



Unitywater

# Drinking Water Service Annual Report

2022 to 2023

# Acknowledgement of Country

Unitywater acknowledges the Traditional Owners of the lands on which we operate - the Jinibara, Kabi Kabi and Turrbal people. We recognise their significant contributions to the conservation of our environment and their deep connection to the land and waters.

We pay our respects to their Elders, past and present, and acknowledge the important role all Aboriginal and Torres Strait Islander peoples continue to play within our communities.

Our Cultural Spring motif symbolises a water hole, traditionally a gathering place where knowledge is shared. The depth of colour illustrates the connection between land and water and our commitment to reconciliation, bringing our people together and fostering a deeper understanding and respect for Aboriginal and Torres Strait Islander cultures.



*Artwork: Gilimbaa Creative Agency*

# Welcome

At Unitywater, we're committed to contributing to healthy and thriving communities.

We exist for our customers and our number one priority is to provide 24/7 safe water services to Moreton Bay, Noosa and the Sunshine Coast.

We see ourselves as the custodians of essential water services and take that responsibility seriously.

This annual report provides assurance that you can continue to have confidence in the clean, safe water at the turn of your tap, and that we are meeting our requirements set by our regulator.

Unitywater has again achieved full compliance to the requirements set by the *Public Health Regulation 2018* and published in the Australian Drinking Water Guidelines 2011.

We carried out 110,015 water quality tests from 6,552 samples taken throughout 6336km of our water network in the 2022-23 reporting period.

We participated in a successful surveillance audit of the International Standard ISO 22000:2018 Food Safety Management Systems in March. ISO 22000 certification gives our communities assurance that our management systems are best practice and safeguard water supplies.

As we look ahead, we'll continue to work towards the many opportunities and challenges in our region, including a growing population requiring significant new infrastructure and technologies that benefit our customers, the 2032 Olympic Games and changing weather patterns.

These all require considered planning, innovation and thinking that centres around valuing every drop. We aim to protect and preserve this precious resource for our entire community, today and into the future.

This report aligns with the *Water Supply (Safety and Reliability) Act 2008* requirements under Section 142(3) and is published on [our website](#). For further details on alignment, please see Appendix A or if you wish to access a printed copy, please call or email Unitywater to arrange delivery or collection.

**“**  
**We see ourselves as the custodians of essential water services and take that responsibility seriously.**  
**”**

# Drinking water at a glance 2022 to 23

**100%**

compliance to Public  
Health Regulations

**6552**

water samples collected

**110,015**

water quality tests  
conducted

**103**

drinking water reservoirs

**18**

water reservoirs cleaned

**373,779**

customer connections

**6337 km**

length of water mains  
servicing customers

**58,952 ML**

drinking water supplied  
to customers

**7**

reservoirs renewed  
or re-roofed



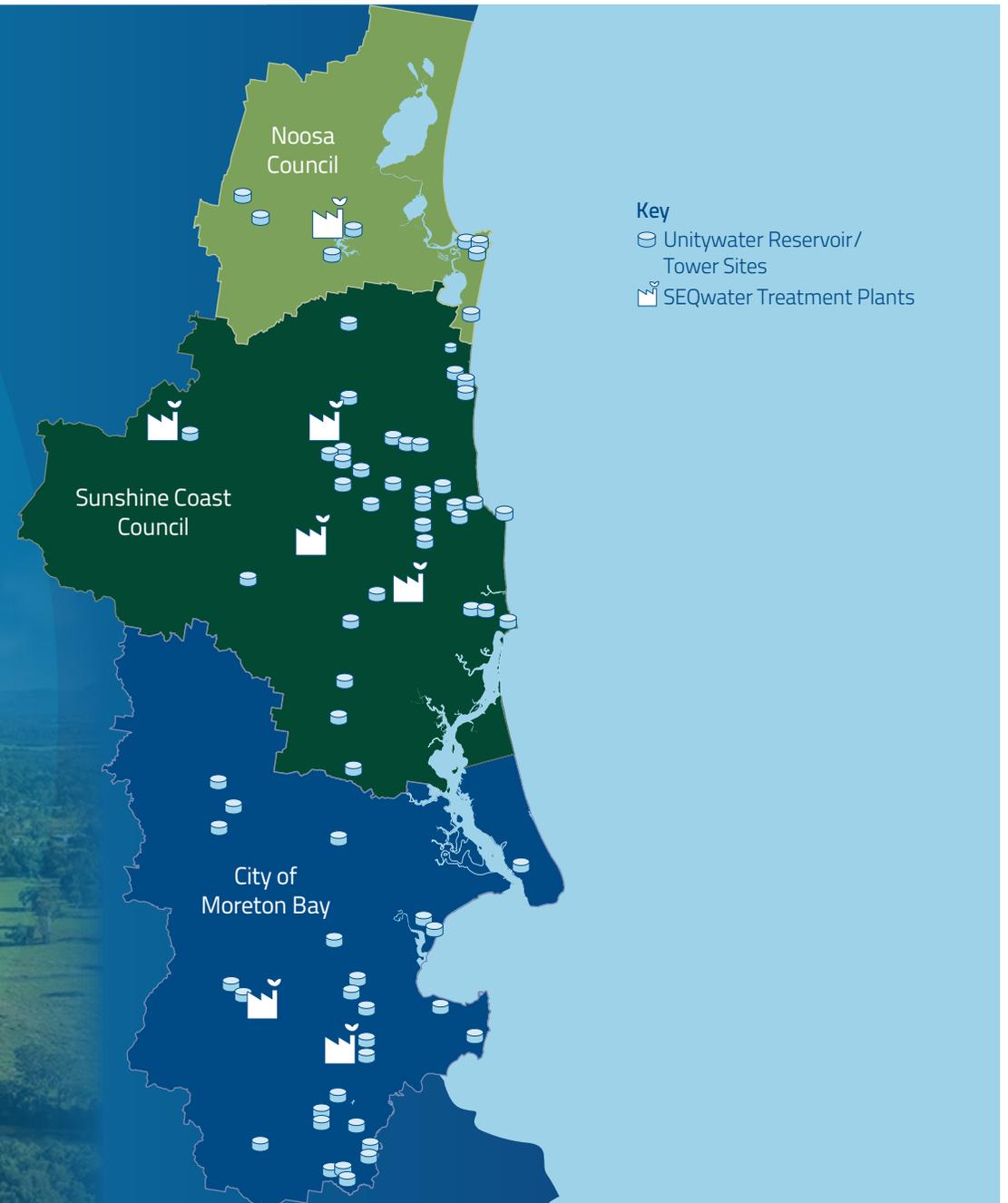
# Our supply area

## Where we sit on the grid

The South East Queensland Water Grid, owned and operated by Seqwater, connects the bulk water supplies from Noosa in the north, through greater Brisbane and down to the Gold Coast.

This arrangement enables Seqwater to move treated drinking water from one area to another, reducing the risk of any single source being used up (i.e. during drought conditions).

For more detail on the bulk water supply network, visit the [Seqwater website](#).



## Water supply sources

Unitywater purchases bulk treated water from Seqwater. Seqwater is responsible for management of 'raw water' (the lakes, dams and desalination plant), the water treatment plants (WTP) and the delivery of treated 'bulk' water to the bulk supply points. Please direct any queries on water sources or treatment to [Seqwater](#).

Treated drinking water enters the Unitywater network either directly from a WTP or via a major pipeline called the Northern Pipeline Interconnector (NPI). The NPI, owned and operated by Seqwater, was built by the Queensland Government to provide long-term water supply and security in South East Queensland. The NPI can flow in either a northerly or southerly direction, allowing water to be transferred between the Noosa, Sunshine Coast, Moreton Bay and Brisbane Council areas.

The NPI flow direction is dependent on source water availability and regional demand, and coordinated between Seqwater and the Distribution Retail Entities (Unitywater, Urban Utilities, Logan City Council, Redland City Council, and City of Gold Coast).

For water quality reporting, Unitywater's supply network is divided into the four regions described further on this page, including the Dayboro and Kenilworth communities which are not connected to the South East Queensland Water Grid.

### Dayboro

This includes the Dayboro township and surrounds that receive reticulated water.

#### General operation:

This area is supplied from the Dayboro WTP

- The Dayboro WTP treats water extracted from bores located in the North Pine River and supplies the Dayboro region.
- Water can be brought in via water tankers in times of drought or if the WTP is offline.

### Kenilworth

This includes the Kenilworth township and surrounds that receive reticulated water.

#### General operation:

This area is supplied from the Kenilworth WTP

- The Kenilworth WTP treats water extracted from bores located in the Mary River and supplies the Kenilworth region.
- Water can be brought in via water tankers in times of drought or when the WTP is offline.

### North

This includes all areas within the Sunshine Coast and Noosa Councils that receive reticulated water, i.e. Caloundra, Maleny, Maroochy North, Maroochy South, Noosa and Railway Towns (excludes Kenilworth).

#### General operation:

This area is normally supplied from the Noosa, Image Flat, Landers Shute and Ewen Maddock WTPs with supplementary supply via the NPI

- The Noosa WTP treats raw water from Lake Macdonald and the Mary River to supply the Noosa area (includes Tewantin, Cooran, Pomona and Cooroy). Water from Noosa WTP can also supplement the NPI.
- The Image Flat WTP treats raw water from Cooloolabin Dam, Wappa Dam and Poona Dam to supply the Maroochy North area.
- The Landers Shute WTP treats raw water from Baroon Pocket Dam and supplies the Maroochy South, Maleny, Caloundra and Railway Towns areas. Water from Landers Shute WTP also supplements the NPI
- The Ewen Maddock WTP treats raw water from Ewen Maddock Dam and supplies the Caloundra area.

### South

This includes all areas within the City of Moreton Bay that receive reticulated water, i.e. Bribie Island, Caboolture, Pine Rivers North, Pine Rivers South, Redcliffe and Woodford (excludes Dayboro).

#### General operation:

This area is normally supplied from the North Pine WTP and via the NPI.

- North Pine WTP treats water from North Pine Dam and supplies the Bribie Island, Caboolture, Pine Rivers North, Pine Rivers South, Redcliffe & Woodford region via the NPI.
- The NPI can additionally be supplied with water treated from both Landers Shute WTP and Mt Crosby WTPs depending on water source availability.

### About your water supply

Enter your postcode on our website to find out more about the water supply and quality in your area and to [view water quality results](#).

# Water quality summary

In 2022-2023, Unitywater collected **6552** water samples and performed **110,015** water quality tests and all water quality results met the requirements of the *Public Health Regulations 2018*, Australian Drinking Water Guidelines 2011, and the Queensland Health Chlorate Position Statement<sup>1</sup>.

The details of this testing are provided in the summary tables opposite and Appendix B of this report. The reported statistics do not include results derived from repeat samples, or from emergency or investigative samples undertaken in response to an elevated result.

## Drinking water quality performance snapshot

There are three categories used to assess water quality performance and these include microbiological performance, chemical (health) performance and chemical (aesthetic) performance. Further explanation of these categories are provided below:

- **Microbiological** performance meets the *Public Health Regulations* if more than 98% of samples from the supply region over a 12-month period returned a nil result for *E. coli*.

- **Chemical (Health)** performance meets the requirements if the 95th percentile (a statistical calculation) for each chemical over a 12-month period is below the Australian Drinking Water Guidelines health value for that chemical.
- **Chemical (Aesthetic)** parameters, generally related to appearance, taste and odour, meet the performance requirement if the average result for each chemical over a 12-month period is below the Australian Drinking Water Guidelines aesthetic value for that chemical.

Table 1 briefly summarises drinking water performance across the three categories, by each supply region.

<sup>1</sup> Queensland Health developed an interim health guideline value for chlorate to assist the Water Supply Regulator in the regulation of drinking water safety and to assist Drinking Water Service Providers assess and manage associated risks. Detection of chlorate above 0.8mg/L must be reported to the regulator as an event.

Table 1. Drinking water performance

Supply region	Microbiological performance	Chemical (health) performance	Chemical (aesthetic) performance
Dayboro	✓	✓	✓
Kenilworth	✓	✓	✓
North	✓	✓	✓
South	✓	✓	✓

## Microbial performance in detail

In 2022-2023 Unitywater met the requirements set by the *Public Health Regulations 2018* for drinking water with 100% of all samples free of *E. coli*. Table 2 summarises the microbiological performance for Unitywater's four regions.

Table 2. Microbiological performance

Supply region	Minimum number of <i>E. coli</i> samples required based on population*	Number of <i>E. coli</i> samples tested	Number of positive <i>E. coli</i> results	Required performance (PHR)	Actual performance	Met PHR?*
Dayboro	52	90	0	98%	100%	✓
Kenilworth	12	76	0	98%	100%	✓
North	1288	2349	0	98%	100%	✓
South	1340	2774	0	98%	100%	✓
Overall	2692	5289	0	98%	100%	✓

\* Unitywater tests over and above the minimum number of *E. coli* tests required under the *Public Health Regulation 2018* due to geographical spread of the population and a proactive risk-based approach to managing public health.

^ PHR = *Public Health Regulation 2018*

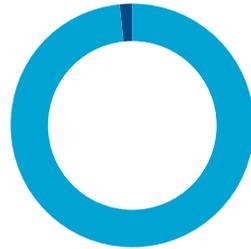
## Demonstrating our monitoring requirements

The supply of safe drinking water is Unitywater's greatest public health responsibility to ensure we are protecting the health of our community. A critical component of water quality management is verifying our product continues to meet the standards and guidelines articulated in the relevant legislation. To deliver this commitment to our customers, we implement a drinking water Verification Monitoring Program (VMP). This program is developed to maximise visibility of drinking water quality as it travels through the Unitywater network, to our customers' taps.

From time to time, meeting this rigorous testing regime may have missed samples and/or tests, mostly due to unavoidable reasons, such as;

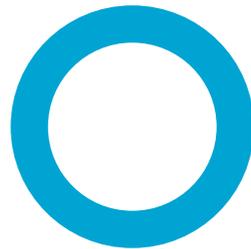
- laboratory registrations errors,
- faulty field equipment resulting in missed test result/s,
- reservoir been offline for planned maintenance,
- sample tap is offline and/or no access.

Unitywater takes every effort to ensure adherence to this program and has implemented quarterly checks as part of our ongoing assurance to our customers. The figures opposite outline how Unitywater performed in comparison to the rigorous testing requirements.



98.6%

Achievement with approved Verification Monitoring Program



100%

Achievement with required *E.coli* testing numbers based on population



# Incidents reported to the regulator

Under the *Water Supply (Safety & Reliability) Act 2008*, Unitywater is required to report water quality incidents including *E. coli* detections and failures of Chemical (Health) related values specified in the Australian Drinking Water Guidelines. Incident details are provided to the water supply regulator, including a summary of corrective and preventative actions. There was one notification made to the regulator in the 2022-2023 financial year.

Table 3. Water quality incidents

Date	Scheme	Description	Corrective and preventative actions
13 December 2022	Pine Rivers South	Total chlorine result of 5.85 mg/L at Ira Buckby 60 ML reservoir	Once the high total chlorine level was identified by our Scientific Services team; resampling and corrective actions were immediately undertaken. An investigation performed by our Network Engineering team found that the analyser located at this reservoir had a lower total chlorine value than expected. As a result the analyser was calibrated and the analyser probe was replaced. Unitywater is working on water quality improvement projects in this scheme to help minimise these types of incidents in the future.

# Customer enquiries related to water quality

Feedback and reports from our customers play an important part in alerting us to potential issues within the drinking water network.

We track all water quality enquiries through our Contact Centre and Network Operations Control Room. Tracking water quality enquiries allows us to continually improve our services to our customers.

In total, 286 water quality customer enquiries were received for the financial year 2022-2023 which is a significant decrease from the previous financial year that saw 450 enquiries (see Figure 2).

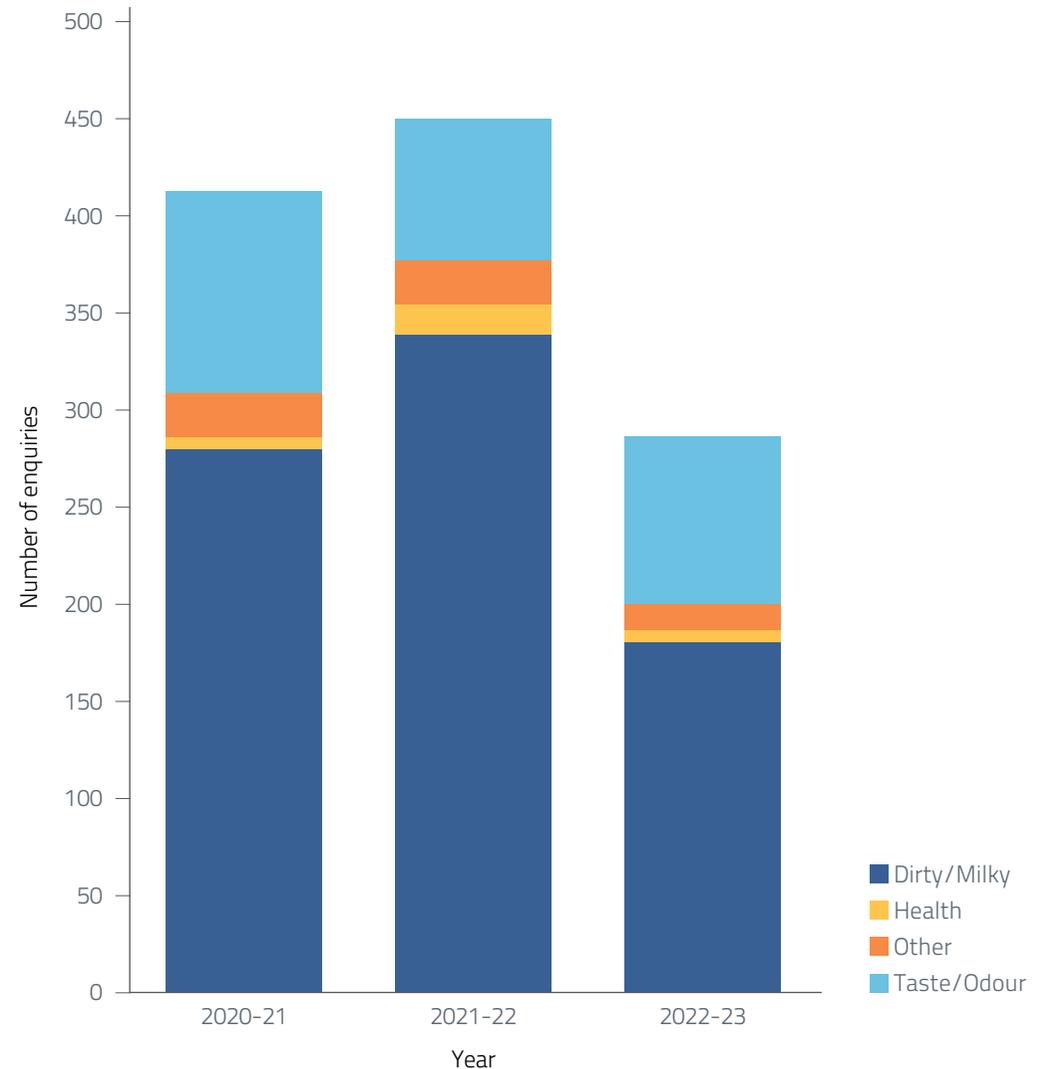
This is a result of the dedication by our field crews to minimise interruptions to our customers. Our water quality enquiries are categorised into one of four categories:

- dirty/milky
- taste and odour
- health
- other.

To improve our efficiencies in the field when responding to water quality customer enquiries, a water quality enquiries cluster tool has been developed. This assists our Network Operations and Control Room teams in identifying a water quality event through multiple enquiries in the same area. Appendix C contains more details on each of these water quality events which occurred in 2022-2023.

“  
**Tracking water quality enquiries allows us to continually improve our services to our customers.**  
”

Figure 2. Customer enquiries – financial year comparison



Each customer enquiry is triaged by our Control Room and Network Engineering team and below is a summary of typical responses to each category of enquiries:

## Health

Only 2.5% (7 in total) of our water quality customer enquiries were related to health and illness. In each case, an investigation was carried out and a crew attended site to confirm water quality being provided to the customer. Each investigation concluded that the drinking water was not the cause of the health enquiry.

## Dirty/Milky

62.9% of our water quality customer enquiries were categorised as dirty/milky. This category is used when a customer is experiencing discoloured water that is either brown, white or cloudy in appearance. The disruption of sediment is often the reason for brown coloured water and air becoming trapped within the water pipes can be responsible for the cloudy or milky colour.

Our investigations found that network activity and maintenance work, both planned and unplanned, caused the majority of the dirty/milky occurrences. In most instances, a crew was sent out to flush the affected area to help remove the discoloured water from the pipework. In some cases, internal plumbing issues were the contributing factor, and Unitywater provided advice to our customers to have their internal plumbing issue fixed.

## Taste/odour

30.1% of our water quality customer enquiries were categorised as taste and odour. This category is used when a customer is experiencing an unusual taste or odour that is different to their usual drinking water. Most taste and odour enquiries received during the 2022-2023 financial year were attributed to either chlorine or earthy and musty characteristics. The majority of these enquiries were resolved by flushing performed by the customer or their internal pipework or on occasion by field crews who flushed nearby water mains.

## Other

4.5% of our water quality enquiries were categorised as other. This category is used to capture enquiries which may not fit into the above categories but are water quality in nature and require attention from our Network Operations team.

Table 4 shows a breakdown of the water quality customer enquiries received through the 2022-2023 financial year. The number of enquiries has also been normalised against the population of each region, to give a per 1000 customers figure.

Table 4. Breakdown of water quality customer enquiries

Water supply region	Health	Dirty/Milky	Taste/Odour	Other	Total	Connected population (estimated)	Per 1000 customers
North	3	84	35	9	131	466,202	0.28
South	4	96	50	4	154	548,889	0.28
Dayboro	0	0	1	0	1	2,223	0.45
Kenilworth	0	0	0	0	0	613	0.00
Total	7	180	86	13	286	1,017,927	0.28

# Managing safe drinking water

Unitywater's Drinking Water Management System (DWMS) is how we deliver on our commitment to providing safe and reliable drinking water. This is described in our approved Drinking Water Quality Management Plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008*.

Unitywater continues to use our internal **Safe Water Steering Group** to provide strategic oversight and direction in meeting our commitment to the delivery of safe drinking water to our customers.

New team members are educated on the DWMS during mandatory induction training including the processes and procedures that support the business to deliver safe drinking water.

Implementing the DWQMP involves multiple activities under our DWMS, some of which have been described in previous sections of this report. Other key implementation activities are detailed in the sections below.

## ISO 22000 Certification

Our DWMS is independently certified to *ISO 22000:2018 Food Safety Management Systems*. By maintaining this certification, we are providing assurance to our customers, consumers, and community that our drinking water is a food-grade product.

In March 2023, Unitywater successfully underwent a surveillance audit for our ISO 22000:2018 accreditation. The audit outcomes found that Unitywater continues to fulfill the criteria required by this standard and that our DWMS continues to provide safe and reliable drinking water to all of our customers.

## Operational Prerequisite Programs (OPRPs)

Unitywater takes a Hazard Analysis Critical Control Point (HACCP) approach to managing and controlling water quality hazards in the drinking water supply. These control measures are documented under ISO 22000 as Operational Prerequisite Programs (OPRPs) and are essential for controlling specific hazards in the supply, storage, and delivery of drinking water. The **Safe Water Steering Group** continuously reviews, approves, and implements our four OPRPs across key risk areas in the business to ensure we are covering all bases when it comes to food safety.

## Water Hygiene Program (5Cs)

Unitywater's commitment to food safety prevails through our internal Water Hygiene Program, also known as the 5Cs, which sets hygienic standards to mitigate the risk of contaminants entering the drinking water supply during routine field activities. This program is fundamental in assuring safe drinking water is supplied to our community, which is why we continuously review, audit, and instill its importance through the business.



## DWQMP Updates

A review of our DWQMP was conducted, submitted, and approved by the water supply regulator in March 2023. The review of the updated DWQMP (version 12a) included:

- A whole of system risk assessment - actions and outputs from the risk assessment have been included in the Risk Management Improvement Program (RMIP) section below.
- An update of the verification monitoring program to continue assuring the supply of safe drinking water across our growing region.
- The adoption of new, innovative methods for in-situ monitoring to ensure best management practices are in place.

The next revision of our DWQMP is due to be completed by October 2024. No DWQMP audit was conducted or required during the 2022-2023 financial year. The next regulatory audit is scheduled to be completed in April 2025.

## Risk Management Improvement Program (RMIP)

Under our DWQMP, the RMIP outlines actions to be undertaken to proactively manage risks across our drinking water network. These actions are key in providing assurance that Unitywater can continuously deliver safe drinking water to our customers. Due to their importance, the Safe Water Steering Group tracks the actions through quarterly meetings, to ensure all objectives and actions of the DWQMP are implemented and completed.

Currently, 25 of the 29 actions are completed or are on track to be completed by the target dates. Work is currently underway for the 4 actions passed their due dates, with revised completion dates anticipated in the 2023-24 financial year.

Current outstanding actions under the RMIP include:

- Water quality modelling of the Railway Towns scheme (1 action)
- Reservoir inspections reporting, strategy and responsibility (3 actions)



# Improving our drinking water service

We're continually challenging ourselves to improve and innovate the way we manage drinking water. The following are some of the initiatives, projects, plans and activities we have progressed in pursuit of keeping our communities healthy through improved delivery of safe drinking water.

## Mains cleaning

During the 2022-2023 financial year we continued our mains cleaning program and successfully cleaned 336km of water mains within our Maroochy South and Bribie Island schemes. Scheduled mains cleaning helps to minimise the build-up of fine sediment that under normal operating conditions does not impact the drinking water supplied to our customers.

This build-up of sediment occurs in any drinking water network and can be the reason for discoloured water when there are unexpected changes in flow direction or a sudden decrease in pressure. Mains cleaning is conducted with an innovative system that involves flushing water through the pipes at high velocity through specialised filters and disinfecting the water before returning it to the network.

This is an efficient method that maintains water quality and results in minimal disruptions to our customers and virtually no loss of water.

## Servicing new areas

Our region is one of the fastest growing in Australia, and Unitywater is continually expanding its services to accommodate future growth. The Sunshine Coast, Moreton Bay and Noosa regions are projected to grow by over 20% to a total population of more than one million people within the next decade and Unitywater is investing \$1.8 billion in infrastructure in the next five years to meet the future needs of the region in an economically and environmentally sustainable way.

## Reservoir maintenance and renewals

Unitywater operates and maintains more than \$4 billion of infrastructure including 103 water reservoirs and 6,337km of water mains over a geographical area of 5,223 square kilometres. Maintaining and renewing our essential assets is a vital aspect of providing safe and reliable drinking water services, and our assets are carefully monitored to ensure they meet our standards.

Our reservoir maintenance and renewal programs were a focus. And Unitywater took a 'find and fix' approach to our ongoing reservoir inspection and maintenance program to ensure these assets were kept in optimal state year-round.

Renewal works including roof replacements and safety enhancements were completed at seven reservoirs and a further 18 reservoirs were assessed and cleaned.

We are continually looking for new, innovative and effective methods of asset management, planning and maintenance strategies to ensure ongoing performance, safety, and reliability of our drinking water network.

## Water quality modelling

Regional and population growth highlights challenges in managing water quality performance through the network. A key tool used by water utilities is water quality predictive modelling, where networks can be assessed under different operating modes to help understand what the optimal operation of a network looks like.

Over the past few years, Unitywater has conducted modelling on certain regions which has helped us to better manage and optimise the network while also ensuring our customers enjoy safe and reliable drinking water services in new and developing growth regions.

The predictive modelling will also assist with delivering more sustainable outcomes, allowing Unitywater to make more informed decisions on what our future water services will look like.

# Glossary of terms

<	Less than	NPI	Northern Pipeline Interconnector
>	Greater than	OPRP	Operational Prerequisite Program
ADWG	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia	RMIP	Risk Management Improvement Plan
DRDMW	Department of Regional Development, Manufacturing and Water (the regulator)	SEQ	South East Queensland
DWMS	Drinking Water Management System	Seqwater	Bulk Water Supply Authority who provides bulk drinking water to Unitywater
DWQMP	Drinking Water Quality Management Plan	the Act	Water Supply (Safety & Reliability) Act 2008
<i>E. coli</i>	<i>Escherichia coli</i> , a bacterium which may indicate the presence of faecal contamination and therefore potential health risk	WQ	Water Quality
mg/L	Milligrams per litre	WTP	Water Treatment Plant
ML	Megalitres		

# Appendix A

Sections of report that address reporting requirement under Section 142(3) of the Act

Section reference	Legislative Requirement under Section 142(3) of the Act	Content guide	Section of this report
-	Overview of operations (optional)	Contextual information of the water supply schemes that this annual report relates to.	Our Supply Area
142(3) b	Actions taken to implement the DWQMP	Description of activities undertaken during the reporting period to implement the DWQMP: <ul style="list-style-type: none"> <li>Progress in implementing the risk management improvement program (RMIP)</li> <li>Revisions made to the operational monitoring program</li> <li>Amendments made to the DWQMP</li> </ul>	Managing Safe Drinking Water
142(3) f	Compliance with water quality criteria for drinking water	<ul style="list-style-type: none"> <li>Verification monitoring results summary for the reporting period</li> <li>Commentary on water quality results, the Australian Drinking Water Guidelines and <i>E. coli</i> results</li> </ul>	Water Quality Summary & Appendix B
142(3) e	Notifications to the Regulator under sections 102 and 102A of the Act	<ul style="list-style-type: none"> <li>Non-compliances with the water quality criteria and corrective and preventive actions undertaken</li> <li>Prescribed incidents or events reported to the Regulator and corrective and preventive actions undertaken</li> </ul>	Incidents Reported to the Regulator

Section reference	Legislative Requirement under Section 142(3) of the Act	Content guide	Section of this report
142(3) g	Customer complaints related to water quality	<ul style="list-style-type: none"> <li>Summary of water quality complaints</li> <li>Summary of events and corrective action</li> </ul>	Customer Enquiries Related to Water Quality
142(3) d	Findings and recommendations of the DWQMP audit	<ul style="list-style-type: none"> <li>Regulatory audit summary of findings</li> <li>Outcomes of the DWQMP review</li> </ul>	DWQMP Updates
142(3) c	Outcome of the DWQMP review and how issues raised have been addressed	Amendment of the DWQMP	

# Appendix B

## Chemical performance in detail

### Dayboro

#### Chemical performance (health)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Arsenic	mg/L	3	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	16	<0.005	<0.005	<0.005	<0.005	0.02	✓
Chlorate	mg/L	44	0.04	0.25	0.09	0.14	0.8*	✓*
Chlorine Free	mg/L	103	0.1	2.5	1.03	1.50	5	✓
Chlorine Total	mg/L	103	0.2	2.7	1.15	1.69	5	✓
Copper	mg/L	17	<0.01	0.01	<0.01	<0.01	2	✓
Fluoride	mg/L	14	0.48	0.92	0.81	0.91	1.5	✓
HAA5	µg/L	4	<60	<60	<60	<60	N/A	N/A
Lead	mg/L	17	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	36	<0.01	<0.01	<0.01	<0.01	0.5	✓
Monochloramine	mg/L	24	<0.02	0.15	0.05	0.14	3	✓
Nickel	mg/L	17	<0.01	<0.01	<0.01	<0.01	0.02	✓

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Nitrate	mg/L	24	0.21	1.35	0.58	1.23	50	✓
Nitrite	mg/L	24	<0.02	<0.02	<0.02	<0.02	3	✓
THMs	µg/L	44	17	94	53	89	250	✓

\* QLD Health Interim Chlorate Guideline Value

### Chemical performance (aesthetic)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Alkalinity Total	mg/L as CaCO <sub>3</sub>	28	43.7	89.4	72.13	86.53	N/A	N/A
Aluminium	mg/L	36	<0.02	0.05	0.02	0.04	0.2	✓
Calcium	mg/L	28	10.5	14.5	12.61	14.13	N/A	N/A
Chloride	mg/L	14	27	37	32.29	36.35	250	✓
Colour Apparent	PCU	35	<1	3.8	1.83	3.03	15	✓
Colour True	PCU	35	<1	1.1	<1	1.00	15	✓
Conductivity	µS/cm	102	245	310	278	294	1000	✓
Copper	mg/L	17	<0.01	0.01	<0.01	<0.01	1	✓
Iron	mg/L	36	<0.01	0.02	0.01	0.02	0.3	✓
Magnesium	mg/L	28	4.4	9.2	7.44	9.00	N/A	N/A
Manganese	mg/L	36	<0.01	<0.01	<0.01	<0.01	0.1	✓
pH	pH Units	102	7.2	7.6	7.3	7.5	6.5-9.2	✓
Potassium	mg/L	14	<1	1.8	1.45	1.80	N/A	N/A
Silica	mg/L	3	11	13	11.67	12.80	80	✓
Sodium	mg/L	14	15	36	28.7	33.4	180	✓

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Sulphate	mg/L	13	5	42	13.9	40.2	250	✓
Temperature	°C	98	15.8	29.4	22.7	28.1	N/A	N/A
Total Hardness	mg/L as CaCO <sub>3</sub>	28	50	70	62.11	69.65	200	✓
Turbidity	NTU	102	0.13	1.5	0.35	0.62	5	✓
Zinc	mg/L	17	<0.01	<0.01	<0.01	<0.01	3	✓

## Kenilworth

### Chemical performance (health)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentil	ADWG guideline	Met ADWG
Arsenic	mg/L	3	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	4	<0.005	<0.005	<0.005	<0.005	0.02	✓
Chlorate	mg/L	36	0.07	0.14	0.10	0.13	0.8*	✓*
Chlorine Free	mg/L	126	0.8	2.1	1.24	1.68	5	✓
Chlorine Total	mg/L	126	0.8	2.5	1.34	1.80	5	✓
Copper	mg/L	20	<0.01	<0.01	<0.01	<0.01	2	✓
Fluoride	mg/L	14	<0.1	0.33	0.19	0.30	1.5	✓
HAAs	µg/L	4	<60	<60	<60	<60	N/A	N/A
Lead	mg/L	20	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	36	<0.01	<0.01	<0.01	<0.01	0.5	✓
Monochloramine	mg/L	12	<0.02	0.13	0.07	0.12	3	✓
Nickel	mg/L	20	<0.01	<0.01	<0.01	<0.01	0.02	✓
Nitrate	mg/L	11	0.05	3.76	0.73	2.82	50	✓
Nitrite	mg/L	12	<0.02	<0.02	<0.02	<0.02	3	✓
THMs	µg/L	36	<5	44	25	39	250	✓

\* QLD Health Interim Chlorate Guideline Value

### Chemical performance (aesthetic)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Alkalinity Total	mg/L as CaCO <sub>3</sub>	70	99.8	179	126.61	169.55	N/A	N/A
Aluminium	mg/L	36	<0.02	0.02	<0.02	<0.02	0.2	✓
Calcium	mg/L	70	15	24.5	19.06	23.17	N/A	N/A
Chloride	mg/L	6	34	41	38.33	40.50	250	✓
Colour Apparent	PCU	36	<1	3.7	<1	1.30	15	✓
Colour True	PCU	36	<1	<1	<1	<1	15	✓
Conductivity	µS/cm	126	327	452	367	446	1000	✓
Copper	mg/L	20	<0.01	<0.01	<0.01	<0.01	1	✓
Iron	mg/L	36	<0.01	0.03	<0.01	<0.01	0.3	✓
Magnesium	mg/L	70	8	13.7	10.33	13.31	N/A	N/A
Manganese	mg/L	36	<0.01	<0.01	<0.01	<0.01	0.1	✓
pH	pH Units	126	7.2	7.5	7.4	7.5	6.5-9.2	✓
Potassium	mg/L	6	<1	1	<1	<1	N/A	N/A
Silica	mg/L	3	25	25	25.00	25.00	80	✓
Sodium	mg/L	6	36	46	41.5	45.3	180	✓

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Sulphate	mg/L	6	7	13	9.3	12.3	250	✓
Temperature	°C	126	17.3	29.9	22.9	28.1	N/A	N/A
Total Hardness	mg/L as CaCO <sub>3</sub>	70	72	117	90.17	112.55	200	✓
Turbidity	NTU	126	<0.05	0.58	0.11	0.23	5	✓
Zinc	mg/L	20	<0.01	<0.01	<0.01	<0.01	3	✓

## Northern Grid

### Chemical performance (health)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentil	ADWG guideline	Met ADWG
Arsenic	mg/L	90	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	62	<0.005	0.008	<0.005	<0.005	0.02	✓
Chlorate	mg/L	516	<0.01	0.34	0.04	0.14	0.8*	✓*
Chlorine Free	mg/L	3,122	<0.1	3.1	1.12	1.70	5	✓
Chlorine Total	mg/L	3,122	<0.1	3.6	1.27	2.00	5	✓
Copper	mg/L	541	<0.01	0.06	<0.01	<0.01	2	✓
Fluoride	mg/L	135	0.19	1	0.76	0.94	1.5	✓
HAAs	µg/L	20	<60	<60	<60	<60	N/A	N/A
Lead	mg/L	541	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	1,158	<0.01	0.06	<0.01	<0.01	0.5	✓
Monochloramine	mg/L	196	<0.02	0.26	0.06	0.15	3	✓
Nickel	mg/L	541	<0.01	<0.01	<0.01	<0.01	0.02	✓
Nitrate	mg/L	196	0.12	2.6	0.60	1.73	50	✓
Nitrite	mg/L	196	<0.02	<0.02	<0.02	<0.02	3	✓
THMs	µg/L	862	<5	117	51	93	250	✓

\* QLD Health Interim Chlorate Guideline Value

### Chemical performance (aesthetic)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Alkalinity Total	mg/L as CaCO <sub>3</sub>	689	10	67.2	39.05	55.84	N/A	N/A
Aluminium	mg/L	1,158	<0.02	0.12	<0.02	0.02	0.2	✓
Calcium	mg/L	690	7.6	30.8	18.52	27.31	N/A	N/A
Chloride	mg/L	135	11	54	18.64	35.60	250	✓
Colour Apparent	PCU	1,158	<1	4.1	<1	1.80	15	✓
Colour True	PCU	1,158	<1	2	<1	<1	15	✓
Conductivity	µS/cm	3,122	87	377	212	286	1000	✓
Copper	mg/L	541	<0.01	0.06	<0.01	<0.01	1	✓
Iron	mg/L	1,158	<0.01	0.12	<0.01	0.02	0.3	✓
Magnesium	mg/L	690	<1	11.3	4.30	9.36	N/A	N/A
Manganese	mg/L	1,158	<0.01	0.06	<0.01	<0.01	0.1	✓
pH	pH Units	3,122	7	9.4	7.5	8.0	6.5-9.2	✓
Potassium	mg/L	134	<1	1.7	1.26	1.50	N/A	N/A
Silica	mg/L	91	2	9	7.45	8.00	80	✓
Sodium	mg/L	134	8	35	13.5	29.0	180	✓

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Sulphate	mg/L	135	15	54	29.7	42.3	250	✓
Temperature	°C	3,104	14.1	32.1	22.4	27.7	N/A	N/A
Total Hardness	mg/L as CaCO <sub>3</sub>	671	40	89	64.39	82.00	200	✓
Turbidity	NTU	3,122	<0.05	5.5	0.16	0.34	5	✓
Zinc	mg/L	541	<0.01	0.1	<0.01	<0.01	3	✓

## Southern Grid

### Chemical performance (health)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentil	ADWG guideline	Met ADWG
Arsenic	mg/L	76	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	120	<0.005	0.02	<0.005	0.010	0.02	✓
Chlorate	mg/L	508	0.05	0.48	0.14	0.31	0.8*	✓*
Chlorine Free	mg/L	3,196	<0.1	5.3	0.33	1.30	5	✓
Chlorine Total	mg/L	3,221	<0.1	5.8	1.67	3.70	5	✓
Copper	mg/L	369	<0.01	0.03	<0.01	<0.01	2	✓
Fluoride	mg/L	143	<0.1	1.04	0.78	0.92	1.5	✓
HAAs	µg/L	21	<60	137	<60	85.00	N/A	N/A
Lead	mg/L	361	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	941	<0.01	0.02	<0.01	<0.01	0.5	✓
Monochloramine	mg/L	1,314	<0.02	2.58	0.56	1.96	3	✓
Nickel	mg/L	369	<0.01	<0.01	<0.01	<0.01	0.02	✓
Nitrate	mg/L	1,281	<0.02	4.21	1.47	3.19	50	✓
Nitrite	mg/L	1,314	<0.02	1.24	0.17	0.76	3	✓
THMs	µg/L	600	14	171	58	111	250	✓

\* QLD Health Interim Chlorate Guideline Value

### Chemical performance (aesthetic)

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Alkalinity Total	mg/L as CaCO <sub>3</sub>	174	29	99.5	42.25	50.27	N/A	N/A
Aluminium	mg/L	941	<0.02	0.18	<0.02	0.03	0.2	✓
Calcium	mg/L	175	7.5	38	16.50	23.00	N/A	N/A
Chloride	mg/L	119	16	86	23.91	34.60	250	✓
Colour Apparent	PCU	943	<1	8.4	1.29	3.00	15	✓
Colour True	PCU	943	<1	2.9	<1	1.30	15	✓
Conductivity	µS/cm	2,796	163	574	242	352	1000	✓
Copper	mg/L	369	<0.01	0.03	<0.01	<0.01	1	✓
Iron	mg/L	941	<0.01	0.17	<0.01	0.02	0.3	✓
Magnesium	mg/L	174	2.6	19.8	4.45	5.20	N/A	N/A
Manganese	mg/L	941	<0.01	0.02	<0.01	<0.01	0.1	✓
pH	pH Units	2,796	6.9	9	7.7	8.0	6.5-9.2	✓
Potassium	mg/L	119	1.2	3.4	1.47	1.80	N/A	N/A
Silica	mg/L	76	7	11	9.43	11.00	80	✓
Sodium	mg/L	119	10	56	25.2	40.8	180	✓

Parameter	Units	Number of samples	Min result	Max result	Average result	95th percentile	ADWG guideline	Met ADWG
Sulphate	mg/L	120	22	69	39.2	58.1	250	✓
Temperature	°C	3,177	13.8	31.2	22.2	27.5	N/A	N/A
Total Hardness	mg/L as CaCO <sub>3</sub>	174	33	170	59.61	71.00	200	✓
Turbidity	NTU	2,783	<0.05	20	0.20	0.44	5	✓
Zinc	mg/L	369	<0.01	0.04	<0.01	<0.01	3	✓

# Appendix C

## Details of water quality events that occurred in the 2022-2023 financial year

Event number	Event date	Trigger description	Dirty/ Milky	Taste/ Odour	Health	Other	Investigation commentary	Corrective action undertaken
1237	8/09/2022	Any WQ Enquiry: 4 in 24 hours, single DMA	5	0	0	0	A hydrant riser was damaged by contractors, requiring reactive isolation and repair of main, causing turbulence and triggering dirty water.	Repair carried out and flushing undertaken to restore water quality.
1238	8/09/2022	Any WQ Enquiry: 6 in 24 hours	7	0	0	1	A hydrant riser was damaged by contractor requiring reactive isolation and repair of main, causing turbulence and triggering dirty water.	Repair carried out and flushing undertaken to restore water quality.
1239	6/01/2023	Any WQ Enquiry: 4 in 24 hours, single DMA	8	0	0	0	Related to NO-DES mains cleaning; PTW77191. Contractors reported higher than usual sediment accumulation, requiring additional flushing.	NO-DES remained on site and performed additional flushing to restore water quality.
1240	6/01/2023	Any WQ Enquiry: 3 in 12 hours, single DMA	5	0	0	0	Related to NO-DES mains cleaning; PTW77191. Contractors reported higher than usual sediment accumulation, requiring additional flushing.	NO-DES remained on site and performed additional flushing to restore water quality.
1241	6/01/2023	Any WQ Enquiry: 6 in 24 hours, WQ Report	8	0	0	0	Related to NO-DES mains cleaning; PTW77191. Contractors reported higher than usual sediment accumulation, requiring additional flushing.	NO-DES remained on site and performed additional flushing to restore water quality.
1242	20/01/2023	Health, Taste or Odour: 2 in 10 hours, single DMA	0	0	0	0	Due to system error; duplication of singular SR.	Singular customer complaint was investigated / resolved as per typical procedure.
1243	6/03/2023	Any WQ Enquiry: 4 in 24 hours, single DMA	4	0	0	0	Caused by break on trunk main requiring reactive isolation and repair. Isolation of break site resulted in disruption of flow and localised turbulence, triggering dirty water.	Repair carried out and flushing undertaken to restore water quality.



## Service provider details

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### Local Government areas

Moreton Bay Regional Council

Noosa Council

Sunshine Coast Council