UrbanUtilities

2018/19

DRINKING WATER QUALITY MANAGEMENT PLAN REPORT

ENRICH QUALITY OF LIFE

OUR PURPOSE

Enrich quality of life

OUR VISION

We play a valued role in enhancing the liveability of our communities

OUR VALUES

PARTICIPATION

Activate. Collaborate. Accelerate.

CUSTOMERS AND COMMUNITY

Listen. Understand. Respond.

ACCOUNTABILITY

See it. Own it. Solve it.

SAFETY

Everyone. Everywhere. Every day.

DELIVER VALUE

Define it. Create it. Deliver it.

CREATIVITY

Initiate. Create. Inspire.

WELCOME

We are pleased to present Urban Utilities' Drinking Water Quality Management Plan Report for 2018/19.

The report showcases our operational performance with respect to drinking water quality, and shows how we have been implementing key improvement actions detailed in our *Drinking Water Quality Management Plan* (DWQMP).

This report informs the Department of Natural Resources, Mines and Energy (the Regulator) on how we complied with our DWQMP and its approval conditions. It also allows us to meet our legislative obligations under the *Water Supply (Safety and Reliability) Act 2008*.

This report also provides our customers with information about the quality of their drinking water.

READERSHIP

The report is intended to provide important information to a broad range of stakeholders including: our customers, current and future employees, our shareholders, government departments and agencies, non-government organisations, and our partners.

ACCESSING THIS REPORT

This report is available on our website: urbanutilities.com.au

INTERPRETER SERVICE STATEMENT

We are committed to providing accessible services to our customers and stakeholders from culturally and linguistically diverse backgrounds. If you have difficulty in understanding this report, please contact us on 13 14 50 and we will arrange an interpreter to communicate the report to you effectively.

Interpreter

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اتصل على الرقم 13 14 50 عندما تكون بحاجة إلى مترجم فوري.
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ACKNOWLEDGEMENT

We acknowledge the Traditional Owners of the lands on which we operate and recognise their continuing connection to the land, waters and community. We pay our respects to them and their cultures, and to elders both past and present.

CONTENTS

2018/19 IN REVIEW

137,700ML WATER DELIVERED THROUGH 9,391KM OF WATER MAINS

109 IN-SERVICE RESERVOIRS, 61 WATER PUMP STATIONS AND 85 WATER BOOSTERS

48,385ML TO 37,000 NON-RESIDENTIAL PROPERTIES

89,315ML TO 586,700 RESIDENTIAL PROPERTIES

6 INCIDENT NOTIFICATIONS
Of the 81,000 water quality tests, six sample results required reporting to the Regulator. (see page 17)

81,000 WATER QUALITY TESTS CONDUCTED
(includes samples for health-related compliance)
(see page 17)

ACHIEVED 100% COMPLIANCE WITH THE AUSTRALIAN DRINKING WATER GUIDELINES (ADWG) HEALTH-RELATED PARAMETERS.
ACHIEVED 100% COMPLIANCE WITH THE AUSTRALIAN DRINKING WATER GUIDELINES (ADWG) CHEMICAL-RELATED PARAMETERS.
ACHIEVED 100% COMPLIANCE WITH THE AUSTRALIAN DRINKING WATER GUIDELINES (ADWG) AESTHETIC-RELATED PARAMETERS.

(see page 16)

CHAPTER 1: ABOUT US

WHO WE ARE

On 1 July 2010, Urban Utilities, formerly known as Queensland Urban Utilities, was established as a statutory body under the *South East Queensland Water (Distribution and Retail Restructuring) Act 2009*, and as a service provider (SPID 521) under the *Water Supply (Safety and Reliability) Act 2008*. Our shareholders are the councils of Brisbane, Ipswich, Lockyer Valley, Scenic Rim, and Somerset, and we are governed by an independent Board.

WHAT WE DO

We are responsible for delivering drinking water, recycled water and sewerage services to 1.5 million customers in South East Queensland. Our 14,384km^2 geographic area is made up of the five local government areas of: Brisbane, Ipswich, Lockyer Valley, Scenic Rim and Somerset, and equates to around two-thirds of South East Queensland. We operate in a unique environment where we serve the same customers and communities as our shareholders.

We provide our services through the management of an extensive water and sewerage network, including:

- 18,985km of pipeline,
- 146 water pump stations & boosters,
- 333 sewage pump stations,
- 109 active water reservoirs, and
- 29 sewage treatment plants.

OUR STRATEGIC DIRECTION

Our purpose

Enrich quality of life.

Our vision

We play a valued role in enhancing the liveability of our communities.

Our strategic statement

Our strategic direction is underpinned by our commitment to customer-centricity; every decision we make is considered through the lens of the customer.

As we build on our solid foundations and our constructive culture, we will pursue growth through the development of partnerships that deliver environmental, economic and social benefits.

These outcomes will be valued by our customers, communities and shareholders, and enhance the health, affordability and amenity of our region.

Our strategic goals

Our strategic goals outline where we will focus our efforts to achieve our purpose and vision.

Goal 1: Constructive Culture

Our constructive culture is aligned to our purpose and is the foundation of our service to customers and communities.

Goal 2: Foundational Success

We have the right foundations and smarter ways of working to deliver predictive services to our customers and agile and efficient work processes for our people.

Goal 3: Environmental Leadership

We protect, rehabilitate and enhance our environment for our customers and communities by delivering healthy waterways, secure drinking water and resilient communities.

Goal 4: Social & Economic Value

We partner and innovate to deliver high-value economic, social and customer outcomes.

OUR STAKEHOLDERS

As a water and sewerage service provider, the important work we do has the ability to, directly or indirectly, impact a wide range of external stakeholders. Equally, external activities, such as policy changes, or local planning decisions, can influence our activities and the way we work. Our key partners in the South East Queensland water and sewerage industry are shown in Figure 1.

Figure 1: Our stakeholders

CHAPTER 2: DELIVERING WATER TO OUR CUSTOMERS

Figure 2: Urban Utilities' water supply schemes

SOURCING DRINKING WATER

The drinking water supplied by Urban Utilities to its customers is sourced from Seqwater, a Queensland Government statutory authority responsible for the catchment, storage, transportation and treatment of bulk drinking water. Urban Utilities distributes this water to our customers in each of the local government areas of our shareholders.

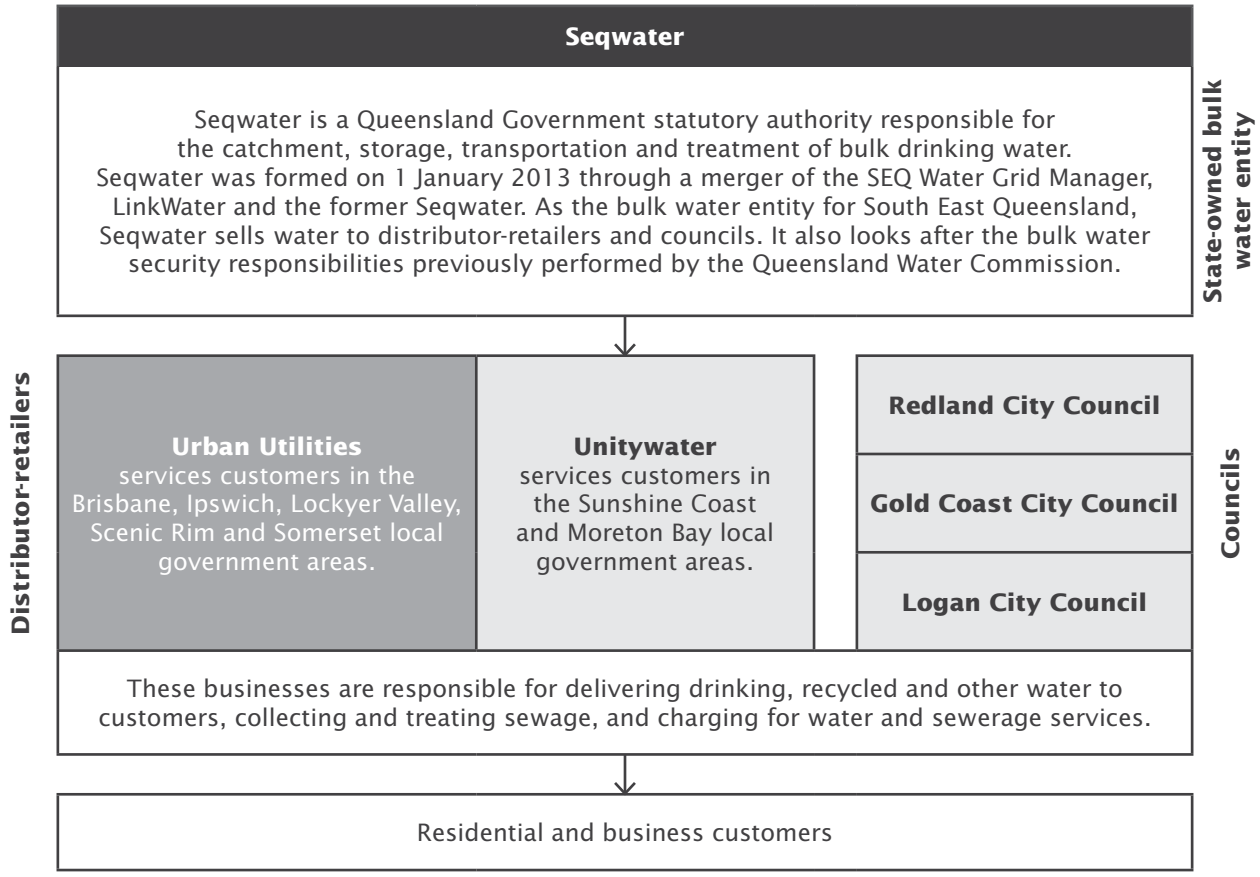


Figure 3: Urban Utilities' relationship with Seqwater

CHAPTER 2: DELIVERING WATER TO OUR CUSTOMERS

DELIVERING DRINKING WATER

Urban Utilities provides drinking water services to 1.5 million people residing within its 14,384km^2 geographic area, which stretches from Cape Moreton in the east to the foot of the Toowoomba Range in the west, and from the Yabba State Forest in the north to the New South Wales border in the south.

Within our five local government areas, we provide water services through 12 water supply schemes:

1. Beaudesert,
2. Boonah – Kalbar also servicing localities extending out to Mt Alford and Aratula,
3. Canungra,
4. Esk – Toogoolawah,
5. Jimna,
6. Kilcoy,
7. Kooralbyn,
8. Linville,
9. Lowood – servicing townships in the Lockyer Valley and Somerset regions of Tarampa, Minden, Prenzlau, Coolana, Lowood, Vernor and Fernvale.
10. Rathdowney,
11. Somerset Township, and
12. South East Queensland (Brisbane and Ipswich) Water Supply System (SEQWSS) including the Scenic Rim townships of Peak Crossing, Harrisville and Warrill View.

These schemes begin at the bulk supply points and reservoirs operated and owned by Seqwater and end at the customer's water meter. Figure 2 shows our water supply schemes across the local government areas (see page 10).

The SEQWSS makes up around 89% of the total water supply network, with schemes in the Lockyer Valley, Scenic Rim and Somerset making up the remaining 11%.

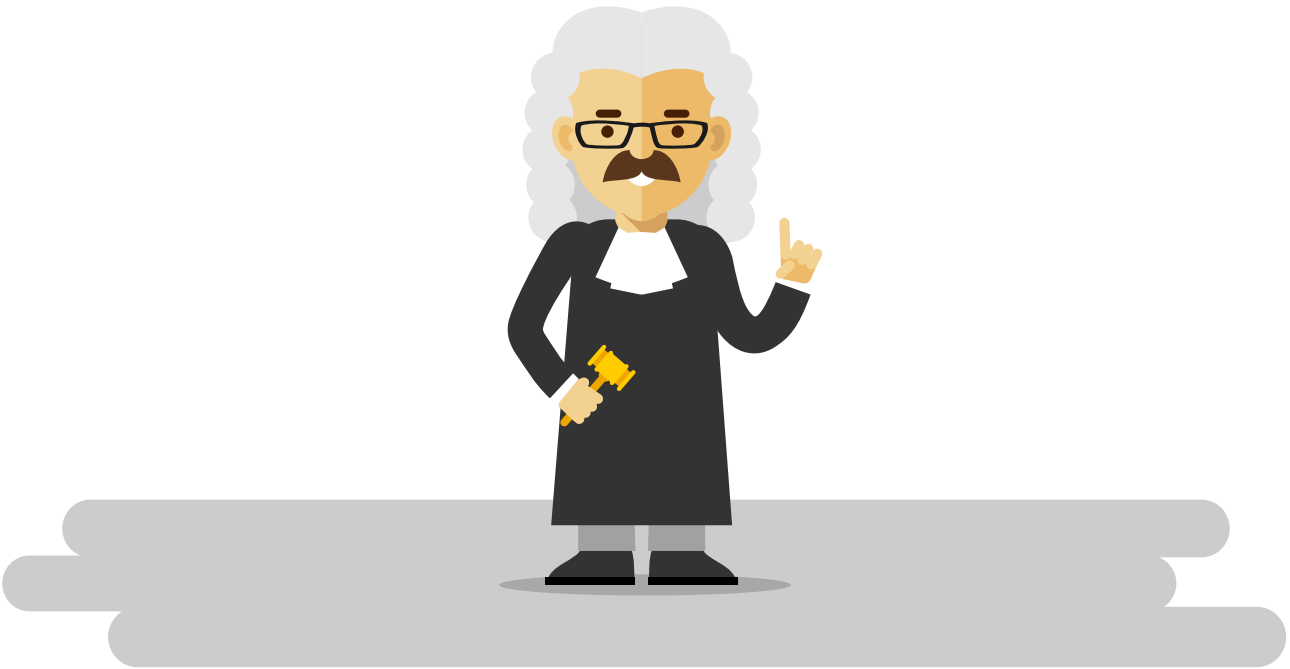
CHAPTER 3: MANAGING SAFE DRINKING WATER

LEGISLATIVE REQUIREMENTS

The supply of safe and reliable drinking water in Queensland is regulated by various pieces of state legislation, including the *Water Supply (Safety and Reliability) Act 2008*, the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*, the *Public Health Act 2005*, and the *Water Fluoridation Act 2008*.

Under the *Water Supply (Safety and Reliability) Act 2008*, a drinking water service provider may only carry out a registered drinking water service in accordance with an approved *Drinking Water Quality Management Plan* (DWQMP). In June 2019, we commenced a maturity assessment of our DWQMP.

Under the *Public Health Act 2005*, *Public Health Regulation 2018*, and *Water Fluoridation Act 2008* Queensland Health (QHealth) regulates the standards for drinking water quality related to *E. coli* and fluoride[1]. These standards, together with the health guideline levels in the *Australian Drinking Water Guidelines 2011*[2] (ADWG), have been incorporated under the *Water Supply (Safety and Reliability) Act 2008* as water quality criteria for drinking water in Queensland.



[1] Low levels of fluoride occur naturally in many water sources. Seqwater adds fluoride to eight of our twelve water supply schemes. For this reason, we are required to test for fluoride in these eight schemes – Beaudesert, Boonah-Kalbar, Canungra, Esk-Toogoolawah, Kilcoy, Kooralbyn, Lowood, and the SEQWSS.

[2] Version 3.5, update August 2018

CHAPTER 3: MANAGING SAFE DRINKING WATER

OUR APPROACH TO MANAGING DRINKING WATER QUALITY

Our approach to managing drinking water quality is through our Drinking Water Quality Management System (DWQMS), which is based on the *ADWG Framework for Management of Drinking Water Quality*. There are 12 elements within the framework:

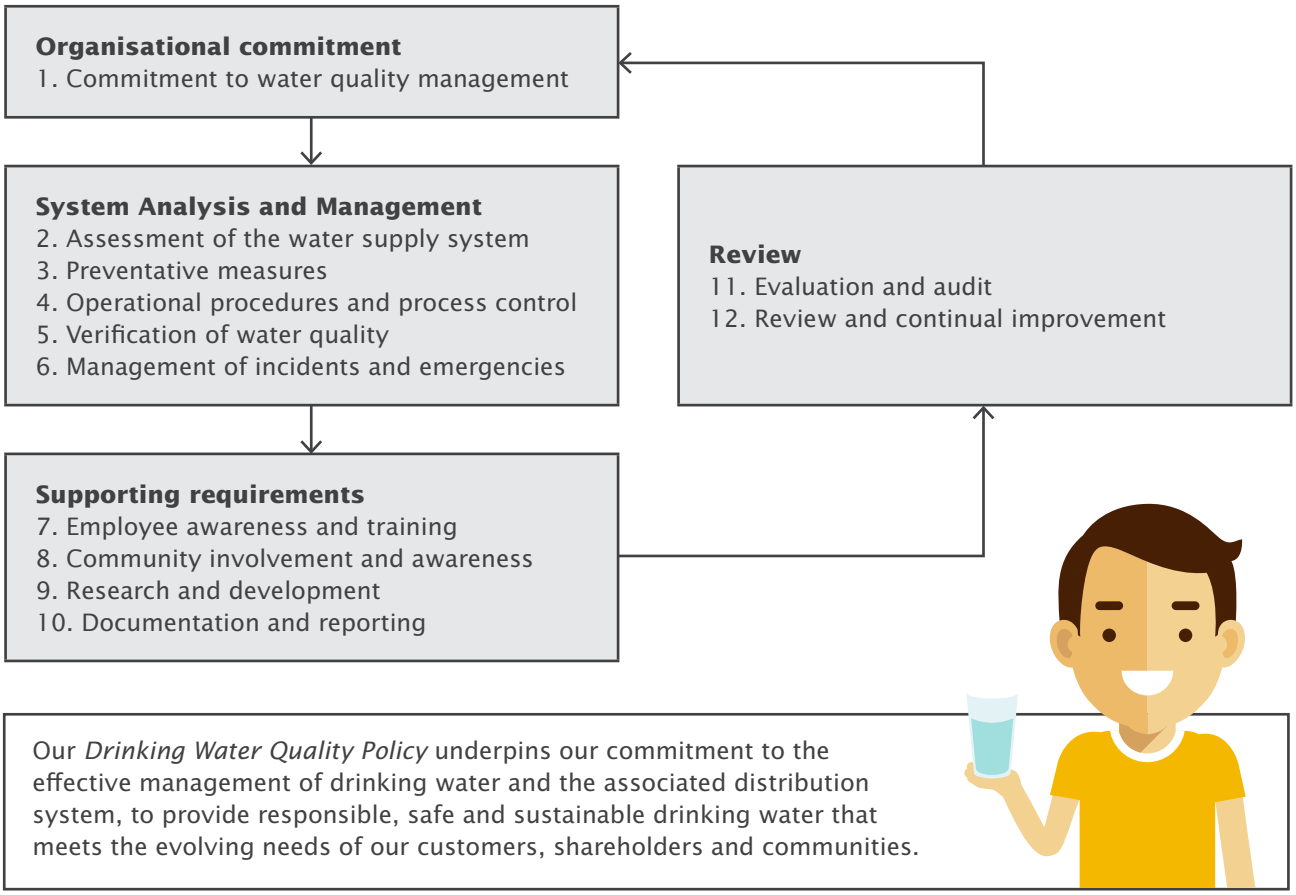


Figure 4: Framework for management of drinking water quality

VERIFICATION MONITORING PROGRAM

Our drinking water quality Verification Monitoring Program (VMP) is performed routinely throughout the year to continuously monitor the performance of drinking water stored in our reservoirs that is distributed through our vast water networks. The VMP is used to alert us to emergent changes or sudden occurrences that may impact the drinking water, which enables us to proactively manage the quality of the product we supply to our customers. Our VMP is important in many aspects, most significantly it informs operational processes, investment decisions, and is the final check of drinking water quality performance. The VMP provides us with confidence in managing drinking water product quality, and supports our drive to maintain protection barriers to prevent contamination of drinking water, and to better serve our communities.

The VMP is complex in nature, and is subject to our continuous assurance program to ensure we maintain our commitment to our DWQMP. The VMP audits, conducted by a third-party, demonstrate that we continue to comply with our DWQMP.

Overall assessment

We engage the Scientific Analytical Services Laboratory (SAS Lab) to sample from over 310 dedicated drinking water sample points. The SAS Lab is a wholly-owned subsidiary of Urban Utilities, and is accredited by the National Association of Testing Authorities (NATA). As a result, the SAS Lab provides independent assurance that we remain compliant with the sampling and testing requirements of the ADWG. In 2018/19, and in accordance with our VMP, SAS Lab collected over 11,200 samples and performed over 81,000 tests of our drinking water. The parameters were monitored and reviewed in accordance with Queensland legislative requirements and the ADWG for drinking water quality.

The 81,000 tests conducted in 2018/19, is 30% less than the 113,000 tests undertaken in 2017/18. The reduction in testing was the result of a review and long-term analysis of water quality data. The review showed that some of the metals we test for were either never detected, or when detected were at a very low concentration level, and would not pose a risk to public health. As a result, we were able to change the frequency of our testing regime and reduce the cost of our testing program. Despite this change to the frequency of testing, we remain compliant with the sampling requirements of the ADWG.

CHAPTER 3: MANAGING SAFE DRINKING WATER

In 2018/19, Urban Utilities met the prescribed health-related and aesthetic standards for all 12 drinking water schemes (Table 1).

Overall			
Scheme	***E. coli***	**Health**	**Aesthetic**
Beaudesert	☑	☑	☑
Boonah-Kalbar	☑	☑	☑
Canungra	☑	☑	☑
Esk-Toogoolawah	☑	☑	☑
Jimna	☑	☑	☑
Kilcoy	☑	☑	☑
Kooralbyn	☑	☑	☑
Linville	☑	☑	☑
Lowood	☑	☑	☑
Rathdowney	☑	☑	☑
Somerset	☑	☑	☑
SEQWSS	☑	☑	☑

Table 1: Drinking water supply scheme results 1 July 2018 – 30 June 2019

Escherichia coli *(E. coli)*

We continued to achieve excellent health performance in 2018/19 with 100% of drinking water schemes complying with legislative *E. coli* requirements. The standard for drinking water in Queensland requires no detection of *E. coli* in 98% of samples collected over a 12-month period. The minimum number of samples required to be taken is detailed in the *Queensland Public Health Regulation 2018*, Schedule Part 9 Division 2.

E. coli water quality compliance details are provided in Appendix A, including the month-by-month performance (see page 36).

Health-related chemical assessment

We use a risk management approach to drinking water quality which allows us to identify the substances that may pose a risk to public health. The VMP analyses these substances which are continuously trended and assessed against ADWG health-related limits and operational control triggers. All 12 drinking water schemes complied with the health-related limits described in the ADWG using the 95th percentile (95th-%ile) calculation.

Health assessment water quality compliance details are provided in Appendix B (see page 43).

Aesthetic assessment

We take advantage of the VMP to continuously assess non-health related parameters which contribute to the way our water tastes, smells and appears. We understand these physical aspects of drinking water are important in enriching the quality of life. In 2018/19 our drinking water schemes performed within the aesthetic guideline values detailed in the ADWG. The aesthetic assessment for each scheme is provided in Appendix C (see page 49).

CHAPTER 4: NOTIFYING THE REGULATOR

Under sections 102 and 102A of the *Water Supply (Safety and Reliability) Act 2008*, Urban Utilities is required to immediately inform the Regulator if the quality of water supplied from the drinking water service does not comply with the water quality criteria as specified in the ADWG.

Our water quality incidents represent the number of times a water quality sample does not meet the ADWG parameters, resulting in the immediate reporting of the incident to the Regulator.

In 2018/19, we took over 11,200 water samples and conducted in excess of 81,000 water quality tests. Of those samples, six tests did not meet the requirements of the ADWG requiring us to report these as incidents to the Regulator. This is the first time we have recorded less than 10 incidents in a year.

Of the six notifications, five related to the detection of *E. coli* in the SEQWSS. These incidents occurred over the warmer months (December – March) when higher temperatures can lead to loss of disinfection in the water networks. We continue to improve our approach to disinfection management. This sixth notification was a detection of manganese, also in the SEQWSS. On each occasion, the investigation of the incident found there was no risk to public health.

For details on how we managed these incidents refer to *Chapter 7 – Water quality performance by region*.

Notifications to the Regulator

E. coli (5)

Chemical (1)

Local government area	*E. coli*	Chemical
Brisbane	2	0
Ipswich	0	1
Lockyer Valley	0	0
Scenic Rim	3	0
Somerset	0	0
TOTAL	**5**	**1**

Figure 5: Urban Utilities' notifications to the Regulator 2018/19

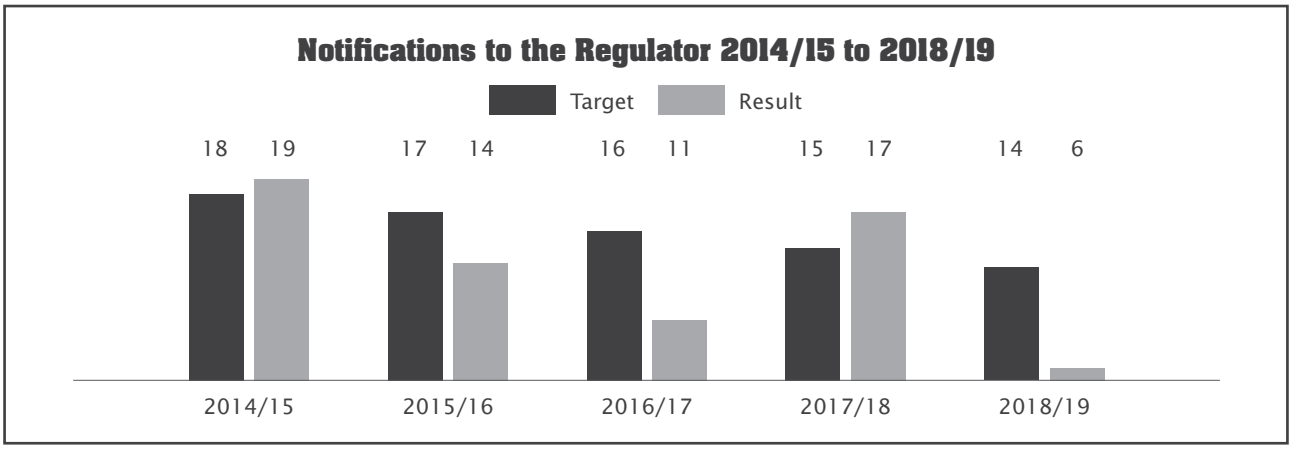


Figure 6: Urban Utilities' notifications to the Regulator 2014/15 to 2018/19

CHAPTER 5: IMPROVING DRINKING WATER QUALITY

Urban Utilities is committed to continual improvement and innovation in the management of our drinking water supply so that we provide our customers with a safe, high-quality and reliable product. It's how we enrich quality of life.

Delivering 'Water for life' and 'Water for lifestyle'

We recognise the supply of safe drinking water as one of our greatest public health responsibilities. As a custodian of a drinking water service, we commit to making this service sustainable, affordable, reliable and resilient.

In June 2019, we were proud to launch our first enterprise Drinking Water Quality Strategy, the purpose of which is to ensure our customers and communities receive water that is always safe to drink and always aesthetically pleasing – tastes, looks and smells great.

The delivery of the strategy will be guided by business needs, extensive collaboration with stakeholders, and actionable customer insights.

Over the coming years, we plan to deliver a number of initiatives. For example, we will:

- use knowledge and insights from customer focus groups to drive water quality improvement programs,
- collaborate with our South East Queensland regional partners to achieve best drinking water outcomes through alignment of our respective planning and operating strategies,
- drive resilience in our disinfection management, and develop a suite of tools to effectively manage disinfection through our distribution network to the customer's water service, and
- identify opportunities to introduce interactive community-based drinking water quality programs that will help our customers' make informed decisions regarding their drinking water quality needs and expectations.

Ultimately, the strategy is a key component in our journey to become a truly customer-centric organisation.

Water quality operational improvements program

In 2018/19, we continued to invest in upgrades of our assets to ensure the quality and safety of our drinking water. This program of works included the rehabilitation of eight reservoirs, including repairs to reservoir roofs, and refurbishment of floor and wall joints.

Our capital program also renewed a further 29km of water mains. This program aims to reduce the likelihood of disruptions to our customers' water service by improving the reliability and efficiency of our water supply, whilst providing the associated benefit of reduced risk to water quality.

We also incorporated water quality modelling into our investigations. This modelling allowed us to consider options in regard to enhancing water quality in the Manly, Roles Hill and Chapel Hill water supply zones. Water quality modelling was also incorporated into the planning of new communities at Rochedale, Willowbank and Ellendale.

In 2018/19, we continued to embed the reservoir water safety improvements process into our asset management strategy for drinking water reservoirs. This targeted continuous improvements program identifies asset upgrades to be undertaken to improve reservoir water quality, and incorporates our innovative roof flood testing procedure. This procedure involves running water on the reservoir roof at a rate that mimics a storm event. The roof flood testing validates that all works have been satisfactorily completed, and provides assurance that the safety of the stored water delivered to our customers continues to be maintained.

We have also continued to install mobile water quality field devices which allow us to continuously monitor our disinfection throughout the water supply network. These devices allow us to respond quickly to any changes in our disinfection quality, and if required initiate remedial actions. In conjunction with these mobile devices, we have implemented proactive disinfection management strategies at key locations in the network. One of these is the deep cycling of reservoirs during the summer period. Deep cycling is a process whereby we empty and fill the reservoir with fresh drinking water, which reduces water age and maintains the safety of the drinking water held in the reservoir.

Driving change through collaboration

During 2018/19, we were involved in many collaborative programs. For example, we worked with:

- Our South East Queensland water supply partners to implement the regionally endorsed asset infrastructure investment strategy. With the dual objectives of maintaining public health and optimising operational efficiencies, this strategy aims to optimise how we disinfect the drinking water supply across South East Queensland. This project is scheduled for completion in 2021.
- Seqwater to determine how we can provide the township of Beaudesert with a more resilient water supply, including enhanced drinking water quality.
- Seqwater to build more resilience in the Lowood water supply scheme to ensure the continuity of water supply, including consistency in the quality of the drinking water.

In May 2019, on behalf of the Water Services Association of Australia, we hosted the national Water Quality & Health Network meeting. The objective of the Network is to identify, discuss and collaborate on water quality and health-related policy issues, including issues of concern related to:

- water quality treatment,
- interpretation of relevant regulations,
- best practice in drinking water standards,
- alternative water projects, and
- consequences of climate change on water quality.

In 2018/19, we also joined forces with a local technology company to test the ability of a remotely operated underwater vehicle to inspect the condition of our reservoirs. This technology trial is the result of our partnership with WaterStart – a Nevada-based company that brings global leaders together to accelerate water technology, research and expertise.

CHAPTER 6: CUSTOMER SATISFACTION

Urban Utilities recognises that community engagement is an integral component of planning for and delivery of service excellence. We recognise that customers or members of the community may need to provide feedback if a service or product fails to meet their expectations or our standards. This feedback is captured, recorded and monitored to help identify any trends and possible areas of improvement in the operation, maintenance and management of the Urban Utilities networks. This commitment is a key component of our continued pursuit of innovative ways of doing business, and our transformation into a customer-centric organisation.

While we receive various water quality enquiries throughout the year, a 'water quality complaint' is registered when a person contacts Urban Utilities and expresses dissatisfaction regarding the quality of our drinking water[4]. This includes water quality complaints resulting from our own operational practices.

In 2018/19, we received 1,220 water quality enquiries, of which 424 (36%) were classified as water quality complaints.

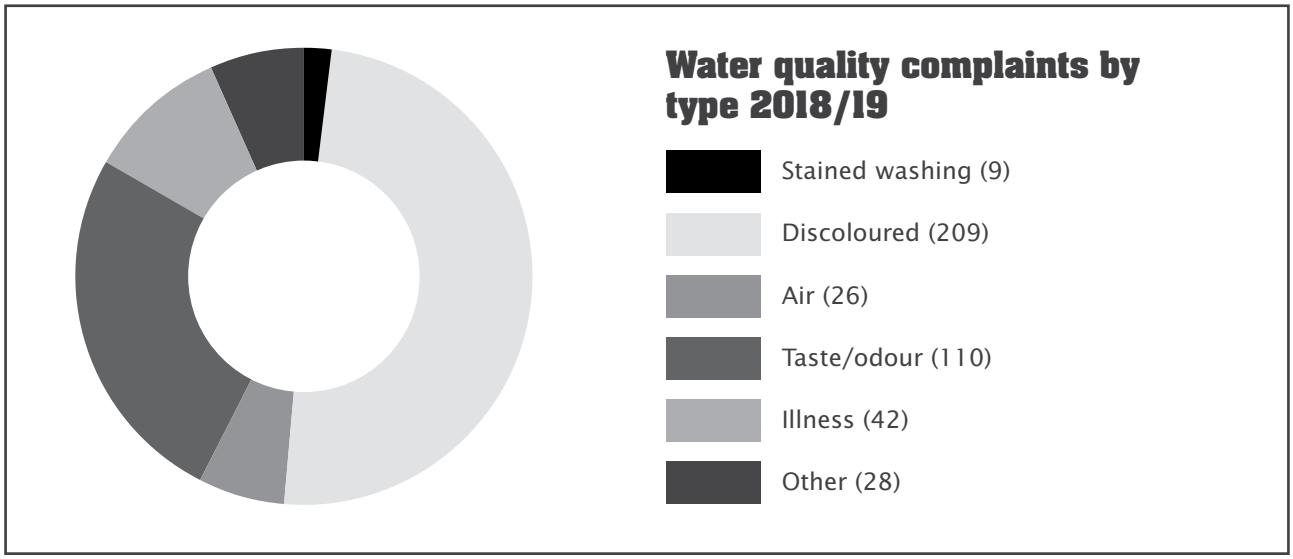
Water quality complaints in 2018/19 followed a typical pattern, with 50% related to discoloured water. These complaints usually followed maintenance activity on our water distribution network. The relevant areas were flushed to remove the discoloured water, and customers who reported a complaint were advised of the reasons for the discoloured water and were requested to allow the water main a short period of time to settle.

Taste and odour complaints were the next prevalent at 25% and can vary widely based on a customer's perception. The most common complaint descriptions included chlorine, metallic and chemical tastes. These were addressed by flushing the water main when required. Investigation of each complaint found no public health risks.

A small percentage of complaints were received from customers who suspected their drinking water may be associated with an illness they were experiencing. Urban Utilities investigated each complaint related to alleged illness from our drinking water, typically by testing the customer's tap and closest reticulation sampling point. During 2018/19, there were no confirmed cases of illness arising from the water supply system.

[4] AS ISO 10002-2006 Customer satisfaction – guidelines for complaints handling in organizations

The breakdown of water quality complaints by type and region is shown in Figure 7, with Figure 8 (page 22) showing performance from 1 July 2014 to 30 June 2019.



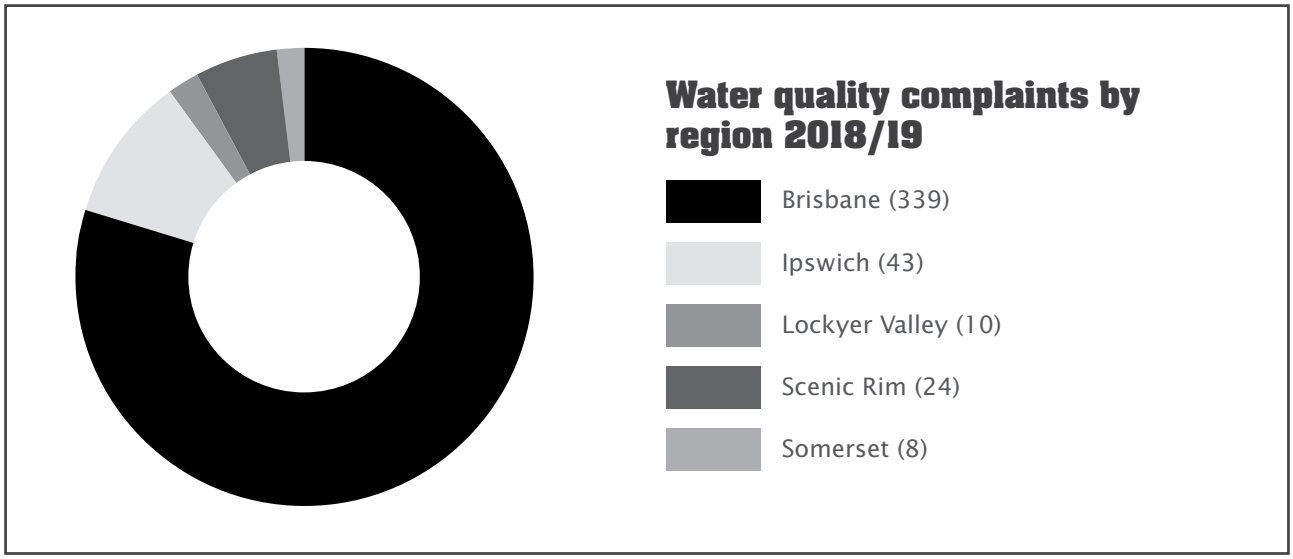


Figure 7: Water quality complaints by type and region – 2018/19

CHAPTER 6: CUSTOMER SATISFACTION

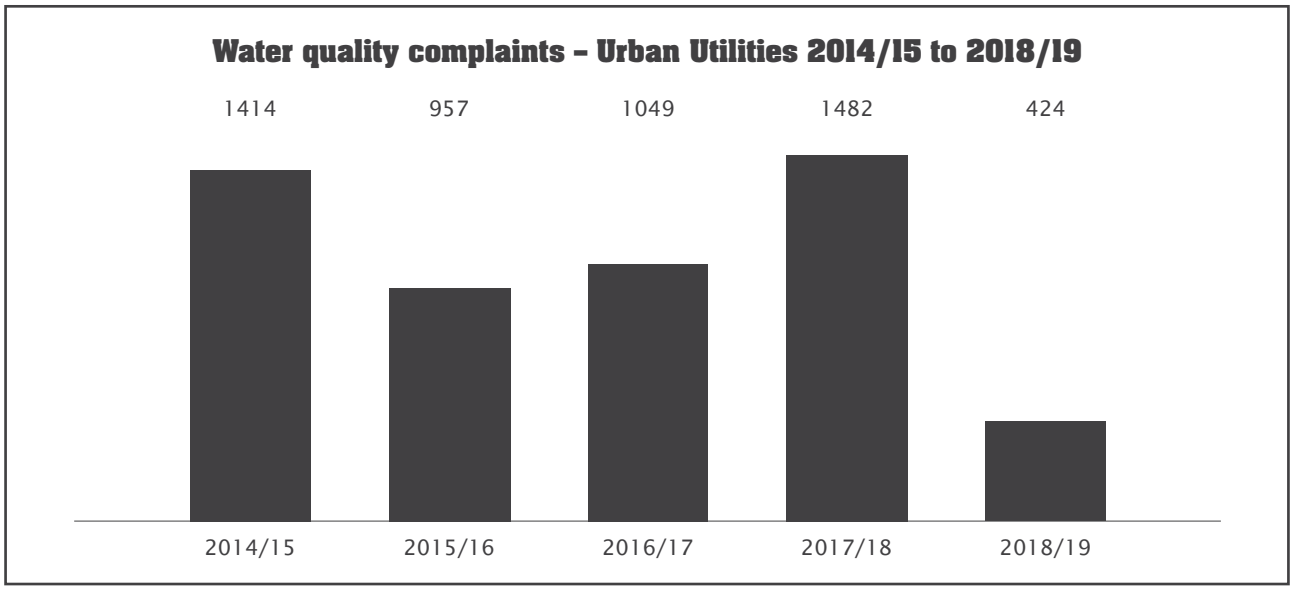


Figure 8: Water quality complaints 1 July 2014 to 30 June 2019

The decrease in 2018/19 is, in part, attributable to the new reporting regime introduced on 1 July 2018. The change to the way we classify and report water quality complaints ensures alignment with the *Australian/International Standard 10002-2006 Customer satisfaction – guidelines for complaints handling in organizations*, and consistency with other water utilities. The change to the methodology was foreshadowed in our *2017/18 Drinking Water Quality Management Plan Report*.

While this change in reporting resulted in a decrease in the reported water quality complaints, it does not change our commitment to investigate instances where our service or product fails to meet customer expectations or our service standards. We value all customer feedback as it helps to identify any trends and possible areas of improvement in the operation, maintenance and management of the Urban Utilities water networks.

Figure 9 shows Urban Utilities' performance against the customer service standards as published in the Residential and Business Customer Charters, and a comparison with comparable water service providers across Australia with similar complexities and risks related to the supply of drinking water.

Our Residential and Business Customer Charters outline commitments, responsibilities and standards that our customers can expect from us in relation to the water we provide. In 2018/19, our customer service standard for water quality was less than or equal to six water quality complaints per 1,000 property connections. In 2018/19, we remained well under the customer service standard.

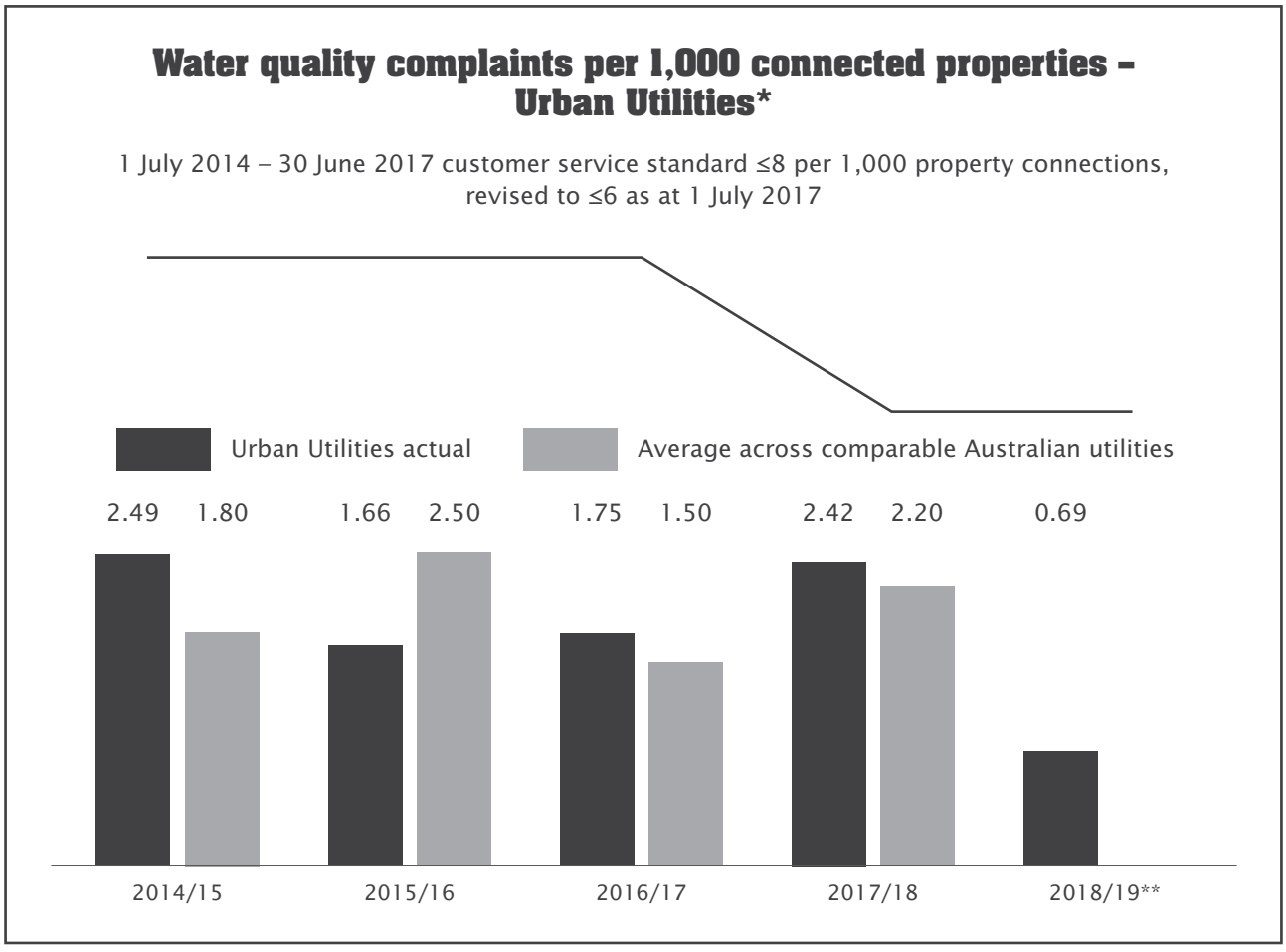


Figure 9: Water quality complaints per 1,000 property connections 1 July 2014 to 30 June 2019

*The value for comparable Australian utilities is sourced from the Bureau of Meteorology's *National performance report (NPR) 2018-19: urban water utilities*: Indicator Code C9 – water quality complaints, by utility size group (100,000+ size group).

**The NPR data for 2018/19 is not yet available.

CHAPTER 7: WATER QUALITY PERFORMANCE BY REGION

BRISBANE REGION

The SEQWSS supplies drinking water to our customers in Brisbane[5]. Water supplied to Brisbane is provided mostly from Seqwater's Mount Crosby Water Treatment Plant (WTP) and North Pine WTP. When required, the Seqwater Southern and Northern Regional Pipelines can supply water in both directions.

Notifications to the Regulator

Our water quality incidents represent the number of times a water quality sample does not meet the ADWG parameters, resulting in the immediate reporting of the incident to the Regulator. During 2018/19, two incidents occurred in the Brisbane region which required advice to the Regulator. Table 2 summarises these notifications and how we responded to the event, with the diagram demonstrating performance over the last five years.

Date	Type	Location	Description	Preventative and corrective actions
14/1/2019	*E. coli*	Pallara	The non-compliance was a detection of *E. coli* from a non-routine sample taken during a new main installation. 3MPN *E. coli* organisms per 100mL was detected. Follow up samples exhibited no continued presence of *E. coli*.	The network was flushed and responsive sampling from the surrounding sample points confirmed the absence of *E. coli*. We will continue to improve disinfection and reticulation mains cleaning approaches.
12/3/2019	*E. coli*	Gordon Park	The non-compliance was a detection of *E. coli* from a routine sample taken on 12/3/19 at SP061. 2MPN *E. coli* organisms per 100mL was detected. This area is supplied by Sparkes Hill reservoir, which is owned by Seqwater. Follow up samples exhibited no continued presence of *E. coli*.	The network was flushed and responsive samples were taken from the relevant sample points in the supply zone. We will continue to improve disinfection management activities.

Table 2: Notifications to the Regulator – Brisbane: 1 July 2018 – 30 June 2019

[5] The SEQWSS also supplies drinking water to our customers in Ipswich, as well as those in Peak Crossing, Harrisville and Warrill View in the Scenic Rim.

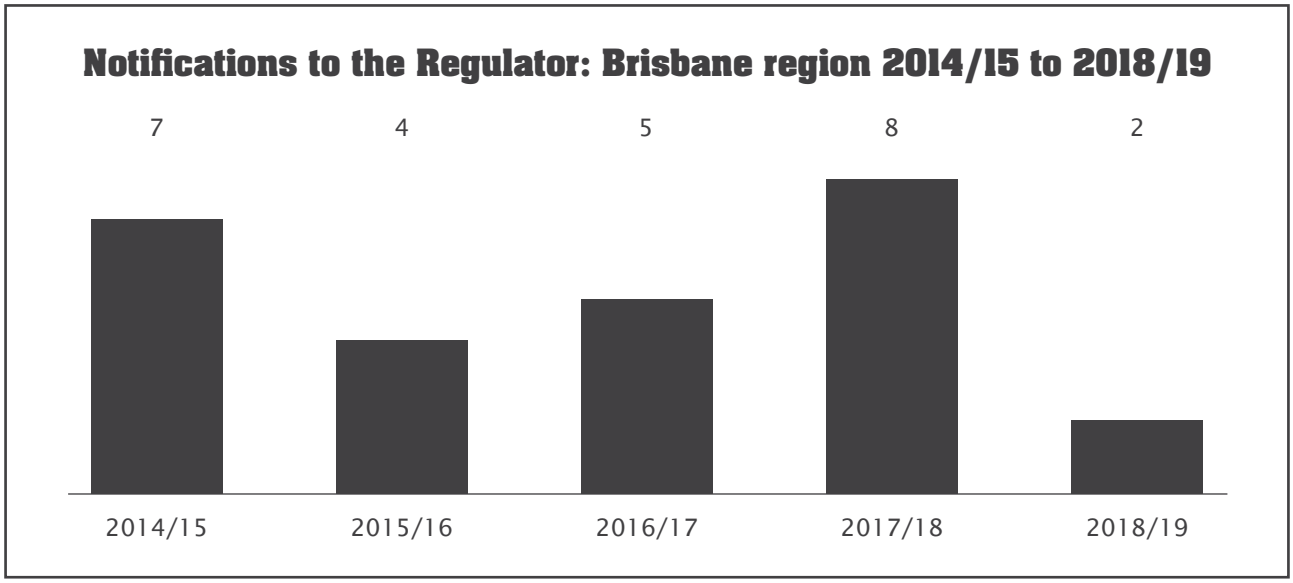


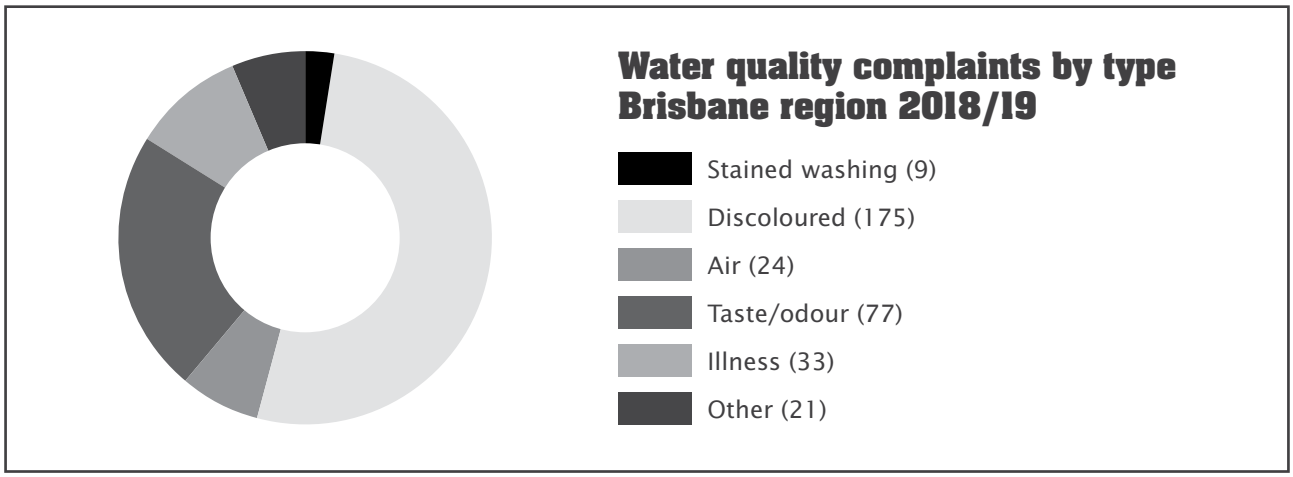
Figure 10: Notifications to the Regulator – Brisbane - 1 July 2014 to 30 June 2019

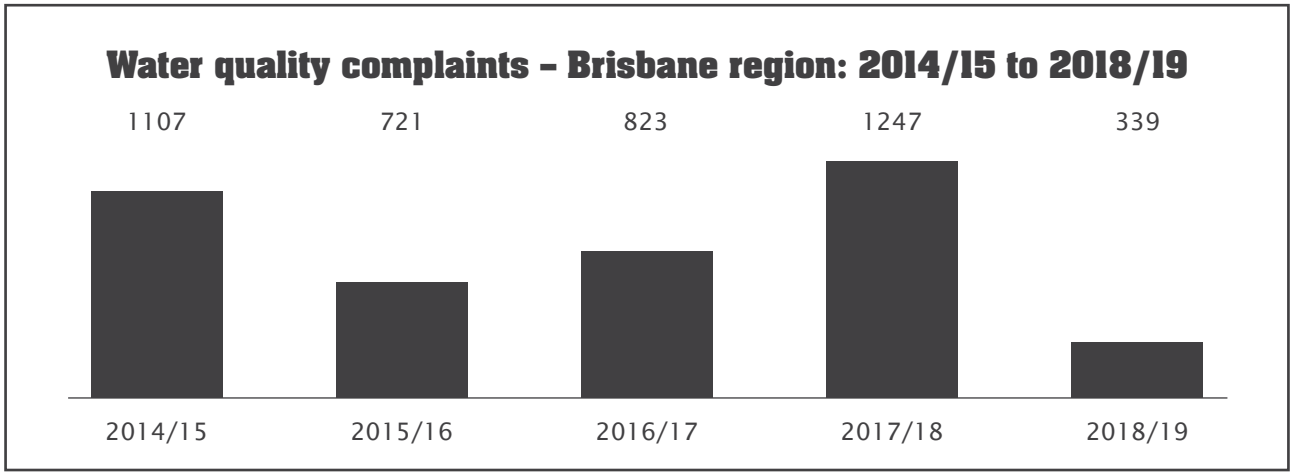
Customer satisfaction

In 2018/19, we investigated 339 water quality complaints in the Brisbane region, which accounts for 80% of total water quality complaints across our service area. The 2018/19 result is a 73% decrease on the number of water quality complaints received in 2017/18.

With 0.65 complaints per 1,000 property connections, the Brisbane region remained well under the customer service standard of ≤6 complaints per 1,000 property connections.

CHAPTER 7: WATER QUALITY PERFORMANCE BY REGION





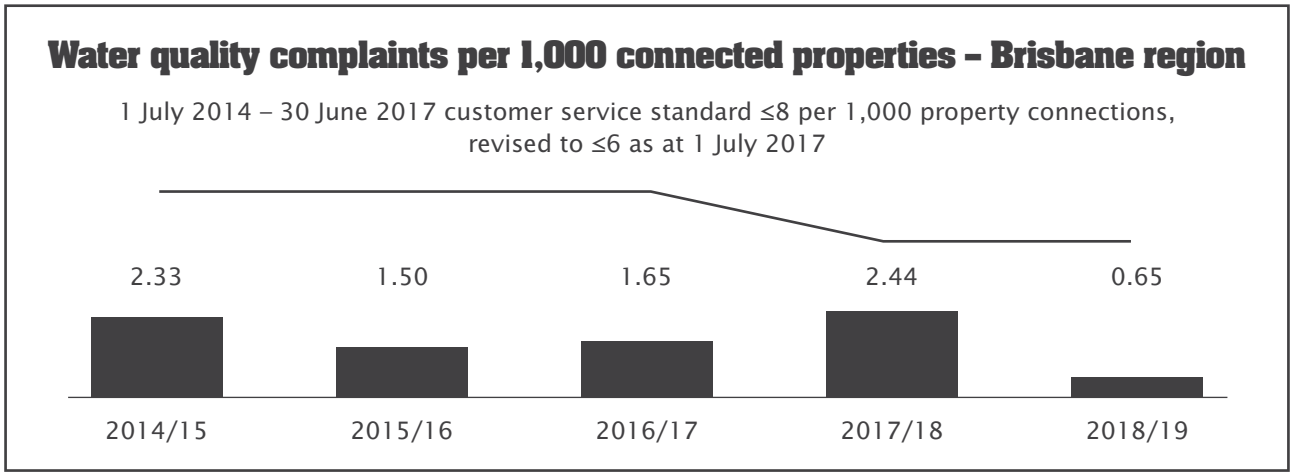


Figure 11: Customer satisfaction – Brisbane region

IPSWICH REGION

The SEQWSS supplies drinking water to our customers in Ipswich[6]. Water supplied to Ipswich is provided from the Seqwater Mount Crosby WTP, and via the Southern Regional Water Pipeline.

Notifications to the Regulator

During 2018/19, one incident occurred in the Ipswich region which required advice to the Regulator. Table 3 summarises this notification, and how we responded to the event, with the diagram demonstrating performance over the last five years.

Date	Type	Location	Description	Preventative and corrective actions
3/12/2018	*Manganese*	Denmark Hill	The non-compliance was a detection of manganese from a routine sample taken on 03/12/2018 at SP431. 0.58 mg/L manganese was detected. Follow up samples exhibited manganese below the ADWG health limit.	The local network area was flushed. We will continue to develop reticulation mains cleaning approaches.

Table 3: Notifications to the Regulator – Ipswich: 1 July 2018 – 30 June 2019

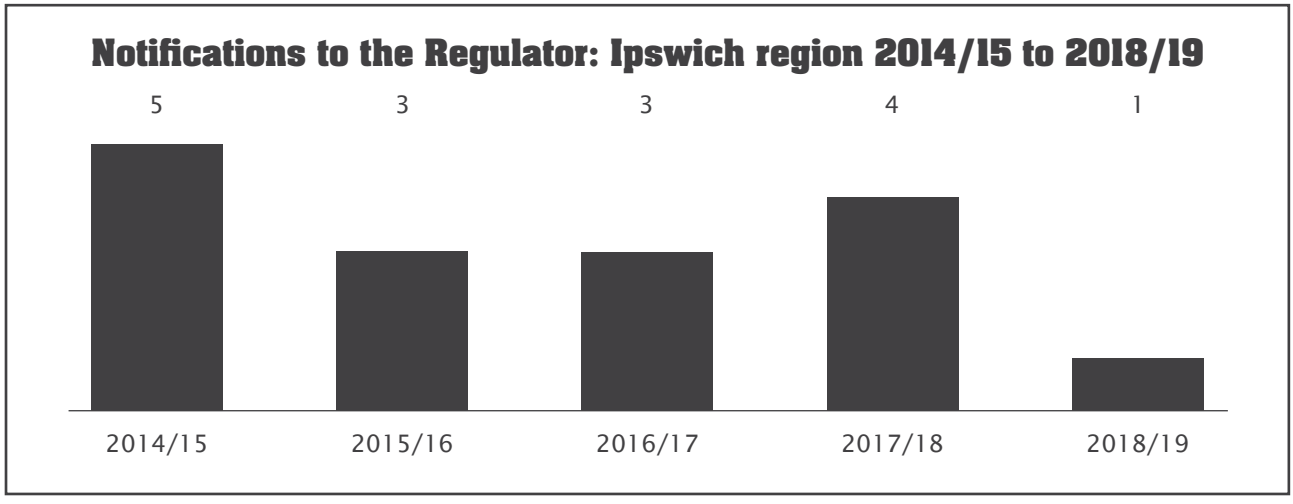


Figure 12: Notifications to the Regulator – Ipswich region - 1 July 2014 to 30 June 2019

Customer satisfaction

In 2018/19, we investigated 43 water quality complaints in the Ipswich region. This is a 74% decrease on the number of water quality complaints received in 2017/18. With 0.54 complaints per 1,000 property connections, the Ipswich region remained well under the customer service standard of ≤6 complaints per 1,000 property connections.

[6] The SEQWSS also supplies drinking water to our customers in Brisbane, as well as those in Peak Crossing, Harrisville and Warrill View in the Scenic Rim.

CHAPTER 7: WATER QUALITY PERFORMANCE BY REGION

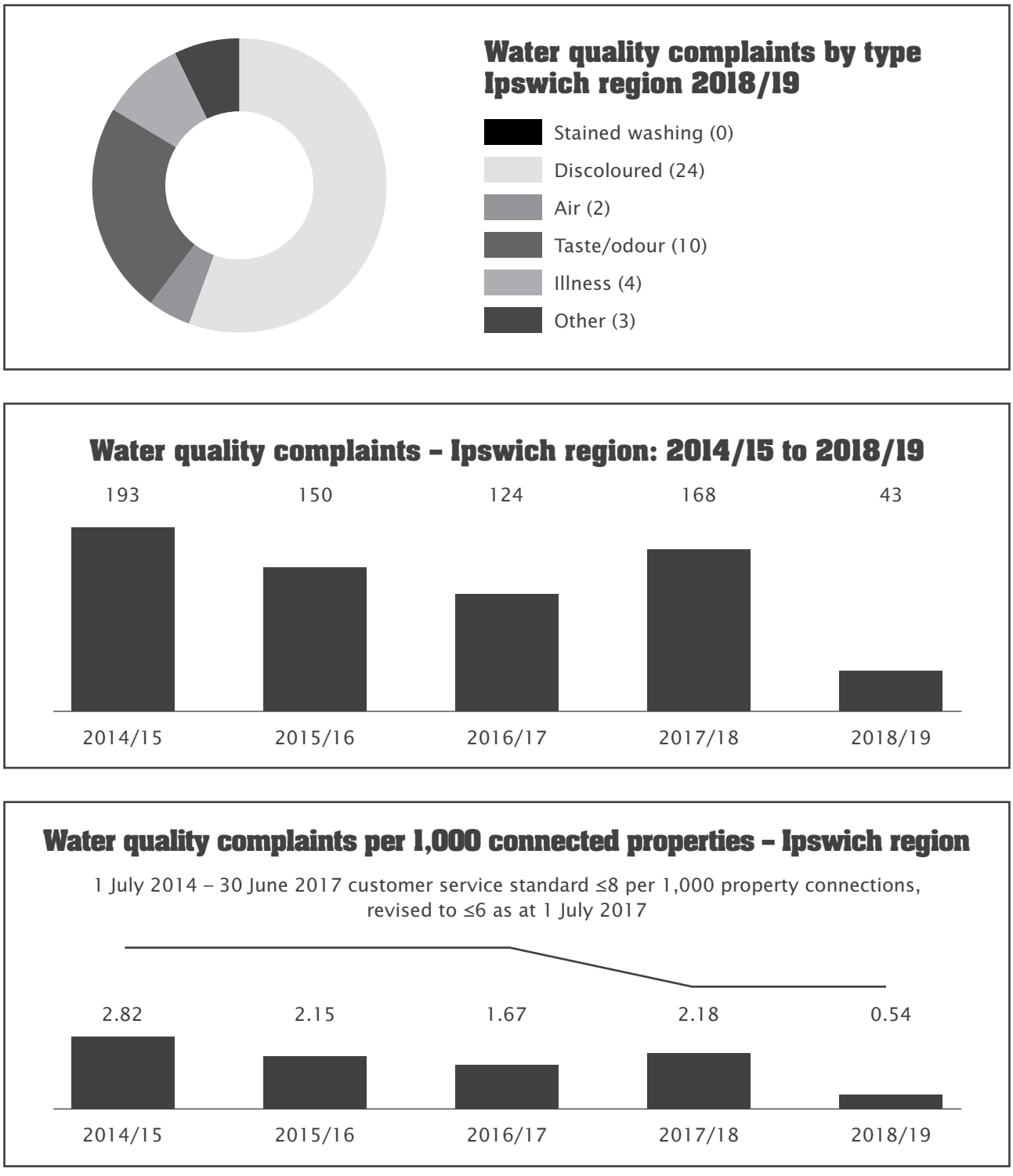


Figure 13: Customer satisfaction – Ipswich region

LOCKYER VALLEY REGION

In the Lockyer Valley region, water treated at Seqwater's Lowood WTP in the Somerset region is distributed to the seven townships and surrounding areas of Forest Hill, Gatton, Grantham, Helidon, Laidley, Plainland and Withcott.

Notifications to the Regulator

During 2018/19, there were no incidents in the Lockyer Valley region that required advice to the Regulator. This is the third time in the past five years Urban Utilities has achieved this outcome.

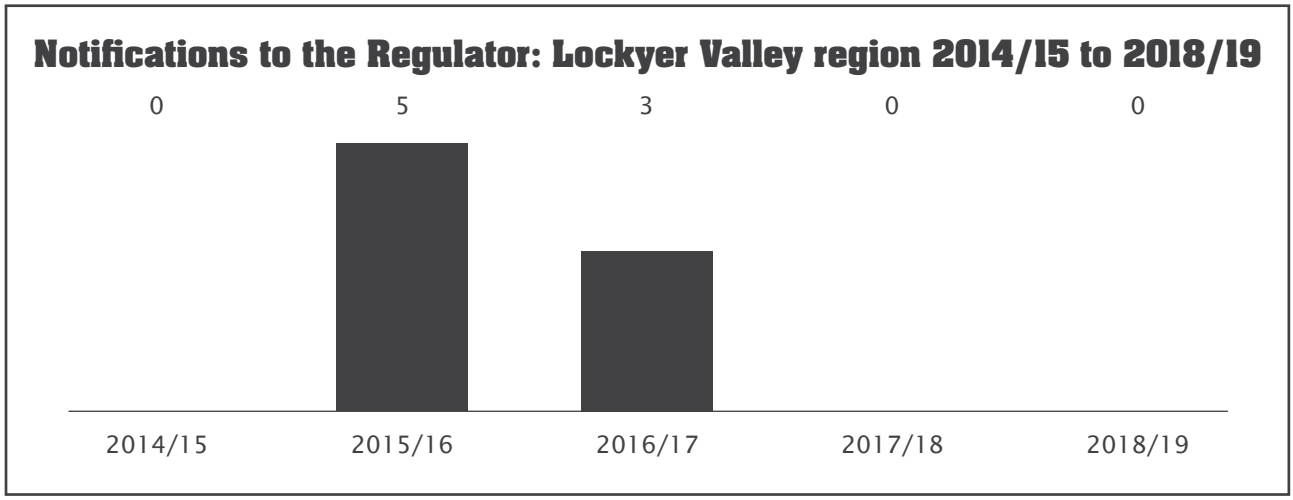
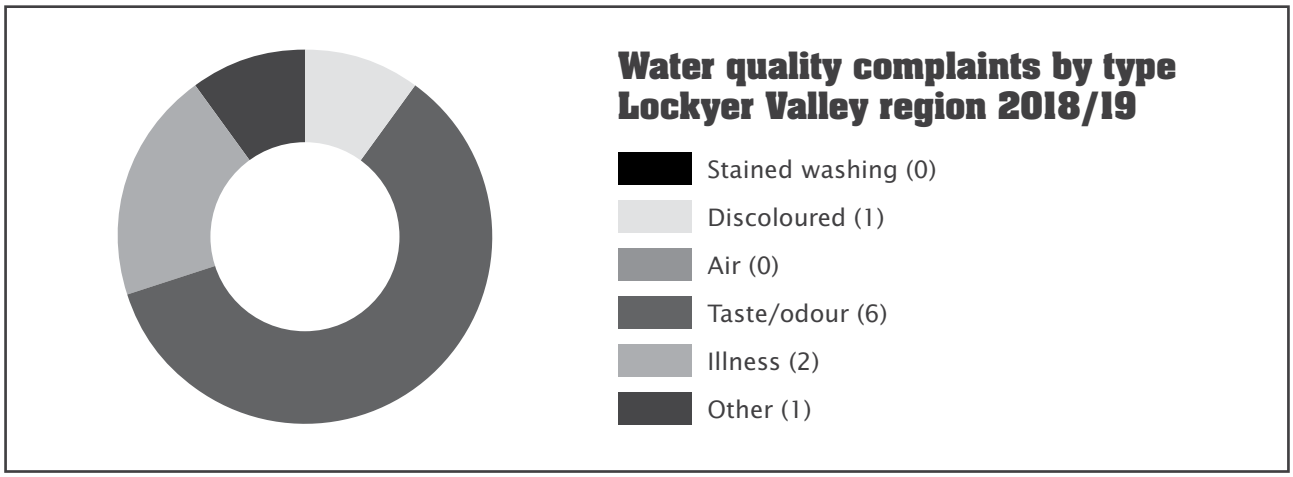


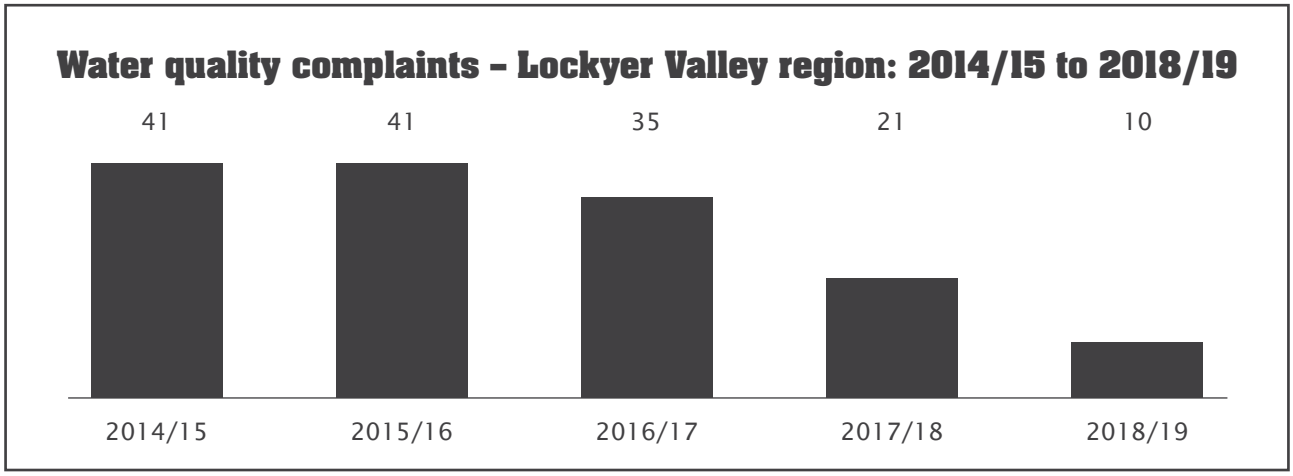
Figure 14: Notifications to the Regulator – Lockyer Valley region - 1 July 2014 to 30 June 2019

Customer satisfaction

In 2018/19, we investigated 10 water quality complaints in the Lockyer Valley region. This is a 52% decrease on the number of water quality complaints received in 2017/18, and the lowest recorded in the last five years. With 0.85 complaints per 1,000 property connections, the Lockyer Valley region remained well under the customer service standard of ≤6 complaints per 1,000 property connections.

CHAPTER 7: WATER QUALITY PERFORMANCE BY REGION





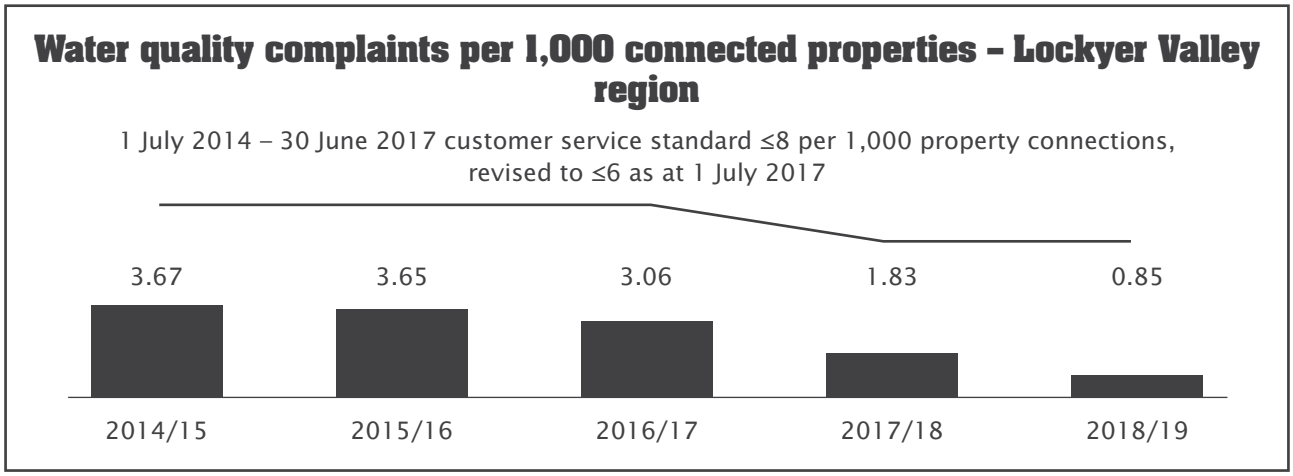


Figure 15: Customer satisfaction – Lockyer Valley region

SCENIC RIM REGION

In Scenic Rim, Seqwater operates WTPs at Beaudesert, Canungra, Kalbar, Kooralbyn and Rathdowney. Each WTP is connected to the Urban Utilities network, which supplies water to our customers in these towns. Water from the Kalbar WTP is supplied to Aratula, Kalbar, Boonah and Mount Alford. Chlorine is used as a disinfection residual in the distribution network.

The SEQWSS, which services Brisbane and Ipswich, also supplies drinking water to our customers in Peak Crossing, Harrisville and Warrill View in the Scenic Rim.

Notifications to the Regulator

During 2018/19, three incidents occurred in the Scenic Rim region which required advice to the Regulator. Table 3 summarises these notifications and how we responded to the event, with the diagram demonstrating performance over the last five years.

Date	Type	Location	Description	Preventative and corrective actions
02/01/2019	*E. coli*	Warrill View	The non-compliance was a detection of *E. coli* from a routine sample taken on 02/01/2019 at SP444. 1MPN *E. coli* organisms per 100mL was detected. Follow up samples exhibited no continued presence of *E. coli*.	The network was flushed and responsive sampling from the surrounding sample points confirmed the absence of *E. coli*. Changes to the management of re-chlorination of the local supply zone will be implemented, and the local supplying reservoir will be removed from service.
28/02/2019	*E. coli*	Peak Crossing	The non-compliance was a detection of *E. coli* from a routine sample taken on 28/02/2019 at SP818. 1MPN *E. coli* organisms per 100mL was detected. Follow up samples exhibited no continued presence of *E. coli*.	The network was flushed and responsive sampling from the surrounding sample points confirmed the absence of *E. coli*. Changes to the management of re-chlorination of the local supply zone will be implemented. Capital works for the local reservoirs will commence FY 2019/20.
11/03/2019	*E. coli*	Harrisville	The non-compliance was a detection of *E. coli* from a routine sample taken on 11/03/2019 at SP447. 59MPN *E. coli* organisms per 100mL was detected. Follow up samples exhibited no continued presence of *E. coli*.	The network was flushed and responsive sampling from the surrounding sample points confirmed the absence of *E. coli*. Changes to the management of re-chlorination of the local supply zone will be implemented. Capital works for the local reservoirs will commence FY 2019/20.

Table 4: Notifications to the Regulator – Scenic Rim: 1 July 2018 – 30 June 2019

CHAPTER 7: WATER QUALITY PERFORMANCE BY REGION

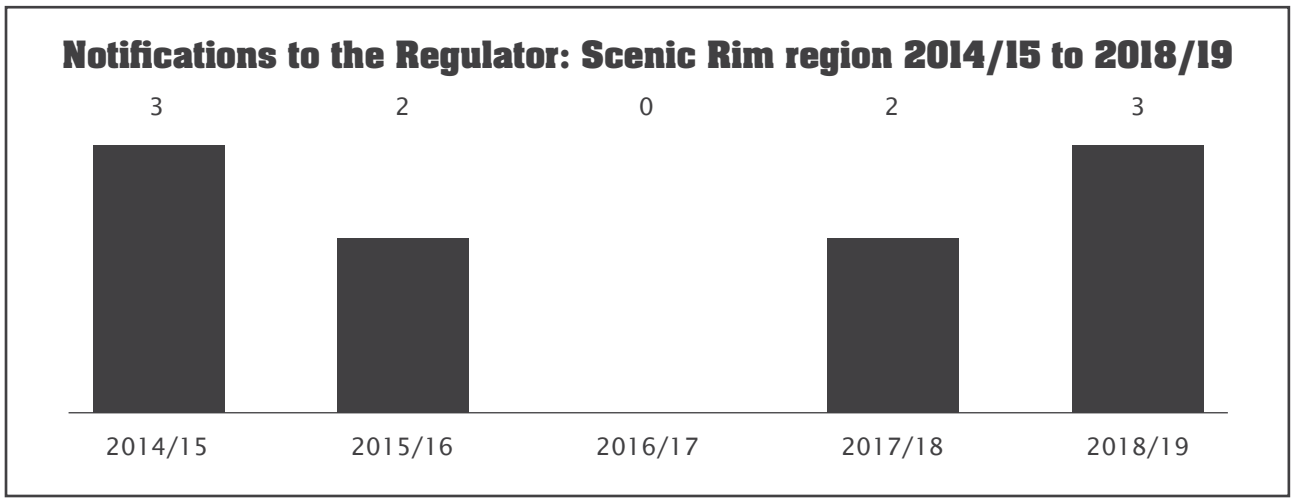
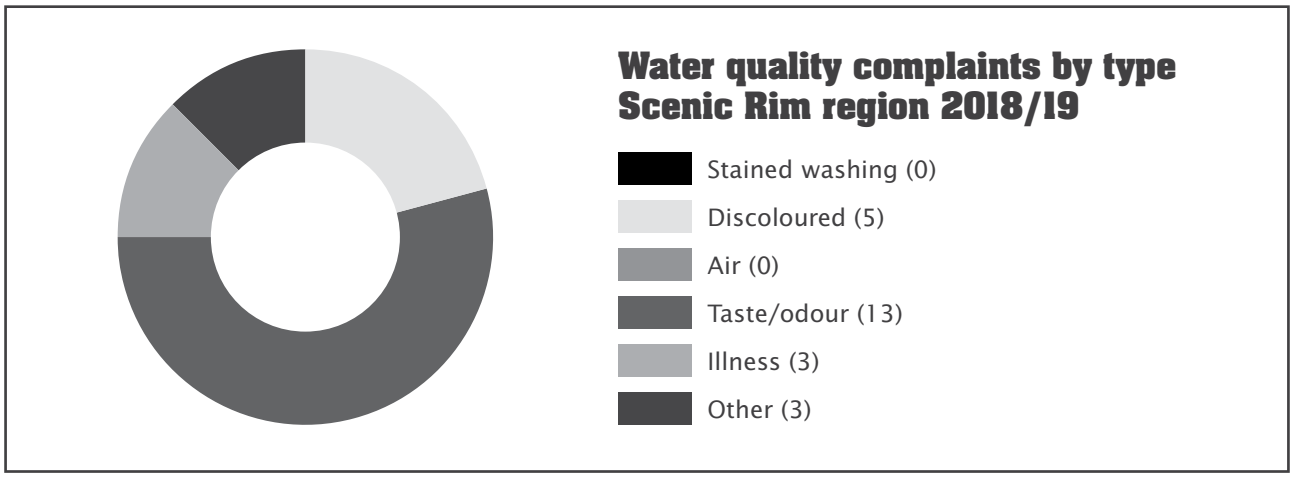


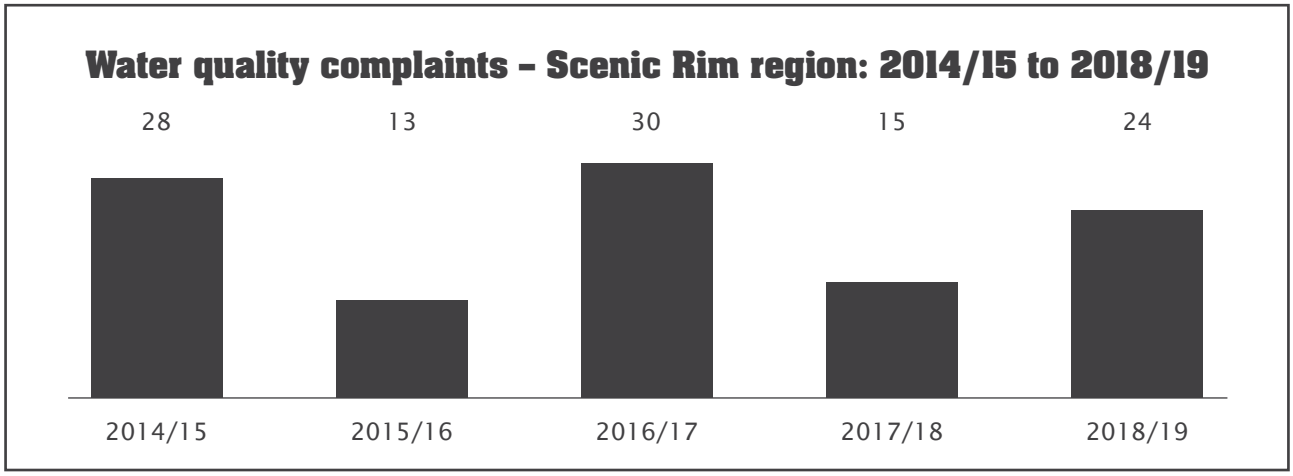
Figure 16: Notifications to the Regulator – Scenic Rim region - 1 July 2014 to 30 June 2019

Customer satisfaction

In 2018/19, we investigated 24 water quality complaints in the Scenic Rim region. This is a 60% increase on the number of water quality complaints received in 2017/18. This increase can be attributed to the upgrade of a Seqwater owned WTP. In mid-late 2018, Seqwater completed an upgrade to the Beaudesert WTP. This included a change to the treatment process within the plant to improve the resilience of water supply in the region. During the change to the treatment process, some residents noticed a change in taste and odour of their tap water. At the time, Seqwater confirmed that all water supplied from the WTP met stringent water quality standards and was safe to drink.

Despite this increase in complaints, the Scenic Rim region registered 3.06 complaints per 1,000 property connections, and remained well under the customer service standard of ≤6 complaints per 1,000 property connections.





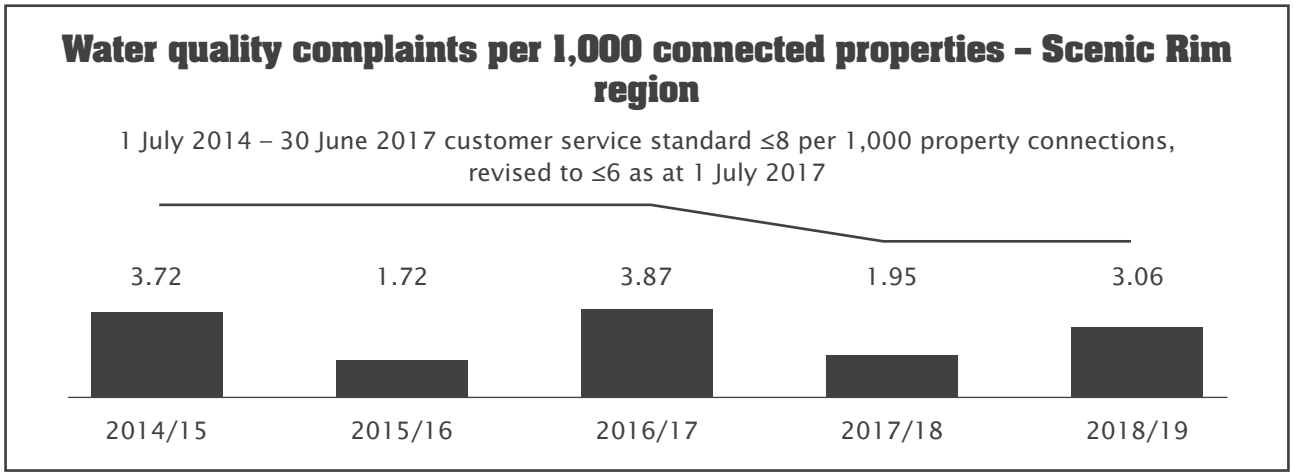


Figure 17: Customer satisfaction – Scenic Rim region

CHAPTER 7: WATER QUALITY PERFORMANCE BY REGION

SOMERSET REGION

In Somerset, Seqwater operates WTPs at Esk, Jimna, Kilcoy, Linville and Somerset township. Each WTP is connected to our network, which supplies water to our customers in these areas. The townships of Fernvale and Lowood, in the Somerset Regional Council area, are also supplied from the same Lowood WTP that supplies the Lockyer Valley. The Esk WTP supplies drinking water to Toogoolawah and Esk.

In 2013, floods compromised the bore that supplies the Linville WTP. As a result, Seqwater continues to supply water by tanker from Kilcoy to Linville.

Chlorine is used as a disinfection residual in the distribution networks in the Somerset region.

Notifications to the Regulator

During 2018/19, there were no incidents in the Somerset region that required advice to the Regulator. This is the third time in the past five years Urban Utilities has achieved this outcome.

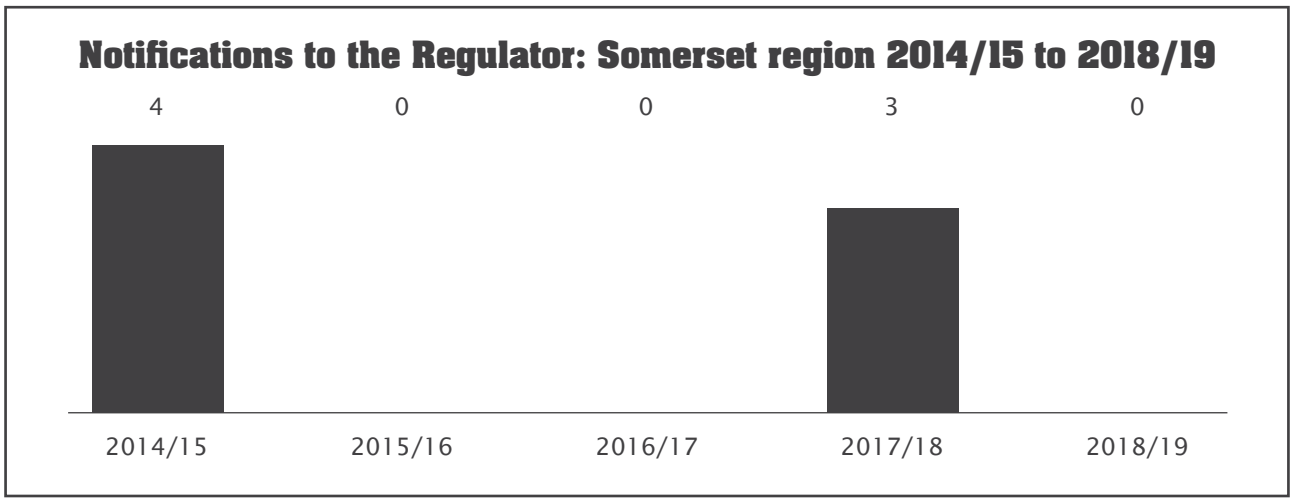
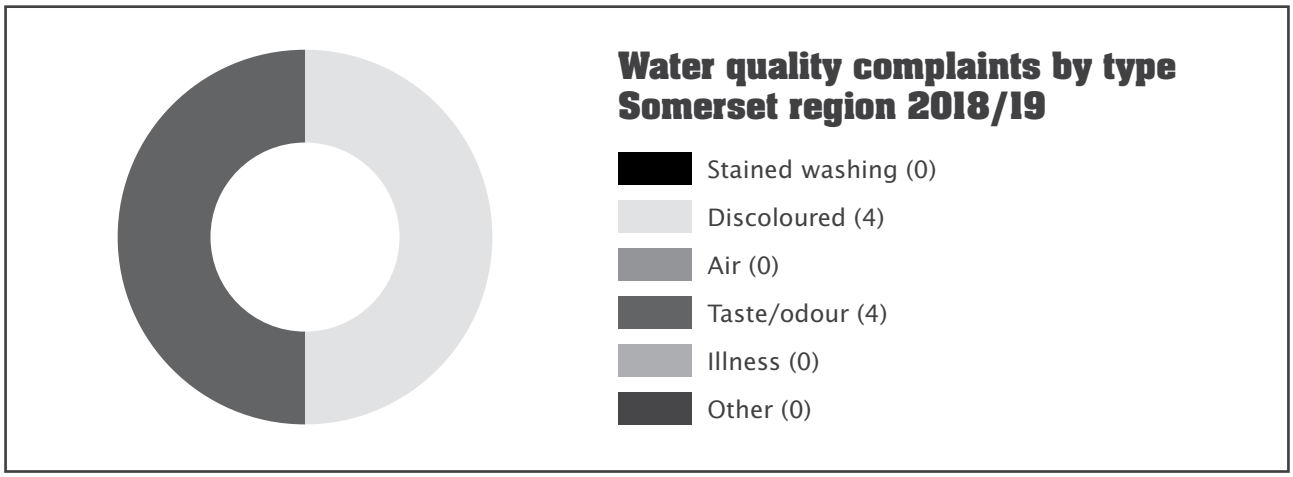
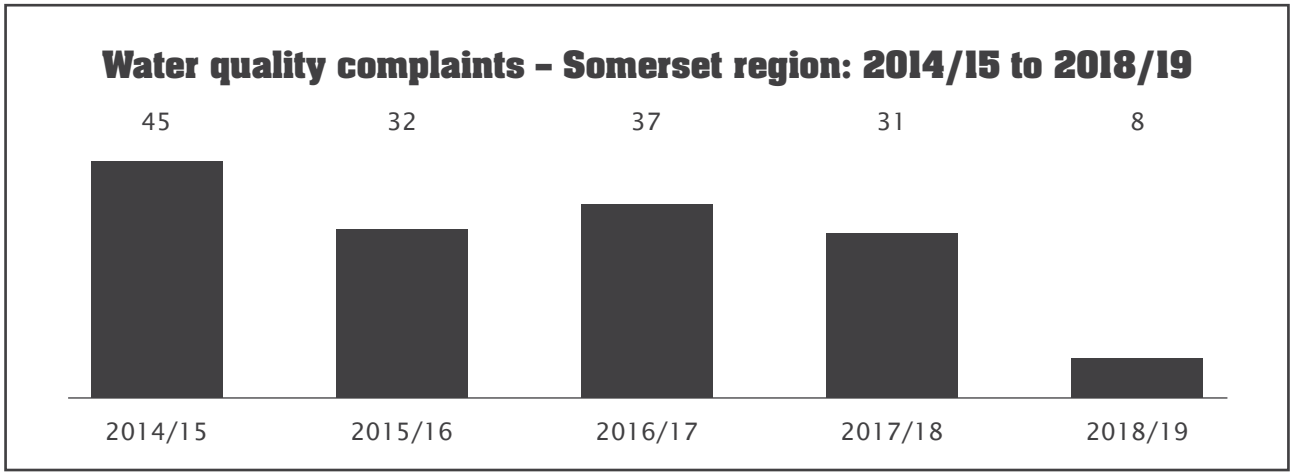


Figure 18: Notifications to the Regulator – Somerset region - 1 July 2014 to 30 June 2019

Customer satisfaction

In 2018/19, we investigated eight water quality complaints in the Somerset region. This is a 74% decrease on the number of water quality complaints received in 2017/18, and is the lowest result in the last five years. With 1.33 complaints per 1,000 property connections, the Somerset region remained well under the customer service standard of ≤6 complaints per 1,000 property connections.





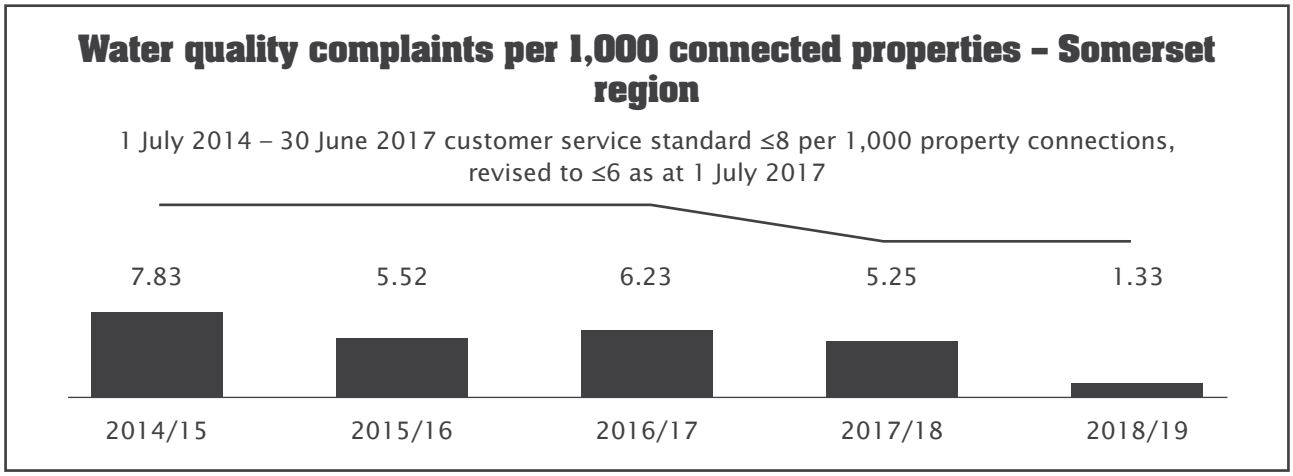


Figure 19: Customer satisfaction – Somerset region

APPENDICES

Appendix A: Water quality compliance – *E. coli*

Overall 2018-2019						
Scheme	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
Beaudesert	64	303	0	98	100	☑
Boonah-Kalbar	52	364	0	98	100	☑
Brisbane-Ipswich*	1728	8379	4	98	100	☑
Canungra	52	90	0	98	100	☑
Esk-Toogoolawah	52	102	0	98	100	☑
Jimna	12	50	0	98	100	☑
Kilcoy	52	102	0	98	100	☑
Kooralbyn	52	152	0	98	100	☑
Linville	12	51	0	98	100	☑
Lowood	124	1553	0	98	100	☑
Rathdowney	12	52	0	98	100	☑
Somerset	12	51	0	98	100	☑

*This table is compiled from water quality data that resides in the Treatment Plant Licence Compliance (TPLC) database. The data requirement is defined by our VMP. While we reported five *E.coli* detections to the Regulator (see page 17), one was detected at a non-routine sample location, as part of quality assurance for a new development connection to the reticulation network. This event was not captured under the parameters of the VMP, and is therefore not included in this table.

Beaudesert *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	6	18	0	98	100	☑
August	5	30	0	98	100	☑
September	5	24	0	98	100	☑
October	6	30	0	98	100	☑
November	5	24	0	98	100	☑
December	5	24	0	98	100	☑
January	6	29	0	98	100	☑
February	5	22	0	98	100	☑
March	5	24	0	98	100	☑
April	6	24	0	98	100	☑
May	5	30	0	98	100	☑
June	5	24	0	98	100	☑

Boonah-Kalbar *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	5	28	0	98	99.7	☑
August	4	35	0	98	99.7	☑
September	4	28	0	98	99.7	☑
October	5	28	0	98	99.7	☑
November	4	35	0	98	99.7	☑
December	4	28	0	98	100	☑
January	5	35	0	98	100	☑
February	4	28	0	98	100	☑
March	4	28	0	98	100	☑
April	5	35	0	98	100	☑
May	4	28	0	98	100	☑
June	4	28	0	98	100	☑

Canungra *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	5	6	0	98	100	☑
August	4	10	0	98	100	☑
September	4	7	0	98	100	☑
October	5	8	0	98	100	☑
November	4	7	0	98	100	☑
December	4	7	0	98	100	☑
January	5	8	0	98	100	☑
February	4	7	0	98	100	☑
March	4	7	0	98	100	☑
April	5	7	0	98	100	☑
May	4	9	0	98	100	☑
June	4	7	0	98	100	☑

APPENDICES

Appendix A: Water quality compliance – *E. coli* (continued)

Esk-Toogoolawah *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	5	8	0	98	100	☑
August	4	8	0	98	100	☑
September	4	8	0	98	100	☑
October	5	8	0	98	100	☑
November	4	10	0	98	100	☑
December	4	8	0	98	100	☑
January	5	8	0	98	100	☑
February	4	10	0	98	100	☑
March	4	8	0	98	100	☑
April	5	8	0	98	100	☑
May	4	10	0	98	100	☑
June	4	8	0	98	100	☑

Jimna *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	1	4	0	98	100	☑
August	1	4	0	98	100	☑
September	1	4	0	98	100	☑
October	1	4	0	98	100	☑
November	1	5	0	98	100	☑
December	1	4	0	98	100	☑
January	1	4	0	98	100	☑
February	1	4	0	98	100	☑
March	1	4	0	98	100	☑
April	1	4	0	98	100	☑
May	1	5	0	98	100	☑
June	1	4	0	98	100	☑

Kilcoy *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	5	8	0	98	100	☑
August	4	8	0	98	100	☑
September	4	8	0	98	100	☑
October	5	8	0	98	100	☑
November	4	10	0	98	100	☑
December	4	8	0	98	100	☑
January	5	8	0	98	100	☑
February	4	10	0	98	100	☑
March	4	8	0	98	100	☑
April	5	8	0	98	100	☑
May	4	10	0	98	100	☑
June	4	8	0	98	100	☑

Kooralbyn *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	5	9	0	98	100	☑
August	4	15	0	98	100	☑
September	4	12	0	98	100	☑
October	5	15	0	98	100	☑
November	4	12	0	98	100	☑
December	4	12	0	98	100	☑
January	5	15	0	98	100	☑
February	4	12	0	98	100	☑
March	4	12	0	98	100	☑
April	5	12	0	98	100	☑
May	4	15	0	98	100	☑
June	4	11	0	98	100	☑

APPENDICES

Appendix A: Water quality compliance – *E. coli* (continued)

Linville *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	1	4	0	98	100	☑
August	1	4	0	98	100	☑
September	1	4	0	98	100	☑
October	1	4	0	98	100	☑
November	1	5	0	98	100	☑
December	1	4	0	98	100	☑
January	1	4	0	98	100	☑
February	1	5	0	98	100	☑
March	1	4	0	98	100	☑
April	1	4	0	98	100	☑
May	1	5	0	98	100	☑
June	1	4	0	98	100	☑

Lowood *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	11	139	0	98	99.9	☑
August	10	140	0	98	99.9	☑
September	10	124	0	98	99.9	☑
October	11	129	0	98	99.9	☑
November	10	120	0	98	99.9	☑
December	10	128	0	98	99.9	☑
January	11	142	0	98	99.9	☑
February	10	120	0	98	99.9	☑
March	10	120	0	98	99.9	☑
April	11	137	0	98	99.9	☑
May	10	135	0	98	100	☑
June	10	119	0	98	100	☑

Rathdowney *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	1	4	0	98	100	☑
August	1	5	0	98	100	☑
September	1	4	0	98	100	☑
October	1	5	0	98	100	☑
November	1	4	0	98	100	☑
December	1	4	0	98	100	☑
January	1	4	0	98	100	☑
February	1	5	0	98	100	☑
March	1	4	0	98	100	☑
April	1	4	0	98	100	☑
May	1	5	0	98	100	☑
June	1	4	0	98	100	☑

Somerset *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	1	4	0	98	100	☑
August	1	4	0	98	100	☑
September	1	4	0	98	100	☑
October	1	4	0	98	100	☑
November	1	5	0	98	100	☑
December	1	4	0	98	100	☑
January	1	4	0	98	100	☑
February	1	5	0	98	100	☑
March	1	4	0	98	100	☑
April	1	4	0	98	100	☑
May	1	5	0	98	100	☑
June	1	4	0	98	100	☑

APPENDICES

Appendix A: Water quality compliance – *E. coli* (continued)

South East Queensland Water Supply (Brisbane and Ipswich) *E. coli*						
2018-2019 Month	Number of samples required	Actual number of samples	Number of samples *E. coli* detected	Required performance %	Actual performance %	*E. coli* Compliant
July	148	644	0	98	99.9	☑
August	142	813	0	98	99.9	☑
September	142	662	0	98	99.9	☑
October	148	695	0	98	99.9	☑
November	142	710	0	98	99.9	☑
December	142	694	0	98	99.9	☑
January*	148	689	1	98	99.9	☑
February	142	711	1	98	100	☑
March	142	674	2	98	99.9	☑
April	148	714	0	98	99.9	☑
May	142	722	0	98	100	☑
June	142	651	0	98	100	☑

*This table is compiled from water quality data that resides in the Treatment Plant Licence Compliance (TPLC) database. The data requirement is defined by our VMP. While we reported five *E.coli* detections to the Regulator (see page 17), one was detected at a non-routine sample location, as part of quality assurance for a new development connection to the reticulation network. This event was not captured under the parameters of the VMP, and is therefore not included in this table.

Appendix B: Water quality compliance – health assessment

Beaudesert Health Assessment							
Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	8	0	<0.001	<0.001	☑
Barium	mg/L	2	8	0	0.039	0.039	☑
Cadmium	mg/L	0.002	8	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	310	0	3.0	2.0	☑
Chlorine (Total)	mg/L	5	310	0	3.1	2.2	☑
Chromium	mg/L	0.05	8	0	<0.001	<0.001	☑
Copper	mg/L	2	8	0	0.015	0.013	☑
Dichloroacetic Acid	ug/L	100	6	0	65	57	☑
Fluoride	mg/L	1.5	12	0	1.0	0.99	☑
Lead	mg/L	0.01	8	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	104	0	0.002	0.001	☑
Monochloroacetic Acid	ug/L	150	6	0	<10	<10	☑
Nickel	mg/L	0.02	8	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	6	0	32	32	☑
Trihalomethanes (Total)	ug/L	250	80	0	220	180	☑

Boonah-Kalbar Health Assessment							
Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.024	0.024	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	364	0	4.4	1.9	☑
Chlorine (Total)	mg/L	5	364	0	4.7	2.2	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.002	0.002	☑
Dichloroacetic Acid	ug/L	100	8	0	68	61	☑
Fluoride	mg/L	1.5	12	0	1.1	1.0	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	207	0	0.003	<0.001	☑
Monochloroacetic Acid	ug/L	150	8	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	8	0	32	31	☑
Trihalomethanes (Total)	ug/L	250	51	0	160	150	☑

APPENDICES

Appendix B: Water quality compliance – health assessment (continued)

Canungra Health Assessment							
Parameter	**Units**	**ADWG Health Guideline**	**Number of tests**	**Exceedance Count**	**Maximum Result**	**95th %-ile**	**Meets ADWG**
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.007	0.007	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	92	0	3.2	2.9	☑
Chlorine (Total)	mg/L	5	92	0	3.3	3.0	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Dichloroacetic Acid	ug/L	100	4	0	0.002	0.002	☑
Copper	mg/L	2	3	0	34	33	☑
Fluoride	mg/L	1.5	12	0	1.0	0.98	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	0.014	0.011	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	27	26	☑
Trihalomethanes (Total)	ug/L	250	12	0	120	97	☑

Esk-Toogoolawah Health Assessment							
Parameter	**Units**	**ADWG Health Guideline**	**Number of tests**	**Exceedance Count**	**Maximum Result**	**95th %-ile**	**Meets ADWG**
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.028	0.028	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	104	0	3.0	2.0	☑
Chlorine (Total)	mg/L	5	104	0	3.2	2.4	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.003	0.003	☑
Dichloroacetic Acid	ug/L	100	3	0	40	38	☑
Fluoride	mg/L	1.5	12	0	1.1	1.0	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	104	0	0.010	0.005	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	21	21	☑
Trihalomethanes (Total)	ug/L	250	19	0	180	180	☑

Jimna Health Assessment

Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.013	0.013	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	52	0	2.6	2.1	☑
Chlorine (Total)	mg/L	5	52	0	2.8	2.3	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.005	0.004	☑
Dichloroacetic Acid	ug/L	100	3	0	42	41	☑
Fluoride	mg/L	1.5	10	0	0.18	0.16	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	0.002	0.002	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	64	61	☑
Trihalomethanes (Total)	ug/L	250	19	0	170	160	☑

Kilcoy Health Assessment

Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.019	0.019	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	104	0	1.7	1.4	☑
Chlorine (Total)	mg/L	5	104	0	2.0	1.7	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.003	0.003	☑
Dichloroacetic Acid	ug/L	100	3	0	28	27	☑
Fluoride	mg/L	1.5	12	0	1.1	1.0	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	0.021	0.003	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	47	43	☑
Trihalomethanes (Total)	ug/L	250	19	0	140	130	☑

APPENDICES

Appendix B: Water quality compliance – health assessment (continued)

Kooralbyn Health Assessment							
Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.029	0.028	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	155	0	2.3	2.0	☑
Chlorine (Total)	mg/L	5	155	0	2.6	2.2	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.003	0.003	☑
Dichloroacetic Acid	ug/L	100	3	0	29	28	☑
Fluoride	mg/L	1.5	12	0	0.93	0.89	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	0.005	0.003	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	14	14	☑
Trihalomethanes (Total)	ug/L	250	52	0	150	120	☑

Linville Health Assessment							
Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.018	0.018	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	52	0	3.5	3.0	☑
Chlorine (Total)	mg/L	5	52	0	3.8	3.3	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.003	0.003	☑
Dichloroacetic Acid	ug/L	100	3	0	23	23	☑
Fluoride	mg/L	1.5	12	0	1.1	1.0	☑
Lead	mg/L	0.01	4	0	<0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	0.005	0.004	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	32	30	☑
Trihalomethanes (Total)	ug/L	250	19	0	150	120	☑

Lowood Health Assessment

Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	32	0	<0.001	<0.001	☑
Barium	mg/L	2	32	0	0.039	0.037	☑
Cadmium	mg/L	0.002	32	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	1575	0	3.7	2.3	☑
Chlorine (Total)	mg/L	5	1575	0	4.0	2.7	☑
Chromium	mg/L	0.05	32	0	<0.001	<0.001	☑
Copper	mg/L	2	32	0	0.009	0.007	☑
Dichloroacetic Acid	ug/L	100	28	0	34	32	☑
Fluoride	mg/L	1.5	96	0	1.5	0.93	☑
Lead	mg/L	0.01	32	0	0.001	<0.001	☑
Manganese	mg/L	0.5	28	0	<10	<10	☑
Monochloroacetic Acid	ug/L	150	590	0	0.075	0.004	☑
Nickel	mg/L	0.02	32	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	28	0	22	22	☑
Trihalomethanes (Total)	ug/L	250	143	0	220	180	☑

Rathdowney Health Assessment

Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.055	0.054	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	52	0	1.8	1.4	☑
Chlorine (Total)	mg/L	5	52	0	1.9	1.7	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.004	0.004	☑
Dichloroacetic Acid	ug/L	100	3	0	38	36	☑
Fluoride	mg/L	1.5	12	0	0.55	0.50	☑
Lead	mg/L	0.01	4	0	0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	<0.001	<0.001	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	21	21	☑
Trihalomethanes (Total)	ug/L	250	20	0	150	120	☑

APPENDICES

Appendix B: Water quality compliance – health assessment (continued)

Somerset Health Assessment							
Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	4	0	<0.001	<0.001	☑
Barium	mg/L	2	4	0	0.021	0.021	☑
Cadmium	mg/L	0.002	4	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	52	0	1.8	1.7	☑
Chlorine (Total)	mg/L	5	52	0	2.3	1.9	☑
Chromium	mg/L	0.05	4	0	<0.001	<0.001	☑
Copper	mg/L	2	4	0	0.003	0.003	☑
Dichloroacetic Acid	ug/L	100	3	0	54	53	☑
Fluoride (as F)	mg/L	1.5	10	0	0.36	0.31	☑
Lead	mg/L	0.01	4	0	0.001	<0.001	☑
Manganese	mg/L	0.5	52	0	0.013	0.011	☑
Monochloroacetic Acid	ug/L	150	3	0	<10	<10	☑
Nickel	mg/L	0.02	4	0	<0.001	<0.001	☑
Trichloroacetic Acid	ug/L	100	3	0	94	92	☑
Trihalomethanes (Total)	ug/L	250	20	0	190	190	☑

South East Queensland Water Supply (Brisbane and Ipswich) Health Assessment							
Parameter	Units	ADWG Health Guideline	Number of tests	Exceedance Count	Maximum Result	95th %-ile	Meets ADWG
Arsenic	mg/L	0.01	15	0	<0.001	<0.001	☑
Barium	mg/L	2	15	0	0.037	0.034	☑
Cadmium	mg/L	0.002	15	0	<0.001	<0.001	☑
Chlorine (Free)	mg/L	5	1161	0	3.2	1.2	☑
Chlorine (Total)	mg/L	5	8471	0	3.9	2.4	☑
Chromium	mg/L	0.05	15	0	<0.001	<0.001	☑
Copper	mg/L	2	17	0	0.094	0.044	☑
Dichloroacetic Acid	ug/L	100	30	0	27	16	☑
Fluoride	mg/L	1.5	228	0	1.0	0.93	☑
Lead	mg/L	0.01	15	0	0.003	0.001	☑
Manganese	mg/L	0.5	2714	1	0.580	0.007	☑
Monochloroacetic Acid	ug/L	150	30	0	<10	<10	☑
Nickel	mg/L	0.02	18	0	<0.001	<0.001	☑
Nitrate	mg/L	50	1705	0	3.4	1.7	☑
Nitrite (as N)	mg/L	3	1705	0	1.2	0.26	☑
Trichloroacetic Acid	ug/L	100	30	0	16	<10	☑
Trihalomethanes (Total)	ug/L	250	398	0	160	110	☑

Appendix C: Water quality – aesthetic assessment

Paramter (Median values)	Units	ADWG Aesthetic Guideline Value	Beaudesert	Boonah-Kalbar	Canungra	Esk-Toogoolawah	Jimna	Kilcoy	Kooralbyn	Linville	Lowood	Rathdowney	SEQ Water Supply (Brisbane and Ipswich	Somerset Township
2-Methyl isoborneol*	ng/L	-	<2	<2	<2	<2	<2	2.3	<2	<2	6.1	<2	<2	2.5
Aluminium	mg/L	0.2	0.020	0.034	0.011	0.065	0.025	0.022	0.025	0.023	0.029	0.009	0.040	0.052
Ammonia (Total, as N)	mg/L	0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.29
Chloride	mg/L	250	71	31	21	69	30	36	65	37	67	67	38	71
Colour (True)	PCU	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Conductivity	uS/cm	1000	560	370	200	450	430	320	460	320	450	390	290	470
Geosmin*	ng/L	-	<2	2.3	<2	<2	2.8	<2	<2	<2	<2	<2	<2	<2
Iron	mg/L	0.3	0.001	0.004	0.004	0.005	0.003	0.014	0.007	0.007	0.012	0.005	0.050	0.011
Langelier Index	-	-	-0.1	-0.4	-0.3	-0.1	-1.0	-0.7	-0.1	-0.7	-0.4	0.0	-0.7	0.0
pH	pH Unit	6.5 - 8.5	7.5	7.5	8.0	7.4	7.4	7.5	8.0	7.6	7.5	8.0	7.7	7.7
Silica	mg/L	80	16	5	22	2.7	9.1	3.3	18	3.2	3.3	14	2.2	3.0
Sodium	mg/L	180	56	40	16	43	67	33	43	34	37	45	29	42
Sulphate (as SO4)	mg/L	250	12	42	1.0	26	72	39	45	39	26	5.0	24	26
Temperature	deg C	-	24	24	23	25	22	24	24	24	24	23	24	24
Total Dissolved Solids	mg/L	600	360	240	130	290	270	200	290	210	290	250	190	300
Total Hardness	mg/L	200	150	87	68	110	46	68	120	70	120	100	61	120
Turbidity	NTU	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	<0.1	0.2	0.2
Zinc	mg/L	3	0.002	<0.001	0.002	<0.001	0.014	0.003	0.004	0.004	0.002	0.005	0.006	0.003
Meets ADWG Guideline			☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

* See Glossary

GLOSSARY

<	Less than
>	Greater than
2-Methyl isoborneol	A compound produced from algae in catchments contributing to taste and odour of water typically described as earthy, musty, swampy or metallic. May become noticeable at greater than 5ng/L. Presence of this compound does not pose a health risk.
Aesthetic	The way our water tastes, smells and appears.
Ammonia (NH3)	A highly soluble compound resulting from the decomposition of organic matter containing nitrogen. Ammonia will be detected in chloraminated water as it is a component of chloramine.
Australian Drinking Water Guidelines 2011 ADWG)	The guidelines were developed by the National Health and Medical Research Council (NHMRC) and undergo rolling revision to ensure they represent the latest scientific evidence on good quality drinking water.
Bulk water	The treated water supplied from the Queensland Bulk Water Authority (Seqwater) to distributor retailers, including Urban Utilities.
Chloramination / chloramine	The application of chlorine and ammonia to create monochloramine (NH2Cl), a stable disinfectant that is added to drinking water to inactivate bacteria or to oxidise undesirable compounds. Chloramines persist for a longer time than chlorine and as a result are used in longer water distribution systems.
Chlorine – Free	The residual formed with chlorine dosage once all the chlorine demand has been satisfied. This chlorine is free to inactivate microorganisms.
Chlorine – Total	Total chlorine is the sum of combined and free chlorine including chloramine.
CFU/100mL	Colony Forming Units per 100 millilitres.
Colour (True)	Colour is mainly due to the presence of dissolved substances from organic matter in water, such as decaying leaves and vegetation. True colour refers to the colour of water after particles of organic matter have been removed through filtration and is the measurement of the extent to which light is absorbed by the water.
Department of Natural Resources, Mines and Energy (DNRME)	The Queensland Government department responsible for overseeing Queensland's water industries to ensure these essential services are provided to Queenslanders in a safe, efficient and reliable way.
Dichloroacetic acid	Dichloroacetic acid is a disinfection by product as a consequence of the reaction of chlorine with natural organic matter and bromide ions in the raw water supply.
Disinfectant	An agent that inactivates microorganisms which cause disease. Urban Utilities uses either chlorine or chloramine.
Disinfection by-products (DBPs)	Products of reactions between disinfectants, particularly chlorine and naturally occurring organic material.
Drinking water	Water that is suitable for human consumption.
Drinking Water Quality Management Plan (DWQMP)	Drinking Water Quality Management Plan as required by the *Water Supply (Safety and Reliability) Act 2008*. The purpose of a DWQMP is to protect public health by implementing a risk-management system to manage the quality of drinking water.
Drinking Water Quality Management System (DWQMS)	Urban Utilities' DWQMS is used to ensure our drinking water supplies are managed effectively to provide high quality drinking water and to ensure the protection of public health.
Escherichia coli (E. coli)	A bacterium when present in water indicates that the water may be contaminated by faecal matter and therefore there is the potential to cause illness when people drink the water. *E. coli* can be killed by standard disinfection practices.
Fluoride (F)	Fluoride is regarded as a useful constituent of drinking water, particularly for the prevention of tooth decay. Concentration is maintained within the recommended levels set by QHealth.
Geosmin	A compound produced from algae in catchments contributing to taste and odour of water typically described as earthy, musty, swampy or metallic. May become noticeable at greater than 5ng/L. Presence of this compound does not pose a health risk.
Haloacetic acids	A group of disinfectant by products that are formed when disinfectants, such as chlorine or chloramine, are used to treat water and react with naturally occurring organic and inorganic matter present in source waters.
Iron (Fe)	An element which, when found in water, can cause a brownish discolouration. Limits on the amount of iron in water are usually due to taste and appearance factors rather than any detrimental health effects.
km	Kilometre, which is 1,000 metres
Manganese (Mn)	Manganese in a water supply may affect taste, cause staining of clothes, produce deposits in pipes and contribute to turbidity.
Megalitre (ML)	One million litres or 1,000 kilolitres

Monochloroacetic acid	One of the group of five haloacetic acids is formed when chlorine or other disinfectants are used to treat drinking water.
mg/L	milligrams per litre
MPN/100mL	Most Probable Number per 100 millilitres
Naturally occurring	Present in the natural environment as minerals, elements, salts and other substances.
ng/L	Nanograms per millilitre
Network	An arrangement or system of pipes, pumps and reservoirs used for distributing water.
Nephelometric Turbidity Unit (NTU)	A measure of turbidity which is the cloudiness or haziness of water caused by particles that are generally invisible to the naked eye. The measurement of turbidity is a key test of water quality.
Nitrate (NO_3)	The most stable form of combined nitrogen in water. Present in surface waters in small amounts generally not removed through treatment. Nitrate can be found in chloraminated water supplies as a result of chloramine breakdown.
pH	The pH value indicates if a substance is acidic, neutral or alkaline. It is calculated from the number of hydrogen ions present and is measured on a scale from zero to 14. A pH greater than seven is alkaline, less than seven is acidic and seven is neutral. The pH of public water supplies should be slightly alkaline to minimise corrosion and stabilise disinfection.
Reservoir	A water tower or tank used for the storage of treated water within the water distribution system.
SAS Lab	Scientific Analytical Services Laboratory, Urban Utilities.
Scheme	The system distributing drinking water to customers.
Seqwater	Queensland Bulk Water Supply Authority, trading as Seqwater. The bulk drinking water provider for Urban Utilities.
Shareholders	Brisbane and Ipswich City Councils, and the Lockyer Valley, Scenic Rim and Somerset Regional Councils.
Stakeholder	All those who are either affected by or who can affect the activities of an organisation, namely customers, governments, regulators, the media, non-government organisations, local residents and employees.
The Regulator	See Department of Natural Resources, Mines and Energy (DNRME).
Total dissolved solids (TDS)	A measure of inorganic salts and small amounts of organic matter that are dissolved in water. Usually determined by converting electrical conductivity to TDS values.
Total hardness	Total hardness is the sum of the concentrations of calcium and magnesium ions expressed as calcium carbonate (CaCO3) equivalent. Waters with a high mineral content (a total hardness in excess of 200 mg/L) are considered hard.
Total Trihalomethanes (tTHMs)	A group of disinfection by-products that generally form when chlorine is used to disinfect drinking water.
Trichloroacetic acid	One of the group of five haloacetic acids is formed when chlorine or other disinfectants are used to treat drinking water.
Turbidity	Refers to the presence of suspended solids in water causing a muddy or discoloured appearance. Turbidity is measured in Nephelometric Turbidity Units (NTU).
Verification Monitoring Program (VMP)	Water quality verification monitoring is used as the final check that the barriers and preventive measures used in protecting the public health from drinking water risks are performing effectively. Verification monitoring is used to verify the quality of drinking water supplied to Urban Utilities' customers as well as collecting data to complement future operational monitoring programs.
Water Treatment Plant (WTP)	A plant that improves water quality by removing impurities through filtration and disinfection.

UrbanUtilities

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