LOGAN WATER

Drinking Water Service

Annual Report 2023/24

logan.qld.gov.au

CITY OF LOGAN

Accessing the Report

This report is available to the public via the City of Logan website and copies may be provided to members of the public upon request. Logan Water understands that our community is made up of people from more than 217 different cultures, if you have any difficulty in understanding this report an interpretation service is available on 131 450.

Feedback

If you have any feedback about this report or the services that Logan Water provides, you can contact us on 3412 3412 or via email at **council@logan.qld.gov.au**.

Acknowledgement of Country

We acknowledge the Yugambeh people as the Traditional Custodians of the country on which we work. We honour Elders past and present, whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We respect the deep cultural and spiritual connections that our local peoples have with the land and water, and its importance to cultural vitality, life and identity.

Contents

1 About Logan Water

Our purpose

As a water service provider, Logan Water[1] provides safe, reliable and sustainable water and wastewater services for the benefit of the City of Logan. We are a water utility focused on reliable, cost-effective, high-grade service delivery.

Our vision

Reliable. Sustainable. Committed.

Our Ambitions

Our ambitions, shown in Figure 1, outline where will focus our efforts to achieve our purpose and vision.

Ambition 1

Effortless Customer Experience

Objective 1.1 We ensure our customers consistently get what they need and expect
Objective 1.2 We make decisions based on authentic customer and community connection

Ambition 2

Resilient Infrastructure

Objective 2.1 We provide infrastructure to meet the region's growth
Objective 2.2 We create resilient infrastructure adaptable to ongoing change

Ambition 3

Future-Ready People

Objective 3.1 We are a safe, engaged and thriving workforce
Objective 3.2 We are empowered, enabled and accountable for our performance
Objective 3.3 We are diverse, inclusive and prioritise equity

Ambition 4

Enhanced Sustainability

Objective 4.1 We power the City of Logan's circular economy
Objective 4.2 We deliver assets that complement our natural environment
Objective 4.3 We drive long term financial sustainability

Figure 1: Logan Water's ambitions

[1] Logan City Council's Service Provider ID is SPID542. Logan Water is a commercial unit of Logan City Council.

2023/24 in review

Drinking water supply

360,000 customers

142,488 property connections

26,350 ML of drinking water

Drinking water distribution network

2,563 km of drinking water mains

10 water supply zones

21 reservoirs

10 chlorine dosing facilities

32 water quality network analysers

89 dedicated drinking water quality sampling points

Drinking water quality verification

2,880 samples

66,188 water quality tests

Drinking water quality performance

100%

compliance with the Public Health Regulation 2018 (Qld) *E. coli* parameter

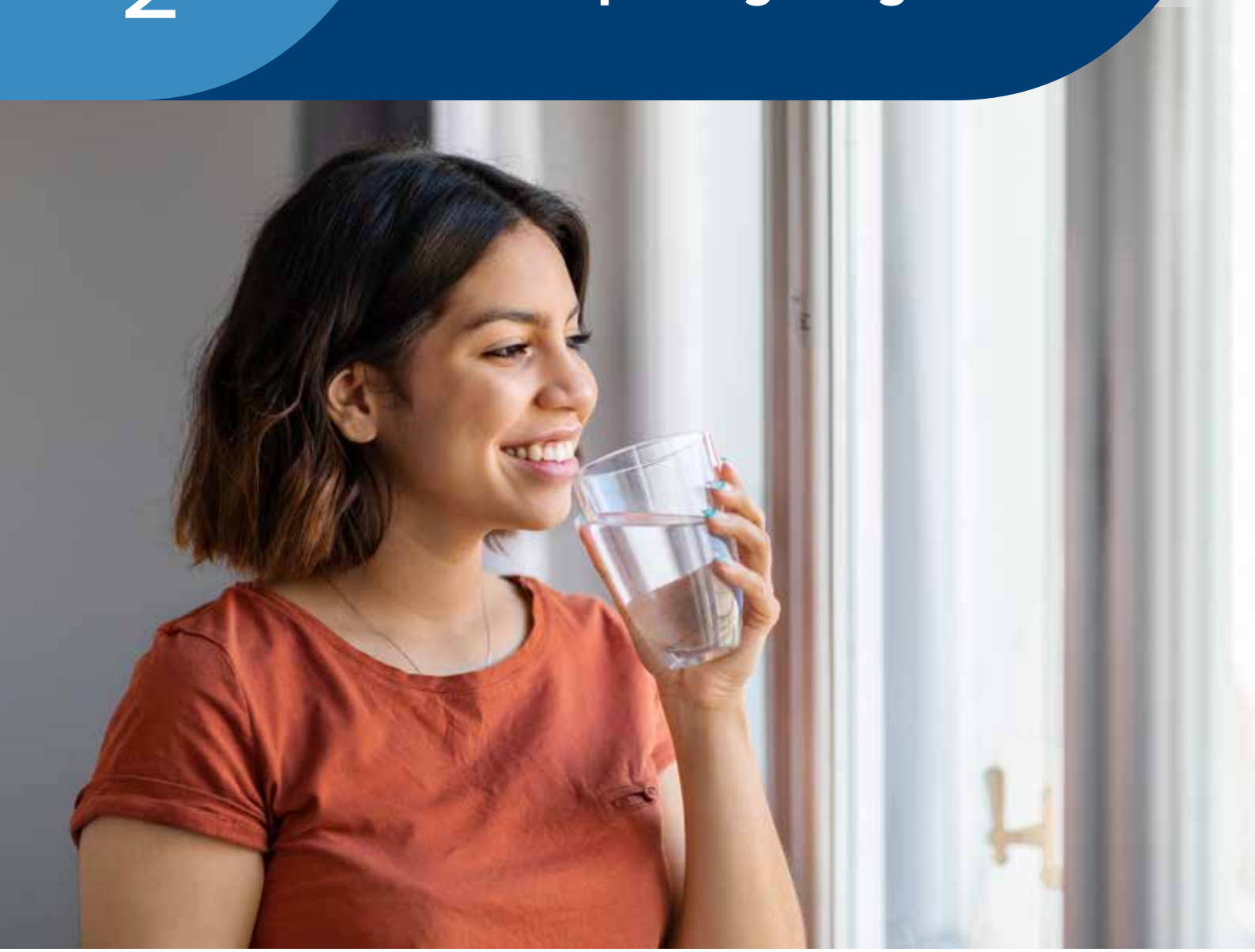
compliance with the *Australian Drinking Water Guidelines* health-related chemical parameters

compliance with the *Australian Drinking Water Guidelines* aesthetic-related parameters

3

Of the 66,188 water quality tests, three (3) required reporting to the Regulator (page 16)

2 Our reporting obligations



Logan Water, as a commercial unit of Logan City Council, is required to prepare a Drinking Water Service Annual Report (the Report) to comply with the requirements of sections 141 and 142 of the *Water Supply (Safety and Reliability) Act 2008* (the Act).

The purpose of the report is to demonstrate to our customers, stakeholders, and the Water Supply Regulator (the Director-General of the Department of Regional Development, Manufacturing and Water) that we have satisfactorily implemented our approved Drinking Water Quality Management Plan during the relevant financial year.

Logan Water's 2023/24 Report:

- details our water quality performance and compliance with drinking water quality criteria,
- summarises drinking water quality incidents reported to the Regulator,
- details drinking water quality related customer complaints, and
- includes actions taken to implement our DWQMP.

The Report must be submitted to the Water Supply Regulator within 120 business days from the end of the relevant financial year and assists the Water Supply Regulator to determine compliance with Logan City Council's approved DWQMP and relevant approval conditions. This Report has been prepared in accordance with the Guideline for the preparation, review, and audit of DWQMPs, and addresses the reporting requirements under Section 142(3) of the Act, refer Table 1.

Table 1: Reporting requirements - Section 142(3) of the *Water Supply (Safety and Reliability) Act 2008*

Report	Requirement under the Act	Required content	Chapter of this Report
142(3)(a)	The information required under the latest report requirement given to the provider	Content required for this report	2
142(3)(b)	Actions taken to implement the DWQMP	Progress in implementing the risk management improvement program (RMIP)	5
142(3)(c)	Outcome of the DWQMP review and how issues raised have been addressed	Description of activities undertaken during the biannual review of the DWQMP	8
142(3)(d)	Findings and recommendations of the DWQMP auditor	Not applicable	
142(3)(e)	Notifications to the Regulator under Sections 102 and 102A of the Act	Non-compliances with the water quality criteria including corrective and preventive actions undertaken Prescribed incidents or events reported to the Regulator and corrective and preventive actions undertaken	6
142(3)(f)	Compliance with water quality criteria for drinking water	Verification monitoring results summary for the reporting period	4 Appendix A-C
142(3)(g)	Customer complaints related to drinking water service	Summary of water quality complaints	7
142(3)(h)	If the provider has reviewed a customer service standard during the financial year—the outcome of the review and how the provider has addressed matters raised in the review	Not applicable	

3 Delivering water to the City of Logan

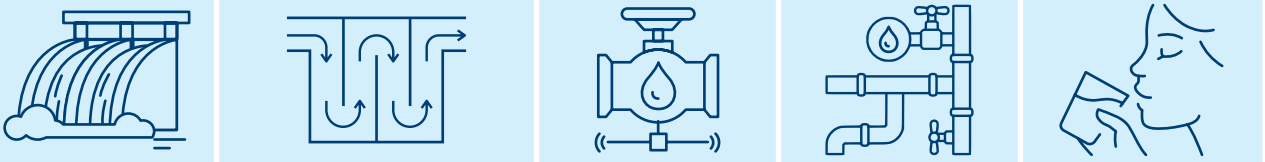
The provision of drinking water services to 360,000 customers in the City of Logan is managed by Logan Water in collaboration with Seqwater, a Queensland Government statutory body and bulk water supply authority.

Seqwater supplies water from the dams, weirs, and water treatment plants that it manages. Logan Water then distributes the treated water to your property via a network of reservoirs, pumps, and pipes across 10 water supply zones. The key responsibilities of Seqwater and Logan Water are summarised Table 2.

Table 2: Key Seqwater and Logan Water responsibilities

Seqwater	Logan Water
› Catchment management › Raw water treatment (including fluoridation) › Clear water storage › Bulk water transport to defined transfer points › Monitoring of raw and treated water supply, including fluoridation	› Receipt of bulk treated water from Seqwater at defined transfer points › Delivery to customers through Logan Water's distribution network › Operation and maintenance of the distribution network, reservoirs, pump stations, and several secondary disinfection facilities › Monitoring of drinking water quality performance throughout the distribution network

The entire process from raw water source to your water meter is known as 'Catchment-to-Consumer'. See Figure 2.



Seqwater manages the raw water that comes from the catchments, dams and weirs.

The raw water is processed through Seqwater's water treatment plants. This water treatment process – known as conventional treatment – is a combination of coagulation, flocculation, sedimentation and filtration.

The treated water is distributed to Logan Water's 21 drinking water reservoirs via 10 bulk water supply points.

Drinking water is then distributed via Logan Water's network of pumps and pipes.

Safe and high-quality drinking water is delivered to our customers.

Figure 2: Catchment-to-Consumer

Logan Water is supplied clean, treated drinking water through the South East Queensland (SEQ) Water Supply Network Grid (the Grid), which is managed and operated by Seqwater. Water may be sourced from various sources throughout the Grid, dependent on operational supply requirements. For example, treated water may be supplied via the Eastern Pipeline Interconnector (EPI) and may flow west to supply Logan Water or east to supply Redlands City Council. In practice, most of Logan City Council's treated water is supplied from the Mt Crosby Water Treatment Plant (WTP).

An overview of Logan Water's drinking water supply network is provided in Table 3.

Table 3: Overview of Logan Water's drinking water supply

Overview	Description
Responsibility	Delivery of clean, treated water from bulk supply points (transfer points) to customer meters.
Area	959 square kilometres
Population	377,773[2]
Population connected to water supply network	361,352
Residential water connections	136,570
Commercial and industrial connections	5,918
Seqwater's primary WTP's (and respective catchments)	› Mt Crosby (Wivenhoe Dam via Brisbane River) › North Stradbroke Island (North Stradbroke Island Bores) › Capalaba (Tingalpa Dam) › Molendinar (Hinze Dam) › Gold Coast desalination plant (seawater off Tugun, Gold Coast)
Logan Water's Supply Network Schematic	› Indicating key water supply zones and supplying reservoirs, with latest updates in Logan Water's SCADA and GIS systems.
Bulk Supply Points (transfer points)	› Compton Road meter via Kuraby reservoir inlet main › Trinder Park pump station via Kuraby Reservoir › Illaweena bulk meters (3) via Kuraby Reservoir › EPI supply via Kimberley Park Reservoir › Southern Regional Water Pipeline (SRWP) supply via Teviot Road Offtake › Bannockburn Road Offtake › SRWP supply via New Beith Offtake (Pub Lane Offtake) › Gold Coast supply via Stanmore Pump Station

[2] Population as reported on Home | City of Logan | Community profile (id.com.au)

3.1 Our water supply zones

Logan Water operates ten defined water supply zones (WSZ). A WSZ is typically serviced by its own significant water storage reservoirs. The water source can be flexible depending on grid supply arrangements and operational needs. Logan Water's WSZs and the associated suburbs are shown in Table 4.

Table 4: Logan Water's water supply zones by associated suburbs

Water Supply Zone	Main Suburbs	Partial Suburbs
Greenbank	Browns Plains, Boronia Heights, Forestdale, Greenbank, Heritage Park, Hillcrest, Park Ridge, Regents Park	Berrinba, Chambers Flat, Crestmead, Logan Reserve, Munruben, Park Ridge South
Kimberley Park	Carbrook, Cornubia, Loganholme, Shailer Park, Tanah Merah	N/A
Logan East	Bannockburn, Bahrs Scrub, Beenleigh, Belivah, Bethania, Buccan, Edens Landing, Holmview, Mount Warren Park, Windaroo, Waterford, Wolffdene	Eagleby
Marsden	Crestmead, Logan Reserve, Loganlea, Marsden, Meadowbrook, Waterford West	Berrinba, Browns Plains, Chambers Flat, Heritage Park, Kingston, Park Ridge
Round Mountain	Chambers Flat, Flagstone, Glenlogan, Jimboomba, Munruben, North Maclean, Park Ridge South, Riverbend, South Maclean	Greenbank
Spring Mountain	New Beith, Spring Mountain	Greenbank
Springwood High	Priestdale, Rochedale South, Springwood, Underwood	Daisy Hill
Springwood Low	Berrinba, Daisy Hill, Eagleby, Kingston, Logan Central, Slacks Creek, Springwood, Woodridge	Loganholme, Shailer Park, Tanah Merah, Underwood
Travis Road	Logan Village, Stockleigh, Yarrabilba	Chambers Flat, Jimboomba, South Maclean
Woodhill	Cedar Grove, Cedar Vale, Mundoolan, Veresdale Scrub, Woodhill	Jimboomba

Operational needs may require changes to our network which could result in some suburbs being serviced by an alternative WSZ. If there is an expected change to your water quality, we will advise customers when a network configuration change may impact their water supply.

There may be some properties which are not connected to our drinking water network, this means that these residents do not receive drinking water directly to their properties.

If you would like to know which WSZ services your suburb or property, please contact us on 3412 3412.

4 Managing drinking water quality

4.1 Our legislative obligations

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* (Qld) (the Act), the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009* (Qld), the *Public Health Act 2005* (Qld), the Public Health Regulation 2018 (Qld), and the *Water Fluoridation Act 2008* (Qld).

Under the Act, 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). Under the *Public Health Act 2005* (Qld) and *Water Fluoridation Act 2008* (Qld), Queensland Health (QHealth) regulates the standards for drinking water quality related to *E. coli* and fluoride[3], respectively. These standards, together with the health and aesthetic[4] guideline values in the *Australian Drinking Water Guidelines 2011*[5] (ADWG), comprise water quality criteria for drinking water in Queensland, as set out in the Act.

4.2 Our approach to managing drinking water quality

We use a risk management to drinking water quality which allows us to identify the substances that may pose a risk to public health. Our methodology is based on the *ADWG – Framework for Management of Drinking Water Quality*. There are 12 elements within the framework, as shown in Figure 3.

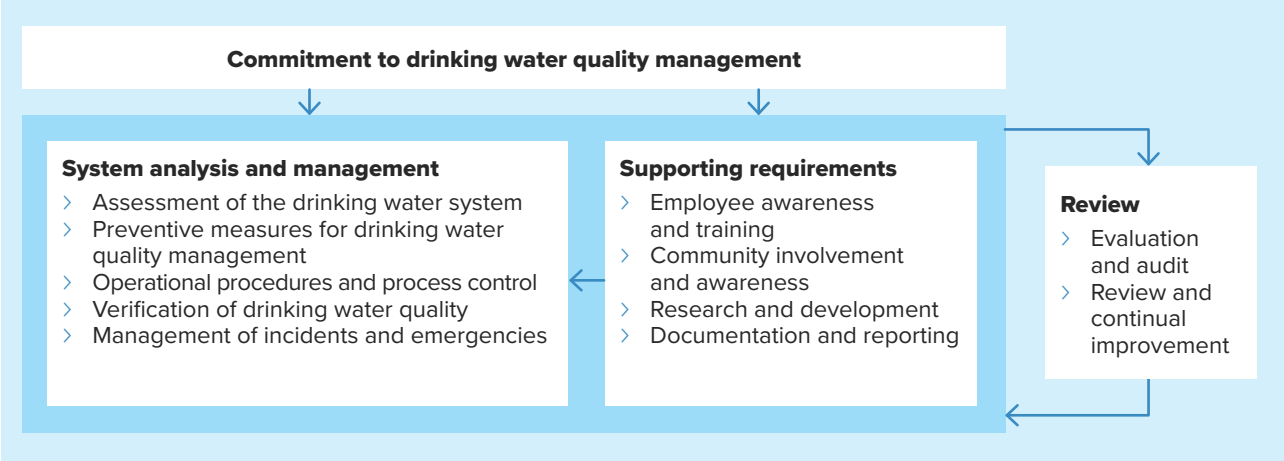


Figure 3: Framework for the management of drinking water quality

[3] Low levels of fluoride occur naturally in many water sources. As Seqwater adds fluoride to the Logan Water drinking water supply, we are required to test for this chemical compound.

[4] The aesthetic standards address how the drinking water appears, tastes and smells.

[5] Version 3.8, update September 2022

4.3 Verifying drinking water quality

A critical component of drinking water quality management is verifying that the water we supply to the Logan community meets the strict standards articulated in the relevant legislation and regulations. We assure the quality of the drinking water supply through our *Drinking Water Quality Verification Monitoring Program* (VMP).

The VMP is a comprehensive program designed to maximise visibility of drinking water quality as it travels through the 2,563 km of drinking water mains that service our community. The VMP alerts us to emergent changes or sudden occurrences which may impact the drinking water, allowing us to manage the quality of the product we supply to our customers. The VMP provides us with confidence in the product we deliver.

4.4 Summary assessment of drinking water compliance

The Logan City Council Laboratory[6] performs our sampling and analytical requirements. In 2023/24, the Laboratory routinely sampled from 89 drinking water sample points, collecting over 2,800 samples, and performing over 66,100 tests of the drinking water supply. The drinking water quality parameters were monitored and reviewed in accordance with Queensland legislative requirements and the ADWG..

To determine drinking water compliance, the VMP results are assessed against:

- water quality criteria specified by the Regulator in the **Water Quality and Reporting Guideline for a Drinking Water Service**;
- health guideline values in the ADWG; and
- drinking water quality criteria as required by the Public Health Regulation 2018.

Monitoring during 2023/24 was carried out in accordance with Logan Water's approved VMP.

In 2023/24, we met the prescribed health-related and aesthetic standards for all ten (10) water supply zones. See Table 5.

Table 5: Drinking water supply zone results - 1 July 2023 to 30 June 2024

Water Supply Zone	*E. coli*	Health	Aesthetic
Greenbank	✓	✓	✓
Kimberley Park	✓	✓	✓
Logan East	✓	✓	✓
Marsden	✓	✓	✓
Round Mountain	✓	✓	✓
Spring Mountain	✓	✓	✓
Springwood High	✓	✓	✓
Springwood Low	✓	✓	✓
Travis Road	✓	✓	✓
Woodhill	✓	✓	✓

Logan Water's performance against the *E.coli*, health and aesthetic requirements can be found in Appendices A-C.

[6] The Logan City Council Laboratory is accredited by the National Association of Testing Authorities (NATA).

5 Risk management

In implementing its DWQMP, Logan Water utilises its approved Risk Management Improvement Program (RMIP) to identify, track and control water quality risks. It is a key tool to ensure the objectives of the DWQMP being met. Quarterly reviews of the RMIP, by a dedicated governance group, are conducted to ensure the RMIP is communicated, implemented and effective in controlling water quality risks. Table 6 highlights actions undertaken, and improvements implemented during 2023/24 as part of the RMIP.

Table 6: Activities and improvements to mitigate drinking water quality risks

Core theme	Number of risks	Actions implemented
Disinfection	**10**	Chlorate protocol development Trihalomethane (THM) protocol development Continue to collaborate with Seqwater, Unitywater and Urban Utilities to improve disinfection across South East Queensland. Continued the annual disinfection change in the Marsden water supply zone. The annual disinfection change, which changes supply for chloraminated water to chlorinated water, is a non-intrusive, cost-effective method of cleaning the water mains.
Asset integrity	**7**	Improved physical water quality control barriers through: 75 external reservoir inspections 17 internal reservoir inspections 8 internal reservoir cleans 21 reservoir gutter cleans 27 reservoir roof cleans 630 jobs related to maintenance and renewal of assets such as water pump stations, chlorine dosing facilities, water quality analysers and asset telemetry systems.
Network planning	**5**	Managed 498 Interim Operating Plans (IOPs). IOPs detail how planned works are to undertaken on our water distribution network in a safe and controlled manner with the aim to minimise impact on our customers.
Cybersecurity	**1**	Improved data backup technologies and cyber security controls for drinking water assets and water quality equipment. Final implementation of the Cyberlock product on operational sites. All new sites will be fitted with the product as they are brought on-line.

6 Notifying the Regulator

Under section 102 of the Act, Logan Water is required to immediately notify 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 or by the Regulator.

There are two categories which apply to Logan Water:

- 'incident'
- 'event'.

An 'incident' is described as a detection of *Escherichia coli (E. coli)*, and/or an exceedance of a health guideline value in the ADWG.

An 'event' includes, but is not limited to, detections of parameters with no guideline values in the ADWG, for example chlorate.

6.1 Notifications to the Regulator

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

In 2023/24, we took over 2,800 water samples and conducted more than 66,000 water quality tests. Of those samples, three (3) tests did not meet the Regulatory requirements, requiring us to report these to the Regulator. In addition, an unauthorised connection to the water distribution network by a third-party contractor trigger an additional notification. Refer Table 7.

Table 7: Water quality incidents and events reported to the Regulator 1 July 2023 to 30 June 2024

Date and category	Water Supply Zone	Description	Immediate actions	Investigation outcome and further actions
11/01/24 Event	**Greenbank**	Following an elevated detection of chlorate during routine sampling at DSP089 McKellar Drive. For assurance, sampling was undertaken at three (3) sample points, which returned three (3) results exceeding 0.8 mg/L. DSP038 Parkland Avenue - 0.96 mg/L DSP072 Wineglass Elevated Reservoir - 0.96 mg/L DSP089 McKellar Drive - 0.99 mg/L The Queensland Health interim guideline value is 0.8 mg/L	The sodium hypochlorite dosing unit chemical tank servicing Greenbank reservoirs was emptied, cleaned and refilled with new sodium hypochlorite. Responsive sampling demonstrated chlorate levels had returned to compliant levels. DSP038 Parkland Avenue - 0.33 mg/L DSP072 Wineglass Elevated Reservoir - 0.37 mg/L DSP089 McKellar Drive - 0.33 mg/L	We continue to investigate the installation of air-conditioning are Greenbank. In addition, Logan Water recently changed sodium hypochlorite suppliers and the concentration has dropped dramatically. The lower concentration should reduce the likelihood of chlorate formation.

Table 7: Water quality incidents and events reported to the Regulator 1 July 2023 to 30 June 2024				
Date and category	**Water Supply Zone**	**Description**	**Immediate actions**	**Investigation outcome and further actions**
16/02/24 Event	**Kimberley Park**	A detection of 0.85 mg/L chlorate from a routine sample taken at DSP026, a drinking water sample point at the Hideaway Mt reservoir. The Queensland Health interim guideline value is 0.8 mg/L.	The sodium hypochlorite dosing unit chemical tank servicing Hideaway Mt reservoir was emptied, cleaned and refilled with new sodium hypochlorite. In addition, the connection between the sodium hypochlorite dosing unit chemical tank and the reservoir was flushed. Responsive sampling determined chlorate levels to be below the Queensland Health interim guideline value for chlorate of 0.8 mg/L.	Investigation showed the likely influencing factor was the quality of the sodium hypochlorite being decanted into the on-site hypo tank. The supplier of sodium hypochlorite supplier was changed, and the concentration has dropped dramatically. The lower concentration has proven to be a successful control regarding the likelihood of chlorate formation.
20/06/24 Incident	**Logan East**	A detection of 1.8 mg/L of fluoride (exceeding the ADWG value of 1.5 mg/L) was detected during routine sampling at DSP024 Greenbank Pump Station and DSP107 Bannockburn Road Offtake.	In accordance with Logan Water's DWQMP action plan, Seqwater was notified as DSP107 Bannockburn Road Offtake is a bulk water transfer point. The network was flushed, and responsive sampling conducted. Samples taken on 21 June 2024 showed fluoride levels of 0.8 mg/L, well below the ADWG health guideline value.	Between receiving the initial sample results and undertaking responsive sampling, the Logan Water Laboratory Services advised that laboratory testing and reporting had not been undertaken in accordance with approved procedures. Corrective actions were identified and continue to be implemented.
Additional notification to the Regulator				
27/11/23 Event	**Springwood Low**	Logan Water was advised that a third-party contractor had made an unauthorised connection to the water distribution network in Eagleby on or about Thursday, 23/11/23.	On receipt of this advice Logan Water raised a formal incident team to determine the nature of the connection and if there was a risk to water quality and public health. The third-party contractor was instructed to reverse the connection so that appropriate network testing could be undertaken. Immediate sampling was arranged whilst the event continued to be investigated. Sampling was undertaken at key locations in the network, including DSP019 Devron Court DSP022 Fryar Rd and hydrants at key locations. All sample results met the ADWG health and aesthetic guidelines.	During the investigation of this event, the third-party contractor went into receivership which has stalled the investigation. Nevertheless, Logan Water continues to understand how this occurred and what additional controls can be implemented.

7 Customer satisfaction

We recognise the value of community engagement in building trust as a provider of an essential service, and the delivery of service excellence. We recognise that members of our community may need to provide feedback if our service fails to meet their expectations and we encourage our community to contact us if they have any concerns about their water quality.

As a service provider we are committed to providing safe, consistent, and reliable water to our customers, and we recognise the value in the feedback of our customers to help identify possible areas of improvement in the operation, maintenance, and management of our drinking water network. Complaints are classified into four categories, as shown in Table 8.

Table 8: Water quality complaint categories

Water quality complaint category	Description
Appearance	Unexpected events such as broken water mains or firefighting could result in discoloured water. This is due to deposits that build up over time being disturbed by the change in the water flow and direction. If your water looks white or milky, it could be due to recent maintenance, which can trap air bubbles in pipes.
Taste/odour	Taste and odour complaints can vary widely based on the customer's perception. The most common taste and odour complaint descriptions included chlorine, metallic and chemical tastes.
Suspected health	All calls received from customers who suspect their drinking water may be associated with an illness they are experiencing.
Other	This classification captures complaints that do not fall within the standard Logan Water categories.

7.1 Water quality complaints 2023/24

In 2023/24, we received 207 water quality complaints. This is a 24.5% reduction in water quality complaints from 2022/23. Since 2019/20, we have seen a 37% reduction in water quality complaints.

Water quality complaints in 2023/24 followed a typical pattern, with 52% related to discoloured water. Taste and odour complaints were the next prevalent at 34% and can vary widely based on a customer's perception. The most common complaint descriptions included chlorine, metallic and chemical. Our Drinking Water Quality and Network Quality teams investigated these enquiries by assessing recent water quality results in the area, undertaking additional water quality testing, further consultation with the customer and identifying any maintenance works that may have contributed to the change. Each investigation determined there was no risk to public health.

Suspected health complaints accounted for 14% of complaints in 2023/24. These complaints came from customers who suspected their drinking water may be associated with an illness or adverse health condition they were experiencing. Our Drinking Water Quality team investigated each complaint related to perceived illness, typically by testing at the customer's tap. During 2023/24, we could not confirm that the drinking water from our water supply network was linked to an illness complaint.

The breakdown of water quality complaints by type and water supply zone is show in Figures 4 and 5, with Figure 6 showing performance from 1 July 2019 to 30 June 2024.

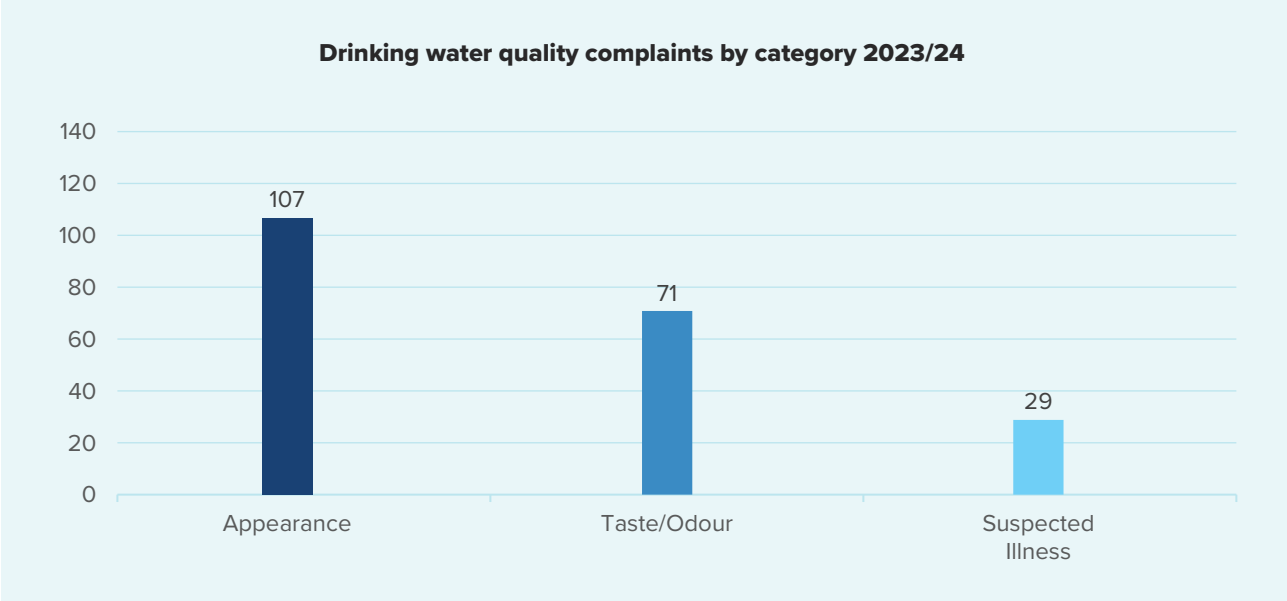


Figure 4: Drinking water quality complaints by category – 2023/24

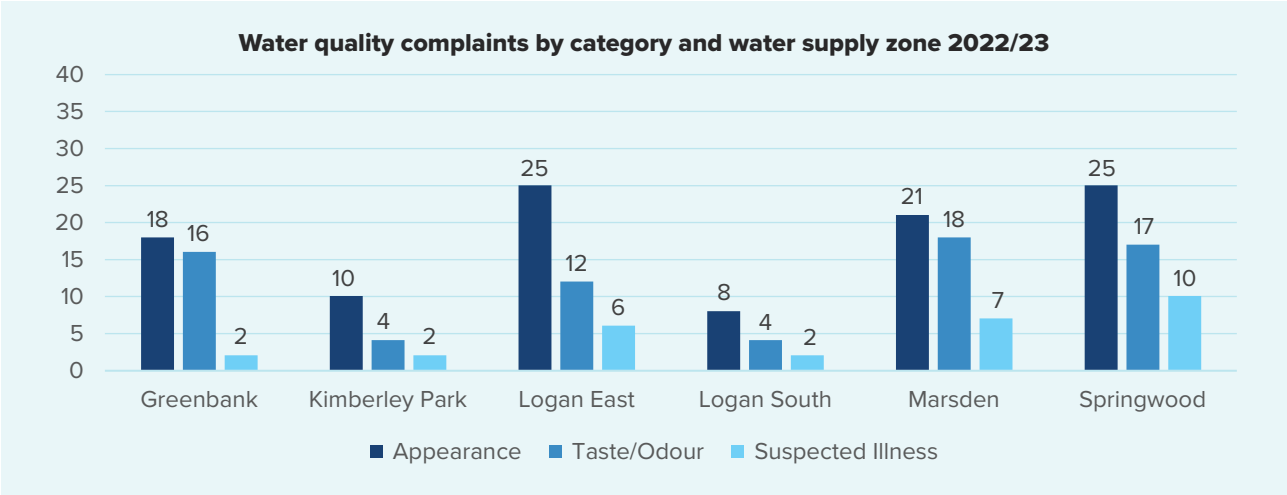


Figure 5: Drinking water quality complaints by category and water supply zone – 2023/24

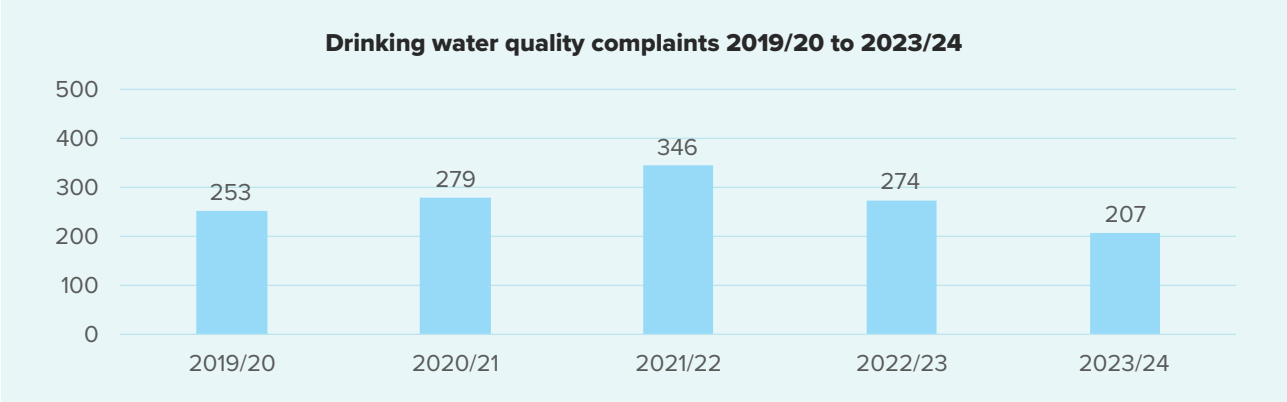


Figure 6: Total drinking water quality complaints – 2019/20 to 2023/24

As a Water Service Provider, we are required under section 575A of the Water Supply (*Safety and Reliability*) Act 2008 to publish our performance against Queensland Government performance indicators. One of these performance indicators is "Number of drinking water quality complaints per 1,000 property connections". To assist with assessing our performance, we have set a performance standard of less than or equal to five water quality complaints per 1,000 property connections. In 2023/24, we remained well under this standard, refer Figure 7.

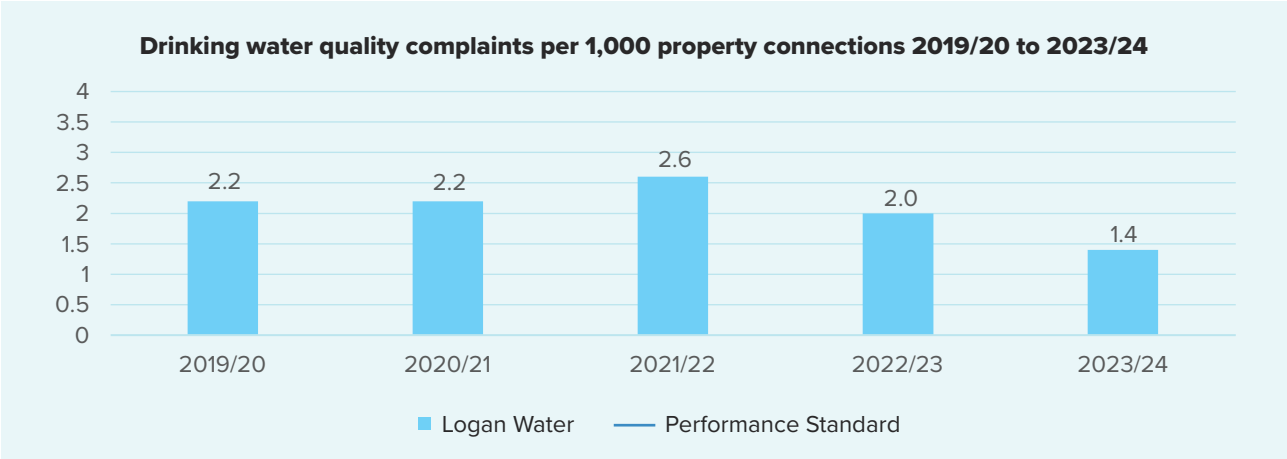


Figure 7: Drinking water quality complaints per 1,000 property connections – 2019/20 to 2023/24

8 Drinking Water Quality Management Plan review and audit activities

8.1 DWQMP review

In accordance with our regulatory obligations, our DWQMP must be reviewed and submitted to the Water Supply Regulator on two-year cycle. On 31 March 2024, we submitted the revised DWQMP for approval. On 3 June 2024, the Water Supply Regulator sought clarification of some element of the revised DWQMP. Logan Water responded to this query. The Regulator continues to review the revised DWQMP, and we expect an outcome in the latter half of 2024.

8.2 DWQMP audit

We are required to complete a regular audit of our approved DWQMP on a four-year cycle. The next audit must be conducted by 30 June 2025.

9 Appendices

Appendix A – Summary of compliance with water quality criteria – E. coli

Table 9: E. coli by Zone – 1 July 2023 to 30 June 2024

Water Supply Zone	Number of samples required	Number of samples taken	Number of samples *E.coli* detected	Required performance (%)	Actual Performance (%)	Compliant
Greenbank	184	328	0	98	100	Y
Kimberley Park	88	165	0	98	100	Y
Marsden	172	361	0	98	100	Y
Springwood	324	578	0	98	100	Y
Logan East	160	564	0	98	100	Y
Logan South	196	867	0	98	100	Y
Overall	**1124**	**2863**	**0**	**98**	**100**	**Y**

Table 10: E. coli by month – City of Logan – 1 July 2023 to 30 June 2024

Year	2023						2024					
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	249	247	228	252	226	198	294	211	227	283	227	221
No. of samples collected in which E. coli is detected	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12-month period	2919	2885	2891	2884	2858	2859	2869	2853	2853	2921	2865	2863
No. of failures in previous 12-month period	1	1	1	0	0	0	0	0	0	0	0	0
% compliance in previous 12-month period	99.97	99.97	99.97	100	100	100	100	100	100	100	100	100
Compliance with 98% annual value	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
% compliance for month	100	100	100	100	100	100	100	100	100	100	100	100

Appendix B – Summary of compliance with water quality criteria – health-based chemical

Table 11: Water quality compliance – health-based chemical performance – Overall

Parameter	Unit	ADWG Health Guideline	Number of tests	Number of exceedances	Minimum	Maximum	95%ile	Compliance with ADWG
Arsenic, Total	mg/L	0.01	714	0	0.0005	0.001	0.001	✓
Barium, Total	mg/L	2	714	0	0.0005	0.047	0.03835	✓
Beryllium, Total	mg/L	0.06	714	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	714	0	0.005	0.582	0.488	✓
Cadmium, Total	mg/L	0.002	714	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	2880	0	0.025	2.5	1.33	✓
Chlorine, Total	mg/L	5	2880	0	0.025	4.6	3.3	✓
Chromium, Total	mg/L	0.05	714	0	0.0005	0.001	0.0005	✓
Copper, Total	mg/L	2	714	0	0.0005	0.036	0.013	✓
Fluoride	mg/L	1.5	700	0	0.05	1.54	0.91	✓
Lead, Total	mg/L	0.01	714	0	0.0005	0.005	0.001	✓
Manganese, Total	mg/L	0.5	714	0	0.0005	0.052	0.01	✓
Molybdenum, Total	mg/L	0.05	714	0	0.0005	0.01	0.001	✓
Nickel, Total	mg/L	0.02	714	0	0.0005	0.002	0.001	✓
Nitrate-N	mg/L	11.3	700	0	0.05	0.98	0.75	✓
Nitrite-N	mg/L	0.91	700	0	0.05	0.58	0.35	✓
Selenium, Total	mg/L	0.01	714	0	0.0005	0.01	0.005	✓
Total THM	ug/L	0.25	1842	0	0.03	0.21	0.15	✓
Chlorate	mg/L	0.8	619	1	0.03	0.85	0.531	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L. Logan Water had one exceedance in Feb 2024 in the Kimberley Park water supply zone.

Table 12: Water quality compliance – health-based chemical performance – Greenbank								
Parameter	**Unit**	**ADWG Health Guideline**	**Number of tests**	**Number of exceedances**	**Minimum**	**Maximum**	**95%ile**	**Compliance with ADWG**
Arsenic, Total	mg/L	0.01	83	0	0.0005	0.001	0.0005	✓
Barium, Total	mg/L	2	83	0	0.007	0.039	0.0338	✓
Beryllium, Total	mg/L	0.06	83	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	83	0	0.023	0.458	0.3799	✓
Cadmium, Total	mg/L	0.002	83	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	333	0	0.025	1.73	1.354	✓
Chlorine, Total	mg/L	5	333	0	0.07	3.3	1.974	✓
Chromium, Total	mg/L	0.05	83	0	0.0005	0.0005	0.0005	✓
Copper, Total	mg/L	2	83	0	0.0005	0.021	0.016	✓
Fluoride	mg/L	1.5	77	0	0.05	1.54	0.9	✓
Lead, Total	mg/L	0.01	83	0	0.0005	0.002	0.0005	✓
Manganese, Total	mg/L	0.5	83	0	0.001	0.013	0.0069	✓
Molybdenum, Total	mg/L	0.05	83	0	0.0005	0.01	0.01	✓
Nickel, Total	mg/L	0.02	83	0	0.0005	0.001	0.001	✓
Nitrate-N	mg/L	11.3	77	0	0.05	0.37	0.262	✓
Nitrite-N	mg/L	0.91	77	0	0.05	0.19	0.05	✓
Selenium, Total	mg/L	0.01	83	0	0.0005	0.01	0.005	✓
Total THM	ug/L	0.25	271	0	0.05	0.18	0.17	✓
Chlorate	mg/L	0.8	84	0	0.1	0.78	0.6485	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L.

Table 13: Water quality compliance – health-based chemical performance – Kimberley park								
Parameter	**Unit**	**ADWG Health Guideline**	**Number of tests**	**Number of exceedances**	**Minimum**	**Maximum**	**95%ile**	**Compliance with ADWG**
Arsenic, Total	mg/L	0.01	41	0	0.0005	0.001	0.001	✓
Barium, Total	mg/L	2	41	0	0.013	0.042	0.041	✓
Beryllium, Total	mg/L	0.06	41	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	41	0	0.024	0.488	0.078	✓
Cadmium, Total	mg/L	0.002	41	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	167	0	0.025	2.5	1.202	✓
Chlorine, Total	mg/L	5	167	0	0.025	2.8	1.955	✓
Chromium, Total	mg/L	0.05	41	0	0.0005	0.001	0.0005	✓
Copper, Total	mg/L	2	41	0	0.0005	0.018	0.01	✓
Fluoride	mg/L	1.5	40	0	0.14	0.96	0.911	✓
Lead, Total	mg/L	0.01	41	0	0.0005	0.005	0.001	✓
Manganese, Total	mg/L	0.5	41	0	0.001	0.052	0.021	✓
Molybdenum, Total	mg/L	0.05	41	0	0.0005	0.001	0.001	✓
Nickel, Total	mg/L	0.02	41	0	0.0005	0.001	0.001	✓
Nitrate-N	mg/L	11.3	40	0	0.05	0.98	0.7965	✓
Nitrite-N	mg/L	0.91	40	0	0.05	0.41	0.352	✓
Selenium, Total	mg/L	0.01	41	0	0.005	0.005	0.005	✓
Total THM	ug/L	0.25	119	0	0.06	0.21	0.171	✓
Chlorate	mg/L	0.8	61	1	0.03	0.85	0.55	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L.

Table 14: Water quality compliance – health-based chemical performance – Marsden								
Parameter	**Unit**	**ADWG Health Guideline**	**Number of tests**	**Number of exceedances**	**Minimum**	**Maximum**	**95%ile**	**Compliance with ADWG**
Arsenic, Total	mg/L	0.01	88	0	0.0005	0.001	0.001	✓
Barium, Total	mg/L	2	88	0	0.018	0.047	0.04165	✓
Beryllium, Total	mg/L	0.06	88	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	88	0	0.021	0.125	0.0919	✓
Cadmium, Total	mg/L	0.002	88	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	368	0	0.025	0.94	0.6665	✓
Chlorine, Total	mg/L	5	368	0	0.07	3.6	3.165	✓
Chromium, Total	mg/L	0.05	88	0	0.0005	0.001	0.0005	✓
Copper, Total	mg/L	2	88	0	0.0005	0.007	0.005	✓
Fluoride	mg/L	1.5	84	0	0.05	1.3	0.95	✓
Lead, Total	mg/L	0.01	88	0	0.0005	0.001	0.001	✓
Manganese, Total	mg/L	0.5	88	0	0.001	0.028	0.015	✓
Molybdenum, Total	mg/L	0.05	88	0	0.0005	0.001	0.001	✓
Nickel, Total	mg/L	0.02	88	0	0.0005	0.001	0.001	✓
Nitrate-N	mg/L	11.3	84	0	0.05	0.92	0.6915	✓
Nitrite-N	mg/L	0.91	84	0	0.05	0.58	0.357	✓
Selenium, Total	mg/L	0.01	88	0	0.005	0.005	0.005	✓
Total THM	ug/L	0.25	144	0	0.05	0.15	0.14	✓
Chlorate	mg/L	0.8	71	0	0.04	0.23	0.16	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L.

Table 15: Water quality compliance – health-based chemical performance – Springwood								
Parameter	**Unit**	**ADWG Health Guideline**	**Number of tests**	**Number of exceedances**	**Minimum**	**Maximum**	**95%ile**	**Compliance with ADWG**
Arsenic, Total	mg/L	0.01	139	0	0.0005	0.001	0.001	✓
Barium, Total	mg/L	2	139	0	0.007	0.047	0.0411	✓
Beryllium, Total	mg/L	0.06	139	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	139	0	0.023	0.416	0.1261	✓
Cadmium, Total	mg/L	0.002	139	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	584	0	0.025	0.71	0.36	✓
Chlorine, Total	mg/L	5	584	0	0.025	4.6	3.4	✓
Chromium, Total	mg/L	0.05	139	0	0.0005	0.0005	0.0005	✓
Copper, Total	mg/L	2	139	0	0.0005	0.036	0.024	✓
Fluoride	mg/L	1.5	142	0	0.13	0.95	0.92	✓
Lead, Total	mg/L	0.01	139	0	0.0005	0.002	0.001	✓
Manganese, Total	mg/L	0.5	139	0	0.0005	0.052	0.0144	✓
Molybdenum, Total	mg/L	0.05	139	0	0.0005	0.001	0.001	✓
Nickel, Total	mg/L	0.02	139	0	0.0005	0.002	0.001	✓
Nitrate-N	mg/L	11.3	142	0	0.05	0.92	0.7795	✓
Nitrite-N	mg/L	0.91	142	0	0.05	0.51	0.4	✓
Selenium, Total	mg/L	0.01	139	0	0.005	0.005	0.005	✓
Total THM	ug/L	0.25	306	0	0.03	0.16	0.14	✓
Chlorate	mg/L	0.8	35	0	0.03	0.17	0.17	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L.

Table 16: Water quality compliance – health-based chemical performance – Logan East								
Parameter	**Unit**	**ADWG Health Guideline**	**Number of tests**	**Number of exceedances**	**Minimum**	**Maximum**	**95%ile**	**Compliance with ADWG**
Arsenic, Total	mg/L	0.01	143	0	0.0005	0.001	0.0005	✓
Barium, Total	mg/L	2	143	0	0.0005	0.039	0.0319	✓
Beryllium, Total	mg/L	0.06	143	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	143	0	0.005	0.564	0.4879	✓
Cadmium, Total	mg/L	0.002	143	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	554	0	0.025	1.48	1.28	✓
Chlorine, Total	mg/L	5	554	0	0.025	2	1.4935	✓
Chromium, Total	mg/L	0.05	143	0	0.0005	0.0005	0.0005	✓
Copper, Total	mg/L	2	143	0	0.0005	0.036	0.0159	✓
Fluoride	mg/L	1.5	143	0	0.05	0.92	0.89	✓
Lead, Total	mg/L	0.01	143	0	0.0005	0.004	0.001	✓
Manganese, Total	mg/L	0.5	143	0	0.0005	0.01	0.004	✓
Molybdenum, Total	mg/L	0.05	143	0	0.0005	0.001	0.001	✓
Nickel, Total	mg/L	0.02	143	0	0.0005	0.001	0.001	✓
Nitrate-N	mg/L	11.3	143	0	0.05	0.6	0.37	✓
Nitrite-N	mg/L	0.91	143	0	0.05	0.44	0.346	✓
Selenium, Total	mg/L	0.01	143	0	0.005	0.005	0.005	✓
Total THM	ug/L	0.25	409	0	0.03	0.15	0.13	✓
Chlorate	mg/L	0.8	84	0	0.03	0.125	0.09	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L.

Table 17: Water quality compliance – health-based chemical performance – Logan South								
Parameter	**Unit**	**ADWG Health Guideline**	**Number of tests**	**Number of exceedances**	**Minimum**	**Maximum**	**95%ile**	**Compliance with ADWG**
Arsenic, Total	mg/L	0.01	220	0	0.0005	0.0005	0.0005	✓
Barium, Total	mg/L	2	220	0	0.003	0.022	0.01	✓
Beryllium, Total	mg/L	0.06	220	0	0.0005	0.0005	0.0005	✓
Boron, Total	mg/L	4	220	0	0.015	0.582	0.5201	✓
Cadmium, Total	mg/L	0.002	220	0	0.0005	0.0005	0.0005	✓
Chlorine, Free	mg/L	5	874	0	0.025	2.01	1.49	✓
Chlorine, Total	mg/L	5	874	0	0.025	4.6	3.7	✓
Chromium, Total	mg/L	0.05	220	0	0.0005	0.001	0.001	✓
Copper, Total	mg/L	2	220	0	0.0005	0.01	0.00705	✓
Fluoride	mg/L	1.5	214	0	0.05	0.92	0.89	✓
Lead, Total	mg/L	0.01	220	0	0.0005	0.002	0.001	✓
Manganese, Total	mg/L	0.5	220	0	0.0005	0.007	0.002	✓
Molybdenum, Total	mg/L	0.05	220	0	0.0005	0.01	0.01	✓
Nickel, Total	mg/L	0.02	220	0	0.0005	0.0005	0.0005	✓
Nitrate-N	mg/L	11.3	214	0	0.05	0.8	0.76	✓
Nitrite-N	mg/L	0.91	214	0	0.05	0.46	0.3035	✓
Selenium, Total	mg/L	0.01	220	0	0.0005	0.005	0.005	✓
Total THM	ug/L	0.25	593	0	0.03	0.16	0.13	✓
Chlorate	mg/L	0.8	284	0	0.08	0.79	0.53	N/A

While the ADWG does not stipulate a health guideline for Chlorate, Queensland Health has provided an Interim Guideline value of 0.8 mg/L.

Appendix C – Summary of Compliance with Water Quality Criteria – Aesthetic

Table 18: Water quality compliance – Aesthetic performance – Overall

Parameter	Unit	Number of tests	Min result	Max result	Average	ADWG guideline	Compliance with ADWG
Alkalinity as CaCO3	mg/L	2879	25.94	935.69	70.51	No Limit	N/A
Aluminium, Total	mg/L	714	0.01	0.14	0.03	0.2	✓
Ammonia-N	mg/L	2877	0.01	0.39	0.08	0.5	✓
Bismuth, Total	mg/L	689	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	1842	0.01	0.06	0.03	No Limit	N/A
Bromoform	mg/L	1842	0.00	0.02	0.00	No Limit	N/A
Calcium Hardness	mg/L	712	0.50	113.40	64.73	No Limit	N/A
Calcium, Total	mg/L	714	0.50	45.42	25.93	No Limit	N/A
Chloride	mg/L	700	12.78	135.60	43.22	250	✓
Chloroform	mg/L	1842	0.01	0.13	0.05	No Limit	N/A
Cobalt, Total	mg/L	714	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	714	1.50	32.54	2.32	No Limit	N/A
Colour, True	Hazen	714	1.50	3.89	1.51	15	✓
Conductivity	µS/cm	2879	144.80	714.00	357.78	No Limit	N/A
Dibromochloromethane	mg/L	1842	0.00	0.06	0.02	No Limit	N/A
Iron, Total	mg/L	714	0.00	0.27	0.01	0.3	✓
Lithium, Total	mg/L	714	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	714	0.50	21.34	7.75	No Limit	N/A
pH	pH Units	2879	6.45	9.62	7.12	8.5	✓
Potassium, Total	mg/L	714	0.50	4.59	2.23	No Limit	N/A
Sodium, Total	mg/L	714	0.50	86.59	32.81	180	✓
Sulphate	mg/L	700	0.50	128.31	30.76	250	✓
TDS, Calculated	mg/L	2879	88.00	433.00	217.16	600	✓
Temperature	°C	2880	2.90	30.90	23.47	No Limit	N/A
Thallium, Total	mg/L	689	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	714	0.50	197.60	96.61	200	✓
Turbidity	NTU	2866	0.05	7.49	0.18	5	✓
Zinc, Total	mg/L	714	0.00	0.04	0.01	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Table 19: Water quality compliance – Aesthetic performance – Greenbank							
Parameter	**Unit**	**Number of tests**	**Min result**	**Max result**	**Average**	**ADWG guideline**	**Compliance with ADWG**
Alkalinity as CaCO3	mg/L	333	38.33	106.41	66.10	No Limit	N/A
Aluminium, Total	mg/L	83	0.02	0.07	0.03	0.2	✓
Ammonia-N	mg/L	333	0.01	0.32	0.04	0.5	✓
Bismuth, Total	mg/L	76	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	271	0.02	0.06	0.03	No Limit	N/A
Bromoform	mg/L	271	0.00	0.02	0.00	No Limit	N/A
Calcium Hardness	mg/L	83	45.50	100.90	59.66	No Limit	N/A
Calcium, Total	mg/L	83	18.24	40.39	23.90	No Limit	N/A
Chloride	mg/L	77	32.19	94.17	43.60	250	✓
Chloroform	mg/L	271	0.02	0.13	0.07	No Limit	N/A
Cobalt, Total	mg/L	83	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	84	1.50	32.54	2.07	No Limit	N/A
Colour, True	Hazen	84	1.50	1.50	1.50	15	✓
Conductivity	µS/cm	333	233.60	682.80	346.18	No Limit	N/A
Dibromochloromethane	mg/L	271	0.00	0.05	0.02	No Limit	N/A
Iron, Total	mg/L	83	0.00	0.20	0.01	0.3	✓
Lithium, Total	mg/L	83	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	83	3.11	21.34	6.92	No Limit	N/A
pH	pH Units	333	6.81	7.79	7.19	8.5	✓
Potassium, Total	mg/L	83	1.45	3.94	2.09	No Limit	N/A
Sodium, Total	mg/L	83	21.01	75.40	33.45	180	✓
Sulphate	mg/L	77	0.50	64.51	24.53	250	✓
TDS, Calculated	mg/L	333	123.00	414.00	209.96	600	✓
Temperature	°C	333	16.30	30.20	23.24	No Limit	N/A
Thallium, Total	mg/L	76	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	83	63.10	188.10	88.16	200	✓
Turbidity	NTU	328	0.05	7.49	0.18	5	✓
Zinc, Total	mg/L	83	0.00	0.01	0.00	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Table 20: Water quality compliance – Aesthetic performance – Kimberley Park							
Parameter	**Unit**	**Number of tests**	**Min result**	**Max result**	**Average**	**ADWG guideline**	**Compliance with ADWG**
Alkalinity as CaCO3	mg/L	165	52.47	106.16	92.12	No Limit	N/A
Aluminium, Total	mg/L	41	0.03	0.14	0.05	0.2	✓
Ammonia-N	mg/L	164	0.01	0.36	0.06	0.5	✓
Bismuth, Total	mg/L	41	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	119	0.02	0.06	0.04	No Limit	N/A
Bromoform	mg/L	119	0.00	0.02	0.01	No Limit	N/A
Calcium Hardness	mg/L	41	37.10	108.00	84.70	No Limit	N/A
Calcium, Total	mg/L	41	14.86	43.24	33.92	No Limit	N/A
Chloride	mg/L	40	20.73	108.26	68.15	250	✓
Chloroform	mg/L	119	0.02	0.13	0.04	No Limit	N/A
Cobalt, Total	mg/L	41	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	39	1.50	15.39	3.35	No Limit	N/A
Colour, True	Hazen	39	1.50	1.50	1.50	15	✓
Conductivity	µS/cm	165	206.30	714.00	513.17	No Limit	N/A
Dibromochloromethane	mg/L	119	0.01	0.06	0.03	No Limit	N/A
Iron, Total	mg/L	41	0.01	0.21	0.02	0.3	✓
Lithium, Total	mg/L	41	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	41	4.21	21.31	14.02	No Limit	N/A
pH	pH Units	165	6.91	7.79	7.29	8.5	✓
Potassium, Total	mg/L	41	1.37	4.19	3.24	No Limit	N/A
Sodium, Total	mg/L	41	20.04	78.58	48.27	180	✓
Sulphate	mg/L	40	14.70	111.79	47.96	250	✓
TDS, Calculated	mg/L	165	125.00	433.00	311.52	600	✓
Temperature	°C	167	16.50	30.80	24.10	No Limit	N/A
Thallium, Total	mg/L	41	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	41	54.40	195.10	142.43	200	✓
Turbidity	NTU	165	0.05	1.83	0.23	5	✓
Zinc, Total	mg/L	41	0.01	0.02	0.01	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Table 21: Water quality compliance – Aesthetic performance – Marsden							
Parameter	**Unit**	**Number of tests**	**Min result**	**Max result**	**Average**	**ADWG guideline**	**Compliance with ADWG**
Alkalinity as CaCO3	mg/L	362	54.51	106.30	93.21	No Limit	N/A
Aluminium, Total	mg/L	88	0.03	0.10	0.05	0.2	✓
Ammonia-N	mg/L	363	0.01	0.34	0.14	0.5	✓
Bismuth, Total	mg/L	88	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	144	0.02	0.05	0.03	No Limit	N/A
Bromoform	mg/L	144	0.00	0.02	0.01	No Limit	N/A
Calcium Hardness	mg/L	88	50.30	113.40	84.52	No Limit	N/A
Calcium, Total	mg/L	88	20.14	45.42	33.85	No Limit	N/A
Chloride	mg/L	84	42.86	135.60	69.06	250	✓
Chloroform	mg/L	144	0.02	0.08	0.04	No Limit	N/A
Cobalt, Total	mg/L	88	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	87	1.50	12.94	2.91	No Limit	N/A
Colour, True	Hazen	87	1.50	1.50	1.50	15	✓
Conductivity	µS/cm	362	411.10	710.00	514.80	No Limit	N/A
Dibromochloromethane	mg/L	144	0.01	0.05	0.03	No Limit	N/A
Iron, Total	mg/L	88	0.00	0.06	0.01	0.3	✓
Lithium, Total	mg/L	88	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	88	8.68	21.15	14.10	No Limit	N/A
pH	pH Units	362	6.83	7.78	7.30	8.5	✓
Potassium, Total	mg/L	88	2.40	4.39	3.27	No Limit	N/A
Sodium, Total	mg/L	88	28.31	86.59	50.52	180	✓
Sulphate	mg/L	84	0.50	128.31	52.01	250	✓
TDS, Calculated	mg/L	362	250.00	431.00	312.49	600	✓
Temperature	°C	368	15.50	30.20	24.18	No Limit	N/A
Thallium, Total	mg/L	88	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	88	86.00	197.60	142.60	200	✓
Turbidity	NTU	362	0.05	7.14	0.23	5	✓
Zinc, Total	mg/L	88	0.01	0.01	0.01	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Table 22: Water quality compliance – Aesthetic performance – Springwood							
Parameter	**Unit**	**Number of tests**	**Min result**	**Max result**	**Average**	**ADWG guideline**	**Compliance with ADWG**
Alkalinity as CaCO3	mg/L	581	46.19	935.69	95.24	No Limit	N/A
Aluminium, Total	mg/L	139	0.02	0.11	0.05	0.2	✓
Ammonia-N	mg/L	580	0.01	0.33	0.13	0.5	✓
Bismuth, Total	mg/L	139	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	306	0.01	0.05	0.03	No Limit	N/A
Bromoform	mg/L	306	0.00	0.02	0.01	No Limit	N/A
Calcium Hardness	mg/L	139	35.80	108.00	82.99	No Limit	N/A
Calcium, Total	mg/L	139	14.32	43.25	33.24	No Limit	N/A
Chloride	mg/L	142	18.46	106.36	65.39	250	✓
Chloroform	mg/L	306	0.01	0.09	0.03	No Limit	N/A
Cobalt, Total	mg/L	139	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	141	1.50	17.36	3.38	No Limit	N/A
Colour, True	Hazen	141	1.50	3.89	1.53	15	✓
Conductivity	µS/cm	581	194.50	713.00	506.54	No Limit	N/A
Dibromochloromethane	mg/L	306	0.01	0.05	0.03	No Limit	N/A
Iron, Total	mg/L	139	0.00	0.13	0.02	0.3	✓
Lithium, Total	mg/L	139	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	139	1.61	21.18	13.77	No Limit	N/A
pH	pH Units	581	6.53	7.88	7.28	8.5	✓
Potassium, Total	mg/L	139	1.18	4.59	3.16	No Limit	N/A
Sodium, Total	mg/L	139	17.73	83.77	47.41	180	✓
Sulphate	mg/L	142	0.50	114.81	47.51	250	✓
TDS, Calculated	mg/L	581	118.00	433.00	307.49	600	✓
Temperature	°C	584	15.80	30.50	24.00	No Limit	N/A
Thallium, Total	mg/L	139	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	139	51.50	191.10	139.70	200	✓
Turbidity	NTU	578	0.05	4.17	0.25	5	✓
Zinc, Total	mg/L	139	0.01	0.01	0.01	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Table 23: Water quality compliance – Aesthetic performance – Logan East							
Parameter	**Unit**	**Number of tests**	**Min result**	**Max result**	**Average**	**ADWG guideline**	**Compliance with ADWG**
Alkalinity as CaCO3	mg/L	564	25.94	105.79	62.51	No Limit	N/A
Aluminium, Total	mg/L	143	0.01	0.04	0.02	0.2	✓
Ammonia-N	mg/L	564	0.01	0.28	0.05	0.5	✓
Bismuth, Total	mg/L	143	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	409	0.01	0.04	0.02	No Limit	N/A
Bromoform	mg/L	409	0.00	0.01	0.00	No Limit	N/A
Calcium Hardness	mg/L	142	0.50	108.70	59.39	No Limit	N/A
Calcium, Total	mg/L	143	0.50	43.52	23.86	No Limit	N/A
Chloride	mg/L	143	12.78	64.11	31.89	250	✓
Chloroform	mg/L	409	0.01	0.11	0.05	No Limit	N/A
Cobalt, Total	mg/L	143	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	143	1.50	16.09	1.97	No Limit	N/A
Colour, True	Hazen	143	1.50	1.50	1.50	15	✓
Conductivity	µS/cm	564	148.00	562.50	297.72	No Limit	N/A
Dibromochloromethane	mg/L	409	0.00	0.04	0.01	No Limit	N/A
Iron, Total	mg/L	143	0.00	0.27	0.01	0.3	✓
Lithium, Total	mg/L	143	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	143	0.50	14.98	5.89	No Limit	N/A
pH	pH Units	564	6.45	7.48	6.97	8.5	✓
Potassium, Total	mg/L	143	0.50	3.24	1.86	No Limit	N/A
Sodium, Total	mg/L	143	0.50	45.07	22.61	180	✓
Sulphate	mg/L	143	0.50	42.63	23.22	250	✓
TDS, Calculated	mg/L	564	90.00	341.00	180.72	600	✓
Temperature	°C	554	16.80	30.80	23.60	No Limit	N/A
Thallium, Total	mg/L	143	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	143	0.50	153.90	83.80	200	✓
Turbidity	NTU	564	0.05	5.66	0.15	5	✓
Zinc, Total	mg/L	143	0.01	0.02	0.01	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Table 24: Water quality compliance – Aesthetic performance – Logan South							
Parameter	**Unit**	**Number of tests**	**Min result**	**Max result**	**Average**	**ADWG guideline**	**Compliance with ADWG**
Alkalinity as CaCO3	mg/L	874	29.39	77.08	47.45	No Limit	N/A
Aluminium, Total	mg/L	220	0.01	0.07	0.03	0.2	✓
Ammonia-N	mg/L	873	0.01	0.39	0.06	0.5	✓
Bismuth, Total	mg/L	202	0.00	0.00	0.00	No Limit	N/A
Bromodichloromethane	mg/L	593	0.01	0.04	0.02	No Limit	N/A
Bromoform	mg/L	593	0.00	0.01	0.00	No Limit	N/A
Calcium Hardness	mg/L	219	31.10	79.30	46.83	No Limit	N/A
Calcium, Total	mg/L	220	12.44	31.75	18.77	No Limit	N/A
Chloride	mg/L	214	14.79	68.41	21.14	250	✓
Chloroform	mg/L	593	0.01	0.12	0.06	No Limit	N/A
Cobalt, Total	mg/L	220	0.00	0.00	0.00	No Limit	N/A
Colour, Apparent	Hazen	220	1.50	4.19	1.54	No Limit	N/A
Colour, True	Hazen	220	1.50	1.50	1.50	15	✓
Conductivity	µS/cm	874	144.80	467.10	207.69	No Limit	N/A
Dibromochloromethane	mg/L	593	0.00	0.03	0.01	No Limit	N/A
Iron, Total	mg/L	220	0.00	0.13	0.01	0.3	✓
Lithium, Total	mg/L	220	0.00	0.00	0.00	No Limit	N/A
Magnesium, Total	mg/L	220	0.50	13.69	1.75	No Limit	N/A
pH	pH Units	874	6.48	9.62	6.99	8.5	✓
Potassium, Total	mg/L	220	0.50	2.88	1.35	No Limit	N/A
Sodium, Total	mg/L	220	12.90	52.50	20.01	180	✓
Sulphate	mg/L	214	0.50	36.17	15.35	250	✓
TDS, Calculated	mg/L	874	88.00	284.00	126.06	600	✓
Temperature	°C	874	2.90	30.90	22.69	No Limit	N/A
Thallium, Total	mg/L	202	0.00	0.00	0.00	No Limit	N/A
Total Hardness	mg/L	220	33.20	135.60	53.96	200	✓
Turbidity	NTU	869	0.05	1.69	0.12	5	✓
Zinc, Total	mg/L	220	0.00	0.04	0.01	3	✓

Aesthetic performance is assessed as the mean of the previous 12 months' monitoring results compared with the ADWG aesthetic guideline value (Source: Australian Drinking Water Guidelines, page 202)

Appendix D – Glossary

Word/phrase	Definition
<	Less than
>	Greater than
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 Logan Water.
Chloramination / chloramine	The application of chlorine and ammonia to create monochloramine (NH2 Cl), 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.
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 Regional Development, Manufacturing and Water	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.
Disinfectant	An agent that inactivates microorganisms which cause disease. Urban Utilities uses either chlorine or chloramine.
Disinfection by-products (DBPs)	A group of by-products that may form under certain conditions when chlorine is used to disinfect drinking water.
Drinking water	Water that is suitable for human consumption.

Word/phrase	Definition
Drinking Water Quality Management Plan (DWQMP)	Drinking Water Quality Management Plan as required by the Water Supply (Safety and Reliability) Act 2008 (Qld). The purpose of a DWQMP is to protect public health by implementing a risk-management system to manage the quality of drinking water.
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.
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
Megalitre (ML)	One million litres or 1,000 kilolitres
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 litre
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.
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.

Word/phrase	Definition
Seqwater	Queensland Bulk Water Supply Authority, trading as Seqwater. The bulk drinking water provider for Logan Water.
The Regulator	See Department of Regional Development, Manufacturing and Water.
Trihalomethanes	A group of disinfection by-products that may form under certain conditions when chlorine is used to disinfect 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 Quality Zone (WQZ)	The next level of categorisation below a WSZ. A WQZ shares the same disinfectant type (i.e. chloramine or chlorine)
Water Supply Zone (WSZ)	Defined as an area of the water distribution network with shared bulk water supply sources.
Water Treatment Plant (WTP)	A plant that improves water quality by removing impurities through filtration and disinfection.

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