OPERATOR

February 2015 Edition

W-I-O-A Australia
EXCELLENCE IN OPERATIONS

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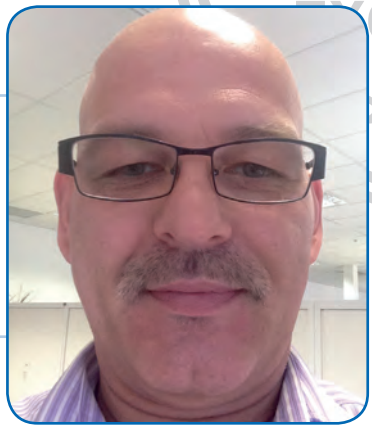
Colin Haynes at the Qld Bowls Day. Read his Member Profile on page 3.



Bernd Vetter showing off his Mo. More Movember participants on page 5.

George Bellizia describing the Gold Coast desal plant More on page 6.

Newsletter of the WATER INDUSTRY OPERATORS ASSOCIATION OF AUSTRALIA

FROM THE EO'S DESK

After a very relaxing Xmas break, it's back to business as usual for the WIOA staff, Committee and Directors.

STOP PRESS: 2015 Qld Conference Date Change

We have just discovered that the WIOA conference in Toowoomba proposed for the week of 1 to 5 June 2015 clashes with the Toowoomba Farm Fest, an event estimated to bring around 70,000 people into Toowoomba. We could not risk having no accommodation available for delegates, so we have rescheduled the event to the week of 15-19 June with the conference proper held on 17 & 18 June. We apologise for any inconvenience caused by this date change.

Planning for all the 2015 conferences is proceeding full steam ahead. We are really excited that Khrone have joined existing companies Acromet, Automation Group, Odour Control Systems (Australia), Orica Australia and Xylem as Prime conference sponsors in 2015. We greatly appreciate the involvement of these companies and all our other event and award sponsors and encourage our members to support them whenever possible. We also note the contribution of outgoing Prime sponsor – Peerless Industrial Systems for their support over a number of years.

The technical program for the NSW conference in Orange in March is full of interesting presentations from experienced operations staff and there is a wide range of Councils represented in the program. Delegate and visitor registrations are being accepted with registration forms available from the website. The Call for Papers for the Queensland conference in Toowoomba in June closes in late February and we still need more abstracts from operators.

The 2014 WIOA Annual Review was mailed out to all members recently. It showcases quite well the growth of the organisation and all the activities that WIOA and our members are engaged in. It also gives us the opportunity to celebrate the achievements of a number of our members. Apart from its information value, this document is also a very important promotional tool. We hope it will help attract potential members to join once they understand the level of industry commitment and involvement we have with the water industry. If you would like more copies to distribute, please contact the office.

We were saddened to learn of the passing of Laurie Gleeson in January, following a long battle with cancer. Laurie was CEO/MD of Goulburn Valley Water in Shepparton, along with its many predecessor bodies from 1980 through to his retirement in 2008 and was a great friend and supporter of WIOA. In the mid 1990's, in the midst of major restructuring and reform of the Victorian water industry, WIOA's future was looking very bleak with around 80 members and not much cash behind us. At the time, Laurie and John Wilkinson were on the executive of the Victorian Institute of Water Administration (IWA) and on hearing our plans for reinvigorating WIOA, arranged for us to present our vision to the delegates at the IWA conference in Ballarat. That opportunity helped turn around support for our organisation and was the catalyst allowing us to grow to where we are now. From my personal perspective, Laurie supported and encouraged me greatly in my role as voluntary Secretary of WIOA from 1994 until I took the job on full-time in 2005. He had a strong commitment to the industry and totally supported the concept of giving something back. I enjoyed catching up with him at water industry events and he was always interested in hearing about WIOA and how we were going. Our thoughts are with Laurie's family, friends and colleagues and he will be greatly missed by the entire water community.

In conjunction with VicWater and the Victorian Department of Health, we are really excited to be hosting a one-day workshop titled "Ensuring Safe Drinking Water" by renowned Canadian water quality scientist and author Prof Steve Hrudey. The Victorian event will be held on Tuesday 24 February 2015 at the Matthew Flinders Hotel in Chadstone and a similar event will be hosted by ***qldwater*** in Brisbane on Friday 20 February 2015. This event is not just for engineers, scientists and water quality specialists, we know water treatment and distribution system operators will also benefit greatly from attending.

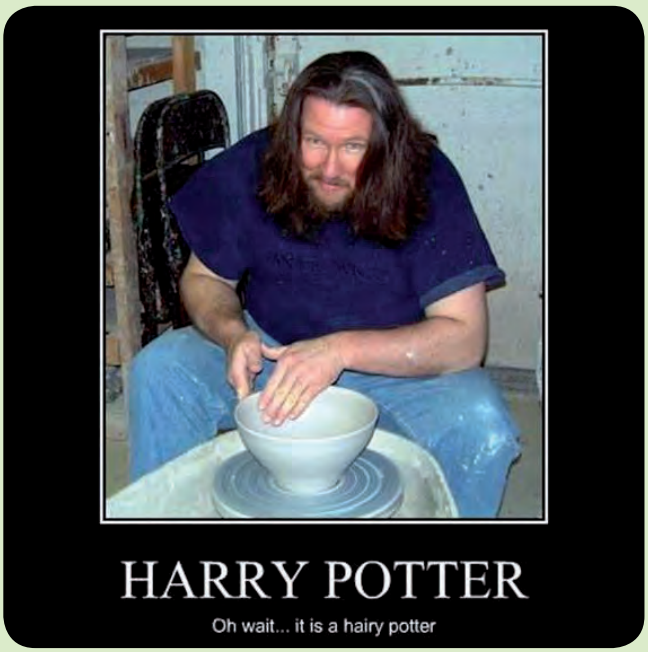
Participation in WIOA's certification scheme is increasing in Victoria with 29 operators now meeting all the requirements to be certified and another 33 applications currently being processed. After working with the Queensland Water Directorate to complete the Pilot Project for certification of operators using the requirements of the National Certification Framework 2012 – Operators within Drinking Water Treatment Systems, we are now preparing to certify the first operators at the WIOA Qld Conference in June. WIOA is also working with a number of NSW Councils and employers to assist them prepare for the potential implementation of Certification nationally.

Finally, those members yet to pay their 2015 fees would have received a reminder in the mail recently. Anyone not paid by the end of February will be removed from the member database so make sure you pay promptly. Keep in mind that all financial Individual members will go into the bonus draw to win a $1,000 travel voucher, generously donated by Royce Water Technology. The draw will be made at the NSW conference in Orange.

Until next time,

George Wall – WIOA Executive Officer

THE LIGHTER SIDE



PROFILE OF A MEMBER

Name: Colin Haynes

Position: Unit Leader - Treatment Plants

Employer & Location: Unitywater – Sunshine Coast, Queensland

How long have you worked in the water industry and what attracted you to it?
23 years in the Water Industry. Attracted by the challenge that arises every day! No Groundhog day in this job!

What do you enjoy most about your job? It's an adventure every day and I work in a great team!

What are the major challenges in your current role? Constant changes within the workplace are sometimes challenging to keep up with. We need to keep one step ahead in order to survive.

How long have you been a WIOA member? Member for 10 Years, and a member of the QLD Advisory Committee since its induction 3 years ago.

How do you relax? Camping with my Family, Playing drums and BBQ's on my new deck with friends!

Where do you live and what's the best thing about it? Golden Beach on the Sunshine Coast, the best thing about it, well the name says it all... Golden Beach! Tinny in the water within 5 minutes of leaving home, what more could you wish for (possibly some fish would help, I am the world's worst fisherman).

QUICK QUESTIONS

Age: 49

Nickname: Haynzee!

Family Status: Happily Married to Sonya for 25 years with 2 boys, Caleb and Jackson.

Pets: Tom the Miniature Poodle

Favourite food: Sushi/Sashimi.

Least favourite food: Cabbage.

Favourite TV show: Outback Truckers.

Worst TV show: Bold and the Beautiful!

Favourite Movie: Any Monty Python movie.

Favourite Musical artist/s: Pink Floyd and New Age Therapy!

Favourite book: I Can Jump Puddles – Alan Marshall

Favourite team: Broncos in the NRL

Ambition in life: To keep finding time to travel with my Family. In 3 years we have hit Tasmania, Thailand and Vietnam … watch this space for next adventure (Vanuatu).

Hobbies: Building model trucks, managing sons Soccer team.

Best Trait: Try to stay happy.

Worst Trait: Sometimes too easy going!

Four people to invite to dinner: Clint Eastwood, Shaun Micallef, Caleb and Jackson (my boys)

2015 WEEKEND SEMINAR & AGM

Club Mulwala is the venue for this year's Weekend Seminar & WIOA AGM. It will be staged on the weekend of Saturday 28th February and Sunday 1st March.

The Seminar provides a great opportunity to meet other members and learn about some of the latest technologies in a relaxed and friendly atmosphere. The cost for the weekend is absolutely zero, as long as you can get yourself there and home again. From lunch Saturday to lunch Sunday the weekend is on WIOA – just another benefit of being a WIOA member.

Corporate Member presentations will be delivered by SFI ValveMax, Hanna Instruments and Pelican Products and the day will be interspersed with some fun activities and a discussion forum. The dinner on Saturday night is often full of surprises.

A site tour on Sunday morning conducted by the North East Water team will finish off this very informative weekend.

Places are limited to the first 50 members who register. To secure your place register online at

www.wioa.org.au/seminars/WeekendSeminar.htm

2014 Weekend Seminar attendees

HOSTING NZ YOUNG OPERATOR OF YEAR

Goulburn Valley Water had the pleasure of hosting the Water Industry Operations Group of New Zealand (WIOG) NZ Young Operator of the Year for a week in September 2014.

The prize for the NZ Young Operator of the Year included joining the rest of the Kiwi contingent on a tour of various Victorian water and wastewater facilities, attending the WIOA Victorian conference and working with an Australian water corporation for one week to broaden their experience in the water industry.

As the winner, Ryan Laurenson from the Waikato District Council, is employed predominantly in the operation and management of the reticulation network in NZ, it was felt that the Central Operations & Maintenance (O&M) team at Goulburn Valley Water (GV Water) would be an ideal host.

Ryan was collected from his motel on Monday morning and arrived at the depot to meet the team where he would spend the next 5 days working and exchanging ideas on tasks within the operations and maintenance field. If you put yourself in Ryan's position for a moment, I am sure you could understand why this would have been a very intimidating and overwhelming situation. Not knowing anyone in a team of 20 operators, in a foreign country and feeling all alone. It was a credit to Ryan on how well he handled this difficult situation and I am proud of how well our team managed this unique exchange.

Ryan observed and discussed many of the tasks that our team carries out within a normal working week. This included the method of repairing burst AC water mains and cracked AC water mains, the method of tapping water mains, repairs of water service pipes, discussions on our water main replacement programs, discussions on our KPI's and an inspection of our safety systems including the safe working instructions (SWI) and high risk work forms etc.

Inspections were also carried out on sewer pump stations, clearing of blocked sewer mains and jump up connections and a review of our sewer rehabilitation program.

Ryan was supplied with a variety of forms, procedures and paperwork for future reference and to assist his understanding of how our team operates. The exchange of ideas and methods was extremely valuable and there is no doubt that such a system of hosting operators is valuable and informative for both organisations.

It was interesting to compare the differences between how GV Water and Waikato DC undertake similar tasks. They tend to use trucks and we use utes; they have standard regular drivers and we have multiple drivers for each vehicle; they have a variety of pumps in sewer pump stations vary whereas ours tend to be standardised; we have more plant and equipment and they tend to hire e.g. backhoes, jetter trucks, etc.

The discussions also included how our availability roster works ie 1 in 14 weeks compared to his in NZ of 1 in 4 or 6 in NZ; and how difficult it is get assistance after hours compared to our system due to their smaller work group.

No system is right or wrong, it is what best fits the organisation and how they want to operate their business.

Our team definitely benefited from the hosting Ryan and after spending time with him it very evident why he was awarded the NZ young operator of the year. Ryan expressed himself very well and carried out his role in a manner that did himself and his council proud.

I strongly recommend to any organisation that may be interested or have the opportunity to host an employee from another organisation in the future, to accept the opportunity as it benefits all parties.

Thanks to Ryan, WIOG, WIOA, GV Water management and our team for making this a successful week for all those involved.

Contributed by **Neville Whittaker,** Goulburn Valley Water

Ryans Comments in NZ Newsletter

As a prize for being awarded WIOG's Young Operator of the Year in 2014, I was given the opportunity of a work exchange experience with an Australian water authority.

After a week of treatment plant tours and WIOA's annual conference I jumped on a train and headed two hours north of Melbourne to a town named Shepparton, where I was set to start my work exchange week with the team at Goulburn Valley Water.

During this week I was overwhelmed with the support that was given towards my work exchange experience. People who I had only just met were going out of their way to show me and help me experience the way they work, the different machines/vehicles/tools they use and other new/interesting assets they have operating in their area.

This week was an unforgettable experience that I am very lucky to be a part of. I learned a lot during this week, also gained a lot of extra knowledge during the whole trip and hope that the future Young Operator of the Year gets to be a part of a similar exchange.

I have to also give a special mention to George Wall and Neville Whittaker and their teams for making me feel welcome and for making the week in Shepparton not only educational but also a very enjoyable experience. Also giving up part of their own personal time to invite me into their homes for dinner, taking me out on a fishing trip and even sorting a night out at the greyhounds, where they even had one of the races named after me.

Ryan Laurenson, Young Operator of the Year.

FNQ CHARITY DONATION

The Cairns Regional Council Plant Operators and outdoor team leaders ran a local fundraiser awareness program promoting Men's Health issues. The program consisted of either a morning BBQ breakfast or a lunch time Pizza meal. The gatherings were kept to numbers of 10 to 15 staff so an easy discussion could be held on Men's Health issues. As part of an ongoing awareness "Prostate Blue" shirts were sold with the CRC and PCFA logos and $705 was collected for the PCFA.

In addition to the Cairns RC staff initiative, WIOA held a Charity Bowls afternoon in June 2014 as part of the Interest Day held in Cairns where an additional $800 was raised and added to the donation pool.

The recipient of the donation, the Prostate Cancer Foundation of Australia (PCFA), is a broad-based community organisation and the peak national body for prostate cancer in Australia. They are dedicated to reducing the impact of prostate cancer on Australian men, their partners, families and the wider community.

They do this by:

- promoting and funding world leading, innovative research into prostate cancer
- implementing awareness campaigns and education programs for the Australian Community, health professionals and Government; and
- supporting men and their families affected by prostate cancer through evidence-based information and resources, support groups and Prostate Cancer Specialist Nurses.

PCFA receives Government funding for specific projects and relies on the generosity of individuals, the community and partnerships, such as those with the Movember Foundation and Commonwealth Bank, to carry out their essential work.

PCFA would like to acknowledge the generous support provided by Cairns Regional Council Plant Operators and the Water Industry Operators Association of Australia who together raised $1,505 for PCFA through Cairns Regional Council's fundraiser.

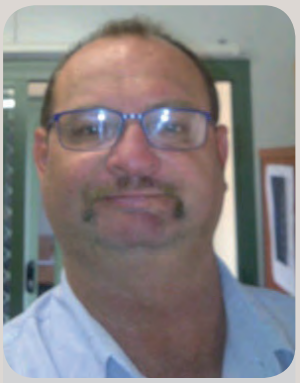
Cairns RC senior plant operator Damon Moody handing over $800 from WIOA to local PCFA fundraiser supporter Tony Sheils.

MOVEMBER

A number of WIOA members showed their support to changing the face of men's health by taking part in the 2014 Movember challenge with varying results as you can see.

We know that the SEQWater trio of John Granzien, Lloyd King and Gene Heffernan from Somerset South Water Treatment Operations raised over $1000 that has been committed to combating prostate cancer, testicular cancer and mental health problems. Other participants also raised funds for this much needed cause, well done to all!

John Granzien before



John Granzien after

Lloyd King before

Lloyd King after

Gene Heffernan before

Gene Heffernan after

PROTECTING MEMBRANES

Membranes are a game-changing technology – they've propelled water treatment to unprecedented heights. As costs come down and the range of available membrane options expands, membranes are appearing in industrial plants and irrigation setups, not just for municipal systems.

Amiad Membranes

Membranes are only as good as the prefiltration systems that protect them. After all, flux and permeate production are heavily dependent upon the quality of influent water. Long-term membrane performance is compromised by fouling, as well as by damage from repeated cleanings. The environmental footprint, and the economic return of a membrane system are impacted when more chemicals are required to clean it, more energy is required to pump across partially fouled membranes, and more water is disposed due to low permeate production.

As a result, prefiltration before membranes is a critical step – or several steps. Increasingly, membranes are becoming so prevalent that they are being used to protect other membranes – for instance, it is no longer unusual to see reverse osmosis (RO) membranes protected by microfiltration (MF) membranes.

While that arrangement does an outstanding job of feeding high-quality influent to the RO vessel, the MF membranes still need protection themselves. Membranes have become less expensive, but they're not cheap enough to go without protection. Ultimately, there's still a need for filtration at the micron level to safeguard systems that do their best work at the sub-micron level.

Specifying the most appropriate technology for membrane protection is an important investment with the potential for extraordinary return.

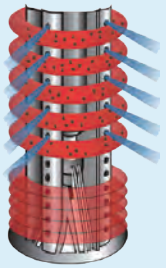
Choose Carefully

Choosing the optimum prefiltration system depends on several variables, including the anticipated flow through the system, the degree of filtration required (which in turn is based on the size of the solids that must be removed and what else lies downstream of the prefiltration unit), and the nature of the contaminants in the water.

Deformable (e.g. Algae) and Non-deformable (e.g. Sand particles) solids are common in a wide variety of water, seawater and wastewater treatment applications. Such solids can interfere with membranes or pre-membrane fine filtration systems such as cartridges or bag filters.

A wide range of filtration technologies are available and designed to provide a solution for membrane protection. Screen filters engage either a suction nozzles scanner cleaning mechanism or a brush cleaning mechanism to draw trapped solids ("Filter cake") off the screen. The filtration of the screen is "inside-out" with various screen structure subject to the application and filtration degree that is chosen. The cleaning method of the filter will be online with no interruption for product water design with very low total water loss and activated when a target pressure differential or time interval is reached across the filter.

In disc filters, particles travel from the outside to the inside of a tightly compressed stack of polypropylene discs. Each disc is etched with fine channels that allow influent and solids to travel; however, as the channels intersect between discs, solids are trapped. The diameter of the discs provides ample opportunity for the system to capture particles, even those flexible enough to squeeze through smaller openings than the solids' nominal size.



Arkal Disk backwash

When a target pressure differential is reached between the clean and dirty sides of the system, the inlet closes, the core telescopes to separate the discs, and powerful streams of water blast particles from between the discs.

The Arkal line of disc filters have been adopted in a number of seawater reverse osmosis (SWRO), brackish water and certain corrosive wastewater treatment systems. Where rust or corrosion is a concern, the all-plastic construction of the disc systems is viewed as a significant benefit.

Microfiber Protection

Automatic micro fibre

Deformable particles like algae and transparent exopolymer particles (TEP) – as well as small nondeformable solids and cysts of Giardia, Cryptosporidium and Legionella – may also be trapped by automatic microfiber (AMF) systems, which use extremely fine polyester thread densely wound around plastic cores to trap solids.

As with other automatic self-cleaning technologies, pressure differential between the influent and effluent sides of the system is the most commonly used trigger for automatic self-cleaning.

When the target pressure differential is reached, a high-pressure jet of water is directed through the fibres and deflected by grooves in the plastic core of each AMF filter element. The water sprays through the fibres and releases trapped particles for disposal.

Providing filtration down to the 2-micron level, AMF filters are widely used to protect microfiltration, Ultrafiltration or RO membrane systems, often replacing cartridge filters and eliminating the need to buy, replace and dispose of consumables.

In Summary, membranes are making it possible for municipal and industrial water treatment professionals to turn poor-quality water into an outstanding-quality resource, and expanding the global water supply by enabling wastewater reuse in unprecedented ways. In a vital supporting role, prefiltration makes it possible for membranes to perform to their potential – and contributes significantly to improvements in economy, ecological footprint and performance that will continue reducing the cost of membrane treatment and expand its adoption.

Contributed by **Ruth Elfassi-Kamer** from Amiad Water systems

GLENELG WASTEWATER TREATMENT PLANT – ADELAIDE.

Visitors to Adelaide and South Australians fly over it or drive by it. Many may not realise the unique character and more particular the history attached to Glenelg Wastewater Treatment Plant. Since 1 July 2011 the plant has been operated and maintained by SA Water's Alliance partner, Allwater.

Having worked at Glenelg for a short time, I and others in the Water Industry in Adelaide enjoy the history and ownership shown by Operators at Glenelg for "their" plant.

I have extracted words from an article written by a former Engineer at Glenelg, Bronwyn Kent (now with SA Water), titled "Australia's Oldest Activated Sludge Plant: The Glenelg Wastewater Treatment Plant" for the Royal Australian Chemistry Institute's magazine in December 2014. Bronwyn traces the plant from Pre-activated Sludge plant, septic tanks and filter beds in 1929 to Australia's first Activated Sludge Plant in 1932 through extensions, upgrades to 2000s. Below is an extract from the paper, for a comprehensive read I strongly urge readers to access a copy from the Royal Australian Chemistry Institute.

Thanks to Bronwyn Kent (SA Water) and Jennifer Dreyfus (Allwater – Glenelg)

After much research and healthy debate, and courtesy of a growing population, the South Australian Government embarked on the design and construction of not only the state's, but the country's first activated sludge plant – the Glenelg Wastewater Treatment Plant (WWTP). The process was successfully commissioned in December 1932. Since then, other major additions have been made to the plant with extensions in the 1940s, 1950s, 1970s and 2000s. The plant now serves a connected population of over 200,000 and is situated in one of Adelaide's most popular and affluent seaside suburbs. Through these upgrades, the plant remains committed to the activated sludge process and is a plant capable of a high level of wastewater treatment, continuing to reduce the nutrient load discharged to the sea and enabling the recycling of effluent for dual reticulation and irrigation purposes. This paper explores the history of Australia's first activated sludge plant as well as displaying the significant photographic records that exist, detailing the construction, operation and people that since 1932, have dedicated parts or all of their working lives to this plant.

Administration Building, Glenelg WWTP, 1932 (with the Managers Model T Ford)

The EPA began a series of licence changes, imposing on SA Water the need for an Environmental Improvement Program at Glenelg. The aim of this was to reduce the Total Nitrogen discharge to the sea to ≤ 10mg/L, and reduce the impact of effluent discharge on seagrasses. No increase in capacity was required, instead a change to the activated sludge process with the incorporation of biological nutrient removal. This became known as the 'Glenelg EIP Project' and began construction in 2000 with commissioning in 2002. The A Plant aeration tanks, clarifier and outfall were decommissioned due to the deterioration of the concrete and the need to upgrade to a more sophisticated level of activated sludge treatment.

Recent Major projects include:

- New D Plant secondary treatment process (2 stream, conventional Modified Ludzack-Ettinger (MLE) BNR process) with 2 circular clarifiers incorporating scum removal
- Conversion of B and C Plant aeration tanks to MLE BNR process incorporating the installation of IFAS (Integrated Fixed-Film Activated Sludge) media
- Carbon dosing to the activated sludge processes
- 2 new HV Turbo Blowers
- Dissolved Air Flotation Thickening plant for thickening of waste activated sludge prior to digestion
- 1 ML/d recycled water plant with alum coagulation, sand filtration, UV disinfection and chlorination, producing effluent suitable for dual reticulation and irrigation.

The success of the recycled water plant was so great and customer demand so high that in 2009 a new 35 ML/d recycled water plant was commissioned at Glenelg, providing effluent for dual reticulation and irrigation purposes for the existing customers as well as new customers reaching from the western to the eastern suburbs of Adelaide, including the central business district. This plant incorporates UF membrane filtration followed by UV disinfection and chlorination.

UF Skids in the Glenelg Adelaide Parklands Recycled Water Plant, 2009

Contributed by **Neil Crossing** from Allwater, Adelaide, SA

BIRDS EYE VIEW - Facilities Members Operate

Glenelg Wastewater Treatment Plant, Adelaide, South Australia

1. Front Gate
2. Administration
3. Control Room
4. Toilets
5. HV Switch Room
6. Car Park
7. Engine Room
8. Mechanical Workshop
9. Electrical Workshop
10. Fitters Shed
11. Aeration Tanks (Abandoned)
12. Primary Tanks
13. Screenings
14. Digesters
15. B Plant Contact Tank
16. Pump Station 1
17. (C&D) Plant Contact Tank
18. Back Gate
19. Networks Compound
20. Sludge Lagoon
21. A Class Tank
22. DAFT
23. Pre Filtration
24. Storage Lagoons
25. Feed Water Storage Lagoons
26. UF Building
27. Chlorine Building
28. Pump Station 2
29. Transfer Pumping Station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QUEENSLAND INNOVATION FORUM

In November 2014, I represented WIOA as an attendee at the Queensland Urban Water Industry Innovation Forum conducted by ***qldwater.*** This event involved an afternoon visit on November 26th to Queensland Urban Utilities Luggage Point treatment facility where they have an Innovation Centre for the development of new initiatives in the water industry.

Luggage Point Innovation Centre

One of the projects I found of particular interest was in the area of biosolids, converting waste into energy and other useful products as major cost in Wastewater management is the transport of the biosolids produced. Another project was the development of the capabilities of drones to do aerial inspections of reservoirs and other high structures thus eliminating the WH&S issues and costs involved.

On Thursday 27th there was an all day session to showcase some projects being undertaken at a range of locations throughout Queensland. A wide variety of project reports were presented ranging from upgrades and optimising water and wastewater treatment processes, new process models and innovations to save power to name just a few. (The other highlight of the day was the massive hailstorm the pelted Albion Park in the afternoon damaging many vehicles in the car park, mine included.)

Qld Minister for Energy & Water Supply, Mark McArdle at the Forum

Some of the points I came away with were:

- Get the maximum out of the asset before looking at expensive upgrades
- Process modelling should be only used as a basic guide, the operation of the facility by experienced operators will often lead to better results than predicted by models
- Get the regulator involved early and frequently about licence discharges so that the outcome reflects the most beneficial solution
- Data is collected but is there a need for all that is collected and is it used correctly when it is analysed anyway

No matter how small or large your issue/problem someone, somewhere is or has faced the same issue and maybe already has a solution.

Forum Presentation

I found the Forum day very informative with all the different issues raised and how various Regions and Councils were combining to address them. I hope that I can be involved with any similar events in the future and would not hesitate in recommending these days to others in the water industry. The real value of attending these events is to share and gain knowledge. The problem that you have been struggling with may have already been solved or at least identified for resolution by your neighbour.

Contributed by J**ohn Paulger,** Toowoomba Regional Council

BOTTLED WATER BAN

Believe it or not, bottled water has been banned in a couple US cities.

The largest is San Francisco, where a ban on selling plastic water bottles on city-owned property at large public events went into effect on 1 October 2014. Concord in Massachusetts enacted a full and complete ban in 2013 on selling bottled water bottles that are 1 litre or smaller. The University of Vermont (Burlington) has also enacted a bottled water sales ban, as have another 22 private college campuses in the USA.

Hey, what's wrong with bottled water? Isn't bottled water, like, the healthiest thing you can buy in the beverage aisle? Why would cities ban, of all things, the most universally consumed and healthy beverage available in stores? It turns out that the bottled water industry has kind of grown into an ecological catastrophe.

Producing bottled water wastes enormous amounts of water. We go through a third a litre of oil for very bottle of bottled water. It also takes 3 litres of water just to produce 1 litre of bottled water.

The main reason for opposition to bottled water sales is the enormous amount of plastic the industry creates and then wastes. Sure, those bottles are technically recyclable. But only one in five bottled water bottles actually gets recycled in the USA (probably not much better in Oz) and most end up in a landfill.

The bottling of the water is completely unnecessary. We already pay for water as a utility, and at a vastly lower cost. Some reports suggest that 40 percent of the bottled water sold is just regular tap water.

The beverage industry is reselling tap water, making huge profits, and wetting themselves with laughter.

Contributed by **Bernd Vetter**

Editors Note

WIOA has been a strong supporter of drinking tap water instead of single use bottles for many years. Jon Dee, founder of the Go Tap campaign, has presented at all of our conferences and we encourage our conference delegates to top up their refillable water bottles from the water stations we provide. It is pleasing to see the number of water businesses and local councils that are now providing water fountains for public use. There are a number of Apps now appearing which direct people to the nearest water fountains to drink or refill their bottles. To protect our environment, we think it is vital to continue to promote this important initiative.

WATER INTEREST DAYS

TUGUN DESALINATION PLANT

Seqwater's Tugun Desalination plant was the venue for the November 2014 Qld Interest Day with 30 members in attendance. During registration the Alfresco Café style lunch area was a hit and the conversations soon centred around the plants facilities ranging from offices that opened up onto resort style gardens, to the multiple colour schemes on the buildings that were designed to appeal to the tourists flying into the Coolangatta airport next door. With all attendees accounted for we entered the training room to start the day's activities.

The morning commenced with George Bellizia giving the group an overview of the plant's operational abilities and requirements. The plant is designed to operate at either 33, 66, or 100% flow rate depending on the requirements of the SEQ Water grid. The main function of the plant is to act as an insurance policy should another plant on the SEQ Water grid fail to safely treat water due to breakdowns or water quality related problems. The plant is currently operating in "Hot Standby", this is minimum flow rate (33%) while rotating duty of filtration and membrane trains ensuring all plant is ready to go to full operation with minimal notice should the water be required.

Dave Cohen then addressed the group giving a detailed presentation on the desalination process.

We were informed of the two main desalination processes - Thermal or Membrane along with the energy and recovery rates for each process. Dave's presentation had detailed slides showing the operational pressure for different membranes along with a cross section diagram of a membrane trapping salt particles, viruses and bacteria while allowing the filtrate to pass for further treatment. The Process Engineer in Dave then came out with some mathematics demonstrating R.O Unit Recovery in percentages depending on the quality of feedwater along with the benefits to first and second passes of permeate through an R.O train to produce a quality final product. Dave also informed the group of the Pressure/ Work Exchanger used at the plant as an energy saving device.

Next it was time for the Grundfos boys to shine. Nathan Stevens and Mark Aboud addressed the group with a range of products and the involvement Grundfos had with the alliance while the plant was under construction, including the ongoing maintenance required to keep the equipment operating at peak performance.

The group then moved out to the "lunch area" where the Georg Fisher boys had a range of valves, fittings and PE welders for us to view. After a run down on each product we were fortunate enough to see a live demonstration on the latest Georg Fischer PE welders and the correct procedure to prepare, weld and test a PE joint including a detailed fusion report.

Lunch was kindly sponsored by the teams from Georg Fisher and Grundfos and was well received by all. With George leading the way, we were given a tour of the plant. We were all impressed with the quality of the plant and apart from the inlet works the plant was completely undercover protecting the operators and the precious water they treat from the elements.

I believe all who attended gained an informative insight into the SEQ Water Grid as well as the daily operations that take place at Tugun. I am sure all who have the opportunity to be part of an alliance or a team responsible for building a treatment plant or new facility will remember the "Lunch Room" and "Office Space" at Tugun and one day all operators will enjoy facilities like the operational staff at Tugun get to experience.

Contributed by **Marcus Boyd** from Toowoomba Regional Council

TASMANIAN WASTEWATER

On the 22nd October 2014, WIOA held a Wastewater Interest Day at the Oatlands Town Hall. The main topic was the operation of wastewater treatment lagoons.

The day was attended by around 45 TasWater operators from all round the State. The presenters for the day were George Wall from WIOA and Judi Marshall, TasWater's Environmental Scientist.

They covered a range of topics including why we treat wastewater; why use lagoons and how do they work; monitoring lagoon performance; lagoon operational Issues and some spreadsheets and models for recording data.

After the presentations, a site inspection and discussions were held at the Oatlands lagoon plant. Some of the material presented on the day made more sense when looking at the actual lagoons.

Feedback from attendees was very positive. There were comments that other seminars on operational issues would be of benefit to operators within TasWater.

Many thanks are extended to George Wall, Judi Marshall, Lester Little for organising the logistics of the day and all the operators who attended.

Contributed by **Scott Moles**, TasWater

Tasmanian Wastewater Interest Day - onsite Oatlands

NSW OPERATOR OF THE YEAR

Nominations for the 2015 NSW Operator of the Year sponsored by the Water Directorate, closed on 20th February 2015 with the winner to be announced at the WIOA NSW conference in Orange.

WATER DIRECTORATE

Previous Winners

Who will win in 2015?

2014 Todd Pattison
Wyong Shire Council

2013 Neville Woodward
Coffs Harbour City Council

2012 Erwin Balsar
Shoalhaven City Council

2011 Allen Paul
Clarence Valley Council

2010 Les Potter
Coffs Harbour City Council

2009 Ross Waugh
Coffs Harbour City Council

2008 Peter Hale
Shoalhaven Water

2007 Pat Welsh
Mid Coast Water

NZ HOLIDAY SNAPS

Attached is a picture taken during my recent holiday in New Zealand.

When visiting the Coromandel Peninsula, we climbed this volcanic rock mountain to find half way up this water reservoir with wood panels and steel ropes. Not a bad spot to inspect the assets.

Contributed by **Bernd Vetter,** Evoqua Water Technologies

Wooden Tank

THE LIGHTER SIDE

WIN A TRIP TO NZ – PASS (PROBLEM ACCEPTED SOLUTION SUPPLIED) AWARD

The PASS Award provides an opportunity for operational staff to share their in the field innovations and fixes to problems so that others in the water industry can benefit. It is a fantastic opportunity for members of WIOA to receive recognition for their innovation and efforts and lets us share the good ideas and innovations with other Members.

Applications will be accepted until 27 February 2015 with the winner announced at the NSW Conference in Orange. The prize for the winner is an all-expenses paid trip to join the WIOA contingent on the tour of NZ and to attend the WIOG operations conference to be held in Blenheim on 6-8 May 2015.

All the entries, including the winner of the award, will be published in the PASS Award booklet that provides our members with useful tips on improving day to day work practices.

PASS
Problem Accepted · Solution Supplied

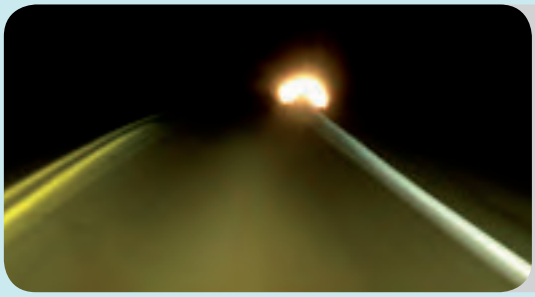
TECH TIP – LINE OF SIGHT

Most of the Operators in the Water industry - particularly those involved in the SCADA and telemetry system - have probably heard the expression “line of sight” and many may wonder what this actually means from a practical sense. The use of the expression in the Water industry is most likely to be heard when discussing the possibility of adding a remote site to the telemetry and SCADA system (such as a Water or sewerage pumping station) or when looking to install some communication between two points (such as when communicating signals directly between a Water reservoir and a pumping station).

The expression “line of sight” is often used to describe a radio path requirement for any radio given telemetry application but from a practical sense, what does this mean? Firstly, we need to understand that different frequencies will require different “paths”, a path simply being the area of atmosphere between the two points of communication. As a general rule, the higher the frequency, the better (or less obstructed) the path will need to be. For this reason, microwave applications will require a significantly clearer path than the lower frequency radio in your car.

When we talk about telemetry and SCADA applications in the Water Industry we are often talking about UHF frequencies in the 400Mhz range and so what, in this case, can we assume line of sight means?

A good way to think about line of sight in the 400Mhz application is to imagine two cars travelling in opposite directions at night on a highway. As a car approaches from across a ridge you will start to see the light some time before you actually see the headlights of the car. From a practical sense, 400 MHz radio is similar; you will be able to communicate between two points that cannot necessarily see each other for much the same reason.



Car Headlights

If you think about our light example again you can start to imagine the paths you will require for radio. If you are travelling over a long distance then you will need to have very little obstruction to see the car in the distance but if you are not far from the other car you will see the headlights over a ridge or trees. Again, 400 Mhz is much the same, the closer the two points are together, the less you need to worry about “line of sight”.

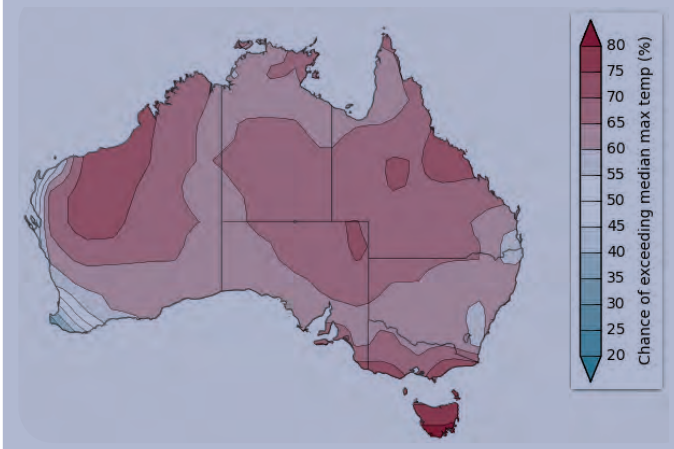
Of course the very best way to decide if a path will work is a radio survey but by imagining the light example you may at least have some more understanding of the likelihood or otherwise of a path survey coming up with good results.

Contributed by **Adrian Nisbett**, Automation Group

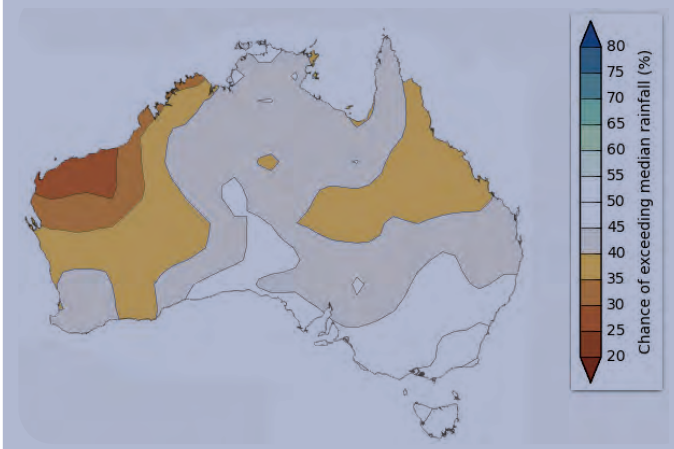
CLIMATE OUTLOOKS - THE WARMER MONTHS

Wondering what conditions will be like for January to March 2015? The Bureau of Meteorology rainfall and temperature outlooks for this period are now available.

- A drier than normal January to March is more likely over parts of western and north eastern Australia.
- A drier than normal January is more likely over northern and southwestern parts of WA, and the southern NT. The chances of a wetter or drier January are roughly equal over the remainder of the country.
- The temperature outlooks indicate a warmer than normal start to 2015, with the January to March outlooks for both daytime and night-time temperatures above normal across most of most of Australia.
- Climate influences include near-El Niño conditions in the tropical Pacific, a warm Indian Ocean basin and warmer than normal waters to the southeast of Australia.



Temperature projections Jan to March 2015



Rainfall projections Jan to March 2015

http://www.bom.gov.au/climate/outlooks/#/overview/summary/

Source: **Australian Bureau of Meteorology**

CONTAINERISED FAST WWTP

The modular Smith and Loveless FAST® Process from CST Wastewater Solutions can be easily transported, installed and operated with minimal engineering and maintenance at worksite and population centres. It is basically a plug and play system.

The patented Fixed Activated Sludge Treatment (FAST) process is available in Individual unit capacities of hundreds of cubic metres a day, which can be multiplied by the use of interconnected multiple units.

In addition to achieving higher loading rates within a smaller footprint, effluent produced can be recycled into suitable industrial, public facility and commercial processes. It can be mixed with resource site runoff water, for example, and sprayed on haul roads for dust suppression.

FAST achieves nutrient removal for applications containing high level of nitrogen.

The FAST process involves a fixed-film, aerobic treatment system designed for tackling variable load and flow conditions. FAST® consists of tankage packed with completely submerged media which creates a high surface area-to-volume ratio, which, combined with internal settling zones, maintains constant bacterial growth during low-flow and peak usage periods typical of many remote installations. This results in stable operation on a daily basis.

“Proven in thousands of installations worldwide, the system has been shown to be highly reliable in Australia because its stable process withstands hydraulic shock loads and prevents bacterial washouts, says CST Wastewater Solutions’ Managing Director Mr Mike Bambridge, whose company is exclusive national distributor for the FAST system.

“Simple operation and maintenance means no daily operator requirements and very little annual plant maintenance, says Mr Bambridge, whose company’s installations of the FAST system have been proven in Australian applications including: Alcoa, BHP-Billiton, Bechtel Pacific, Blair Athol Coal, Blue Circle Southern Cement, Cadia Gold, Dampier Salt and Wakefield Colliery. Further installations have been completed for the Central Coast Grammar School, CSIRO, Hunter District Water Kiama Municipal Council, Lakeside Leisure Park and Berowra Waters Marina.

Built into standard 20 or 40-foot shipping containers or concrete or fibreglass units as required, each FAST unit arrives at the job site as complete, factory-built units or as large components for easy field assembly.

FAST can also retrofit into existing aeration tankage to boost capacity and/or performance without expanding the plant.

CST Wastewater Solutions’ current major FAST project, scheduled to be completed this year, involves combination units with total capacities from 100 to more than 300 cubic metres a day.

Further information at web:www.cstwastewater.com

ADVANTAGES OF CHLORINE GAS

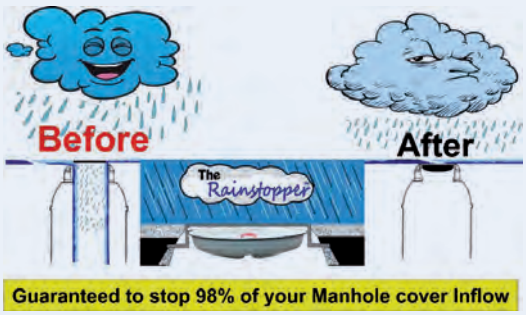
Some good arguments in favour of Chlorine gas, rather than using sodium hypochlorite!

- Chlorine gas – the green choice for disinfection (lowest total electrical consumption, lowest total greenhouse gas emission, lowest transportation cost relative to other commercially produced disinfectants).
- Pure, 100% disinfecting capability – does not degrade in storage, no by-products in the dosed chemical
- Acidity of chlorine gas in solution promotes better disinfection
- Simple, safe, rugged, reliable, well understood chlorine handing & dosing systems – chlorine continuously micro-metered.
- No fire risk, no explosion risk – risk perception very heavily influenced by publicity arising from mishandling of alternative disinfectants.
- Persisting, easy to measure residual effect (at the dosing point, into the network, right up to the consumer)
- Significantly lower total life expenditure c/w other commercially produced disinfectants
- Water disinfection makes a critical difference – 9,000 people a day die from waterborne disease (www.voanews.com/content/a-13-2005-03-17-voa34-67381152/274768.html)

Contributed by **Tony Higson**, Evoqua Water Technologies

REDUCING INFLOW FROM MANHOLES

The challenges of inflow and infiltration have plagued us for decades. With a growing population, ageing infrastructure, changes in rainfall patterns due to climate change and an EPA driven awareness of the health problems associated with SSO (sewer overflows), inflow has become serious business and simple solutions are needed.



Inflow occurs when rainwater is misdirected into the sewer system instead of storm water drains. Examples are: roof downpipes, yard and area drains, swimming pools, manhole covers, and cross connections from storm water drains.

During heavy storms sewers can become surcharged and overflow. Manhole covers have been estimated to amount from 30% up to 45% of the inflow from rain and storms.

Installing Rainstopper Manhole Inserts under manhole covers can dramatically reduce the amount of water that enters the sewer and therefore reduce treatment costs at the wastewater plant. Rainstopper can use their Inflow Cost Analysis which can demonstrate how your municipality can save. Rainstopper Manhole Inserts are easy to install or remove and are maintenance-free.

Installing Rainstopper manhole inserts can

- Reduce treatment plant costs
- Reduce pump station power & maintenance costs
- Reduce sewer overflows
- Reduce odours
- Stop 98% inflow of manhole cover

They are available with anti-tampering lock-down and the 304 Stainless steel insert has a 25 year warranty.

Rainstopper Australia (www.rainstopper.com.au) offers a range of manhole inserts to suit all sizes and shapes for new and existing manholes, and small size pump stations.

QUICK CHECKS TO MAKE THE MOST OF YOUR SUPER

✓ **Consolidate your super**

Paying duplicate sets of fees on multiple accounts is just throwing money away. It might not seem like a lot but it adds up!

✓ **Find your lost super**

There is $AUD 14 billion lost super out there. If you have changed jobs in the past and lost track of where your super was paid into, some of that money could be yours.

✓ **Investment choice**

Most people don't know what investment choice they're in. It is important to make an investment choice based on your level of risk. Try our online questionnaire to see what type of investor you are:

www.visionsuper.com.au/investments-performance/what-type-of-investor-are-you

✓ **Boost your super**

There are ways to increase your super including salary sacrifice, which can lower your taxable income, and/or getting your partner to make contributions on your behalf. And if you're eligible, you should also take advantage of the Government co-contribution.

✓ **Insurance**

Most super funds come with automatic insurance cover. Do an annual check to make sure you are covered for the right amount. Our online calculators can help you with this:

www.visionsuper.com.au/calculators

✓ **Get financial advice**

People who receive financial advice are almost $100,000 better off at retirement than those who do not receive advice. It's never too late or too early to start planning so schedule an appointment to see how you can benefit.

Contributed by **Vision Super**

Vision Super is an industry super fund, which means we're run only to benefit our members. **Phone 03 9911 3222 (1300 300 820** for regional callers), or email **memberservices@visionsuper.com.au** to find out how you can make the most of your super!

VISION SUPER
YOUR INDUSTRY SUPER FUND

NEW MEMBERS

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

New **Individual Members** include:

Jake Livermore, Paul Ryan, Lee Thompson, Graham Hansen, Adrian Smith, Chris Deeks, Peter Browne, Shannon Dempster, Jon Stammers, David Smith, Shawn Charlton, Gerard Callinan, Ian Couling, Sarah Cresswell, Paul Piccoli, Graham Gordon, Neil Trounson, Stephen McCarten, Clayton Jasnos, Joshua Charles, Trevor Cowie, Peter Vardanega, Stan Fletcher, Rupert Wall, Joey Latham, Lloyd Robinson, Murray Rose, Paul Hall, Dennis Bussell, Larry Warrener, Tom Barwick, Jack (Jnr) Walton, Ben Bessell, Chris Hughes, Richardo Clemente, Arron Hieatt, Kawser Jamil, James Shoobert, Peminda Jayasinhe, David Scott, Simon Woodford, Trevor Harvey, Matthew Cook, Laurie Hebblewhite, Brad Thode, Mark Shelford, Justin Vicary, Jordan Giddins, John Endres, Tim Merrett, Mirjana Montaldo, Ashley Augustine, Rob Staines, Carl Smith and Mark Curtis.

New **Utility Corporate Members** include:

Griffith City Council, Gwydir Shire Council, Unity Water, North Burnett Regional Council, Narrandera Shire Council

New **Corporate Members** include:

SFI Australia, Rainstopper Australia, Control Logic, GE Intelligent Platforms, Dynapumps, Ridge Tool Australia, Mattioli Bros, Fusion, Agru Australia, The Tasman Tank Co, Pensar Construction Group, Pump Engineers Australia, Comdain Infrastructure, Akwa-worx, Advance UV System, Latrobe Valley Engineering Services, Haztech Automation, SNF (Australia), ADI Systems Asia Pacific, Riverina Institute of TAFE, Carboline Coatings, H+S Maintenance and Metasphere Australia.

BELIEVE IT OR NOT, YOU CAN READ IT.

I cdnuolt blveiee taht I cluod aulaclty uesdnatnrd waht I was rdgnieg. The phaonmneal pweor of the hmuan mnid aoccdrnig to rscheearch at Cmabrigde Uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be in the rghit pclae. The rset can be a taotl mses and you can sitll raed it wouthit a porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe. Amzanig huh?

COMING EVENTS

2015

24 February	Water Quality Seminar with Steve Hrudey, Melbourne
28 February	PASS Award applications close
28 Feb/1 March	WIOA Weekend Seminar & AGM, Club Mulwala
20 July	Kwatye Applications close

2015 CONFERENCE AND EXHIBITION SCHEDULE

25 & 26 March	9th WIOA NSW Water Industry Operations Conference & Exhibition, Orange
17 & 18 June	40th WIOA Queensland Water Industry Operations Conference & Exhibition, Toowoomba
2 & 3 September	78th WIOA Victorian Water Industry Operations Conference & Exhibition, Bendigo

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NEXT EDITION

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