RECYCLED WATER ANNUAL REPORT

Phillip Island Recycled Water Scheme

Annual Report 2023-24

WESTERNPORT WATER

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Glossary

USMP - User Site Management Plans

DoH - Department of Health

EPA - Environment Protection Agency

HEMP - Regional Health and Environmental Management Plan

RWTP - Recycled Water Treatment Plant

RWQMP - Recycled Water Quality Management Plan

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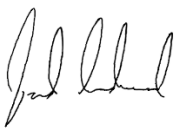

Approved
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1. Introduction

This document reports on Westernport Water's (WPW) Phillip Island Class A Recycled Water Scheme.

Under Section 15.10.2 of 'Publication 1911.2 March 2021 - Technical information for the Victorian guideline for water recycling', WPW is required to provide the Victorian Environmental Protection Authority (EPA) with an Annual Report.

The reporting requirements are specified in WPW's Regional Health and Environmental Management Plan (HEMP). The HEMP details the management practices required to control the health and environmental risks associated with the end use of recycled water from the Phillip Island Recycled Water Scheme. This reporting requirement excludes reporting on Class B recycled water and any onsite irrigation of recycled water within WPW's site boundaries.

The Class A Recycled Water Treatment Plant (RWTP) underwent annual challenge testing in October 2023 and October 2024. The RWTP operated throughout 2023/24.

Class A recycled water was supplied to residential and commercial customers from July 2023 to June 2024 through the dedicated Class A network.

2. Statement of Compliance and Continual Improvement

The RWTP ran from July 2023 to June 2024. WPW met its obligations and complied with the requirements in the HEMP for management of the Phillip Island Recycled Water Scheme.

Below is a summary of the requirements for compliance and continual improvement. These requirements have been adhered to for 2023-24:

- Recycled water produced at the RWTP met its regulatory obligations and targets prescribed in the Recycled Water Quality Management Plan (RWQMP).
- The performance of the Phillip Island Recycled Water Scheme has complied with the regulatory requirements of the EPA.
- The HEMP was audited in April 2024 by an external consultant with compliance reported and opportunities for optimisation documented into an Action Plan.
- There has been no adverse impact observed to plants, soil and groundwater from the application of Class A recycled water.
- A review of customer User Site Management Plans (USMPs) is underway to ensure current legislative requirements are captured.
- There were no incidents or emergencies reported in the 2023-24 reporting year.
- Challenge testing for RWTP membrane pathogen removal, received a 'pass' result in each instance, confirming plant performance.
- The Class A membranes passed weekly pressure decay tests, indicating membrane integrity.

3. Recycled Water Customer Use

Pall Ultra-60 membranes were installed in September 2022. After approval was given by the EPA, the Class A RWTP was brought online on 24th December 2022 with the new membranes used to produce Class A water for commercial and residential customers.

In 2023-24 a total of 74.5 ML of Class A recycled water was produced at the RWTP.

3.1. Residential Use

The number of residential recycled water customers in 2023-24 was 1108. Residential recycled water use for the year totalled 29.8 ML. The Class A system was taken occasionally offline due to low recycled water demand and maintenance, therefore 10 ML of the water provided was potable.

3.2. Commercial Use:

There were nine (9) commercial customers connected to the Class A recycled water network and eight (8) of these drew 54.7 ML of Class A recycled water while the RWTP was online, and 15.2 ML potable water from Class A connections while the RWTP was offline.

The commercial plant nursery in Cowes is connected to the Class A network but was experiencing pressure issues and therefore had limited recycled water utilisation. The nursery owner has since installed a booster pump and will increase usage in 2024-25. Table 1 below displays a breakdown of usage by commercial customers.

Customer Number	Customer Use	Area Irrigated (Ha)	Annual Contract (ML)	Onsite Storage (ML)	Metered Use*	Application Method
1	Irrigation (Phillip Island Golf Course)	20	112	0.2	55.4	Onsite RW storage, pop-up sprinklers and hand-held hose
2	Irrigation (BCSC oval)	1.6	8.8	0.02	1.4	Onsite RW storage, automatic pop-up sprinklers
3	Irrigation (Newhaven College oval)	2.3	6.5	0.06	6.1	Onsite RW storage, in-ground pop up sprinklers
4	Livestock drinking (Gullaren)	N/A	2	0	2.0	Cattle drinking trough
5	Livestock drinking (Westley)	N/A	2	0	2.5	Cattle drinking trough
6	Irrigation (Phillip Island Community Orchard)	1	-	-	2.1	Drip irrigation and hand-held hose
7	Cowes Cemetery	N/A	2	0.01	0.2	RW tank onsite feeding taps and wetland
8	Commercial Nursery	0.8	2	0	0	Plant irrigation (drip feed) and tap to hand-held hose
9	Office toilet flushing (Phillip Island Nature Parks)	N/A	N/A	0	0.1	Toilets and hose
	Total Use				69.9	

*Of all the metered water use delivered by the Class A Recycled Water system in 2023-24, 74.9% was recycled water. The balance was potable water used to top up the system when the Class A RWTP was offline.

4. Recycled Water Quality

4.1. Sampling Schedule

Class A recycled water is monitored in accordance with the sampling schedule given in Table 2. All samples collected are tested by a NATA certified testing laboratory.

Table 2: Sample Schedule

Parameter	RWTP*	Wimbledon Heights buffer storage tank	Class A water at customer tap
E. coli	Weekly	Monthly	Monthly
Total coliforms	Weekly	Monthly	Monthly
Cryptosporidium oocysts and Giardia cysts	Quarterly	-	-
Bacteriophage (fRNA)	Weekly	-	-
pH	Weekly	-	Monthly
Temperature	-	Monthly	Monthly
Turbidity	Weekly	-	Monthly
BOD5 and Suspended solids	Weekly	-	-
Total nitrogen, Total phosphorus, Ammonia-N	Fortnightly	-	Monthly
Total dissolved solids, Electrical conductivity	Weekly	Monthly	Monthly
Hardness, colour	Monthly	-	-
Free residual chlorine	Weekly	Monthly	Monthly
PFAS, metals, disinfection byproducts, pesticides, pharmaceuticals	Quarterly	-	-

*Samples at RWTP are only collected when the plant is in operation.

4.2. Water Quality Results

The recycled water quality results are presented in Table 3. All results met compliance obligations.

Table 3: Recycled Water Quality 2023-24

Parameter	EPA Guideline Limit	HEMP / QMP Guideline	Annual Results
E. coli (org/100 mL), median	No guideline	<1	0^
pH (pH units), 10th percentile	6	6	6.96^
pH (pH units), 90th percentile	9	9	7.32^
BOD (mg/L), median	<10	<3	2.0[1]
Suspended solids (mg/L), median	<5	<5	2.0[1]
Turbidity (mg/L), median	<2	<2	0.10*
Ammonia as N (mg/L), median	No guideline	<2	0.1*
Total nitrogen (mg/L), median	No guideline	<30	5.8*
Total phosphorus (mg/L), median	No guideline	<10	5.5*
Total dissolved solids (mg/L), median	No guideline	<1000	645*
Electrical conductivity (µS/cm), median	No guideline	No guideline	1200*

^Results from Wimbledon Heights Tank in network
1Results from treatment plant discharge
*Results from customer tap

5. Environmental Hazard and Risk Management

WPW's Regional Health and Environmental Management Plan (HEMP) details the management practices required to control the health and environmental risks associated with the end use of recycled water from the Phillip Island Recycled Water Scheme. Risks have been divided into residential and non-residential/commercial. The following sections details those risks.

5.1. Residential Use

The greatest risks from residential use are human consumption and the uncontrolled release of Class A recycled water to the environment. Risk mitigation is via:

- Supplying recycled water in accordance with the RWQMP and the HEMP
- Plumbers adhere to the Conditions of Connection
- Customers subject to WPW auditing at the Corporation's discretion.

5.2. Commercial Use

USMPs are required for all commercial customers who use recycled water and Customer Use Agreements define the legal terms for commercial customers to meet these conditions. USMPs contain monitoring and reporting requirements to ensure that health and environmental risks of recycled water use are adequately managed.

Using a risk-based approach, commercial customers are audited by WPW's Wastewater Quality Specialist to ensure they are meeting their responsibilities. During these inspections monitoring and maintenance records are reviewed, and work practices are assessed to ensure they are compliant with the requirements set out in the USMP. These inspections provide an opportunity for reviewing USMPs where WPW and the commercial customer can address areas that may require revision.

5.3. Commercial site inspections

There were four (4) site inspections of commercial customers carried out on a risk basis and date of last inspection. The following customers were inspected:

- Newhaven College school
- Golf course
- Commercial Nursery
- Phillip Island Cemetery

These sites were found to be compliant with their obligations under their User Site Management Plant (USMPs), with minor adjustments recommended, for example signage replacement. One (1) customer was notified of a backflow issue on their on-site recycled water tanks which was rectified promptly.

5.4. Schools supplied with recycled water

Newhaven College was supplied with 6.1 ML of Class A recycled water in 2023-24. The recycled water is used on site for irrigation of sporting ovals in accordance with Newhaven College's USMP. An inspection of Newhaven College was carried out in April 2024, accompanied by an external contractor conducting the HEMP audit.

6. Summary of Incidents and Emergencies

Any major incident associated with supply and use of recycled water is required to be reported to the EPA and the Department of Health (DoH). Actions will be undertaken to minimise any adverse impacts in accordance with EPA and/or DoH requirements. There were no reportable incidents for 2023-24.

7. Audit Outcomes

7.1. Internal Audits

Validation of the membranes by challenge testing was conducted in October 2023. The membranes achieved the 3-log removal of viruses required by the RWQMP. The results have been recorded.

7.2. External Audits

A HEMP audit was completed by a third-party engaged by WPW. Findings of the audit included:

- The audit found thirteen (13) of fourteen (14) audit outcomes met requirements.
- One backflow issue was identified at one (1) customer site which has been rectified.
- All other components were deemed good practice with some opportunities for improvement (OFIs).