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CORPORATE REPORT

Drinking Water Quality

Annual Report 2022-23



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Introduction

A message from the Managing Director

On behalf of Westernport Water, I am pleased to present our Annual Drinking Water Quality Report for 2022-23. At Westernport Water, we are passionate about the role we play in building a better future for our people, our customers, and our community. Our achievements in a changing environment demonstrate the many ways that we have contributed to a more inclusive, resilient, and liveable community for the year.

Westernport Water continue to deliver a strong record of safe drinking water, reporting no Safe Drinking Water Act non-compliance events for the ninth consecutive year. Providing high-quality and reliable water services now and into the future, remains a high priority for Westernport Water.

Creating our 2023-28 Price Submission was a key focus over the last 18 months and to ensure we kept **our customers' needs central to our plans and strategies**, we engaged with 1 in every 20 of our customers in creating this submission. We were **delighted that Westernport Water's submission was** one of two Victorian water corporations to receive early preliminary approval from the ESC.

We continue to invest in measures to create a more resilient and sustainable future. In 2022-23 we reviewed our Drought Preparedness Plan, updated our Recycled Water Strategy, developed our Renewable Energy Plan, and continued to implement our water quality improvement plan.

After consistent investment in our water quality improvement plans, in 2022 we achieved our highest ever satisfaction with drinking water. This followed an annual program of work that included air scouring to clean 105 km of water main, a trial of innovative alternative water main cleaning methods (ice pigging) to remove naturally occurring sediments, the first installation of automatic flushing devices, and the commencement of the Stanley Road storage tank roof replacement.

We work to meet the expectations of our customers by building a deep understanding of what they value, with their priorities shaping our strategies, plans, and projects, now and into the future.

We look forward to continuing to provide our customers and the community with high-quality drinking water.

Dona Tantirimudalige
Managing Director, Westernport Water
October 2023

Westernport Water overview

Westernport Region Water Corporation (WPW), trading as Westernport Water provides water and wastewater services in an economically, environmentally and socially sustainable manner to customers within its service area.

Westernport Water services Phillip Island and an area of the mainland from The Gurdies to Archies Creek. Individual towns that are provided with drinking water include Bass,

Grantville, Corinella, Kilcunda, Dalyston, San Remo, Cape Woolamai, Rhyll, Cowes and Ventnor. A map of the service area is included in this report as Figure 1.

Aims and objectives of this report

Under section 26 of the *Safe Drinking Water Act 2003* (SDWA), Westernport Water is required to provide the Department of Health (DoH) with an annual report on the quality of drinking water supplied to its customers.

This report aims to provide all stakeholders, including the community, with water quality information compliant with Section 26 of the SDWA. The report covers the period of 1 July 2022 to June 30 2023 and covers issues relating to the quality and management of drinking water.

Westernport Water's commitment to drinking water quality

Westernport Water is committed to a comprehensive risk management approach to the safe provision of

drinking water to its customers. This is achieved through the adoption of the framework for the management of drinking water quality outlined in the Australian Drinking Water Guidelines 2011, (ADWG) and implemented through continual review and improvement of **Westernport Water's** Water Quality Risk Management Plan (WQRMP).

Westernport Water's **commitment to drinking water** quality is supported by its drinking water quality policy (endorsed by the Executive and Board). The policy demonstrates **Westernport Water's** long-term commitment to the development and implementation of an effective system for drinking water quality management.

For more information on Westernport Water's drinking water policy please visit www.westernportwater.com.au/learning-centre/resources-support/forms-publications/

2022-23 performance

Westernport Water met all its obligations to provide water compliant with the *Safe Drinking Water Act 2003* and Safe Drinking Water Regulation 2015 (SDWA) throughout 2022-23.

Performance against drinking water quality standards outlined in the Safe Drinking Water Regulations 2015 is presented in the Analysis of Results.

Arrangements for water supply

There have been no major changes to the arrangements for water supply in 2022-23.

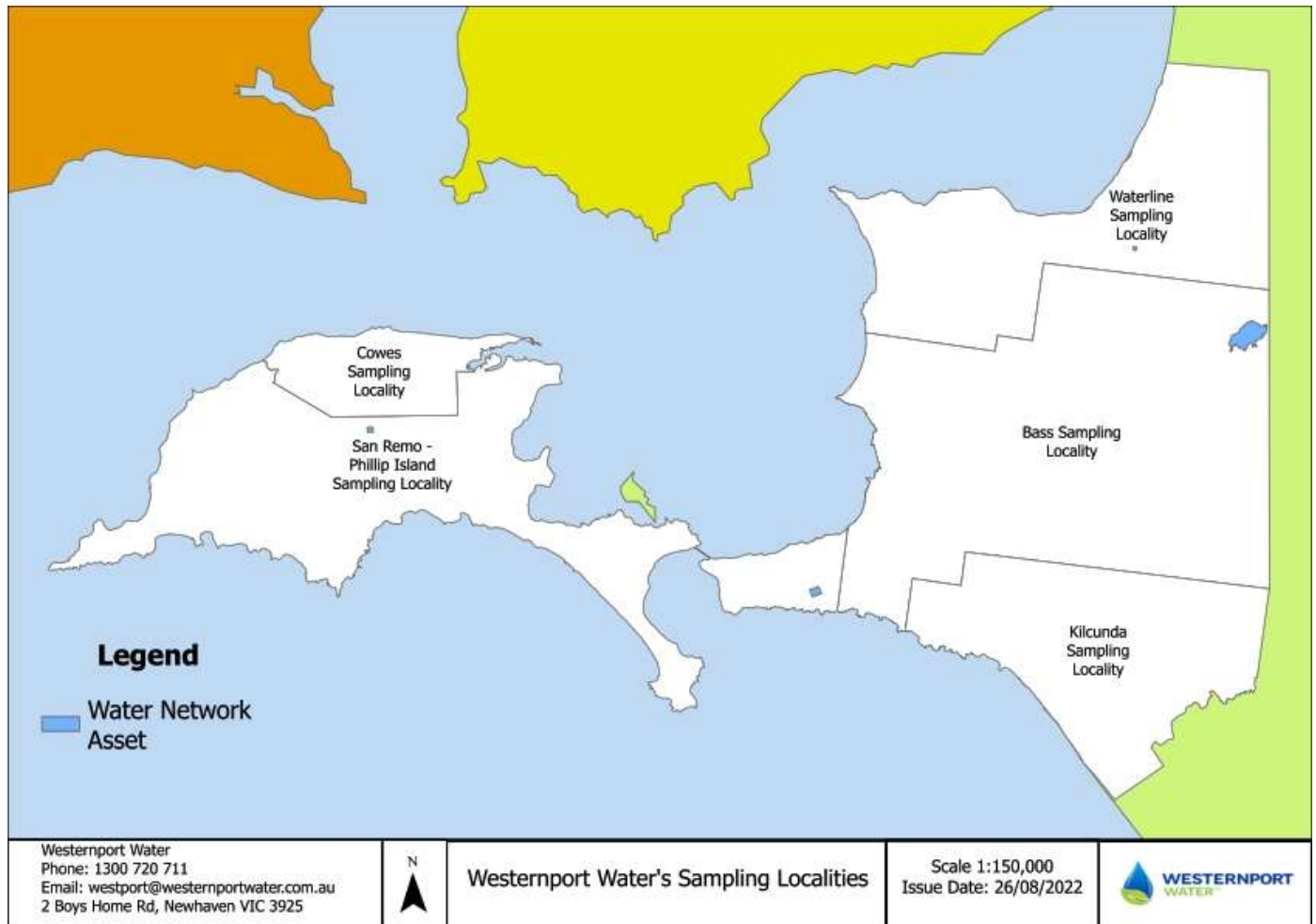


Figure 1 Westernport Water region by water sampling localities

Characterisation of Westernport Water's supply system

System overview

Westernport Water has a single water supply storage, Candowie Reservoir, which is an on-stream storage on Tennent Creek, located in the Bass Hills near Glen Forbes.

Water is treated at the Ian Bartlett Water Purification Plant (IBWPP) and then reticulated to communities through a single main supply line, with a number of smaller offtakes servicing each of the residential communities within **Westernport Water's** area of supply.

Raw water quality is typical of water that is sourced from an unprotected catchment. Water quality is impacted by farming activities and runoff from cleared land within the catchment area. Before treatment, the raw water is high in nutrients and organics. Following treatment, the water complies with the ADWG and standards outlined in regulation 12 of SDWR.

Table 1 is a summary of the localities and populations supplied treated water by Westernport Water. Table 2 is a summary of water sources and treatment processes utilised by Westernport Water.

Water sources

Other sources of water are available to supplement Candowie Reservoir during low rainfall periods. These alternative sources are surface water from the Bass River and groundwater from bores constructed in the Corinella Groundwater Management Unit (GMU). Water from these alternative sources is pumped via a pipeline to Candowie Reservoir for centralised storage and treatment at the IBWPP. Table 2 also lists where raw water is sourced, and the treatment processes used to produce potable water for customers. Westernport Water holds a Bulk Entitlement (BE) to the Greater Yarra system – Thompson River (Desalination and Cardinia Reservoir)

pool which can supply potable water from a delivery point to our distribution network.

Bass River

Westernport Water's pump station, located along the banks of the Bass River, can be used to transfer water into Candowie Reservoir. This is licenced under the Bass River Bulk Entitlement. The Bass River BE was not used during the 2022-23 reporting period.

Melbourne Pool

Westernport Water holds a BE to the Greater Yarra system – **Thompson River pool. In 2018 the Retailers' Bulk Entitlement (Desalinated Water) Orders 2014** were amended to support **Westernport Water's** access to water under its BE through the delivery point.

In 2022-23, South East Water and Westernport Water undertook reciprocal trades of 0.02 ML of water allocation. This is part of an ongoing administrative process to enable Westernport Water to continue to access, by substitution, its water from the Melbourne surface water system. This happens via its offtake on the transfer pipeline while the transfer pipeline is pumping desalinated water from the Victorian Desalination Plant to Cardinia Reservoir. South East Water trades the required volume of desalinated water allocation to Westernport Water and Westernport Water trades the same volume of Melbourne surface water allocation (under its Greater Yarra System – Thomson River Pool bulk entitlement) back to South East Water resulting in a net 0 ML trade. This is required because Westernport Water does not hold an entitlement to desalinated water. This ongoing administrative process was agreed upon between South East Water, South Gippsland Water, Melbourne Water, Westernport Water and DEECA.

Groundwater

Westernport Water has four bores licenced to take and use groundwater within the Corinella GMU. Westernport Water has an entitlement of 490 ML/year. No groundwater was extracted during the 2022-23 reporting period.

Source water protection

Westernport Water is committed to supplying safe, high-quality drinking water. Aligned with the framework for the management of drinking water quality is the catchment-to-tap approach. To demonstrate this approach for the catchment, Westernport Water builds our understanding of the source water risks by:

- I. Undertaking sanitary surveys of the catchment. A survey was undertaken in 2022.
- II. A comprehensive raw water monitoring program for pathogens, blue-green algae, organic chemicals and radiological parameters.
- III. Continuous performance monitoring at the treatment plant.
- IV. Ongoing contractual partnership with Bass Coast Landcare and Melbourne Water on improving catchment health.

Water treatment and quality management systems

Westernport Water operates a comprehensive water quality management system that complies with the *SDWA 2003* and *SDWR 2015*. The system is designed to ensure that customers receive drinking water that is safe and of good quality.

Water treatment

Raw water from Candowie Reservoir is treated using a combination of oxidation, adsorption, coagulation, flocculation, dissolved air flotation, filtration, pH correction, fluoridation and disinfection at the IBWPP. The following sections highlight the treatment process used at IBWPP. Table 2 summarises the treatment processes used from different water sources which can be accessed by Westernport Water.

Oxidation

Oxidation is used to remove iron and manganese from the water. Potassium permanganate is added to aid the removal process.

Adsorption

Adsorption is a process where a solid is used to remove a soluble substance from the water. Westernport Water uses Powdered Activated Carbon (PAC) as the solid in water. Water is pumped through PAC and accumulates the soluble substances in the filter. The PAC is then removed from the process, subsequently removing the substance from the water. Adsorption is used to control potential taste and odour issues, and to remove algal toxins from the water.

Coagulation/flocculation

Coagulation is the process to remove fine suspended particles to aid the removal of colour and turbidity. Particles have a negative charge, repelling each other and allowing them to remain suspended in water as they will not clump together and settle out. Coagulation involves the addition of a coagulant (aluminium sulphate) with a positive charge that neutralises the negative charge enabling the fine particles to merge to create larger particles. Flocculation involves gentle mixing of the water

which causes the particles to collide increasing their size to visible suspended solids. The visible particles **are called a 'floc'**.

Dissolved air floatation and filtration (DAFF)

DAFF is a process of injecting air particles into the water causing the floc to float to the surface. The floc is then removed to waste and the clear water is filtered through graded filter media. The purpose of DAFF is to produce water low in turbidity.

Over time filters become blocked with particles from the floc. To overcome the blockage, the filters are backwashed periodically to allow optimum production in the filters to produce consistently low turbidity results.

Fluoridation

Fluoride is added to treated water at a level that helps protect teeth against decay. Fluoride does not alter the taste or smell of water. Fluoridated water is delivered to all localities in the Westernport Water distribution system.

pH correction

To ensure treated water is within the ADWG desired range, caustic soda is added to raise pH.

Disinfection

a) Ultraviolet (UV)

UV light inactivates microorganisms by damaging their nucleic acid, thereby preventing them from replicating and disrupting their ability to infect hosts. UV disinfection can be used for the inactivation of chlorine resistant pathogens (e.g. *Cryptosporidium* and *Giardia*).

b) Chlorination

The final stage of treatment at IBWPP is chlorine disinfection. Disinfection is required to prevent the spread of waterborne pathogens and to retain an appropriate chlorine residual throughout the system.

c) Chloramination

Westernport Water adopt the method of chloramination to address taste & odour issues and total chlorine residuals to the extremities of the distribution system. Chloramination is the process of adding chlorine to a small amount of ammonia. All localities (except Bass) receive chloraminated water.

Desalination

During 2019/20 Westernport Water first utilised its connection to distribution point 6 on the desalination pipeline. Distribution point 6 is the point on the desalination pipeline near Glen Alvie where Westernport Water obtains water from either the desalination plant or Cardinia Reservoir to deliver to our customers. This provides another valuable source of water that Westernport Water can access when needed. Since 2019 Westernport Water has utilised the pipeline on occasion when IBWPP is offline for maintenance or during times of poor water quality in Candowie. Information on the desalination plant and process can be found on the DEECA website.

<https://www.water.vic.gov.au/water-grid-and-markets/desalination>

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Table 1 Localities supplied

Water Sampling Locality	Population Supplied	Town Supplied
Bass	800	Bass, Woolamai, Anderson and Glen Forbes
Cowes	6900	Cowes and Silverleaves
Kilcunda	1450	Kilcunda, Dalyston and Archies Creek
San Remo/Phillip Island	8600	Ventnor, Surf Beach, Rhyll, San Remo, Summerlands, Sunset Strip Wimbledon Heights, Smiths Beach, Sunderland Bay, Cape Woolamai, Newhaven the penguin parage and the Nobbies tourist attractions
Waterline	4000	Corinella, Pioneer Bay, Coronet Bay, Grantville, Tenby Point

Population sourced from 2021 census data

Table 2 Source Water and treatment processes in all localities

Source	Treatment process	Added substances	Frequency
Tennent Creek / Bass River IBWPP	Coagulation and flocculation Dissolved air floatation Granular Media Filtration Chlorination Chloramination Ultraviolet (UV)	Potassium permanganate Powdered activated carbon (PAC) Aluminium sulphate Caustic soda Sodium hypochlorite Ammonia Sodium fluoride Gaseous chlorine	■
Desalination Plant	Coagulation Filtration Reverse osmosis Remineralisation Fluoridation Disinfection Sludge thickening Membrane preservation	Ferric sulphate Sulfuric acid PolyDADMAC Antiscalant Caustic soda Hydrated lime Carbon dioxide Fluorosilic acid Sodium bisulfite Sodium hypochlorite Ferric sulphate Polyacrylamide	□
Cardinia Reservoir	Primary disinfection Fluoridation pH correction	Gaseous chlorine Fluorosilicic acid Lime	□

■ Treatment/Substance was applied regularly in 2022-23.

□ Treatment/Substance was applied intermittently depending on water quality and demand in 2022-23 further detail on pg. 9.

Water quality improvements in 2022-23

Water quality improvements during 2022-23 were:

- Successfully trialled an alternative water main cleaning methods (ice pigging) to remove naturally occurring sediments.
- Began a trial of an automatic flushing devices within the distribution system to improve water quality. Results from the trial will be available in 2023/24.
- Completed the replacement of the aging Stanley Road Tank roof in June 2022. Stanley Road Tank is one
 - o **of Westernport Water’s main drinking water storages** in our water distribution system.
- Completed air scouring to clean 105 km of mains throughout the distribution system.

Issues

There were no issues during the 2022-23 reporting period that affected water treatment processes which may lead to potential or actual exceedances of drinking water quality standards.

Emergency, incident, and event management

No Section 22 or 18 notifications or treatment issues occurred during 2022-23.

Analysis of results

The quality of drinking water supplied to our customers was of good quality and met water quality standards detailed in regulation 12 of the SDWR 2015.

During 2022-23 samples were collected in accordance with Westernport **Water's** sampling program, compliance with regulation 13(1) of the SDWR 2015 was met. No samples were missed. The number of samples can be higher than the recommended frequency of sampling due to more samples being taken during peak periods as the population increases from visitors into the area.

Achieving one hundred percent compliance this year continues the one hundred percent compliance in the previous three annual reports. For more information on the previous reporting periods please visit our publications page on our website: <http://www.westernportwater.com.au/learning-centre/resources-support/forms-publications/>

The following results tables show the performance for 1 July 2022 to 30 June 2023.

Drinking water quality standards

Table 3 *E. coli*

SDWR 2015 water quality standard: All samples of drinking water collected are found to contain no *Escherichia coli* per 100mL of drinking water, with the exception of any false positive sample.

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum Detected (orgs/100mL)	Number of detections and investigations conducted (s.22)	Number of samples where standard was not met (s. 18)
Bass	Weekly	52	0	0	0
Cowes	Weekly	109	0	0	0
Kilcunda	Weekly	104	0	0	0
San Remo/Phillip Island	Weekly	170	0	0	0
Waterline	Weekly	156	0	0	0

Cowes, Kilcunda, San Remo/Phillip Island and Waterline include additional samples of clear water storages. Cowes and San Remo/Phillip Island include additional samples due to population increases during peak periods.

Standard: All samples of drinking water collected to contain no *E. coli* per 100 mL

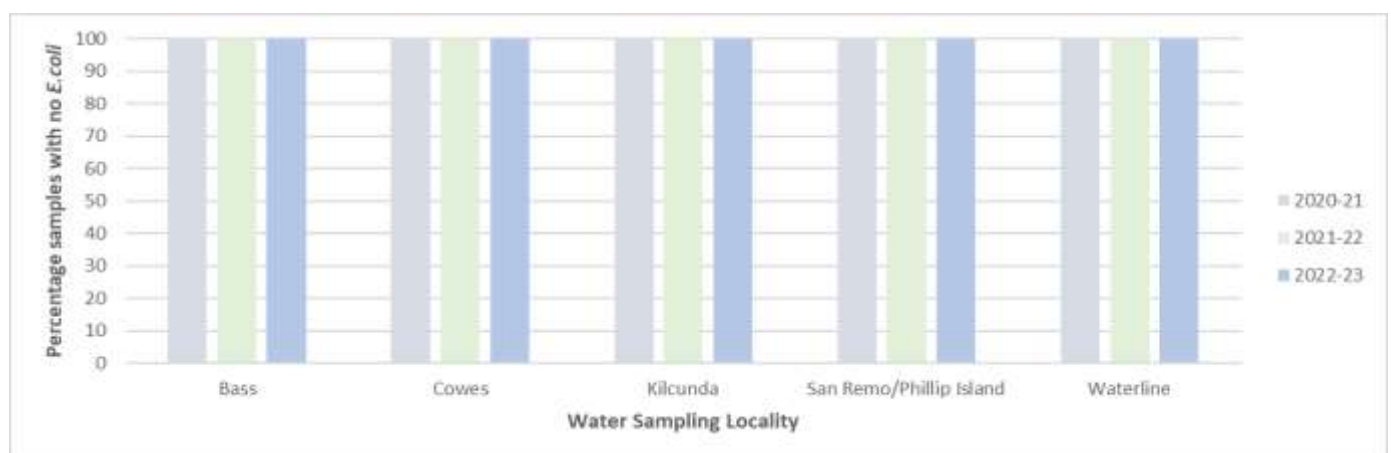


Figure 3 Percentage of samples that contain no *Escherichia coli* (*E. coli*)

Table 4 Trihalomethanes (THM's)

SDWR 2015 water quality standard: 0.25mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Monthly	12	0.11	0.08	0
Cowes	Monthly	12	0.12	0.08	0
Kilcunda	Monthly	12	0.10	0.08	0
San Remo/Phillip Island	Monthly	12	0.13	0.09	0
Waterline	Monthly	12	0.09	0.07	0

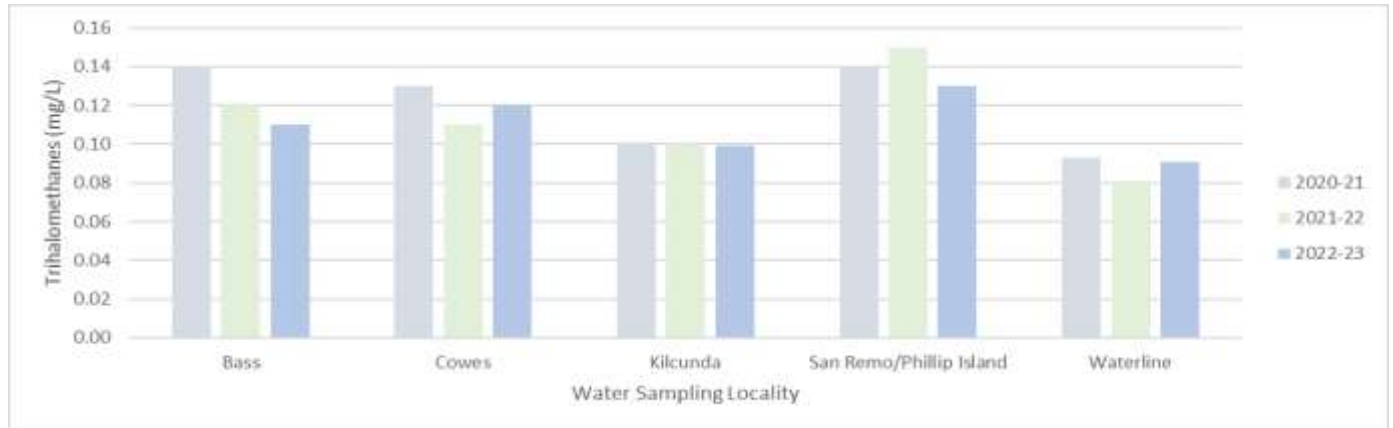


Figure 4 maximum Trihalomethanes (THM's) mg/L value

Table 5 Turbidity

SDWR 2015 water quality standard: the 95th percentile of results for samples in any 12-month period must be ≤ 5.0 NTU

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum turbidity in a sample (NTU)	Maximum 95th percentile of turbidity results in any 12 months (NTU)	Number of samples where standard was not met (s. 18)
Bass	Weekly	53	0.20	0.20	0
Cowes	Weekly	53	0.30	0.20	0
Kilcunda	Weekly	54	0.20	0.20	0
San Remo/Phillip Island	Weekly	53	1.00	0.20	0
Waterline	Weekly	53	0.20	0.10	0

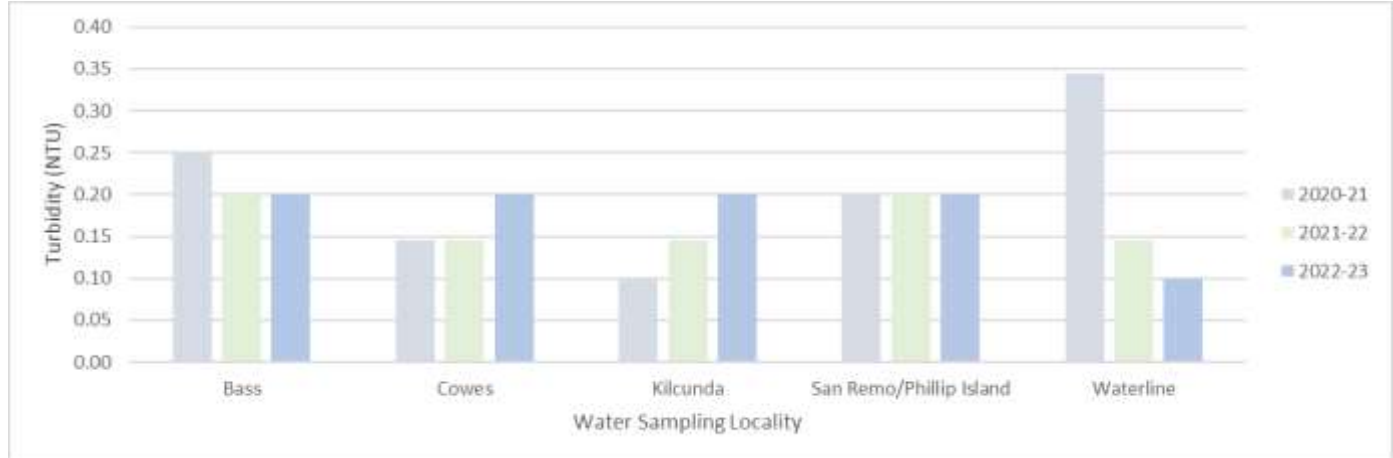


Figure 5 Turbidity 95th percentile per sampling locality.

Other algae, pathogens, chemicals or substances not specified above that may pose a risk to human health

Westernport Water regularly tests for other substances in the drinking water supply to customers. The following sections detail the results for the 2022-23 reporting period.

Table 6 Cadmium

The ADWG health value is 0.002mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Annually	1	<0.0002	<0.0002	0
Cowes	Annually	1	<0.0002	<0.0002	0
Kilcunda	Annually	1	<0.0002	<0.0002	0
San Remo/Phillip Island	Annually	1	<0.0002	<0.0002	0
Waterline	Annually	1	<0.0002	<0.0002	0

Results with a less than qualifier (<) are below the laboratory detection limit.

Table 7 Copper

The ADWG health value is 2mg/L

The ADWG aesthetic value is 1mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Quarterly	4	0.008	0.007	0
Cowes	Quarterly	4	0.013	0.007	0
Kilcunda	Quarterly	4	0.010	0.006	0
San Remo/Phillip Island	Quarterly	4	0.026	0.014	0
Waterline	Quarterly	4	0.014	0.011	0

Table 8 Cyanide

The ADWG health value is 0.08mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Annually	1	<0.005	<0.005	0
Cowes	Annually	1	<0.005	<0.005	0
Kilcunda	Annually	1	<0.005	<0.005	0
San Remo/Phillip Island	Annually	1	<0.005	<0.005	0
Waterline	Annually	1	<0.005	<0.005	0

Results with a less than qualifier (<) are below the laboratory detection limit.

Table 9 Fluoride

Code of practice for the fluoridation of drinking water supplies water quality standard: 1.5mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Target optimum operating fluoride concentration (mg/L)	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Monthly	13	0.900	0.93	0.84	0
Cowes	Monthly	16	0.900	0.96	0.83	0
Kilcunda	Monthly	16	0.900	0.93	0.85	0
San Remo/Phillip Island	Monthly	15	0.900	0.93	0.85	0
Waterline	Monthly	16	0.900	0.92	0.84	0

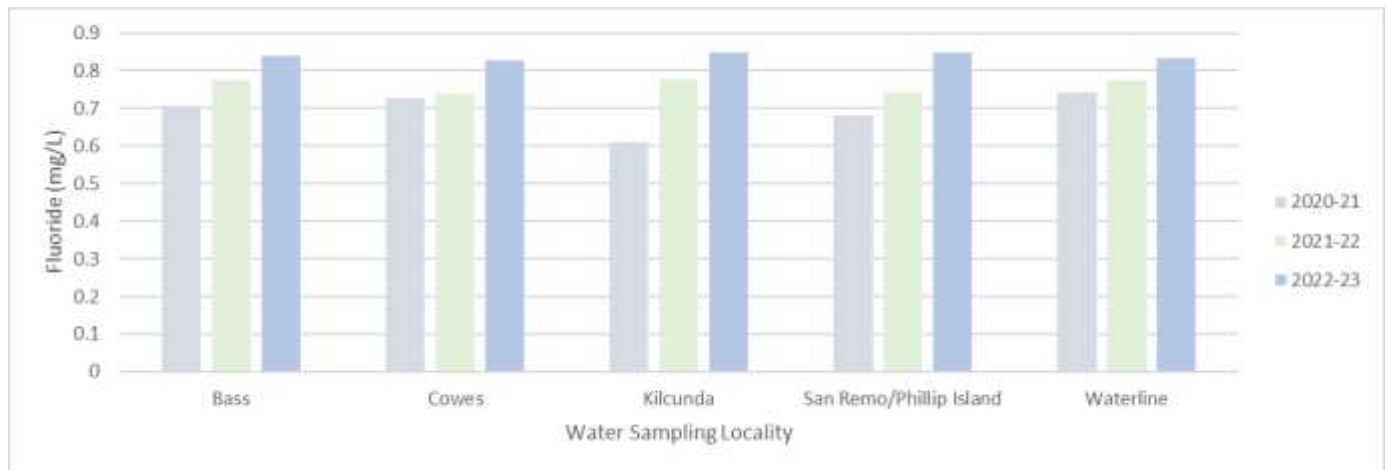


Figure 6 Average Fluoride per sampling locality

The average fluoride concentration are within the operating range of 0.8-1mg/L. Westernport Water have been gradually increased the fluoride concentration at IBWPP to ensure fluoride levels are consistently within the target optimum range. As per the fluoride code of practice additional samples are taken due to the number of localities we supply to.

Table 10 Lead

The ADWG health value is 0.01mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Quarterly	4	<0.001	<0.001	0
Cowes	Quarterly	4	<0.001	<0.001	0
Kilcunda	Quarterly	4	<0.001	<0.001	0
San Remo/Phillip Island	Quarterly	4	<0.001	<0.001	0
Waterline	Quarterly	4	<0.001	<0.001	0

Results with a less than qualifier (<) are below the laboratory detection limit.

Table 11 Manganese

The ADWG health value is 0.5mg/L. The ADWG aesthetic value is 0.1mg/L.

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Monthly	12	0.013	0.003	0
Cowes	Monthly	12	0.006	0.002	0
Kilcunda	Monthly	12	0.025	0.004	0
San Remo/Phillip Island	Monthly	12	0.067	0.008	0
Waterline	Monthly	12	0.004	0.002	0

Table 12 Nickel

The ADWG health value is 0.02mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Annually	1	<0.001	<0.001	0
Cowes	Annually	1	<0.001	<0.001	0
Kilcunda	Annually	1	<0.001	<0.001	0
San Remo/Phillip Island	Annually	1	<0.001	<0.001	0
Waterline	Annually	1	<0.001	<0.001	0

Results with a less than qualifier (<) are below the laboratory detection limit.

Table 13 Nitrate

ADWG health value: 50mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Cowes	Fortnightly	54	0.37	0.10	0
Kilcunda	Fortnightly	52	0.31	0.01	0
San Remo/Phillip Island	Fortnightly	52	0.39	0.06	0
Waterline	Fortnightly	26	0.30	0.05	0

Bass locality not sampled as it is a chlorinated supply as per the Risk Management Plan.
Distribution system inlets sampled at Kilcunda, San Remo/Phillip Island and Cowes.

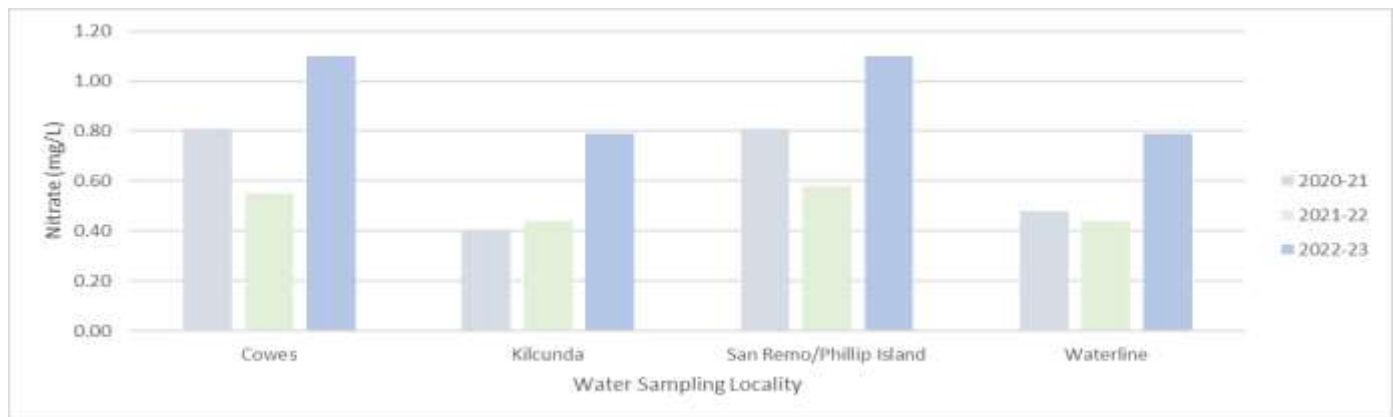


Figure 7 Maximum Nitrate result per sampling locality

Table 14 Nitrite

ADWG health value: 3mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Cowes	Fortnightly	54	0.32	0.08	0
Kilcunda	Fortnightly	54	0.40	0.02	0
San Remo/Phillip Island	Fortnightly	53	0.31	0.02	0
Waterline	Fortnightly	26	0.39	0.04	0

Bass locality not sampled as it is a chlorinated supply as per the Risk Management Plan.

Distribution system inlets sampled at Kilcunda, San Remo-Phillip Island and Cowes.

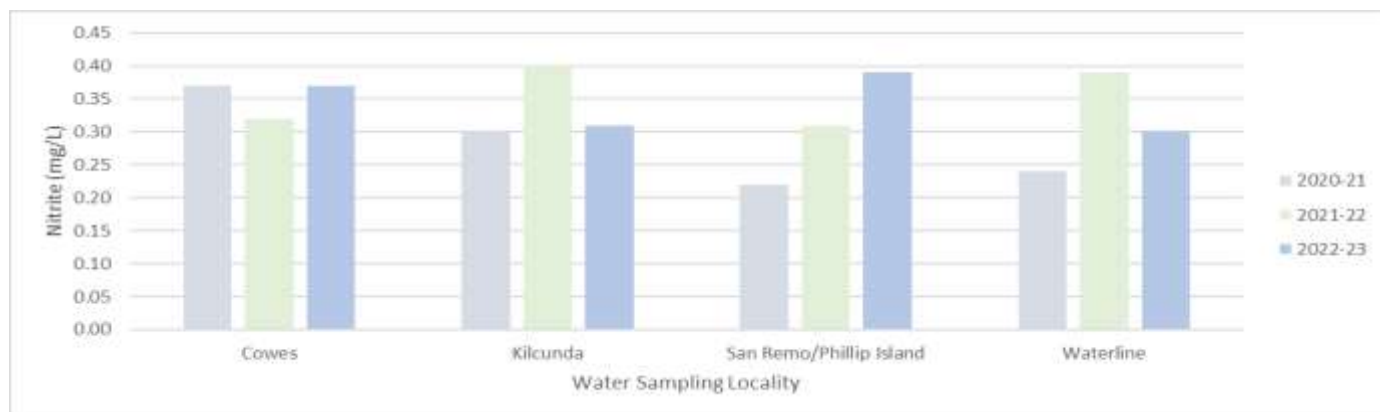


Figure 8 Maximum Nitrite result per sampling locality.

Aesthetic characteristics

The SDWR 2015 refers to aesthetic water quality and states the annual report must include the steps taken by a water supplier to manage the aesthetic characteristics of the drinking water supplied. Along with verification monitoring of colour and pH, Westernport Water undertakes jar testing for optimum coagulant dosing. Other steps taken to manage aesthetics are reactive maintenance programs: air scouring of the distribution pipe network and reactive flushing. The ADWG sets the aesthetic-based guideline values for aluminium, true colour, iron and pH. Those parameters sampled throughout the distribution system, indicating compliance, are presented in the tables below.

Table 15 Aluminium, acid soluble

The ADWG aesthetic value is 0.2mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Quarterly	4	0.02	0.01	0
Cowes	Quarterly	4	0.02	0.02	0
Kilcunda	Quarterly	4	0.02	0.02	0
San Remo/Phillip Island	Quarterly	4	0.02	0.01	0
Waterline	Quarterly	4	0.02	0.02	0

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Table 16 Colour, true

The ADWG aesthetic value is 15HU

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum(HU)	Average(HU)	Number of samples where standard was not met (s. 18)
Bass	Monthly	12	4	2.17	0
Cowes	Monthly	12	4	2.17	0
Kilcunda	Monthly	12	6	2.50	0
San Remo/Phillip Island	Monthly	12	4	2.33	0
Waterline	Monthly	12	4	2.17	0

Table 17 Hardness

The ADWG aesthetic value is 60-200mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Quarterly	4	84	61	0
Cowes	Quarterly	4	82	55	0
Kilcunda	Quarterly	4	76	64	0
San Remo/Phillip Island	Quarterly	4	69	64	0
Waterline	Quarterly	4	89	76	0

Table 18 Iron

The ADWG aesthetic value is 0.3mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Monthly	12	0.02	0.01	0
Cowes	Monthly	12	0.07	0.03	0
Kilcunda	Monthly	12	0.03	0.01	0
San Remo/Phillip Island	Monthly	12	0.20	0.03	0
Waterline	Monthly	12	0.02	0.01	0

Table 19 pH

The ADWG aesthetic range is 6.5-8.5pH

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum	Minimum	Average	Aesthetic operating range
Bass	Weekly	77	7.88	6.88	7.34	6.5-8.5
Cowes	Weekly	135	8.33	6.80	7.45	6.5-8.5
Kilcunda	Weekly	129	8.38	6.88	7.42	6.5-8.5
San Remo/Phillip Island	Weekly	197	8.12	6.57	7.30	6.5-8.5
Waterline	Weekly	182	8.39	6.77	7.28	6.5-8.5

Cowes, Kilcunda, San Remo – Phillip Island and Water Line include additional samples of clear water storages.

Cowes and San Remo-Phillip Island include additional samples due to population.

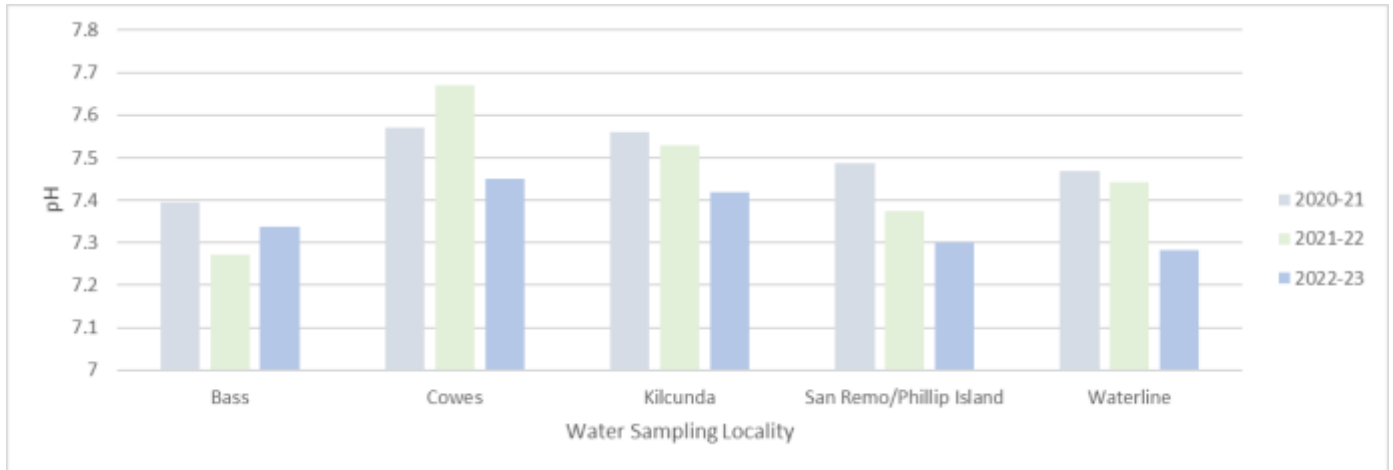


Figure 9 Average pH result per sampling locality.

Table 20 Zinc

The ADWG aesthetic value is 3mg/L

Water Sampling Locality	Frequency of Sampling	Number of Samples	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Bass	Quarterly	4	0.005	0.004	0
Cowes	Quarterly	4	0.005	0.004	0
Kilcunda	Quarterly	4	0.005	0.002	0
San Remo/Phillip Island	Quarterly	4	0.026	0.011	0
Waterline	Quarterly	4	0.007	0.004	0

Complaints relating to water quality

Summary of complaints

The number of customer complaints to Westernport Water regarding drinking water totalled 21 for 2022-23. This was a decrease of 45 from 2021/22. Table 21 details the type of customer complaints. Table 22 details water quality complaints by sampling locality.

Table 21 Customer^ complaints relating to water quality

Type of Complaint	Number of Complaints			Comparison with Previous Reporting Periods	Comments
	2022-23	2021-22	2020-21		
Discoloured Water	10	13	134	20% Decrease	Overall there was a decrease in customer complaints compared to the previous year. This can be attributed to several projects achieving system improvements.
Taste/odour	10	26	28	60% Decrease	
Other*	1	7	5	Significant Decrease	
Total	21	46	167	50% Decrease	

^for the purposes of this section, the term 'customer' has the same meaning as that used by the Essential Services Commission, that is, a customer = a connection.

*Includes any contact related to alleged illness.

The 2022-23 year saw a decrease in customer complaints compared to the previous year. Several operational projects were undertaken during 2022-23 to improve water quality. **A trial was completed of 'ice pigging' as a new alternative to clean larger mains.** Air scouring was completed on over 100km of mains to remove built up naturally occurring sediment.

Table 22 Complaints by water sampling locality

Locality	Type of Complaint			Total Complaints
	Discoloured Water	Taste/odour	Other*	
Bass	2	0	0	2
Cowes	2	2	0	4
Kilcunda	2	2	0	4
San Remo - Phillip Island	3	3	0	6
Waterline	1	3	1	5
Total	10	10	1	21

48% of complaints were for taste/odour, 48% were for discoloured water and 4% were for other.

Causes of the complaints varied across the year and can be attributed to main breaks within the distribution system and raw water changes. Other sources of complaint can be related to water age in dead ends which create taste issues, to alleviate these Westernport Water is developing a preventative flushing program in addition to annual air scouring and is trialling automatic flushing devices in problem areas.

Response to complaints

Westernport Water is committed to providing its customers with high quality water and customer service. Each customer complaint is lodged using an entry form in Westernport Water's Customer Request Management (CRM) system. Depending on the nature of the complaint, the details are electronically forwarded to either the Water Quality Specialist for water quality complaints or the Network Operations & Maintenance Coordinator for water main bursts and leaks.

After a complaint is lodged, depending on the nature of the complaint, one or a combination of the following actions may be performed:

- Contact the customer who lodged the complaint to determine the seriousness of the issue.
- Discuss with the complainant the possible causes of the poor water quality i.e. temporary changes to normal operation or high manganese and/or iron in raw water.
- Explain to the complainant the multiple barriers and rigorous sampling and testing regime employed to provide a safe and aesthetically acceptable water.
- Proceed with remedial action such as water sample testing, mains flushing and occasionally water sampling testing after flushing.
- Give feedback to customers in terms of water quality information and links to further information regarding regulatory obligations.

Findings of the most recent risk management plan audits

A regulatory risk management plan audit was conducted on 4-5 April 2023 and WPW was fully compliant with obligations under the SDWA, SDWR and audit guidelines. The audit certificate is provided in Appendix 1. The progress of the Opportunities for Improvements (OFI) identified from the 2020 and 2023 audit are listed in Table 23 and Table 24.

Table 23 Status of OFI's from the 2020 audit

OFI 2020 Audit	Comment	Status
Westernport Water sources only code-compliant parts and fittings, however, the experience from operators was that some new code-compliant sub-optimal parts and fittings are finding their way into the Australian supply chain. Consider whole of life costs and potentially recognising or requiring higher standards (European, Japanese and American) when installing assets to avoid premature failure and impact on water quality.	Compliance and performance of parts and fittings are assessed as part of the procurement process. The parts used are all compliant with Australian Standards.	Closed
A decision has been made to continue with a floating cover for the San Remo basin cover and lining replacement in the next few years. Whilst not best practice compared to a conventional fixed roof, the floating cover can be delivered and remain compliant with the SDWA. Conduct a reality check on possible future Disinfection By Products compliance implications for the floating covers at San Remo Basin vs. conventional roofs.	Westernport Water's sampling program includes monthly monitoring for Disinfection By Products (DBP) as required by legislation. Sample results are assessed when received. Long term data to assess for changes in trends is analysed on an annual basis with insights informing the effectiveness of organics removal and disinfection.	Closed
It is recommended that clearer labelling be provided of potable, recycled water, and even sewer, tankers with a view to reducing the risk of non-potable water being inadvertently supplied for potable use.	All existing and new tankers were labelled.	Closed
It was noted that clear commissioning processes and water quality criteria had been set for the new main construction. However, an interview with field crews installing new works found that there was less clarity with respect to commissioning processes and water quality criteria for new main to meter connections (both repair and replacement). It is recommended that adequacy of the relevant current processes and criteria are assessed and augmented if necessary.	Processes reviewed and augmented to ensure there is clarity for contractors with respect to commissioning and water quality criteria for main to meter connections.	Closed

Table 24 Status of OFI's from the 2023 audit

OFI 2023 Audit	Comment	Status
<p>In relation to the annual risk review workshops:</p> <ul style="list-style-type: none"> maintain a record of the workshop attendees or participants (risk team) to demonstrate that an adequate team composition was present. consider preparing a Briefing Note or Package. This can include (but not limited to) water quality trend charts, system schematic, complaints, asset condition assessment rating, water quality incidents or close calls, audit findings. This will also enable a mechanism to verify the accuracy of the supply schematic. include relevant details in IRIS (software) for identified risk treatment actions which will be delivered through different programs/projects to enable ease with traceability. Where an action is not able to be linked to an existing program/project, identify target dates in IRIS itself. 	<p>WPW implemented noting attendance at risk workshops. The Water Quality Specialist now prepares a briefing paper that is sent to all attendees prior to the workshop. Target dates are implemented to the programs within risk workshops.</p>	Closed
<p>Document the process and checks undertaken when the Melbourne Pool Water Supply is used (e.g. managing pressure and water quality impacts).</p>	<p>Additional procedures and documentation will be provided in WPW's use of the Melbourne Water supply.</p>	To be completed by the 1 st of January 2024
<p>Establish a process to undertake a risk assessment where a preventive maintenance task is delayed for longer than expected (i.e. a control measure becomes inactive e.g. for >12 months) due to valid reasons to identify changes to risk profile and need for any additional tasks/monitoring in the interim.</p>	<p>Additional information has been added to WPW's Water Quality Risk Management Plan to support the process of undertaking risk assessments when preventative maintenance is delayed.</p>	To be completed by the 1 st of January 2024
<p>Consider establishing an internal audit program for the WQRMP, which can focus on selected areas to provide greater coverage of the WQRMP and add to the continual improvement process. The findings from the internal audits can also serve as a means to justify the effectiveness of controls during risk workshops and/or identify need for additional improvement actions.</p>	<p>Westernport Water will implement internal audits into areas of the Water Quality Risk Management Plan.</p>	To be completed by the 1 st of July 2024
<p>Include the capacity of reservoir, storage basins and tanks on the schematic in the WQRMP.</p>	<p>Storage capacities have been added to the water supply system schematic</p>	Closed
<p>Strengthen the water sampling program documentation to ensure that there is consolidated details on all elements of the Safe Drinking Water Regulation 2015, S18 (1)(d) in relation to the water sampling program contents (but customised to WPW as possible).</p>	<p>Documentation on WPW's water quality sampling program is currently being reviewed and updated.</p>	To be completed by the 1 st of February 2024
<p>Review process to test for chlorine and turbidity following pipe repairs (in progress)</p>	<p>The process and procedures on mains breaks are currently being reviewed to include the testing of chlorine residual by NOM staff.</p>	To be completed by the 1 st of July 2024
<p>Undertake periodic verification testing of the CCP alarms and shutdown, including the time delays.</p>	<p>Periodic verification monitoring will be implemented at IBWPP.</p>	To be completed by the 1 st of July 2024
<p>Re-establish the regular flushing program (in progress).</p>	<p>The flushing program is currently being redesigned to improve water quality throughout the distribution system. The program will be updated and implemented.</p>	To be completed by the 1 st of January 2024
<p>Include more information on the process for the review of HBT assessments (e.g. who, how, when, sources used - ADWG, WSAA Manual, information used to verify land use changes etc).</p>	<p>Additional information on the land use completed by Bass Coast Landcare Network will be added to the HBT assessment.</p>	To be completed by the 1 st of January 2024

Undertakings under section 30 of the SDWA

Westernport Water currently has no section 30 undertakings.

Regulated Water under section 6 of the SDWA

No regulated water was supplied during the reporting period.

Exemption under section 20 of the SDWA

Westernport Water has no exemptions under section 20.

Variations of aesthetic standards under section 19 of the SDWA

No variations of aesthetic standards in place under section 19.

Glossary of terms

Term	Meaning
ADWG	Australian Drinking Water Guidelines
BE	Bulk Entitlement
CRM	Customer Request Management System
DAFF	Dissolved Air Floatation and Filtration
DoH	Department of Health
E.coli	Escherichia coli
GMU	Groundwater Management Unit
IBWPP	Ian Bartlett Water Purification Plant
mg/L	Milligram per litre
ML	Mega litres (one million litres)
NTU	Nephelometric Turbidity Unit
PAC	Powdered Activated Carbon
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act 2003
SDWR	Safe Drinking Water Regulations 2015
THM	Trihalomethanes
Turbidity	The cloudiness of water caused by the presence of fine suspended matter
WPW	Westernport Water
RMP	Risk Management Plan

Section 23 of the Act requires Westernport Water to make water quality monitoring information publicly available. Customers and members of the public may access drinking water quality data by contacting Westernport Water on the details provided below:

Email: westport@westernportwater.com.au

Website: www.westernportwater.com.au

Phone: 1300 720 711

Appendix 1 – Risk Management Plan Audit Certificate

Risk Management Plan Audit Certificate
Safe Drinking Water Regulations 2015

Certificate Number: 203
Audit period: 1 January 2021 – 31 December 2022

To:
Susan O'Sullivan
Manager Water and Wastewater Treatment
Westernport Water
2 Boys Home Road
NEWHAVEN VIC 3925

Australian Business Number (ABN): 63 759 106 755

I, Tasleem Hasan, after conducting a risk management plan audit of the water supplied by Westernport Water, am of the opinion that Westernport Water *has* complied with the obligations imposed by section 7(1) of the *Safe Drinking Water Act 2003* during the audit period.

Tasleem Hasan

T. Hasan
14/04/2023

VIRIDIS
AUDITORS