Annual Drinking Water Quality Report

2024-25

South Gippsland Water

START SAFE
WORK SAFE
HOME SAFE

Acknowledgement of Traditional Owners

South Gippsland Water proudly acknowledges Aboriginal and Torres Strait Islander peoples as Australia's first inhabitants and Traditional Owners. Our operations span the Traditional Lands of the Bunurong people of the South-Eastern Kulin Nation and the Brataualung people of the Gunaikurnai Nation. We acknowledge and honour the Bunurong and Gunaikurnai as the original custodians of the land and waterways on which we rely.

We pay our deepest respects to Elders, past and present, as well as to those emerging. We acknowledge the enduring cultural, social, and spiritual connections that Aboriginal and Torres Strait Islander people maintain with Country. We recognise and value that the Traditional Owner groups have cared for and protected the lands, waterways, and seas to which they are connected for thousands of generations.

In the spirit of reconciliation, we remain committed to working in partnership with the Bunurong and Gunaikurnai peoples to ensure their ongoing contribution to the future of the water management landscape while maintaining their cultural and spiritual connections.

Images

This page: This artwork is proudly featured on our Yarram Water Tower. It was designed by Gunaikurnai Elder Sandra Patten. It as a visual expression of 'Sitting On Country' where she feels at home and connected.

Cover page: Aerial view of Fish Creek Water Treatment Plant and Battery Creek Reservoir.

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1 Introduction from the Managing Director

I am pleased to present South Gippsland Water's annual drinking water quality report for the year ending 30 June 2025. This report fulfils our obligations under section 26 of the *Safe Drinking Water Act 2003* (the Act) by providing a comprehensive overview of our water quality performance and management practices.

At South Gippsland Water, our commitment to water quality is unwavering. We maintain a robust drinking water risk management plan, aligned with the framework provided in the *Australian Drinking Water Guidelines*[1]. This system governs all aspects of drinking water supply, including catchment management, treatment processes, monitoring, incident response and continuous improvement.

Central to our drinking water management system is a risk-based, catchment-to-tap monitoring program. The program ensures that the water we supply meets legislative requirements of the Act and associated Safe Drinking Water Regulations 2015 (the Regulations). Based on the results of the 2024–25 monitoring program, all localities served by South Gippsland Water received water meeting the quality standards set out in the Regulations.

In addition to maintaining compliance, we continued to invest in critical infrastructure to strengthen the resilience and reliability of our water supply systems. This included renewing the geomembrane lining and cover at the Foster clear water storage basin, ensuring continued protection of potable water. Significant reticulation main renewal projects were completed in Leongatha, Korumburra and Poowong, enhancing network reliability and reducing the risk of service interruptions. We also refurbished the Leongatha raw water main, supporting long-term water transfer capacity and system integrity.

The year was not without its challenges. Precautionary boil water advisories were issued for Fish Creek on two separate occasions, each due to unrelated issues. The first, in July 2024, was issued in relation to a loss of pressure in the supply system. This was caused by a ruptured water main due to third-party earthworks. The second advisory was issued in April 2025 following detection of *Escherichia coli* (*E. coli*) in a routine sample. In both instances, we promptly activated our emergency management plan, undertook corrective actions and communicated transparently with affected customers. Following verification of drinking water safety through comprehensive monitoring, both advisories were lifted within a matter of days. We apologise for the inconvenience to our customers in Fish Creek and thank them for their patience and understanding.

These events highlight the importance of vigilance, preparedness and continuous improvement. I would like to acknowledge the dedication of our staff and the trust placed in us by our communities. We remain committed to delivering safe, high-quality drinking water and to maintaining the confidence of those we serve.

I trust you will find this report informative and valuable. If you would like further details on any of the topics presented, please contact us on 1300 851 636 or via email at sgwater@sgwater.com.au

Robert Murphy
Managing Director

1 NHMRC, NRMMC (2011) *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy.* National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra

2 Characterisation of the system

South Gippsland Water supply system

The service area of South Gippsland Water (SGW) covers approximately 4,000 square kilometres of the South Gippsland region, from Wonthaggi in the west to Yarram in the east; see Figure 1: SGW water supply area and systems. The total water supply operation for 2024–25 comprised:

- 1,234 square kilometres of total catchment area
- 9 reservoirs/dams and 4 raw water storage basins or tanks
- 8 water treatment plants and water supply systems
- 25 treated water distribution storages
- 18 water pumps
- 736 kilometres of water mains
- 23,525 customer connections across 22 rural centres
- 5,007 megalitres (million litres) of metered water supplied to customers
- a connection pipeline from the Melbourne water grid to the Lance Creek water treatment plant.

Information on SGW water sampling localities and supply sources is presented in Table 1.

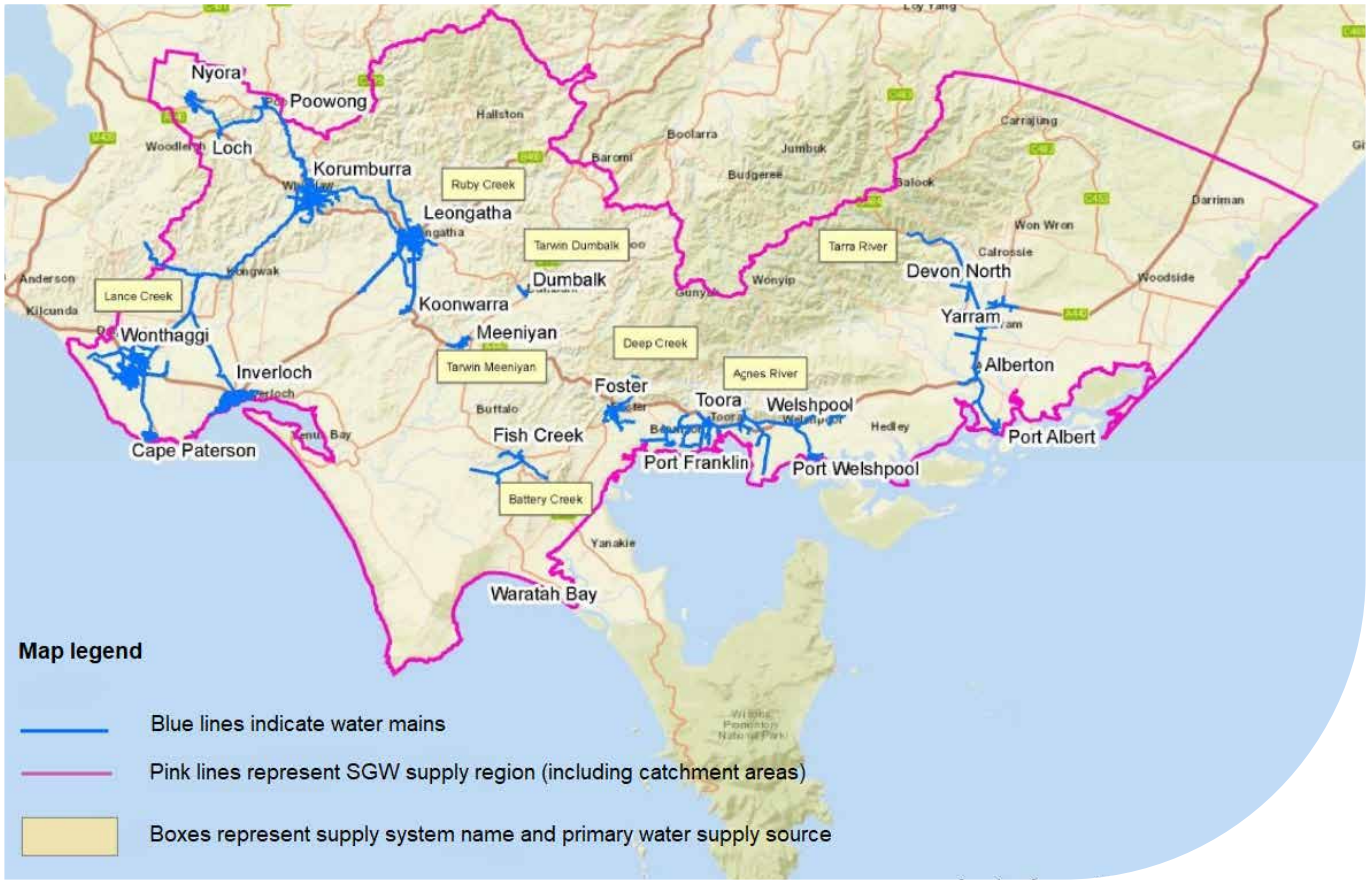


Figure 1: SGW water supply area and system

Table 1: SGW water sampling localities and supply sources

Localities supplied	Approximate population serviced*	Principal raw water supply sources	Supplementary water supply sources	Raw water storage	Water Treatment Plant (WTP)
Alberton **Yarram**	650 2,090	Tarra River	Gippsland Basin groundwater aquifer (via bore, Devon North)	Devon North Raw Water Basin	Devon North WTP
Dumbalk	460	Tarwin River (east branch)		Dumbalk Raw Water Tank	Dumbalk WTP
Fish Creek	210	Battery Creek		Battery Creek Reservoir	Fish Creek WTP
Foster	1,310	Deep Creek		Deep Creek Reservoir Foster Dam Foster Raw Water Basin	Foster WTP
Cape Paterson **Inverloch** **Lance Creek** **Wonthaggi** **Korumburra** **Loch** **Nyora** **Poowong**	960 6,050 140 9,110 3,870 710 790 390	Lance Creek Reservoir	Potable water also received from Cardinia Reservoir and the Victorian Desalination Plant	Lance Creek Reservoir	Lance Creek WTP
Koonwarra **Leongatha**	370 5,620	Ruby Creek		No.1 Reservoir No. 2 Reservoir No. 3 Reservoir (Hyland) No. 4 Reservoir (Western)	Leongatha WTP
Meeniyan	520	Tarwin River		Meeniyan Raw Water Basin	Meeniyan WTP
Port Franklin **Port Welshpool** **Toora**	170 580 490	Agnes River		Cooks Dam	Toora WTP
Total	**34,490**				

* Population served based on Australian Bureau of Statistic (ABS) 2021 Census data. Where available, urban population data is displayed. Where not available, population is based on ABS Australian Statistical Geography Standard Statistical Level 2 data and may not accurately reflect the water supply area.

3 Source water and catchment management

Overview

Protecting source water is a fundamental component of SGW's approach to delivering safe, high-quality drinking water. Our catchment management activities are guided by the principles of the *Australian Drinking Water Guidelines* (ADWG), which emphasises that preventing contamination at the source is more effective than relying solely on water treatment processes.

Open catchment challenges

Many of our water supply systems draw from open catchments, where land is privately owned and subject to a range of land uses. These areas are more vulnerable to runoff from agriculture, recreation and other human activities. Unlike closed catchments, open catchments cannot be fully protected from contamination, which presents ongoing hazards to water quality. To address these risks, we work proactively to improve catchment conditions through direct interventions and partnerships with landholders, government agencies and community groups.

Catchment risk management

SGW adopts a multi-barrier approach to managing risks to drinking water quality. While catchment management is a vital first step in protecting source water, it is only one part of a broader framework that includes both preventive and treatment-based controls.

Our water treatment systems are equipped with robust and reliable barriers that ensure drinking water safety, even when catchment conditions are variable. This means that rainfall events or other disturbances in open catchments do not automatically pose a risk to public health. By improving source water quality through proactive catchment management, we help reduce the load on downstream treatment processes and reinforce the overall resilience of our water supply systems.

To support this approach, we undertake a range of monitoring and assessment activities that help identify emerging risks and inform management decisions. These include:

- Regular catchment inspections and surveillance
- River health and water quality monitoring
- Land use planning referrals and assessments
- Source water risk assessments and Health Based Target (HBT)[2] reporting.

These practices are complemented by environmental improvement works such as revegetation, weed control and erosion management. We also promote source water protection through community engagement and education programs.

Lance Creek catchment improvement project

A focus of the 2024–25 reporting period was the ongoing investigation of water quality risks in the Lance Creek catchment. This project builds on previous work and aims to identify practical management responses to:

- Cyanobacterial (blue-green algae) blooms
- Potential ecological impacts of algaecide use
- Release of iron and manganese from reservoir sediments

The outcomes of this work will inform future strategies to strengthen catchment resilience in the face of climate change and increasing land use pressures.

2 See Australian Drinking Water Guidelines (2011), Section 1.3.2: Health-Based Targets, National Health and Medical Research Council (NHMRC). Available at: https://guidelines.nhmrc.gov.au/australian-drinking-water-guidelines/intro/chapter-1/1.3-water-quality-characteristics/1.3.2-guideline-values.

Partnerships and regional strategy alignment

SGW supports the Victorian Government's *Our Catchments, Our Communities* initiative through formal partnerships with the West and East Gippsland Catchment Management Authorities. These partnerships align with the West Gippsland Regional Catchment Strategy 2021–2027 and contribute to broader goals for land, water and biodiversity management.

We also deliver and support local initiatives such as the SGW H2O Grants, which fund riparian fencing and gully restoration, and the Corner Inlet Connections Project. Our work recognises and respects the cultural values of Traditional Owners, including the Gunaikurnai and Bunurong peoples, whose Country includes the catchments we manage.

Lance Creek Reservoir

Raw water sampling and analysis program

Untreated source water is routinely sampled at the inlets to all SGW Water treatment plants. Additional sampling is conducted at reservoir and upstream sites as required. Monitoring results are used to assess raw water quality and inform operational decisions. A summary of parameters and sampling frequencies is provided in Table 2.

Table 2: Raw water monitoring at SGW water treatment plants

Parameter	Minimum sampling frequency
***Escherichia coli* (*E. coli*)**	Weekly
Total Coliforms	Weekly
Cryptosporidium	Event-based
Giardia	Event-based
Cyanobacteria (Blue-green algae)	Weekly / event-based
Algae by-products (MIB/Geosmin/cyanotoxins)	Event-based
Alkalinity	Monthly
Aluminium	Quarterly
Calcium	Quarterly
Copper	Quarterly
Total organic Carbon	Quarterly
Manganese	Quarterly
Nitrogen compounds	Quarterly
Phosphorus compounds	Quarterly
Total organic carbon	Quarterly
Turbidity	Weekly
Pesticides	Annually / Event-based
Radionuclides	Every 5 years: sampling conducted in Nov. 2021
PFAS and PFOS chemicals	Every 5 years: sampling conducted in Nov. 2021

4

Regulations and standards

In Victoria, the provision of drinking water to the public is governed by a comprehensive regulatory framework. Administered by the Victorian Government's health department, the framework includes the *Safe Drinking Water Act 2003* (the Act) and the Safe Drinking Water Regulations 2015, which are enacted under the Act. For fluoridated water supplies, the *Health (Fluoridation) Act 1973,* supported by the Code of practice for fluoridation of drinking water supplies (second edition) also apply.

While not a law or regulation, the *Australian Drinking Water Guidelines 2011* forms part of the overall framework by defining what constitutes safe drinking water and how water quality risks should be managed.

Components of the legislative framework are described in more detail below.

Safe Drinking Water Act 2003[3]

The *Safe Drinking Water Act 2003,* as enacted by the Parliament of Victoria, is the over-arching law that governs the supply of safe drinking water to the public. In outline, this Act—

(a) requires water suppliers and water storage managers to prepare and implement plans to manage risks in relation to drinking water and some types of non-potable water; and

(b) provides for the auditing of those plans by approved auditors; and

(c) requires water suppliers to ensure that the drinking water they supply meets quality standards specified by the regulations; and

(d) requires water suppliers to disclose to the public information concerning the quality of drinking water; and

(e) provides for the variation, after community consultation, of water quality standards that relate only to aesthetic factors; and

(f) requires the reporting of known or suspected contamination of drinking water to the Secretary to the Department of Health; and

(g) empowers the Secretary to enforce this Act.

Safe Drinking Water Regulations 2015[4]

The Safe Drinking Water Regulations are made under section 56 of the *Safe Drinking Water Act 2003.* The objective of the Regulations is to make further provision for the supply of safe drinking water by—

(a) setting out further matters to be addressed in risk management plans and the risks to be addressed in those plans; and

(b) specifying the documents to be made available for inspection in a risk management plan audit; and

(c) specifying the issues relating to the quality of drinking water and regulated water that are to be dealt with by a water supplier and water storage manager in an annual report; and

(d) providing for other matters required to be prescribed under the *Safe Drinking Water Act 2003.*

Health (Fluoridation) Act 1973[5]

The *Health (Fluoridation) Act* is the law governing fluoridation in Victoria. Fluoridation is the controlled introduction of fluoride into drinking water supplies for the purpose of public dental health protection.

The Act sets out provisions for the fluoridation process, including responsibilities of water authorities, monitoring of fluoride levels, and compliance with established standards for the fluoridation of water supplies. Additionally, it outlines procedures for consultation with local communities and addresses issues related to exemptions and discontinuation of fluoridation.

3 https://www.legislation.vic.gov.au/in-force/acts/safe-drinking-water-act-2003/015

4 https://www.legislation.vic.gov.au/in-force/statutory-rules/safe-drinking-water-regulations-2015/001

5 https://www.legislation.vic.gov.au/in-force/acts/health-fluoridation-act-1973/020

'Choose Tap' celebration at Fish Creek

Code of practice for fluoridation of drinking water supplies (second edition) – *Health (Fluoridation) Act 1973*[6]

The Code of practice for fluoridation of drinking water supplies (second edition) supports the *Health (Fluoridation) Act*. It specifies the requirements for the safe design and effective operation of a fluoridation plant.

Australian Drinking Water Guidelines 6 2011[7]

The *Australian Drinking Water Guidelines 2011* (ADWG) serves as the authoritative reference for the Australian water industry by defining the standards for high-quality water and how to achieve them. Developed by the National Health and Medical Research Council (NHMRC) in collaboration with the National Resource Management Ministerial Council, the ADWG is subject to rolling review by the NHMRC to ensure it reflects the latest accepted science.

The ADWG offers detailed guidance on identifying and managing potential hazards to the quality of drinking water. This includes a framework to guide water suppliers in the development and continuous review of drinking water risk management plans. The ADWG also provide a comprehensive set of health-based and aesthetic water quality standards for drinking water parameters. While not mandatory by themselves, the health-based standards are the benchmarks for what constitutes safe drinking water with respect to short- and long-term risks in the Australian context.

6 https://www.health.vic.gov.au/water/water-fluoridation-legislation

7 https://www.nhmrc.gov.au/about-us/publications/australian-drinking-water-guidelines

5

Water treatment

Water treatment process overview

Rainwater, in its natural state, is generally pure as it falls from clouds. Yet, as it flows across land and collects in streams and rivers, it can gather dirt, minerals, organic matter, microorganisms, and other contaminants. This surface water requires purification and disinfection to make it safe for drinking. The conventional water treatment process is designed to remove these impurities and typically involves several key steps: raw water collection and settling, coagulation and flocculation, clarification, filtration, and disinfection. The following section outlines these main components, providing an overview of how water is treated to make it safe for human consumption.

Raw water collection and settling

The water treatment process typically begins with the collection of rainwater from runoff and streams in a reservoir. Water collected in a reservoir is referred to as 'raw water' but may also be called 'source water' or 'untreated water'.

The reservoir serves as a settling basin where debris and large particulate matter sink to the bottom through natural gravitational forces. Some reservoirs may also incorporate aeration devices designed to oxidise and solidify dissolved substances in the water.

Coagulation and flocculation

As the raw water is piped from the reservoir to the water treatment plant (WTP), chemical agents are introduced. These agents facilitate the aggregation of small particles into larger, insoluble masses in a process known as coagulation and flocculation.

Clarification

The resulting masses, referred to as floc, are subsequently separated from the water in the process of clarification. Clarification can occur through either gravitational settling (sedimentation clarification) or flotation of floc (dissolved air flotation or "DAF" clarification), depending on the specific water treatment method employed.

Aerial view of Leongatha Water Treatment Plant

Filtration

The now clarified water then percolates through large filter beds composed of layers of granular material, including sand and gravel. The filter beds serve to further purify the water by removing remaining floc and small particles, including microorganisms.

Disinfection

The final and crucial stage in the water treatment process is disinfection. This typically involves the addition of chlorine-based disinfectants, but other chemical agents or ultra-violet (UV) light may also be used. These disinfectants eliminate any remaining microorganisms, ensuring that water supplied to customers is safe for consumption.

A summary of the specific processes and treatment agents used at SGW WTPs is provided in Table 3 and Table 4.

Changes in water treatment and supply conditions

There were two changes to water treatment processes for SGW supplies in 2024–25. These were both for the Meeniyan water treatment plant:

- A sodium carbonate (soda ash) dosing system was installed for pre-treatment pH correction.
- A temporary powdered activated carbon (PAC) system was introduced to manage algae-related tastes and odour.

Water treatment monitoring and control

The water treatment process is subject to continual monitoring and control by inline SCADA (supervisory control and data acquisition) systems. SCADA systems prevent the production of out-of-specification water at all stages of the process by alerting staff to potential issues and automatically shutting down plant operation when required.

To verify correct SCADA functioning and plant operation, a range of manual checks are performed routinely by WTP operators. These include tests for specific water quality parameters, and verification of on-line monitoring and chemical dosing equipment. WTP operators also conduct jar tests in treatment plant laboratories. Jar tests allow for simulation of plant conditions so that adjustments in treatment chemical dosage can be made. This enables optimisation of the treatment process in response to seasonal changes in raw water quality and other factors.

Water treatment issues

There were no major water treatment issues for SGW during 2024–25. However, minor operational challenges were encountered as follows:

- Leongatha WTP: Filter media renewal in December 2024 led to intermittent difficulties in control of manganese levels, which occasionally exceeded operational targets.
- Toora WTP: Very heavy rainfall events in April and May 2025 caused turbid conditions in the Agnes River. This led to temporary issues with optimising manganese removal processes.

Further details regarding slightly elevated manganese levels in both the Leongatha and Toora water supplies are provided in Section 9: Complaints related to water quality.

Table 3: Processes and chemicals used to treat and disinfect water supplied by SGW in 2024–25

Water Treatment Plant (WTP)	Localities supplied	Treatment process	Treatment frequency	Added substances
Devon North WTP	**Alberton Yarram**	Cyanobacteria control	As required	Copper sulphate pentahydrate
		Taste and odour control	As required	Powdered activated carbon
		Pre-treatment pH correction	As required	Sodium carbonate
		Manganese oxidation	As required	Sodium hypochlorite
		Coagulation and flocculation	Regular	Aluminium chlorohydrate
		Dissolved air flotation clarification	Regular	Air
		Filtration by granular medium	Regular	-
		Primary chlorination disinfection	Regular	Sodium hypochlorite
		Dewatering of wastewater	Regular	-
Dumbalk WTP	**Dumbalk**	Pre-treatment pH correction	Regular	Sodium carbonate
		Manganese oxidation	As required	Potassium permanganate
		Coagulation and flocculation	Regular	Aluminium chlorohydrate
		Sedimentation clarification	Regular	-
		Filtration by granular medium	Regular	-
		Ultraviolet (UV) disinfection	Regular	-
		Primary chlorination disinfection	Regular	Sodium hypochlorite
		Secondary chlorination disinfection	Regular	Sodium hypochlorite
		Volatile organics removal by aeration	Regular	-
		Dewatering of wastewater	Regular	Anionic polyacrylamide
Fish Creek WTP	**Fish Creek**	Pre-treatment pH correction	Regular	Sodium carbonate
		Manganese oxidation	As required	Potassium permanganate / Sodium hypochlorite
		Coagulation and flocculation	Regular	Aluminium sulphate
		Sedimentation clarification	Regular	-
		Filtration by granular medium	Regular	Anionic polyacrylamide
		Post treatment pH correction	Regular	Sodium carbonate
		Primary chlorination disinfection	Regular	Sodium hypochlorite
		Volatile organics removal by aeration	Regular	-
		Secondary chlorination disinfection	Regular	Sodium hypochlorite
		Dewatering of wastewater	Regular	-
Foster WTP	**Foster**	Cyanobacteria control	As required	Copper sulphate pentahydrate
		Taste and odour control	As required	Powdered activated carbon
		Pre-treatment pH correction	Regular	Sodium carbonate
		Manganese oxidation	As required	Potassium permanganate/ Sodium hypochlorite
		Coagulation and flocculation	Regular	Aluminium sulphate
		Sedimentation clarification	Regular	-
		Filtration by granular medium	Regular	-
		Post treatment pH correction	Regular	Sodium carbonate
		Primary chlorination disinfection	Regular	Chlorine (gas) / Sodium hypochlorite
		Secondary chlorination disinfection	Regular	Sodium hypochlorite
		Dewatering of wastewater	Regular	-

Table 3: Processes and chemicals used to treat and disinfect water supplied by SGW in 2024–25 (continued)

Water Treatment Plant (WTP)	Localities supplied	Treatment process	Treatment frequency	Added substances
Lance Creek WTP	**Cape Paterson Inverloch Lance Creek Wonthaggi Korumburra Poowong Loch Nyora**	Cyanobacteria control	As required	Copper sulphate pentahydrate
		Taste and odour control	As required	Powdered activated carbon
		Pre-treatment pH correction	As required	Sodium hydroxide / hydrochloric acid
		Coagulation and flocculation	As required	Aluminium Chlorohydrate
		Dissolved air flotation clarification	Regular	Air
		Filtration by granular medium	Regular	-
		Post treatment pH correction	Regular	Sodium hydroxide
		Fluoridation	Regular	Hexafluorosilicic acid
		Primary chlorination disinfection	Regular	Chlorine (gas)
		Secondary chloramination disinfection	Regular	Chlorine (gas) and ammonia
		Dewatering of wastewater	Regular	Anionic polyacrylamide
Leongatha WTP	**Koonwarra Leongatha**	Cyanobacteria control	As required	Copper sulphate pentahydrate
		Taste and odour control	As required	Powdered activated carbon
		Pre-treatment pH correction	Regular	Sodium hydroxide
		Manganese oxidation	As required	Potassium permanganate
		Coagulation and flocculation	Regular	Aluminium sulphate
		Sedimentation clarification	Regular	-
		Filtration by granular medium	Regular	-
		Ultraviolet / (UV) disinfection	Regular	-
		Post treatment pH correction	Regular	Sodium hydroxide
		Primary chlorination disinfection	Regular	Chlorine (gas)
		Secondary chlorination disinfection	Regular	Chlorine (gas)
		Dewatering of wastewater	Regular	-
Meeniyan WTP	**Meeniyan**	Taste and odour control	As required	Powdered activated carbon
		Pre-treatment pH correction	As required	Sodium carbonate
		Coagulation and flocculation	Regular	Aluminium chlorohydrate
		Manganese oxidation	As required	Sodium hypochlorite
		Sedimentation clarification	Regular	Anionic polyacrylamide
		Filtration by granular medium	Regular	-
		Primary chlorination disinfection	Regular	Sodium hypochlorite
		Ultraviolet (UV) disinfection	Regular	-
		Volatile organics removal by aeration	Regular	-
		Secondary chlorination disinfection	Regular	Sodium hypochlorite
		Dewatering of wastewater	Regular	Anionic polyacrylamide
Toora WTP	**Port Franklin Port Welshpool Toora**	Taste and odour control	As required	Powdered activated carbon
		Pre-treatment pH correction	As required	Sodium carbonate
		Manganese oxidation	As required	Potassium permanganate / Sodium hypochlorite
		Coagulation and flocculation	Regular	Aluminium sulphate
		Sedimentation clarification	Regular	-
		Filtration by granular medium	Regular	-
		Ultraviolet (UV) disinfection	Regular	-
		Post treatment pH correction	Regular	Sodium carbonate
		Chlorination disinfection	Regular	Chlorine (gas)
		Dewatering of wastewater	Regular	-

Table 4: Processes and chemicals used to treat supplementary supply from Melbourne Water to Lance Clear Water Storage

Source / water catchment	Storage / transfer	Facility / location / operating body	Treatment process	Treatment frequency	Added substances
Transfer from Silvan Reservoir without being treated at Silvan WTP	Cardinia Reservoir	Cardinia 1400 Cardinia 1700 / Emerald / Melbourne Water	Disinfection	Regular	Chlorine gas (Cl_2) / Sodium hypochlorite
			Fluoridation	Regular	Fluorosilicic acid (FSA)
			pH Correction	Regular	Hydrated lime (Calcium oxide)
			Secondary disinfection	Regular	Sodium hypochlorite
Bass Strait sea water via Desalination Plant offtake	Direct supply to Cardinia Reservoir	Victorian Desalination Plant Wonthaggi AquaSure / Watersure	Coagulation	Regular	Ferric sulphate, sulfuric acid, PolyDADMac*
			Filtration	Regular	-
			Reverse osmosis (salt removal)	Regular	Antiscalant, Sodium hydroxide, Sodium bisulfite
			Reverse osmosis cleaning	As required	Caustic soda, detergent, acid
			Remineralisation	Regular	Hydrated lime (Calcium oxide), Carbon dioxide
			Fluoridation	Regular	Fluorosilicic acid (FSA)
			Disinfection	Regular	Chlorine gas (Cl_2)
			Membrane preservation	As required	Sodium bisulfite
			Sludge thickening/ dewatering	Regular	Polyacrylamide
			Membrane preservations	Regular	Sodium bisulphite
Melbourne Water Delivery Point 5 (DP5) of desalination pipeline	Transfer pipeline from DP5 to Lance Creek clear water storage tank	Lance Creek Clear Water Storage inlet / Glen Alvie / SGW	pH correction	Regular	Hydrochloric acid, Sodium hydroxide
			Disinfection	Regular	Chlorine gas (Cl_2)

* Polydiallydimethylammonium chloride

6 Quality management systems and continual improvement

Programs and practices

SGW's risk management approach is grounded in the Framework for Management of Drinking Water Quality as described in the Aus*tralian Drinking Water Guidelines.* Integral to our drinking water risk management system are a range of ongoing programs and practices. These are designed to maintain the optimal operation of water treatment plants (WTPs) and water supply distribution systems. Notable examples include:

- **Filter management program:** ensuring effective and efficient filtering at WTPs.
- **Backflow prevention program:** safeguarding against distribution system contamination risks.
- **Regular storage inspections and site security checks:** ensuring structural integrity of storages and fencing.
- **Procedures for hygienic mains repair:** ensuring sanitary work practices.
- **Water mains cleaning programs:** proactive flushing and scouring to remove sediment accumulations.
- **Hydrant replacement program:** upgrading legacy ball hydrants to spring-loaded ones for enhanced supply system security.
- **Watermains renewal program:** Upgrading and maintaining critical infrastructure to prevent leaks and breaks.
- **Contingency and resilience planning:** preparing for a changing climate, and unforeseen risks.

Another essential aspect of our drinking water risk management system is a commitment to continual improvement, aiming to achieve excellence in water delivery. This dedication extends to the ongoing development of our operations and quality assurance staff through training, seminars, journal subscriptions and membership in peak industry bodies, such as the Water Industry Operators Association of Australia (WIOA). These efforts ensure our staff remain up to date with drinking water-related research, technological advancements, and industry best practice.

SGW staff at the South Gippsland and Bass Coast Careers Expo

Training highlights and trainee program

Formal training from accredited providers is undertaken by our WTP operators upon employment, ensuring they possess the necessary qualifications (if not already certified). In the 2024–25 period, two WTP operators completed Certificate III in Water Industry Operations (Water Treatment), while one commenced the course.

Water network maintenance staff also undertake Certificate III studies, with three commencing the Water Industry Operations course in 2024–25. Additionally, two team members began the WIOA Network Operator Development Program, which aims to develop leadership in best practice water network management.

SGW is also committed to attracting young people to the industry through our Operations Trainee Program. Trainees specialise in either treatment or maintenance aspects of the business, gaining diverse experience across the organisation, including water quality monitoring. Two trainees continued their employment under this program in 2024–25.

WTP operator awarded training certificate

Renewals and improvement project

SGW completed several capital improvement projects in 2024–25. Noteworthy among these is the refurbishment of the aging Leongatha raw water transfer pipeline. Approximately 4 km long, the pipeline is vital for conveying source water from the Ruby Creek reservoir system to the Leongatha WTP. In response to a rupture in August 2022, a comprehensive condition assessment of the pipeline was undertaken. Based on the assessment findings, a capital works project was initiated to address vulnerable pipe sections through either refurbishment or full replacement. Completed in March 2025, the restorative works have strengthened long-term reliability and resilience of the Leongatha raw water transfer system.

Also completed in 2024–25 were significant water main renewal projects in Korumburra, Leongatha and Poowong. The replacement of aging distribution and reticulation water mains in these towns will reduce the frequency of disruptive breaks and minimise associated water quality risks. Another successfully completed project was the renewal of the geomembrane liner and cover at the Foster clear water storage basin. Liners and covers must be replaced every 10 to 20 years to ensure structural integrity and continued protection of drinking water within basins.

Various other major projects were initiated or progressed during 2024–25. Design work began on major overhauls of the chlorination systems at both Foster and Toora WTPs. The planned replacement of chlorine gas systems at these sites with sodium hypochlorite dosing will enhance safety while maintaining effective disinfection.

In a separate initiative, planning for upgrades to powdered activated carbon (PAC) dosing systems at Foster and Toora WTPs also commenced. The upgraded systems will allow for enhanced control of algal compounds, improving drinking water taste and odour for customers.

Planning for another key improvement project at the Foster and Toora WTPs – this one involving significant upgrades to filtration systems – continued in 2024–25. The upgrades will see the replacement of aging pressure filters with gravity bed filter systems.

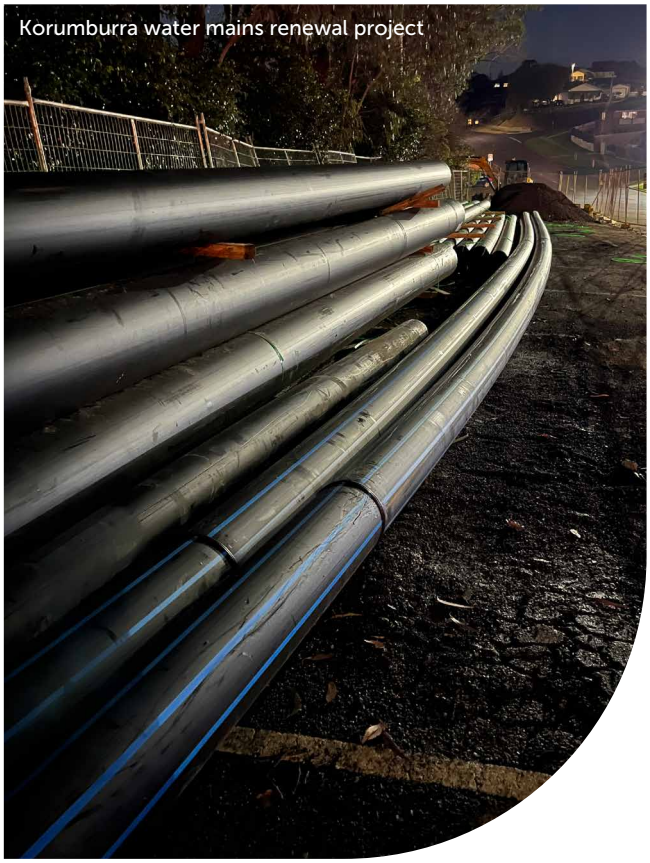
Korumburra water mains renewal project

Bed filters offer greater reliability and operational simplicity compared to pressure filters. Amongst other benefits, the new systems will allow easier access for inspection, maintenance, and filter media replacement.

For the Leongatha WTP, the functional design and specification process commenced for installation of a permanent PAC dosing system. The project was initiated in response to increasing levels of algae-related taste and odour compounds within the supplying Ruby Creek reservoir system. Replacing the current temporary set-up, the new dosing system will be more reliable and less labour intensive to operate.

Major project works at the Lance Creek WTP commenced in 2024–25 include the construction of an additional clear water storage (CWS) tank. Once commissioned, the new tank will operate alongside the existing infrastructure, increasing storage capacity and enhancing supply reliability for our largest system. This investment supports regional growth by strengthening service resilience and meeting future water demand.

Further details on these and other projects are provided in Table 5.



Korumburra water mains renewal project

Table 5: Major improvement and renewal projects – water treatment and supply

Site	Improvement project	Water quality / supply benefit	Expected completion year	Approximate expenditure $	Status
Devon North WTP	DAF system saturator replacement.	Improved asset reliability and reduction in system fatigue failure risk.	2025	$200,000	Complete
Dumbalk WTP	Upgrade of filter-to-waste system	Enhanced treatment efficiency through quality-based (rather than time-based) control of the filter- to-waste stream during filter ripening.	2025	$6,000	Complete
Foster CWS Basin	Renewal of geomembrane lining and cover.	Continued protection of potable water in basin.	2025	$900,000	Complete
Foster WTP	Significant upgrade of filtration system, involving replacement of aging pressure filters with a gravity bed filter.	Improved operability, reliability, and control of water filtration process.	2027	$3,550,000	Commenced
Foster WTP	Upgrade of PAC dosing system.	Improved control of cyanobacterial taste and odour compounds.	2027	$300,000	Commenced
Foster WTP	Disinfection system renewal and upgrade.	Improved safety and asset reliability.	2027	$1,000,000	Design in progress
Korumburra water supply network	Renewal of distribution and reticulation water mains along Commercial Street.	Improved asset reliability. Reductions in both water loss through leakages and water quality risk associated with asset failure.	2025	$3,400,000	Complete
Lance Creek WTP	Upgrades and installation of additional CWS Tank.	Improved security of future supply.	2026	$6,000,000	Construction in progress
Lance Creek WTP	DAF renewal and polymer system upgrade.	Improved flocculation. Efficient and safe dosing of polymer.	2025	$500,000	In progress
Lance Creek WTP	Replacement of aged fluorosilicic acid (FSA) dosing system with new sodium fluoride (NaF) dosing system.	Reinstatement of fluoride dosing for public dental health benefit by replacement of aged system.	2026	$1,500,000	Functional design and specification in progress.
Leongatha raw water transfer main	Pipe refurbishment and renewal.	Improved security of source water supply to WTP by reducing risk of age-related breakage of raw water transfer main.	2025	$1,710,000	Complete
Leongatha raw water supply system	Management improvement project.	Improved accessibility of main for inspection and repair. Improved overall management of Leongatha raw water supply system.	2024	Not available	Complete
Leongatha WTP	Replacement of temporary PAC dosing with permanent dosing system.	For more reliable, operable, and safe control of cyanobacterial taste and odour compounds.	2026	$2,000,000	Functional design and specification in progress.
Leongatha WTP	Filter media replacement	Continued effective filtration	2025	$280,000	Complete

Table 5: Major improvement and renewal projects – water treatment and supply (continued)

Site	Improvement project	Water quality / supply benefit	Expected completion year	Approximate expenditure $	Status
Leongatha water supply network	Renewal of distribution and reticulation water mains along Long Street.	Improved asset reliability. Reductions in water loss through leakages and water quality risk associated with asset failure.	2025	$1,100,000	Complete
Meeniyan WTP	Individual filter turbidity monitoring and control	Improved filtration monitoring and control of treatment process	2024	$130,000	Complete
Meeniyan WTP	Upgrade of sodium carbonate dosing system	Improved control and efficiency of pre-treatment pH correction	2025	$10,000	Complete
Poowong water tower	Reconfiguration and upgrade to reduce residency time of water	Improved maintenance of monochloramine residual to protect water in tank, without need for operational intervention (flushing/scouring).	2028	Not available	In progress
Poowong water supply network	Renewal of distribution and reticulation water mains along Nyora Road and Bryson Street	Improved asset reliability. Reductions in both water loss through leakages and water quality risk associated with asset failure.	2025	$600,000	Complete
Toora WTP	Significant upgrade of filtration system, involving replacement of aging pressure filters with a gravity bed filter.	Improved operability, reliability, and control of water treatment filtration process.	2027	$4,500,000	Commenced
Toora WTP	Upgrade of PAC dosing system	Improved control of cyanobacterial taste and odour compounds	2027	$300,000	Commenced
Toora WTP	Disinfection system renewal and upgrade	Improved safety and asset reliability	2027	$1,000,000	Design in progress
Various water supply systems	Minor renewals of reticulation water mains.	Improved asset reliability. Reductions in both water loss through leakages and water quality risk associated with asset failure.	2025	$900,000	Complete

7 Emergency, incident, and event management

Incidents reported under the *Safe Drinking Water Act*

Section 18 *Safe Drinking Water Act 2003* (the Act) requires a water supplier to notify the Department of Health (the department) when it becomes aware that the drinking water it is supplying to another person does not comply, or is not likely to comply, with any relevant water quality standard. There were no issues requiring a section 18 notification for SGW in the 2024–25 reporting period.

Section 22 of the Act requires a water supplier to immediately notify the department of any circumstances where it is suspected or believed that drinking water supplied to the public may be the cause of an illness, pose a risk to human health, or cause widespread public complaint. In accordance with this requirement, two incidents were reported to the department in the 2024–25 reporting period. A summary of the reported events is provided in Table 6. Detailed discussions can be found on subsequent pages.

Table 6: Summary of events reported in accordance with the *Safe Drinking Water Act 2003*

Water sampling locality affected	Type of notification	Date of incident	Location of incident	Basis of notification	Nature of incident and immediate actions	Investigation and compliance outcomes
Fish Creek	Section 22	4/7/2024 to 8/7/2024	Fish Creek township	Potential public health concern associated with system depressurisation, increasing the risk of contaminant intrusion through cracks and loose joints in water supply mains	Loss of pressure in system due to break in supply main feeding the town from the Fish Creek clear water service basin. Break caused by external operator earthworks. Boil water advisory issued to customers while the basin and system flushed and resampled.	Boil water advisory lifted 8/7/2024 following system flushing and receipt of comprehensive water quality analysis results confirming drinking water safety. No non-compliance recorded for Fish Creek in relation to this incident.
Fish Creek	Section 22	8/4/2025 to 10/4/2025	Fish creek clear water storage basin outlet.	Potential public health concern in relation to *E. coli* detection in drinking water quality.	Detection of *E. coli* in a routine sample taken from the outlet of the Fish Creek clear water service basin on 8/4/2025. Boil water advisory issued to customers as a precautionary measure. Inspections, monitoring, and mains flushing implemented.	Investigation found result was due to a 'false positive sample' as defined in the Safe Drinking Water Regulations and did not represent the water supply. No non-compliance recorded for Fish Creek in relation to this incident.

Fish Creek significant water mains break – July 2024

A boil water advisory (BWA) was issued for Fish Creek on 4 July 2024 following a rupture of the water main that feeds the town from the Fish Creek clear water service (CWS) basin. The break occurred due to earthworks by an external fencing company (not contracted to SGW) and caused widespread loss of water supply and system pressure.

Although the break was reported and repaired promptly, issuing the BWA was necessary for public health protection in relation to the system depressurisation. Positive pressure in a water supply network acts as a barrier against potential ingress of contaminants through pipe cracks and loose joints that may be present. Possible entry of contaminants at the time of the water main breakage and during the repair process was also a concern.

The incident was reported immediately to the Department of Health in accordance with section 22 of the Act. Corrective actions and customer communication protocols were coordinated through an Incident Management Team (IMT) in alignment with SGW's established incident response protocols. These included:

- High-velocity flushing of water mains local to the break site on 4 July 2024
- Issuing the advisory to customers via SGW's website, news media, social media, SMS messaging, and telephone calls on 4 July 2024
- Establishing an alternative water supply trailer in the town centre on the morning of 5 July 2024
- Systematic flushing of all Fish Creek water mains downstream of the basin from 4 to 6 July 2024
- Field monitoring of disinfectant (chlorine) residuals and turbidity post-flushing on 4 to 6 July 2024
- Collecting a comprehensive set of verification samples for analysis by the contracted external laboratory (ALS -Scoresby) on 5 July 2024.

Verification monitoring results confirmed that water met all required drinking water quality standards, consistent with normal Fish Creek supply. This allowed the BWA to be lifted on the afternoon of 6 July 2024. Customers were notified through the same communication channels used to issue the advisory.

An internal SGW incident debrief meeting was held 26 July 2024. While the response was deemed effective, several minor opportunities for improvement in both internal and external communications were identified and actioned. Investigation into the root cause of the mains breakage found that the external company had not undertaken service proofing prior to commencing excavation works.

E. coli detection in Fish Creek – April 2025

E. coli was detected in a routine sample collected from the Fish Creek CWS basin outlet on 8 April 2025. The detection was reported to the department in accordance with section 22 of the Act.

In response to the detection, a BWA was issued on 9 April 2025 as a precautionary public health measure. The decision was based on two key factors: the relatively high concentration of *E. coli* cells recorded (95 colony-forming units per 100 millilitres) and the location of the sampling site, which represents supply to the entire town. Customers were informed of the BWA via SGW's website, news media, social media, SMS text messaging, telephone calls, and alerts through the VicEmergency app[8].

An IMT was established to coordinate the incident response. Actions included asset inspections, system flushing, and field monitoring of disinfectant residual and turbidity levels. Upon completion of these actions, a comprehensive set of verification samples was collected and dispatched for external laboratory analysis. The results confirmed that the drinking water supply did not pose a risk to public health, allowing the BWA to be lifted on the evening of 10 April 2025.

An investigation report was submitted to the Department of Health on 22 April 2025. As detailed in the report, the investigation identified no failures of water treatment processes or supply infrastructure that could have led to detection of *E. coli* in the water supply. This supported the conclusion that the result was due to a *false positive sample* as defined in Schedule 2 of the Regs (see Table 7 for full definition) and did not represent the Fish Creek water supply on 8 April 2025. Although no definitive cause for the positive *E. coli* result was identified, sampling protocols were subsequently strengthened and reinforced.

8 The VicEmergency app is the Victorian Government's official platform for issuing emergency alerts, including BWAs, to mobile phones.

8 Water quality monitoring results

During the 2024–25 reporting period, SGW implemented water quality monitoring programs consistent with requirements of the Act and the Regulations. Schedule 2 of the Regulations stipulates the sampling frequency and water quality standard for three water quality parameters: *E. coli,* trihalomethanes (total), and turbidity. These mandatory samples must be collected from the drinking water supply at relevant frequencies and analysed for performance against the water quality standards as shown in Table 7.

Analysis Results – Schedule 2 parameters

The results of analysis for Schedule 2 parameters for 2024–25 are summarised in Tables 8 to 10.

Note: Section 23 of the Act requires that a water supplier make available for inspection by the pubic the results of any water quality monitoring program that is conducted on any drinking water it supplies. Customers and members of the public may access drinking water quality data by telephoning SGW Customer Service on 1300 851 636, or by emailing sgwater@sgwater.com.au

Table 7: Drinking water quality standards and required sampling frequencies as defined in Schedule 2 of the Regulations

Parameter and relevant sampling frequency for each water sampling locality	Quality standard for each water sampling locality
***Escherichia coli* (*E. coli*)** One sample per week	All samples of drinking water collected are found to contain no *Escherichia coli* per 100 millilitres of drinking water, with the exception of any false positive sample. For the purposes of this quality standard, a *false positive* sample means a sample that is found, after an analysis conducted in accordance with regulation 14, to contain *Escherichia coli* per 100 millilitres of drinking water, if--- a) following the analysis, the water supplier has conducted an investigation, which has been conducted in accordance with any guidelines issued by the Secretary in relation to such investigations, including any timeframes for commencement and completion of the investigations, to ascertain whether the results for the analysis are representative of water in the relevant sampling locality; and b) the water supplier has reported the results of the investigation to the Secretary in relation to such reports, including any timeframes for provision of the report; and c) the investigation has concluded that the results of the analysis conducted in accordance with regulation 14 were not representative of the water in the relevant water sampling locality because the investigation established that— (i) all other factors that would indicate the presence of *Escherichia coli* are not present in that water in the water sampling locality at the time of the investigation; and (ii) the drinking water treatment process applied, or other specified actions taken by the water supplier, are such as would be reasonably expected to have eliminated the presence of *Escherichia coli* in the water sampling locality at the relevant time; and (iii) all plant and infrastructure associated with the water treatment process were operating to specification at all relevant times; and (iv) there were no issues arising from degradation of plant or infrastructure in or around the relevant water sampling locality that could reasonably be suspected to have contributed to the presence of *Escherichia coli* in the drinking water in that water sampling locality. A sample analysed in accordance with regulation 14 that is found, on that analysis, to contain *Escherichia coli* per 100 millilitres of drinking water is not a false positive sample unless all of the circumstances in paragraphs (a), (b) and (c) apply.
Total trihalomethanes One sample per month	Less than or equal to 0.25 milligrams per litre of drinking water
Turbidity One sample per week	The 95th percentile of results for samples in any 12-month period must be less than or equal to 5.0 Nephelometric Turbidity Units

E. coli

E. coli is an enteric (gut) bacterium. Its presence in water may indicate contamination with human or animal faecal matter and associated microorganisms and viruses, some of which may be pathogenic (illness-causing). For the quality standard for each water sampling locality to be met with respect to *E. coli,* all samples of drinking water collected must have been found to contain no *E. coli* per 100 millilitres of drinking water, with the exception of any false positive samples (refer to Table 7 for definition of 'false positive sample').

Monitoring for *E. coli* for the 2024–25 reporting period was conducted in accordance with requirements of the Regulations and SGW's risk-based monitoring program. The program specifies which sites are to be sampled and at what frequencies. Samples for *E. coli* analysis are collected weekly from a range of different sampling sites and locations, including dedicated customers tap (water meter) sites, clear water storages, and process water from WTPs. Other sites in distribution systems, such as upstream and downstream of secondary disinfection dosing units, and at the inlets and outlets of clear water storage tanks and basins are also sampled on a weekly basis.

Compliance with the water quality standard for *E. coli* is based on monitoring of drinking water as it is supplied to customers. For some localities, this includes the results of distribution clear water storage sample analysis (where there is not a more representative site downstream of the storage) in addition to those from customer tap sample analysis; Refer to Table 8.

There was one *E. coli* detection in 2024–25; this being for a sample taken from the Fish Creek water sampling locality on 8 April 2025. Investigation found that the result was due to a 'false positive sample' as defined in the Regulations, and no non-compliance with the drinking water quality standard for *E. coli* was recorded. For further discussion of this event, refer to section 6: Emergency incident and event management.

Table 8: *E. coli* results for 2024–25

Standard: All samples of drinking water collected are found to contain no *E. coli* per 100 millilitres of drinking water, with the exception of any false positive sample.

Water sampling locality	Customer tap samples collected per week	CWS outlet samples collected per week	Total number of samples collected in compliance period	Maximum result (CFU/100mL)*	Number of detections and (s. 22) investigations	Number of samples where standard was not met
Alberton	1	-	52	0	0	0
Cape Paterson	1	1	106	0	0	0
Dumbalk	1	1	104	0	0	0
Fish Creek	1	1	104	95	1†	0
Foster	1	1	104	0	0	0
Inverloch	2	1	159	0	0	0
Koonwarra	1	-	53	0	0	0
Korumburra	1	3	212	0	0	0
Lance Creek	1	1	106	0	0	0
Leongatha	2	1	159	0	0	0
Loch	1	1	106	0	0	0
Meeniyan	1	1	104	0	0	0
Nyora	1	1	106	0	0	0
Poowong	1	2	159	0	0	0
Port Franklin	1	-	52	0	0	0
Port Welshpool	1	-	52	0	0	0
Toora	1	2	156	0	0	0
Wonthaggi	2	1	159	0	0	0
Yarram	2	2	208	0	0	0

* Units for *E. coli* analysis are "Colony forming units per 100 millilitres" (CFU/100mL)
† See section 6: Emergency incident and event management' for investigation details.

Total trihalomethanes

Trihalomethanes (THMs) are organic chemical compounds in which three of the four hydrogen atoms of methane (CH4) are replaced by atoms of chlorine or other halogens, such as bromine. The compounds may be present in drinking water principally because of chlorination or, to a much lesser extent, chloramination. Chlorine forms hypochlorous acid when added to water and can react with naturally occurring organic material to produce the trihalomethane species trichloromethane (chloroform), bromodichloromethane, dibromochloromethane, and tribromomethane (bromoform).

The *Australian Drinking Water Guidelines 2011* (ADWG) states that, "Based on health considerations, the concentration of trihalomethanes, either individually or in total, in drinking water should not exceed 0.25 mg/L. Trihalomethane concentrations fluctuating occasionally (for a day or two annually) up to 1 mg/L are unlikely to pose a significant health risk. Action to reduce trihalomethanes is encouraged, but must not compromise disinfection, as non-disinfected water poses significantly greater risk than trihalomethanes."

For the 2024–25 year, testing for trihalomethanes was conducted in accordance with the Regulations and SGW's risk-based monitoring program. All results complied with the drinking water quality standard for trihalomethanes. Results are presented in Table 9.

Table 9: Trihalomethanes (total) results for 2024–25

Standard: Total trihalomethanes less than or equal to 0.25 milligrams per litre of drinking water

Water sampling locality	Customer tap samples collected per month	CWS outlet samples collected per month	Total number of samples collected in compliance period	Average result (mg/L)	Maximum result (mg/L)	Number of samples where standard was not met
Alberton	1	0	12	0.083	0.130	0
Cape Paterson	1	0	12	0.074	0.093	0
Dumbalk	1	0	12	0.092	0.140	0
Fish Creek	1	1	24	0.150	0.190	0
Foster	1	0	12	0.082	0.110	0
Inverloch	1	0	12	0.072	0.083	0
Koonwarra	1	0	12	0.106	0.130	0
Korumburra	1	0	12	0.071	0.085	0
Lance Creek	1	0	12	0.068	0.081	0
Leongatha	1	0	12	0.091	0.130	0
Loch	1	0	12	0.071	0.140	0
Meeniyan	1	0	12	0.108	0.160	0
Nyora	1	0	12	0.086	0.170	0
Poowong	1	0	12	0.068	0.100	0
Port Franklin	1	0	12	0.098	0.120	0
Port Welshpool	1	0	12	0.075	0.110	0
Toora	1	0	12	0.080	0.110	0
Wonthaggi	1	0	12	0.073	0.085	0
Yarram	1	0	12	0.066	0.110	0

Turbidity

Turbidity is a measurement of the light-scattering property of water which is dependent on the amount, size, and composition of fine suspended matter. The Regulations specify that the 95th percentile of results for samples in any 12-month period must be less than or equal to 5.0 Nephelometric Turbidity Units (NTU).

Monitoring for compliance with the water quality standard for turbidity was conducted in accordance with the Regulations and SGW's risk-based monitoring program. All localities were compliant with the regulatory drinking water quality standard. Turbidity results are presented in Table 10.

Table 10: Turbidity results for 2024–25

Standard: The 95th percentile of results for samples in any 12-month period must be less than or equal to 5.0 Nephelometric Turbidity Units (NTU)

Water sampling locality	Customer tap sampling frequency (No. samples per week)	Total number of samples collected in compliance period	Maximum turbidity in a sample (NTU)	Maximum 95th percentile of turbidity results in any 12 months (NTU)	Number of 95th percentile of results in any 12 months above standard
Alberton	1	52	0.2	0.2	0
Cape Paterson	1	53	0.3	0.1	0
Dumbalk	1	52	0.2	0.1	0
Fish Creek	1	52	0.7	0.1	0
Foster	1	52	0.2	0.2	0
Inverloch	2	106	0.3	0.1	0
Koonwarra	1	53	0.4	0.1	0
Korumburra	1	53	0.3	0.2	0
Lance Creek	1	53	0.3	0.2	0
Leongatha	2	106	0.7	0.2	0
Loch	1	53	0.3	0.2	0
Meeniyan	1	52	<0.1	0.1	0
Nyora	1	53	0.3	0.1	0
Poowong	1	53	0.4	0.2	0
Port Franklin	1	52	0.6	0.2	0
Port Welshpool	1	52	0.7	0.2	0
Toora	1	52	0.4	0.3	0
Wonthaggi	2	106	5.4*	0.2	0
Yarram	2	104	0.6	0.1	0

* One sample collected from Wonthaggi recorded a turbidity result of 5.4 NTU. This was due to planned air-scouring works occurring at the time of sampling. The main was flushed to remove suspended sediments.

Comparison of results for Schedule 2 parameters over three years

A comparison of compliance with water quality standards specified in Schedule 2 of the Safe Drinking Water Regulations 2015 in the 2024–25 period with that of the previous two fiscal years is presented in Figure 2. Consistent compliance across all SGW water sampling localities is illustrated and in measure with the drinking water quality standards listed for trihalomethanes and turbidity. Non-compliance with the drinking water quality standard for *E. coli* in Poowong and Nyora saw a decrease in percentage compliance for 2023–24 with respect to the previous reporting period. For further information, see 2023–24 Annual Drinking Water Quality Report.

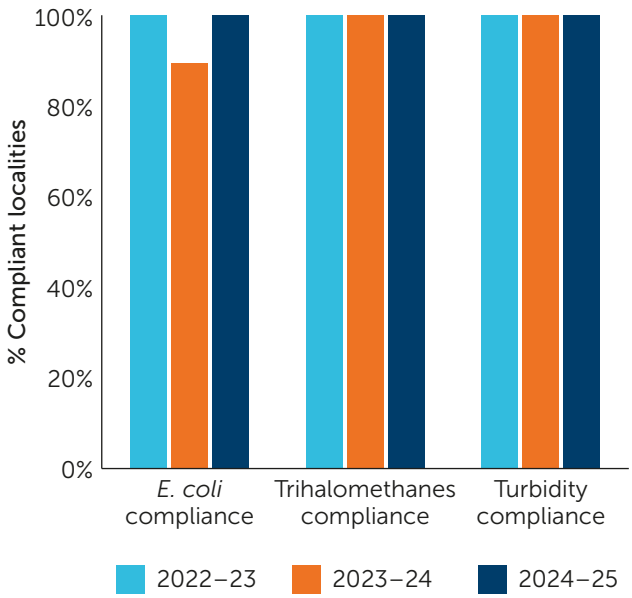


Figure 2: Percentage of localities where the drinking water complied with the water quality standards for *E. coli,* trihalomethanes, and turbidity for the entire reporting period

Fish Creek Primary School students at a 'Choose Tap' celebration of a newly installed drinking water fountain

Other analysis results

As part of SGW's drinking water quality management system, water quality parameters with potential to affect human health are monitored. These parameters are measured against standard values defined in the ADWG. Parameters are also measured against aesthetic quality guidelines, where provided in the ADWG. In 2024–25, all health-based guidelines of the ADWG were met.

As many of the parameters monitored do not change significantly over time or through water supply systems, frequent monitoring is not required. Results are summarised in Tables 11 to 26 (see following page) and discussed in text below.

Analysis results – other water quality standards (algal toxin, pathogen, chemical or substance that may pose a risk to human health)

Aluminium

Aluminium may be present in drinking water where aluminium salts are used as coagulants in water treatment processes to destabilise particles in water. Water quality performance with respect to aluminium was measured against the ADWG aesthetic guideline value of 0.2 mg/L. As stated in the ADWG, "no health-based guideline is set for aluminium at this time, but this issue will be kept under review."

A summary of aluminium (total) results is presented in Table 11. As can be seen, there were no exceedances of the aesthetic guideline recorded for 2024–25.

Table 11: Aluminium (Total) results for 2024–25

All results are compared against the ADWG aesthetic guideline of less than or equal to 0.2 mg/L for aluminium.

Water sampling locality	Customer tap samples collected per month	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Alberton	1	12	0.02	0.04	0
Cape Paterson	1	12	0.02	0.03	0
Dumbalk	1	12	<0.01	0.02	0
Fish Creek	1	12	0.03	0.05	0
Foster	1	12	<0.01	0.01	0
Inverloch	1	12	0.02	0.02	0
Koonwarra	1	12	0.02	0.03	0
Korumburra	1	12	0.02	0.03	0
Lance Creek	1	12	0.02	0.03	0
Leongatha	1	12	0.02	0.03	0
Loch	1	12	0.03	0.05	0
Meeniyan	1	12	0.03	0.08	0
Nyora	1	12	0.03	0.08	0
Poowong	1	12	0.02	0.04	0
Port Franklin	1	12	<0.02	0.07	0
Port Welshpool	1	12	0.03	0.11	0
Toora	1	12	0.03	0.07	0
Wonthaggi	1	12	0.02	0.03	0
Yarram	1	12	0.01	0.05	0

Arsenic

Arsenic is a naturally occurring element which can be introduced to water through dissolution of minerals and ores, or from industrial effluent, atmospheric deposition, drainage from old gold mines and the use of some types of sheep dip. The ADWG specify that, from a health perspective, the concentration of arsenic should not exceed 0.01 mg/L. Water supplied by SGW complied with the ADWG guideline value for arsenic, with all results indicating levels were below detection limits; refer to Table 12.

Table 12: Arsenic results for 2024–25

All results are compared against the ADWG health guideline of less than or equal to 0.01 mg/L for arsenic.

Water sampling locality	Customer tap samples collected per year	Total number of samples	Result (mg/L)	Number of samples where guideline was not met
Alberton	1	1	<0.001	0
Cape Paterson	1	1	<0.001	0
Dumbalk	1	1	<0.001	0
Fish Creek	1	1	<0.001	0
Foster	1	1	<0.001	0
Inverloch	1	1	<0.001	0
Koonwarra	1	1	<0.001	0
Korumburra	1	1	<0.001	0
Lance Creek	1	1	<0.001	0
Leongatha	1	1	<0.001	0
Loch	1	1	<0.001	0
Meeniyan	1	1	<0.001	0
Nyora	1	1	<0.001	0
Poowong	1	1	<0.001	0
Port Franklin	1	1	<0.001	0
Port Welshpool	1	1	<0.001	0
Toora	1	1	<0.001	0
Wonthaggi	1	1	<0.001	0
Yarram	1	1	<0.001	0

Copper

Copper is naturally distributed in rocks and soils. It may also be present in drinking water where aggressive waters of low pH and hardness induce corrosion of copper pipes. The ADWG specify that the concentration of copper should not exceed 1 mg/L based on aesthetic considerations, and 2 mg/L based on health considerations. Water supplied by SGW complied with both the aesthetic-based and health-based guideline values for copper; refer to Table 13.

Table 13: Copper results for 2024–25

All results are compared against the ADWG health guideline of less than or equal to 2 mg/L for copper.

Water sampling locality	Customer tap samples collected per quarter	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Alberton	1	4	<0.002	0.002	0
Cape Paterson	1	4	0.006	0.008	0
Dumbalk	1	4	0.004	0.006	0
Fish Creek	1	4	0.005	0.013	0
Foster	1	4	0.009	0.015	0
Inverloch	1	4	0.010	0.014	0
Koonwarra	1	4	0.009	0.012	0
Korumburra	1	4	0.006	0.009	0
Lance Creek	1	4	0.013	0.025	0
Leongatha	1	4	0.007	0.013	0
Loch	1	4	0.005	0.007	0
Meeniyan	1	4	0.010	0.015	0
Nyora	1	4	0.005	0.008	0
Poowong	1	4	0.007	0.010	0
Port Franklin	1	4	0.002	0.003	0
Port Welshpool	1	4	0.016	0.038	0
Toora	1	4	0.007	0.008	0
Wonthaggi	1	4	0.008	0.017	0
Yarram	1	4	0.009	0.014	0

Note: Samples are taken for analysis from the reticulation system. Copper levels may be higher at customers' internal taps if copper plumbing is used in the domestic system. Customers experiencing blue copper staining of fixtures or discolouration of water are advised to call SGW Customer Service on 1300 851 636.

Lead

Lead may be detected in drinking water as a result of dissolution from natural sources or from household plumbing systems containing lead. The ADWG specify that, from a health perspective, the concentration of lead should not exceed 0.01 mg/L*. Water supplied by SGW complied with the ADWG guideline value; refer to Table 14.

Table 14: Lead results for 2024–25

All results are compared against the ADWG health guideline of less than or equal to 0.01 mg/L for lead*

Water sampling locality	Customer tap samples collected per quarter	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where standard was not met
Alberton	1	4	<0.001	<0.001	0
Cape Paterson	1	4	<0.001	<0.001	0
Dumbalk	1	4	<0.001	<0.001	0
Fish Creek	1	4	<0.001	<0.001	0
Foster	1	4	<0.001	<0.001	0
Inverloch	1	4	<0.001	<0.001	0
Koonwarra	1	4	<0.001	<0.001	0
Korumburra	1	4	<0.001	<0.001	0
Lance Creek	1	4	<0.001	<0.001	0
Leongatha	1	4	<0.001	<0.001	0
Loch	1	4	<0.001	<0.001	0
Meeniyan	1	4	<0.001	<0.001	0
Nyora	1	4	<0.001	<0.001	0
Poowong	1	4	<0.001	<0.001	0
Port Franklin	1	4	<0.001	<0.001	0
Pt Welshpool	1	4	<0.001	<0.001	0
Toora	1	4	<0.001	<0.001	0
Wonthaggi	1	4	<0.001	<0.001	0
Yarram	1	4	<0.001	<0.001	0

* Note: In June 2025, the NHMRC published a change to the ADWG health guideline for Lead. Results will be compared against the new guideline of less than or equal 0.005 mg/L in the 2025–26 reporting period.

Manganese

Manganese may be present in source waters as a result of dissolution form natural sources. Concentrations may be reduced in drinking water by converting soluble forms of the element to insoluble precipitates followed by physical removal using filtration. The ADWG specify that the concentration of manganese should not exceed 0.1 mg/L based on aesthetic considerations, and 0.5 mg/L based on health considerations*.

Drinking water supplied by SGW complied with the health guideline for manganese; refer to Table 15. Slight exceedance of the aesthetic guideline was recorded for Port Welshpool in May 2025. This followed manganese control challenges at the supplying Toora water treatment due to turbid conditions in the supplying Agnes River. For additional information, see Section 6: Water Treatment, and Section 9: Complaints related to water quality.

Table 15: Manganese results for 2024–25

All results are compared against the ADWG health guideline of less than or equal to 0.5 mg/L* for manganese.

Water sampling locality	Frequency of sampling (samples per month)	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where health guideline was not met
Alberton	1	12	<0.002	0.004	0
Cape Paterson	1	12	0.002	0.004	0
Dumbalk	1	12	<0.001	0.002	0
Fish Creek	1	12	<0.002	0.006	0
Foster	1	12	<0.001	0.004	0
Inverloch	1	12	<0.002	0.006	0
Koonwarra	1	12	0.011	0.024	0
Korumburra	1	12	<0.002	0.008	0
Lance Creek	1	12	0.002	0.006	0
Leongatha	1	12	0.010	0.019	0
Loch	1	12	0.012	0.030	0
Meeniyan	1	12	<0.002	0.005	0
Nyora	1	12	0.002	0.005	0
Poowong	1	12	0.002	0.005	0
Port Franklin	1	12	0.015	0.100	0
Port Welshpool	1	12	0.028	0.120	0
Toora	1	12	0.019	0.061	0
Wonthaggi	1	12	0.002	0.008	0
Yarram	1	12	0.002	0.003	0

* Note: In June 2025, the NHMRC published changes to both the ADWG health and aesthetic guidelines for manganese. Results will be compared against the new health guideline of less than or equal to 0.1 mg/L and the new aesthetic guideline of less than or equal to 0.05 mg/L in the 2025–26 reporting period.

Chlorine disinfection residual (free or total chlorine)

SGW uses both chlorine and chloramine disinfection. Chlorine dissociates in water to form 'free chlorine', which consists of aqueous molecular chlorine, hypochlorous acid and hypochlorite ion. Free chlorine is monitored in the reticulation systems of chlorinated supplies on a (minimum) weekly basis during routine sampling.

For the chloraminated supplies, 'total chlorine' is monitored. Total chlorine is the sum of chlorine in combined form (with ammonia and other nitrogenous or organic compounds) and free chlorine.

Based on health considerations, the ADWG guideline value for total chlorine in drinking water is 5 mg/L. There is no specific guideline for free chlorine; however, in chlorinated systems the level of free chlorine approximates or is lower than the level of total chlorine. As both total and free chlorine levels are well below 5 mg/L, all localities can be assumed to be compliant with the water quality guideline for total chlorine; refer to Table 16 and Table 17.

Table 16: Free chlorine results for 2024–25 (chlorinated localities)

All results are compared against the ADWG health guideline of 5 mg/L for total chlorine.

Water sampling locality	Minimum customer tap samples collected per week	Total number of samples	Minimum result (mg/L)	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline (for total chlorine) was not met
Alberton	1	52	0.01	0.80	1.24	0
Dumbalk	1	56	0.01	0.47	1.11	0
Fish Creek	1	70	0.00	0.42	1.42	0
Foster	1	52	0.02	0.53	1.09	0
Koonwarra	1	53	0.00	0.06	0.31	0
Leongatha	2	106	0.03	0.65	1.31	0
Meeniyan	1	52	0.02	0.59	1.51	0
Port Franklin	1	52	0.01	0.43	1.07	0
Port Welshpool	1	93	0.02	0.83	1.45	0
Toora	1	52	0.40	0.83	1.29	0
Yarram	2	104	0.33	1.01	1.67	0

Table 17: Total chlorine results for 2024–25 (chloraminated localities)

All results are compared against the ADWG health guideline of 5 mg/L for total chlorine.

Water sampling locality	Minimum customer tap samples collected per week	Total number of samples	Minimum result (mg/L)	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Cape Paterson	1	53	0.00	0.77	2.50	0
Inverloch	2	116	0.35	1.80	3.00	0
Korumburra	1	65	0.08	1.83	2.70	0
Lance Creek	1	53	1.62	2.57	3.20	0
Loch	1	65	0.04	0.86	1.60	0
Nyora	1	63	0.08	1.15	2.08	0
Poowong	1	53	0.11	1.11	1.94	0
Wonthaggi	2	107	0.06	1.56	2.90	0

Cyanogen chlorine

Cyanogen chloride is a by-product of chloramination that is formed through the reaction between organic precursors with hypochlorous acid in the presence of the ammonium ion. Based on health considerations, the ADWG specify that the concentration of total cyanogenic compounds in drinking water should not exceed 0.08 mg/L.

Monitoring of the chloraminated Lance Creek system confirmed that water supplied by SGW complied with the guideline value for cyanogen chloride, with all results indicating levels were below the detection limit; refer to Table 18.

Table 18: Cyanogen chlorine results for 2024–25 (chloraminated localities)

All results are compared against the ADWG health guideline of 0.08 mg/L for cyanogen chloride.

WTP / system	Locality supplied	Samples collected per year*	Total number of samples	ADWG health guideline (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Lance Creek	**Cape Paterson Inverloch Korumburra Lance Creek Loch Nyora Poowong Wonthaggi**	3	3	≤0.08	<0.05	0

Nitrosodimethylamine (NDMA)

N-Nitrosodimethylamine (NDMA) is produced as a by-product of the chloramination of drinking water due to the oxidation of natural organic matter by chlorine in the presence of ammonia. The ADWG specify that, based on health considerations, the concentration of NDMA in drinking water should not exceed 0.0001 mg/L (100 ng/L).

Monitoring of chloraminated systems for NDMA was conducted annually, with results indicating water supplied by SGW complied with the guideline value for NDMA; refer to Table 19.

Table 19: NDMA for 2024–25

All results are compared against the ADWG health guideline of 0.0001 mg/L for NDMA.

WTP / system	Locality supplied	Samples collected per year*	Total number of samples	ADWG health guideline (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Lance Creek	**Cape Paterson Inverloch Korumburra Lance Creek Loch Nyora Poowong Wonthaggi**	3	3	≤0.0001	<0.000011	0

* Samples for cyanogen chloride and NDMA analysis are taken from the localities of Cape Paterson, Nyora, and Poowong only. These localities represent the outer reaches of the Lance Creek distribution system and maximum potential for development of disinfection by-products due to extended residence time within the system.

Nitrate and Nitrite

Nitrates and nitrites are naturally occurring oxides of nitrogen. Nitrite is rapidly oxidised to nitrate and is seldom present in well-oxygenated or chlorinated supplies. Chloramination disinfection can lead to nitrate and nitrite formation in the distribution system due to the action of nitrifying bacteria. The ADWG specify that, from a health perspective, the concentrations of nitrate and nitrite should not exceed 50 mg/L and 3 mg/L respectively.

Monitoring for oxidised nitrogen (nitrate plus nitrite) was conducted on a quarterly basis in chlorinated SGW systems in 2024–25. The standard of 50 mg/L for nitrate was used to measure water quality performance for oxidised nitrogen given nitrite's rapid conversion to nitrate. Based on nitrification risk, more frequent specific analysis for both nitrate and nitrite was conducted in the chloraminated localities. All the chloraminated localities complied with the specific guideline values for nitrate and nitrite; refer to Tables 20, 21, and 22.

Table 20: Oxidised nitrogen (nitrate + nitrite) for 2024–25 (chlorinated supplies)

All results are compared against the ADWG health standard for nitrate of less than or equal to 50 mg/L.

WTP / system	Localities supplied	Sampling frequency (samples per quarter)	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where standard was not met
Devon Nth	**Alberton Yarram**	1	4	0.25	0.51	0
Dumbalk	**Dumbalk**	1	4	0.42	0.97	0
Fish Creek	**Fish Creek**	1	4	0.29	0.40	0
Foster	**Foster**	1	4	0.04	0.08	0
Leongatha	**Leongatha Koonwarra**	1	4	0.29	0.56	0
Meeniyan	**Meeniyan**	1	4	0.51	0.90	0
Toora	**Port Franklin Port Welshpool Toora**	1	4	1.37	3.20	0

Table 21: Nitrate for 2024–25 (chloraminated localities)

All results are compared to the ADWG health guideline of less than or equal to 50 mg/L for Nitrate.

Water sampling locality	Minimum samples collected per month	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Cape Paterson	1	12	0.32	0.78	0
Inverloch	1	12	0.28	0.75	0
Korumburra	1	12	0.27	0.82	0
Lance Creek	1	12	0.27	0.88	0
Loch	1	12	0.37	0.76	0
Nyora	1	12	0.29	0.76	0
Poowong	1	12	0.23	0.77	0
Wonthaggi	1	12	0.27	0.80	0

Table 22: Nitrite for 2024–25 (chloraminated localities)

All results are compared to the ADWG health guideline of less than or equal to 3 mg/L for Nitrite.

Water sampling locality	Minimum samples collected per month	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Cape Paterson	1	12	0.32	0.78	0
Inverloch	1	12	0.28	0.75	0
Korumburra	1	12	0.27	0.82	0
Lance Creek	1	12	0.27	0.88	0
Loch	1	12	0.37	0.76	0
Nyora	1	12	0.29	0.76	0
Poowong	1	12	0.23	0.77	0
Wonthaggi	1	12	0.27	0.80	0

Fluoride

Naturally occurring fluoride concentrations in drinking water are dependent on the type of soil and rock through which source water drains. Fluoride may also be added to drinking water supplies as a public health measure for the prevention of dental decay. The ADWG specify that the maximum concentration of fluoride in drinking water should not exceed 1.5 mg/L. Under section 4 (3) of the *Health (fluoridation) Act 1973,* fluoride added to drinking water must not result in an average optimum concentration in excess of one part per million parts of water (1.0 mg/L).

Monitoring of non-fluoridated drinking water is conducted annually to verify continued low levels of naturally occurring fluoride in source waters. Results of fluoride monitoring for non-fluoridated supplies are provided in Table 23. For the fluoridated supply system of Lance Creek, monitoring is conducted in accordance with the Code of practice for fluoridation of drinking water supplies (second edition).
Refer to Table 24 for results.

Table 23: Fluoride results for non-fluoridated supplies in 2024–25

All results are compared to the ADWG health guideline of less than or equal to 1.5 mg/L for fluoride.

WTP / system	Locality supplied	Samples collected per year	Total number of samples collected	Result (mg/L)	No. of samples where guideline was not met
Devon North	**Alberton Yarram**	1	1	<0.05	0
Dumbalk	**Dumbalk**	1	1	0.07	0
Fish Creek	**Fish Creek**	1	1	<0.05	0
Foster	**Foster**	1	1	<0.05	0
Leongatha	**Leongatha Koonwarra**	1	1	<0.05	0
Meeniyan	**Meeniyan**	1	1	0.07	0
Toora	**Pt Franklin Pt Welshpool Toora**	1	1	<0.05	0

Table 24: Fluoride results for fluoridated supply in 2024–25

All results are compared to the ADWG health guideline of less than or equal to 1.5 mg/L for fluoride.

Water sampling locality	Customer tap samples collected per week	Total Number of samples	Fluoridation standard for rolling annual average* (mg/L)	ADWG health guideline (mg/L)	Operating target range (mg/L)	Average result (mg/L)	Maximum result (mg/L)	No. of samples where standard was not met
Cape Paterson	1	53	≤1	≤1.5	0.9±0.1	0.49	0.86	0
Inverloch	1	53	≤1	≤1.5	0.9±0.1	0.49	0.88	0
Korumburra	1	53	≤1	≤1.5	0.9±0.1	0.49	0.87	0
Lance Creek	1	53	≤1	≤1.5	0.9±0.1	0.50	0.89	0
Loch	1	53	≤1	≤1.5	0.9±0.1	0.51	0.89	0
Nyora	1	53	≤1	≤1.5	0.9±0.1	0.50	0.87	0
Poowong	1	53	≤1	≤1.5	0.9±0.1	0.49	0.87	0
Wonthaggi	1	53	≤1	≤1.5	0.9±0.1	0.48	0.87	0

* Note: under s. 5(3) of the *Health (Fluoridation) Act 1973* fluoride added to drinking water must not result in an average optimum concentration in excess of one part fluoride per million parts of water.

Fluoridation obligations

Under the *Health (fluoridation) Act,* suppliers of fluoridated water are obliged to target a fluoride dose rate that supports public dental health benefits. The optimal operating target dose rate is specified by the Department of Health and is based on maximum daily air temperature (which has been shown to correlate closely with water consumption). For the South Gippsland region, the optimal fluoride dosage is 0.9 plus or minus 0.1 milligrams per litre (i.e., the target is a range where concentrations of 0.8 to 1.0 milligrams per litre are acceptable).

As shown in Table 24, SGW did not meet this target in 2024–25. The average annual fluoride dose recorded for fluoridated localities was between 0.48 and 0.51 mg/L. This was due to the fluoridation system at Lance Creek WTP being permanently shut down from September 2024 based on assessment of aging infrastructure. While the system was no longer suitable for continued operation, it had consistently performed within specification prior to being taken offline. Planning is underway for installation of a new fluoridation system at Lance Creek WTP, which is expected to be completed in 2026–27 (see table 5: Major improvement projects for additional details).

Lance Creek system localities can now be considered as partially fluoridated due to supplementary supply with fluoridated water from Melbourne Water. This water may be blended with unfluoridated Lance Creek WTP water (or not supplied at all) depending on operational conditions.

Fluoridation notifications

The Department of Health was notified of the Lance Creek fluoridation system shutdown on 26 September 2024, in accordance with requirements of the Code of practice for fluoridation of drinking water supplies. This notification related to the system remaining offline for more than 72 hours following a valve issue. The system remained tagged out (i.e., formally isolated from operation for safety and inspection) pending assessment by a qualified technician scheduled for November 2024. A second notification was subsequently submitted on 2 October 2024 regarding the rolling annual average fluoride concentration falling below the target minimum of 0.8 mg/L.

On 14 January 2025, the Department of Health was informed of assessment outcomes, following receipt of the formal inspection report recommending that the fluoridation system be decommissioned due to deterioration.

Other inorganic chemicals for 2024–25

Inorganic chemicals may be present in water as a result of the natural dissolution of rocks, soils and some plants, or through contamination from industrial and agricultural sources. Materials used to coat pipes and plumbing fittings may also be sources of inorganic chemicals in drinking water. Monitoring of all water supply systems was conducted to verify compliance with ADWG health-related guidelines for chemical concentrations as specified in Table 25.

Table 25: Other inorganic chemicals for 2024–25

Parameter	Sampling frequency	Number of samples per water system/ locality*	Total number of samples	ADWG guideline value (mg/L)	Maximum results (mg/L)	Number of samples where guideline was not met
Antimony	Annually	one per locality	19	≤0.003	<0.001	0
Barium	Annually	one per locality	19	≤2	0.029	0
Beryllium	Annually	one per locality	19	≤0.06	<0.001	0
Boron	Annually	one per locality	19	≤4	0.07	0
Cadmium	Annually	one per locality	19	≤0.002	<0.0002	0
Chromium	Annually	one per locality	19	≤0.05	<0.001	0
Cobalt	Annually	one per locality	19	-	<0.001	0
Cyanide	Annually	one per system	8	≤0.08	<0.005	0
Mercury	Annually	one per locality	19	≤0.001	<0.0001	0
Molybdenum	Annually	one per locality	19	≤0.05	<0.001	0
Nickel	Annually	one per locality	19	≤0.02	<0.001	0
Selenium	Annually	one per locality	19	≤0.01	<0.001	0
Silver	Annually	one per locality	19	≤0.1	<0.001	0
Sulphate	Quarterly	one per system	32	≤500	65	0
Zinc	Annually	one per locality	19	≤3	0.010	0

* Note: Monitoring may be conducted at the entry point to distribution systems or at customer tap sites in each locality dependent on likelihood of change in level of chemical as it passes through the water supply system.

Other organic chemicals

Potential sources of contamination of the drinking water supply with organic chemicals are industrial effluent, run-off from agricultural land, and the use of pesticides and herbicides. Organic disinfection by-products, such as the chloroacetic acids, can also form as a result of disinfection processes. Consistent with historical data, monitoring of raw water intakes, distribution entry point water or customer tap sites found that levels of organic chemicals were compliant with the ADWG health-related guidelines for the 2024–25 period; refer to Table 26.

Table 26: Other organic chemicals for 2024–25

Parameter	Sampling frequency (samples per year per system or locality)	Minimum number of samples per water supply system / locality*	Total number of samples	ADWG Guideline value (mg/L)	Maximum results (mg/L)	Number of samples where guideline was not met
1,1-dichloroethane	1	One per system	8	a	<0.001	-
1,2-dichloroethane	1	One per system	8	≤0.003	<0.001	0
2,4,5-T	1	One per system	8	≤0.1	<0.00001	0
2,4,5-TP (Silvex / Fenoprop)	1	One per system	8	≤0.01	<0.00001	0
2,4,6-T	1	One per system	8	b	<0.0001	-
2,4,6-trichlorophenol	1	One per system	8	≤0.02	<0.001	0

Table 26: Other organic chemicals for 2024–25 (continued)

Parameter	Sampling frequency (samples per year per system or locality)	Minimum number of samples per water supply system / locality*	Total number of samples	ADWG Guideline value (mg/L)	Maximum results (mg/L)	Number of samples where guideline was not met
2,4-D	1	One per system	8	≤0.03	0.00022	0
2,4-DB	1	One per system	8	b	<0.00001	-
2,4-DP (Dichlorprop)	1	One per system	8	0.1	<0.00001	0
2,6-D	1	One per system	8	b	<0.00001	-
4-CPA (4-chlorophenoxy acetic acid)	1	One per system	8	b	<0.00001	-
Atrazine	1	One per system	8	≤0.02	<0.002	0
Bentazone	1	One per system	8	≤0.4	<0.00001	0
Benzene	1	One per system	8	≤0.001	<0.001	0
Benzo(a)pyrene	1	One per system†	4	≤0.00001	<0.000002	0
Bromoxynil	1	One per system	8	b	<0.00001	-
Total PAH	1	One per system†	4	b	<0.00001	-
Carbon tetrachloride	1	One per system	8	≤0.003	<0.001	0
Chloroacetic acid	1	One per locality	19	≤0.15	<0.005	0
Clopyralid	1	One per system	8	≤2	0.00009	0
Dicamba	1	One per system	8	≤0.1	<0.00001	0
Dichloroacetic acid	1	One per locality	19	0.1	0.025	0
Dinoseb	1	One per system	8	b	<0.00001	-
Fluroxypyr	1	One per system	8	b	<0.00001	-
Glyphosate	1	One per system	8	≤1	<0.03	0
MCPA	1	One per system	8	≤0.04	0.00003	0
MCPB	1	One per system	8	b	<0.00001	-
Mecoprop	1	One per system	8	b	<0.00001	-
Metsulfuron methyl	1	One per system	8	≤0.04	<0.0001	0
Pentachlorophenol	1	One per system	8	≤0.01	<0.001	0
Perfluorooctanoic acid (PFOA)	1	One per system	8	≤0.0002	<0.0000005	0
Perfluorooctane sulfonic acid (PFOS)	1	One per system	8	≤0.000008	<0.0000003	0
Perfluorohexane sulfonic acid (PFHxS)	1	One per system	8	≤0.00003	<0.000005	0
Perfluorobutane sulfonic acid (PFBS)	1	One per system	8	≤0.001	<0.0000005	0
Picloram	1	One per system	8	≤0.3	0.0003	0
Prometryn	1	One per system	8	b	<0.002	-
Simazine	1	One per system	8	≤0.02	<0.002	0
Tetrachloroethene	1	One per system	8	≤0.05	<0.001	0
Trichloroacetic acid	1	One per locality	19	≤0.1	0.031	0
Triclopyr	1	One per system	8	≤0.02	0.00003	0

Table notes:

* Monitoring is conducted at raw water inlets to WTPs or at clear water storage outlets to distribution systems

† Monitoring conducted at Devon North, Lance Creek and Leongatha WTPs only

a Insufficient data to set an ADWG guideline value based on health considerations

b No ADWG information available

Aesthetics

SGW strives to provide drinking water that is consistently clear and pleasant to drink for all customers. Actions taken to manage aesthetic characteristics include:

- Optimisation of treatment processes to minimise levels of iron, manganese, and organic compounds in supplied water.
- pH adjustment of treated water
- Regular flushing and air-scouring to remove sediment accumulation in water mains.
- Frequent sampling and analysis for aesthetic parameters.
- Monitoring and management of cyanobacterial ('algal') blooms in raw water reservoirs.
- Monitoring when required for compounds that may impart unpleasant tastes and odours to drinking water.

Individual aesthetic characteristics are discussed below; analysis results are summarised in Tables 27 to 32.

Colour

Water may appear coloured due to the presence of natural organic substances including humic and fulvic acids, and dissolved inorganics, such as iron and manganese. Based on aesthetic considerations, the ADWG specifies that colour should not exceed 15 Hazen Units (HU). Water supplied by SGW complied with the guideline value for colour; refer to Table 27.

Table 27: True colour results 2024–25

Results are compared against the ADWG aesthetic guideline of less than or equal to 15 HU.

WTP / system	Localities supplied	Minimum samples collected per quarter	Total number of samples collected in reporting period	Average result (HU)	Maximum result (HU)	Number of samples where guideline was not met
Devon North	**Alberton Yarram**	1	4	<2	<2	0
Dumbalk	**Dumbalk**	1	4	<2	<2	0
Fish Creek	**Fish Creek**	1	4	<2	<2	0
Foster	**Foster**	1	4	<2	<2	0
Lance Creek	**Cape Paterson Inverloch Korumburra Lance Creek Loch Nyora Poowong Wonthaggi**	1	4	<2	<2	0
Leongatha	**Leongatha Koonwarra**	1	4	<2	2	0
Meeniyan	**Meeniyan**	1	4	<2	<2	0
Toora	**Port Franklin Port Welshpool Toora**	1	4	<3	4	0

Iron

Iron is present in source waters due to dissolution of soil and rock. High iron concentrations in drinking water can occur through rusting of iron pipes and fittings. Based on aesthetic considerations, the ADWG specify that the concentration of iron should not exceed 0.3 mg/L. Water supplied by SGW complied with the guideline value for iron; refer to Table 28.

Table 28: Iron results for 2024–25

All results are compared against the ADWG aesthetic guideline of less than or equal to 0.3 mg/L for iron.

Water sampling locality	Frequency of sampling (samples per quarter)	Total number of samples	Average result (mg/L)	Maximum result (mg/L)	Number of samples where guideline was not met
Alberton	1	4	<0.01	0.02	0
Cape Paterson	1	4	<0.02	0.02	0
Dumbalk	1	4	<0.03	0.05	0
Fish Creek	1	4	0.01	0.02	0
Foster	1	4	<0.01	0.01	0
Inverloch	1	4	<0.02	0.02	0
Koonwarra	1	4	<0.01	0.02	0
Korumburra	1	4	<0.02	0.03	0
Lance Creek	1	4	<0.01	0.02	0
Leongatha	1	4	<0.01	<0.01	0
Loch	1	4	<0.02	0.03	0
Meeniyan	1	4	<0.01	0.02	0
Nyora	1	4	<0.02	0.03	0
Poowong	1	4	<0.02	0.03	0
Port Franklin	1	4	<0.01	<0.01	0
Port Welshpool	1	4	<0.01	0.01	0
Toora	1	4	<0.01	<0.01	0
Wonthaggi	1	4	<0.02	0.03	0
Yarram	1	4	<0.01	<0.01	0

pH

The property of pH relates to the hydrogen ion concentration of water. pH is measured on a logarithmic scale from 0 to 14. A pH of 7 is neutral, a pH greater than 7 is alkaline, and a pH less than 7 is acidic.

To reduce corrosion and encrustation in pipes and fittings, the ADWG specifies that the pH of drinking water should be between 6.5 and 8.5. The ADWG also states that new concrete tanks and cement-mortar lined pipes can significantly increase pH, and a value up to 9.2 may be tolerated, provided monitoring indicates no deterioration in microbiological quality. The reference to microbiological quality is made since the disinfecting power of chlorine in chlorinated systems is greatest at lower pH and gradually declines as pH increases. Significant impairment of chlorine disinfection occurs above pH 8.0. The results for pH in chlorinated systems are provided in Table 29.

Results for all but one of the chlorinated localities were within the aesthetic 6.5 to 8.5 pH guideline range. Three samples from a site in the Alberton locality, recorded pH values above this range but within the upper tolerance limit of 9.2 The increase in pH can be attributed to low water usage at the sample site location and supply from cement-mortar lined mains. Mains flushing was carried out to remove aged water from the system in response to each separate incidence. There were no indicators of microbiological deterioration in relation to the elevated pH values.

The chemistry (and the effect of pH) for chloramination disinfection differs from that of chlorination. A higher pH is beneficial in a chloraminated system as it slows the natural decay of monochloramine and prevents the formation of dichloramine and trichloramine, which can cause unpleasant tastes and odours. The pH results for chloraminated localities are provided in Table 30. All localities complied with the aesthetic guideline for pH.

Table 29: pH results for chlorinated localities in 2024–25

All results are compared against the ADWG aesthetic guideline of 6.5 to 8.5, where a pH of up to 9.2 may be tolerated.*

Water sampling locality	Minimum frequency of sampling (samples per week)	Total number of samples	Minimum result (pH)	Mean result (pH)	Maximum result (pH)	Number of samples not compliant with aesthetic guideline
Alberton	1	52	7.8	8.2	9.1	0
Dumbalk	1	52	7.8	8.1	8.5	0
Fish Creek	1	52	7.6	7.9	8.1	0
Foster	1	52	7.4	7.6	8.0	0
Koonwarra	1	53	7.7	7.9	8.1	0
Leongatha	2	106	7.3	7.7	7.9	0
Meeniyan	1	52	7.4	7.9	8.2	0
Port Franklin	1	52	7.6	8.0	8.8	0
Port Welshpool	1	52	7.3	7.6	8.0	0
Toora	1	52	7.3	7.6	7.8	0
Yarram	1	104	7.4	7.8	8.3	0

* The ADWG states that a pH value of up to 9.2 may tolerated where monitoring indicates there is no deterioration in microbiological quality; refer to text (previous pages for further information)

Table 30: pH results for chloraminated localities in 2024–25

All results are compared against the ADWG aesthetic guideline of 6.5 to 8.5, where a pH of up to 9.2 may be tolerated.*

Water sampling locality	Minimum frequency of sampling (samples per week)	Total number of samples	Minimum result (pH)	Mean result (pH)	Maximum result (pH)	Number of samples not compliant with aesthetic guideline
Cape Paterson	1	53	7.9	8.1	8.5	0
Inverloch	2	114	7.9	8.2	8.5	0
Korumburra	1	65	7.7	8.2	8.5	0
Lance Creek	1	53	7.8	8.2	8.4	0
Loch	1	65	8.0	8.3	8.5	0
Nyora	1	63	7.9	8.1	8.3	0
Poowong	1	53	7.7	8.1	8.5	0
Wonthaggi	2	106	7.7	8.1	8.4	0

* The ADWG states that a pH value of up to 9.2 may tolerated where monitoring indicates there is no deterioration in microbiological quality; refer to text (previous pages for further information)

Hardness

Hardness is a measure of the concentration of calcium and magnesium ions in water. To minimise undesirable build-up of scale in hot water systems, the ADWG specifies that total hardness of drinking water should not exceed 200 milligrams per litre of calcium carbonate*. Water supplied by SGW complied with the guideline value for hardness; refer to Table 31.

Table 31: Total Hardness in calcium carbonate ($CaCO_3$) equivalents* 2024–25

All results are compared against the ADWG aesthetic guideline of less than or equal to 200 mg/L $CaCO_3$ for hardness.

Water treatment plant / system	Localities supplied	Sampling frequency (samples per quarter)	Total number of samples	Minimum result (mg/L as $CaCO_3$)*	Average result (mg/L as $CaCO_3$)*	Maximum result (mg/L as $CaCO_3$)*	Number of samples where guideline was not met
Devon North	**Alberton Yarram**	1	4	24	26	29	0
Dumbalk	**Dumbalk**	1	4	74	106	160	0
Fish Creek	**Fish Creek**	1	4	30	34	39	0
Foster	**Foster**	1	4	37	40	43	0
Lance Creek	**Cape Paterson Inverloch Korumburra Lance Creek Loch Nyora Poowong Wonthaggi**	1	4	48	64	83	0
Leongatha	**Leongatha Koonwarra**	1	4	58	62	66	0
Meeniyan	**Meeniyan**	1	4	73	90	110	0
Toora	**Pt Franklin Pt Welshpool Toora**	1	4	33	36	39	0

* Note: Hardness and alkalinity are both expressed as "mg/L as $CaCO_3$" because this standard unit simplifies comparison of aggregate mineral properties

Alkalinity

Alkalinity is a measure of the concentrations of carbonate, bicarbonate, and hydroxyl ions. As a property, it represents the buffering capacity of water, specifically its resistance to changes in pH.

Alkalinity is one of several factors that influence whether water behaves in a corrosive, neutral, or scale-forming manner when in contact with surfaces. Soft water with low pH and low alkalinity tends to be corrosive. Such water, often described as aggressive, may cause the leaching of copper and other metals from pipes and plumbing fixtures. In contrast, hard water with elevated pH and high alkalinity is more likely to deposit calcium carbonate, forming scale within pipes, fittings, and hot water appliances.

Although chemically neutral (or stable) water is neither corrosive nor scale-forming, water with a slight tendency to deposit calcium carbonate is considered optimal in distribution systems. A thin layer of calcium carbonate on internal surfaces can act as a protective barrier, reducing the risk of corrosion under varying water conditions, including fluctuations in temperature.

There is no specific ADWG guideline for alkalinity; however, given its influence on water stability, a reasonable level should be maintained in drinking water supplies. What constitutes a reasonable level for a particular type of water will depend upon its other characteristics, including pH and hardness, but a value in the range of 50 to 200 milligrams per litre of calcium carbonate is generally considered optimal. Results of alkalinity monitoring are presented in Table 32.

Table 32: Alkalinity results for 2024–25

Water treatment plant / system	Localities supplied	Minimum sampling frequency (samples per quarter)	Total number of samples	Minimum result (mg/L as $CaCO_3$)*	Average result (mg/L as $CaCO_3$)*	Maximum result (mg/L as $CaCO_3$)*
Devon North	**Alberton Yarram**	1	4	22	35	45
Dumbalk	**Dumbalk**	1	4	43	64	79
Fish Creek	**Fish Creek**	1	4	33	37	42
Foster	**Foster**	1	4	38	41	47
Lance Creek	**Cape Paterson Inverloch Korumburra Lance Creek Loch Nyora Poowong Wonthaggi**	1	4	45	60	73
Leongatha	**Leongatha Koonwarra**	1	4	38	41	45
Meeniyan	**Meeniyan**	1	4	48	63	75
Toora	**Port Franklin Post Welshpool Toora**	1	4	38	43	48

* Note: Hardness and alkalinity are both expressed as "mg/L as $CaCO_3$" because this standard unit simplifies comparison of aggregate mineral properties

Comparison of results for other water quality parameters

A comparison of results for the 2024–25 reporting period and the previous two fiscal years for water quality parameters other than those listed in Schedule 2 of the Regulations is presented in Table 33.

The comparison is based on percentage compliance with the guideline values of the *Australian Drinking Water Guidelines 2011*.

Table 33: Three-year comparison of percentage samples compliant with health related ADWG guidelines

	Percentage of samples compliant with ADWG health-related guidelines		
Water Quality Parameter	**2022–23**	**2023–24**	**2024–25**
Arsenic	100 %	100 %	100 %
Aluminium	100 %	100 %	100 %
Chlorine	100 %	100 %	100 %
Copper	100 %	100 %	100 %
Cyanogen chloride	100 %	100 %	100 %
Iron	100 %	100 %	100 %
Lead	100 %	100 %	100 %
Manganese	100 %	100 %	100 %
Nitrate	100 %	100 %	100 %
Nitrite	100 %	100 %	100 %
NDMA	100 %	100 %	100 %
Antimony	100 %	100 %	100 %
Barium	100 %	100 %	100 %
Beryllium	100 %	100 %	100 %
Boron	100 %	100 %	100 %
Cadmium	100 %	100 %	100 %
Chloroacetic acid	100 %	100 %	100 %
Chromium	100 %	100 %	100 %
Cyanide	100 %	100 %	100 %
Dichloroacetic acid	100 %	100 %	100 %
Mercury	100 %	100 %	100 %
Molybdenum	100 %	100 %	100 %
Nickel	100 %	100 %	100 %
Selenium	100 %	100 %	100 %
Silver	100 %	100 %	100 %
Sulphate	100 %	100 %	100 %
Trichloroacetic acid	100 %	100 %	100 %
Zinc	100 %	100 %	100 %
1,2-dichloroethane	100 %	100 %	100 %
2,4,5-T	100 %	100 %	100 %
2,4,6-trichlorphenol	100 %	100 %	100 %
2,4-D	100 %	100 %	100 %
Atrazine	100 %	100 %	100 %
Benzene	100 %	100 %	100 %
Benzo(a)pyrene	100 %	100 %	100 %

Table 33: Three-year comparison of percentage samples compliant with health related ADWG guidelines (continued)

Water Quality Parameter	Percentage of samples compliant with ADWG health-related guidelines		
	2022–23	2023–24	2024–25
Carbon tetrachloride	100 %	100 %	100 %
Clopyralid	100 %	100 %	100 %
Dicamba	100 %	100 %	100 %
Glyphosate	100 %	100 %	100 %
MCPA	100 %	100 %	100 %
Metsulfuron methyl	100 %	100 %	100 %
Pentachlorphenol	100 %	100 %	100 %
Per- and poly-fluoroalkyl substances (PFAS)	Not monitored*	Not monitored*	100 %
Picloram	100 %	100 %	100 %
Simazine	100 %	100 %	100 %
Tetrachloroethene	100 %	100 %	100 %
Triclopyr	100 %	100 %	100 %
Other organic chemicals	100 %	100 %	100 %
Other inorganic chemicals	100 %	100 %	100 %

* PFAS monitoring of raw waters has been conducted every 5 years since 2016. Additional monitoring of drinking water was carried out in 2024–25.

Fish Creek Primary School students at a 'Choose Tap' celebration of a newly installed drinking water fountain

9 Complaints related to water quality

Complaint overview

SGW records and attends to all complaints relating to drinking water quality to ensure the highest level of customer satisfaction. Table 34 displays the five complaint categories and the number of complaints received for each over the 2024–25 year. Determination of the number of complaints per 100 customers supplied is based on the number of complaints compared with the total number of connected properties. Complaints are broken down into complaint type per locality and supply system in Table 35.

Table 34: Number of customer complaints for 2024–25

Type of complaint	Number of complaints	Number of complaints per 100 customers (connected properties) supplied
Colour and sediment	81	0.36
Taste and odour	15	0.07
Air in water	5	0.02
Suspected illness & health concerns	3	0.01
Other	1	0.00
Total complaints	**105**	**0.47**

Table 35: Customer complaints per type and locality for 2024–25

WTP / supply system	Water sampling locality	Complaint category					Total complaints per locality	Total complaints per supply system
		Colour & sediment	Taste & odour	Air in water	Health concerns	Other		
Devon North	**Alberton**	0	1	2	0	0	**3**	**11**
	Yarram	8	0	0	0	0	**8**	
Dumbalk	**Dumbalk**	0	0	0	0	0	**0**	**0**
Fish Creek	**Fish Creek**	0	0	0	0	0	**0**	**0**
Foster	**Foster**	2	0	0	0	0	**2**	**2**
Lance Creek (southern towns)	**Cape Paterson**	1	1	1	0	0	**3**	**25**
	Inverloch	1	0	0	0	0	**1**	
	Lance Creek	0	0	0	0	0	**0**	
	Wonthaggi	9	0	1	2	0	**12**	
Lance Creek (northern towns)	**Korumburra**	1	1	1	0	0	**3**	
	Loch	0	1	0	0	0	**1**	
	Nyora	0	1	0	0	0	**1**	
	Poowong	3	1	0	0	0	**4**	
Leongatha	**Koonwarra**	2	0	0	0	0	**2**	**42**
	Leongatha	31	7	0	1	1	**40**	
Meeniyan	**Meeniyan**	1	0	0	0	0	**1**	**1**
Toora	**Port Franklin**	2	0	0	0	0	**2**	**24**
	Port Welshpool	15	1	0	0	0	**16**	
	Toora	5	1	0	0	0	**6**	
Total complaints per category		**81**	**15**	**5**	**3**	**1**	**105**	**105**

Management of complaints

Complaint categories and causes are described below, as are preventative and corrective actions. A comparison of the number complaints with that of the previous three reporting periods is presented in Table 36.

Colour and sediments

Colour and sediment complaints relate to issues with water clarity and appearance. Customers may describe their tap water as 'dirty' when it contains visible particles or appears yellow, brown, or blackish in colour. These changes are typically caused by naturally occurring manganese dioxide rather than soil or other contaminants.

Even when water is coloured, low concentrations of manganese are not considered a health concern, but elevated levels may pose health risks. Regardless of health implications, the presence of colour or sediment renders the water unacceptable from the customer's perspective and according to our standards as the water supplier. Complaints in this category also include reports of stained laundry items, which may result from oxidation of minerals on contact with laundry detergents during washing.

Colour and sediment complaints primarily result from:

- High manganese levels in source waters. The soil in the South Gippsland region is naturally high in manganese, and run-off into reservoirs and rivers is unavoidable. Not all manganese can be removed during the water treatment process so accumulation in the distribution system can occur.
- Slow accumulation of manganese in sediments and biofilms within clear water storages and water mains
- Unintended scouring of the supply network following high flows or system recharging, leading to dispersal of sediments

Preventative and corrective actions to address colour and sediment in water include:

- Use of aeration and potassium permanganate or sodium hypochlorite dosing systems at WTPs to oxidise dissolved manganese, allowing for maximum physical removal through filters.
- Cleaning of clear water storage tanks and basins.
- Implementation of scheduled air scouring and flushing programs to remove manganese and other accumulated sediments.
- Additional flushing in response to individual complaints, and increased frequency of flushing regimes for problem areas.
- Provision of a commercial cleaning product which removes discolouration marks from laundry items in response to individual customer complaints.

A total of 81 complaints were received in relation to coloured water in the 2024–25 reporting period. As noted in Table 36, several factors contributed to the increase in complaints over the past three years, including the suspension of the air scour cleaning program from 2020 to 2023 during the COVID-19 pandemic. Planning and preparation for the program's resumption took place throughout 2023, with air scouring successfully completed in both Wonthaggi and Dumbalk in the second half of 2024.

While customers are notified of planned works well in advance of commencement, air scouring activities inevitably result in a few complaints. The aim, however, is to achieve a long-term reduction in complaints through intensive cleaning of the supply system.

Taste and odour

What is considered acceptable in terms of the flavour and smell of water has some level of individual subjectivity. Some customers, for example, may object to the taste and odour of chlorine, while others receiving water with the same chlorine concentration do not. A complaint may reflect a customer's heightened sensitivity to chlorine taste and odour, or the perception that chlorine is something that is undesirable to drink.

While tastes and odours in drinking water are not typically indicators of compromised safety, SGW strives to minimise unpleasant flavours as much as possible. This commitment is important not only for customer satisfaction and enjoyment, but also for encouraging the choice of tap water over alternatives that may be less healthful – such as sugary beverages – or have greater environmental impacts, like commercially bottled water.

Taste and odour complaints result primarily from:

- Cyanobacterial (blue-green algal) compounds in the water.
- Manganese and/or iron sediment in the water.
- Changes in pH, dissolved oxygen, and other factors in relation to ageing of water within a water main due to low flows.
- Chlorine in water.

Corrective actions to prevent or address taste and odour issues include:

- Routine monitoring of supplied water for taste, odour, manganese, iron, turbidity, pH, and chlorine.
- Analysis for taste and odour related parameters (as above) in response to individual complaints.
- Use of powdered activated carbon (PAC) at treatment plants to remove algae-related taste and odour compounds from water.
- Use of aeration and potassium permanganate dosing systems at WTPs to oxidise dissolved manganese ions. This allows for removal of solid manganese dioxide particles through plant filters.
- Water main flushing and air scouring programs.
- Use of supplementary supply where available (i.e., Melbourne water for Lance Creek system).

There were 15 complaints relating to taste and odour issues received from customers in the 2024–25 reporting period. These were largely received from customers supplied from dead end water mains, where sediments tend to accumulate and stale flavours can develop. Mains flushing was carried out in response to complaints. Refer to Table 36 for details.

Air in water

Air in water complaints may be received following mains breaks, implementation of air-scour cleaning programs, and following other planned works on the water supply system. Air-related complaints are often reported as 'white water' or 'milky water'. This is due to the effect of tiny air-bubbles on the appearance of the water.

Notifications delivered to customers in advance of planned works and air-scouring programs include advice to flush internal taps following scheduled conclusion of the works. This action normally resolves any potential 'white water' issue. Where it cannot be resolved by the customer, mains flushing is carried out to remove air from the system.

There were five complaints involving air in water in the 2024–25 reporting period, which were addressed with mains flushing. See Table 36 for further information.

Suspected illness and health concerns

Customers may contact SGW if they suspect supplied tap water is the cause of illness or other conditions, such as skin irritation or problems with hair. Generally speaking, a customer will call to seek reassurance with regards to water quality rather than alleging that the water is the cause of their health problem.

Customers with health concerns are encouraged to consult a medical professional for diagnosis and treatment. Depending on the nature of the complaint, additional monitoring to verify quality of drinking water supplied to the customer's residence and through the domestic plumbing system may be carried out. Details of the complaint and results of both monitoring and diagnostic testing (if provided) are recorded via an Illness Complaint Record Form.

In the unlikely event supplied drinking water was found to be a cause of illness, the Department of Health would be immediately notified. Further actions, which might include issue of a boil water advisory, would be implemented as a matter of the highest priority.

There were three customer health concerns recorded for 2024–25. Investigation found no evidence of related water quality problems. Additional details are provided in Table 36.

Other complaints

Other complaints relate to concerns that are generally beyond the control and responsibility of SGW. These may include problems with aquarium fish, or issues with domestic plumbing and appliances, including at-home filtration devices.

In response to such complaints, results of relevant monitoring programs are reviewed. Where appropriate, investigation and sampling are carried out to verify quality at both point of supply and through the customer's domestic system. Customers are informed of the likelihood of supplied water being the cause of the problem and given advice on where to seek additional assistance if required. As presented in Table 36, there was only one complaint in this category in the 2024–25 reporting period.

Table 36: Complaints comparison of 2024–25 with the previous two reporting periods

Type of complaint	Number of complaints			Comparison with previous reporting periods	Comments
	2022–23	2023–24	2024–25		
Colour and sediments	14	56	**81**	Significant increase from 2022–23	Sustained increase from 2022–23 to 2024–25 is attributable to several factors: • Long-term effect of air scour cleaning program interruption during the COVID-19 pandemic, resulting in greater accumulation of manganese sediments in water supply networks. • Dispersal of accumulated manganese sediments caused by network disturbances (mains breaks and cleaning activities) and sudden flow increases during periods of increased water demand, linked to heatwaves and dry conditions. This includes heavy standpipe use by water carting operators supplying rural properties, as well as some incidences of unauthorised hydrant use. • Elevated levels of manganese in Leongatha and Koonwarra supplies following filter media replacement at Leongatha WTP. New filter media requires an extended ripening period (of several weeks to months) to achieve consistent manganese removal. • Temporary manganese treatment challenges at Toora WTP related to changes in source water quality following very heavy rainfall.
Taste and odour	15	17	**15**	No significant change	Sustained low level of complaints over the 3-year period from 2022–23 to 2024–25 is observed. The majority of complaints received in 2024–25 are attributable to impacts of elevated manganese (see above) for customers supplied from low flow regions of water supply networks. Stale flavours can develop in dead end water mains due to accumulation of manganese sediments and biofilms.
Air in Water	6	3	**5**	No significant change	Sustained low level of complaints for air in water. Complaints received in 2024–25 followed water mains replacements and repairs, as well as planned air scouring works.
Health concerns	1	3	**3**	No significant change	Calls for 2024–25 were related to skin irritations and a concern due to a hot water service. Additional monitoring confirmed no related abnormalities with supplied tap water.
Other	3	6	**1**	Moderate decrease	Complaints in this broad category may include issues with aquatic animal pets and problems with internal household plumbing or appliances. While usually beyond the control and responsibility of SGW, the complaints are recorded and actioned as appropriate.
Total	**39**	**85**	**105**	Moderately significant increase	See above comments and "Management of complaints" discussion on following pages.

10 Finding of the most recent risk management plan audit

Under section 7 of the Act, a water supplier is required to prepare, implement, and review a risk management plan for the supply of drinking water to the public. The plan must be audited by an approved external auditor periodically as directed by the Department of Health.

An audit was not required to be conducted in the 2024–25 reporting period. Opportunities for improvement identified in the most recent audit in 2023 are provided in our 2023–24 annual drinking water quality report. All items were actioned and closed by the end of the 2023–24 reporting period.

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Regulated water

Regulation 16 of the Safe Drinking Water Regulations 2015 requires details of regulated water supplied be included in this annual report. Regulated water is defined as "water that is not intended for drinking but could reasonably be mistaken as drinking water". SGW did not supply any regulated water in the 2024–25 reporting period.

12 Appendix: Drinking Water Quality Policy

Drinking Water Quality Policy

"Committed to high-quality drinking water"

South Gippsland Water is committed to providing safe, high-quality drinking water that consistently meets accepted standards, guidelines, regulatory requirements, and customer expectations. To achieve this, in partnerships with stakeholders and relevant agencies, the Corporation will:

- Manage water quality at all points along the delivery chain from source water to consumer;
- Use a risk-based approach to identify and manage potential threats to water quality;
- Continually assess the quality of drinking water through appropriate monitoring programs and effective reporting systems;
- Develop appropriate contingency planning and incident response capability;
- Integrate into our planning the needs and expectations of customers, stakeholders, regulators, and employees;
- Continually improve our management systems by assessing performance against industry best practice, corporate commitments, and stakeholder expectations;
- Participate in appropriate research and development activities to ensure continued understanding of drinking water quality issues and performance;
- Contribute to the debate on setting industry regulations and guidelines, and other standards relevant to public health and the water cycle.

The Corporation will implement and maintain a drinking water quality management system consistent with the NHMRC, *NRMMC Australian Drinking Water Guidelines** to effectively manage risks to drinking water quality.

All managers and employees involved in the supply of drinking water are responsible for understanding, implementing, maintaining, and continuously improving the drinking water quality management system.

This Drinking Water Quality Policy is proudly displayed at South Gippsland Water facilities and is communicated to all persons working for or on the Corporation's behalf during induction or contract proceedings. The Policy is available to the public upon request or via the South Gippsland Water website. Contact details are: –

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Robert Murphy
Managing Director

Date: 30 September 2024

* NHMRC, NRMMC (2011) *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy.* National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra

13 Glossary of water treatment agents and processes

Aluminium chlorohydrate	Aluminium salt used as a coagulant in water treatment
Aluminium sulphate	Aluminium salt used as a coagulant in water treatment
Chloramine	A compound of chlorine and ammonia used for disinfection
Chlorine	An element used as a disinfectant in water treatment. May be applied in gaseous, elemental form, or via aqueous solution of sodium hypochlorite.
Coagulation	A chemical water treatment process that involves neutralisation of ionic charge on particles (impurities) in water. This destabilisation of charge allows for particles to come together (coagulate) rather than repel each other electrostatically. This leads to the formation of small fluffy, flake-like masses.
Dewatering of wastewater	Method of post water treatment water conservation. Removes excess water from sludge so it can be returned to a reservoir and reused.
Disinfection	Use of chemical, other agent (e.g. ultraviolet light) or process to kill or inactivate microorganisms which may be harmful to human health.
Dissolved air floatation (DAF) clarification	Water treatment process involving use of pressurised air for clarification. Microscopic air bubbles attach to floc and cause it to float and form a sludge layer. This allows for separation of impurities (as floc) from water.
Filtration	Final water treatment process prior to disinfection; clarified water passes through large filters where impurities are entrapped.
Flocculation	A physical water treatment process that causes flake-like particle aggregates (formed through coagulation processes) to come together into larger masses known as floc. Formation of floc allows for purification of water via sedimentation and filtration processes.
Fluoridation	Addition of fluoride to water for public dental health purposes.
Granular medium	Layers of sand, gravel and crushed anthracite that make up a water treatment plant filter.
Hydrochloric acid	An acid used to lower the pH of water which enables optimisation of coagulation processes
Manganese oxidation	Water treatment process important for minimising dirty/coloured water complaints. Oxidation of dissolved manganese in raw (source) water causes it to precipitate out of solution as a solid. This is in turn allows for the solid oxidised manganese particles to be removed via coagulation, flocculation and filtration processes.
pH correction (pre/post treatment)	Raw water pH can vary due to environmental factors. Pre pH correction is needed to optimise treatment processes. Post pH treatment may be required to ensure pH is suitable for disinfection, and for distribution to customers in terms of aesthetics and water stability.
Polyacrylamide	Chemical polymer which may be used to facilitate flocculation or dewatering processes. Acts by binding particles/floc together.
Potassium permanganate	Compound used to oxidise manganese
Powdered activated carbon (PAC)	Primarily used to adsorb taste and odour compounds produced by algae from raw water
Sedimentation clarification	A physical water treatment process using gravity to remove suspended solids from water
Sodium hydroxide	Base used to raise the pH of water and optimise coagulation pH levels.
Ultraviolet (UV) disinfection	Use of ultraviolet light to kill/inactivate water-borne microorganisms that may be harmful to human health.

14 Glossary of acronyms and terms used in report

ADWG	*Australian Drinking Water Guidelines 2011;* published by the National Health and Medical Research Council
BWA	Boil water advisory: A formal direction for customers to boil water prior to consumption. Boiling ensures drinking water safety by killing any microorganisms that may be present
CFU (or cfu)	Colony-forming unit. A quantifier used in microbiology. One visible microbial colony on a growing medium (agar plate or other) represents one microbial cell in the original sample. May be expressed as CFU per unit volume
CWS	Clear water storage: A tank or basin that contains and protects water that is safe to drink
Coliforms	A general term for certain types of rod-shaped bacteria that share identifying characteristics.
Cyanobacteria	Photosynthetic aquatic bacteria commonly referred to as 'blue-green algae' (though not actually algae).
DWMS	Drinking Water Management System
'the department'	Department of Health (State Government of Victoria)
E. coli	*Escherichia coli:* thermotolerant bacteria used as an indicator of faecal contamination.
HACCP	Hazard Analysis and Critical Control Point
HBT	Health based targets: measurable health, water quality or performance objectives that are established based on a judgement of safety and on risk assessments of waterborne hazards.
<	'Less than' (mathematical term)
>	'Greater than' (mathematical term)
≤	'Less than or equal to' (mathematical term)
L	Litre: a unit of volume equal to 1000 cubic centimetres
mg/L	Milligrams per litre: a unit of concentration (one milligram is equal to 0.001 grams)
ML	Megalitres: a unit of volume (one megalitre is equal to one million litres)
NATA	National Association of Testing Authorities
ng/L	Nanograms per Litre: a unit of concentration (one ng is equal to 0.000000001 grams)
NHMRC	National Health and Medical Research Council
OFI	Acronym for "opportunity for improvement" as noted in audit reports
Pathogen	Disease-causing microorganism (bacteria, viruses, protozoa or fungi)
PAC	Powdered activated carbon
PLC	Programmable logic controller: a digital computer used for automation of electromechanical processes
Potable water	Water that is safe to drink. Also referred to drinking water
PVC-EIA	Polyvinyl chloride – Ethylene interpolymer alloy: Geomembrane material for linings and coverings
Quarter	Time period referring to one quarter of a year, i.e. three months.
Raw water	Untreated source water (from a river, creek or reservoir). Non-potable (unsafe) water
RMP	Risk Management Plan
'the Act'	*Safe Drinking Water Act 2003*
'the Regulations'	Safe Drinking Water Regulations 2015
SGW	South Gippsland Water (South Gippsland Region Water Corporation, 'the Corporation')
Turbidity	A measure of the cloudiness of water due to suspended solids
WTP / WTPs	Water treatment plant / water treatment plants

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