freebody, Paul Frowd, Francoise Pieltain, Mark Green, Joshua McLenaghan, Gregory Hickson, Laken Carrett, Harry Lindsay, Stewart Snitch, Sam Tinsey, Ben Griffiths, Michael Marano, Matthew Hicks, Katrina Bennett, Anthony Jones, Rajinda Hiran Senarath, Brandon Pang, Marten Whittington & Luke Seget.

New Utility Corporate Members

Snowy Valley's Council.

New Corporate Members

Maztec Industrial Solutions, Aqua Assets, Temtrol Technologies & Pulsar Measurement.

WIOA Conference & Exhibitions in 2022

We are monitoring the COVID-19 situation and Health Department advice across Australia, hoping to be able to conduct face-to-face Conferences.

6 & 7 April	14th NSW Conference & Exhibition, Tamworth
22 & 23 June	83rd Victorian Conference & Exhibition, Bendigo
3 & 4 August	47th Queensland Conference & Exhibition, Logan
20 & 21 September	3rd South Australian Conference & Expo, TBC

WIOA Committee

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Mark Samblebe
0400 126 141

Vice President
Sally Shepherd
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Secretary
George Wall
0407 846 001

Bill Collie
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Heidi Josipovic
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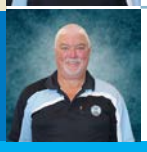
0407 226 130

TAS Advisory Committee
Stephen Westgate
0417 126 758



VIC Advisory Committee
Anthony Evans
0419 103 885

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