



Western Corridor
Recycled Water
Scheme

Recycled Water
Management Plan
Annual Report
2022-2023

Scheme Reference number SRN013

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Distribution list

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1. Executive Summary

The Queensland Bulk Water Supply Authority trading as Seqwater (**Seqwater**) (SPID SRN013), is the Scheme Manager of the multiple-entity Western Corridor Recycled Water Scheme (**WCRWS** or **the Scheme**). On 6 July 2021 Water Supply Regulation (**WSR** or **Regulator**) issued an Information Notice for the Decision¹ approving Seqwater's amended WCRWS Recycled Water Management Plan (**RWMP**) for supply of purified recycled water (**PRW** or **recycled water**) for electricity generation and industrial uses. The current Information Notice for the Decision does not include approval to augment a drinking water supply with recycled water.

The purpose of this annual report is to provide the Regulator with information on the overall performance of the Scheme for the reporting period (1 July 2022 to 30 June 2023 - **reporting period**). This annual report has been produced in accordance with section 273 of the *Water Supply (Safety & Reliability) Act 2008* (**the Act**) and the Department of Regional Development, Manufacturing and Water's (**DRDMW**) *Annual Reporting Guidelines for Recycled Water Schemes (2010)* (**Guidelines**). This report also provides an accountability mechanism to recycled water customers and the South East Queensland community.

During the reporting period, the Luggage Point Advanced Water Treatment Plant (**AWTP**), having an available operational capacity of 70 ML per day, was the only operable plant in the Scheme and supplied 5,957 megalitres (**ML**) of recycled water to CleanCo's Swanbank Power Station, Stanwell Corporation's Tarong Power Station and to Urban Utilities for on-supply to Incitec Pivot Limited. Demand for PRW from Incitec Pivot Limited ceased in the reporting period, due to the shutdown of Incitec Pivot Limited's operations.

A total of 47,169 external laboratory tests were performed on purified recycled water in the reporting period at the recycled water Luggage Point AWTP and Lake Wivenhoe Points of Supply, incorporating the point of supply for industrial use. A further 1,915 external laboratory tests were performed at the Points of Supply for energy generation. A total of 11 tests were not completed as per schedule due to external laboratory logistics and analysis issues. Replacement samples were collected in all instances within the reporting period and improvements have been implemented, or are planned to be implemented, to reduce the likelihood of recurrence. Within the reporting period, a total of ten parameters were detected in PRW that do not have a quality standard prescribed in Section 53 of *Public Health Regulation 2018* (Qld) (**PHR**). Eight of the ten parameters detected in the reporting period had previously been assessed in accordance with the Information Notice for the Decision and a further two parameters are to be assessed. Seqwater is continuing to work with Queensland Health with regard to the outcome of these assessments.

A regular review of the RWMP was performed in the reporting period in line with the conditions of the Information Notice for the Decision. The amendment incorporated updates to Seqwater's structure and Enterprise Risk Management Framework, the WCRWS Risk Assessment and Monitoring Program, incorporation of feedback from Radiation Safety Unit for radiological characterisation monitoring, feedback from Department of Health on the scope of Public Health Risk Assessments, outcomes of additional Commissioning Validation and Commissioning Verification activities and various other updates to ensure currency of documentation relevant to Seqwater and Urban Utilities operations of the WCRWS.

¹ Issued in accordance with section 206 of the *Water Supply (Safety and Reliability) Act 2008*

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2. Introduction

The 2022-2023 annual report for the WCRWS outlines the operation of the Scheme under the approved RWMP to supply purified recycled water for energy generation and industrial supply. The report also includes details about proactive identification and minimisation of public health and continuity of supply related risks associated with the production and supply of purified recycled water, as well as:

- Summary of the quality of purified recycled water and details of any notifications to the Regulator.
- Outcomes of any reviews or amendments of the RWMP.
- Details of any internal or regular (external) audits performed, and the actions taken to address any non-conformances.

This report is submitted to the Regulator to fulfil the legislative requirements of the Act and is made available to the public through the Seqwater website or for inspection upon request at Seqwater’s Head Office during office hours on business days.

2.1. Purpose

This annual report has been prepared in accordance with section 273 of the Act and the Regulator’s *Annual Reporting Guideline for Recycled Water Schemes (Table 1)*. The purpose of this annual report is to provide the Regulator with information on the overall performance of the Scheme for the period 1 July 2022 to 30 June 2023 and provide an accountability mechanism to recycled water customers and the general community.

Table 1 Annual Report Requirements

Annual report requirements	Act section	Annual Reporting Guideline	Seqwater compliance
The relevant entity for a recycled water scheme must prepare an annual report for each financial year after a recycled water management plan for the Scheme has been approved.	s273(1) of the Act	Section 2.3	This report is for the 2022-2023 financial year.
The annual report must– a. be prepared in accordance with the guidelines, if any, made by the regulator about the preparation of annual reports.	s273(2)(a) of the Act	Section 1 to section 2.12 (inclusive)	This report is aligned with the Guidelines.
b. state the outcome of any review of the recycled water management plan in the financial year to which the annual report relates, and how the matters raised in the review have been addressed.	s273(2)(b) of the Act	Section 2.4	Section 6 – a review of the RWMP was completed in the reporting period.

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Annual report requirements	Act section	Annual Reporting Guideline	Seqwater compliance
c. contain details of the findings of, and any recommendations stated in, an internal audit report under section 260 or a regular audit report under section 261 given to the regulator in the financial year.	s273(2)(c) of the Act	Section 2.4	Section 7 – no internal audits were completed in the reporting period. A regular audit report was given to the Regulator on 11 December 2022. Because the audit itself was undertaken in the previous reporting period, details of the findings and any recommendations were reported on in the annual report for 2021-2022. Details of the findings of, and any recommendations stated in, the regular audit report as contained in the annual report for 2021-2022 are reproduced in Enclosure 3 for compliance with s 273(2)(c) of the Act.
d. contain details of the information given to the regulator under section 270 or 271 in the financial year.	s273(2)(d) of the Act	Section 2.4	Section 3 Recycled water compliance. A total of 11 tests returned a test result equivalent to 'no result' or 'laboratory error' and details were given to the Regulator under section 270 (Section 4 Monitoring Program compliance). There were no prescribed incidents under s 271 of the Act (Section 5 Prescribed incidents).

2.2. Plan overview

The Scheme's RWMP was developed under the Act and consists of a Scheme Manager Plan, Seqwater Scheme Provider Plan and Urban Utilities Scheme Provider Plan. Seqwater and Urban Utilities must comply with the Scheme's RWMP approved by the Regulator. The RWMP has been developed to be consistent with DRDMW's *Recycled Water Management Plan and Validation Guidelines (2008)*.

2.3. Scheme overview and status

The Scheme is one of the largest water recycling schemes in Australia, increasing and diversifying South East Queensland's water sources. The WCRWS has the capacity to deliver up to 180 ML of recycled water a day, equating to 65,700 ML of recycled water per year. The operational capacity during the reporting period was 70 ML per day.

The Scheme has three Advanced Water Treatment Plants (**AWTPs**), owned by Seqwater and operated under contract by Veolia, located at Bundamba, Gibson Island and Luggage Point. Combined, these plants can treat water supplied from six of Urban Utilities' Sewage Treatment Plants (**STP**) located at Bundamba, Gibson Island, Goodna, Luggage Point, Oxley Creek and Wacol to produce PRW. More than 200 kilometres of large diameter

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pipelines connect the STPs, AWTPs, Lake Wivenhoe, power stations and Urban Utilities' infrastructure (for on-supply for industrial use).

Following a period of 'care and maintenance' mode that began in 2013, a single process train at Luggage Point AWTP was restarted during 2018. Restarting the plant provided the ability to supply recycled water for electricity generation. This also enabled supply for industrial uses to be explored, water quality monitoring of recycled water to be resumed and identification of any potential issues that could arise during a full restart. Seqwater applied to resume supply of recycled water for electricity generation on 23 February 2018 and the WSR approved the RWMP for this use only on 28 May 2018.

A Critical Scheme Declaration was issued on 2 July 2021 by the WSR and a further amendment of the RWMP was approved on 6 July 2021. In late 2021, restart commenced of two additional process trains at Luggage Point AWTP. This allowed for the existing operational train to be taken offline for maintenance for an extended period and increased the operational capacity of the Scheme to 70 ML per day.

Seqwater's Water Security Program 2023 sets out Seqwater's plan to ensure South East Queensland (SEQ) communities have access to a safe, secure and valued water supply now, and for future generations. The Western Corridor Recycled Water Scheme is an important drought supply asset, which can be considered to augment drinking water supply during a severe drought when the combined level of SEQ Water Grid storages reach 40%. Purified Recycled Water (PRW) also continues to be provided to power stations. Seqwater will investigate further opportunities to increase PRW supply to industry, and potentially agricultural customers.

The RWMP encompasses water supplied by the Scheme for energy generation and industrial uses. To meet the water quality requirements set out in the Bulk Water Supply Agreements with energy generation customers, water quality in the pipeline must be maintained. To achieve this in periods of low demand, recycled water (referred to as flushing water) is supplied, to Stanwell Corporations Tarong Power Station, to mitigate any decline in water quality due to water age in the pipeline.

2.3.1. Bundamba AWTP Point of Supply

The Bundamba AWTP was non-operational and did not produce or supply recycled water at any time during the reporting period. As such, no monitoring from the Bundamba AWTP Point of Supply was required.

2.3.2. Gibson Island AWTP Point of Supply

The Gibson Island AWTP was non-operational and did not produce or supply recycled water at any time during the reporting period. As such, no monitoring from the Gibson Island AWTP Point of Supply was required.

2.3.3. Luggage Point AWTP Point of Supply

The Luggage Point AWTP was the sole operable plant in the Scheme and provided a cumulative volume of 5,957 ML of recycled water for the reporting period. The Luggage Point AWTP was available to supply recycled water to power stations and Urban Utilities during the reporting period. Supply of recycled water to Urban Utilities was for on-supply to Incitec Pivot Limited for industrial use and commenced during the previous reporting period.

The Scheme is currently not approved to supply recycled water to augment a supply of drinking water. However, under the current Information Notice for the Decision, the quality standard for recycled water intended to augment a supply of drinking water as per Section 53 of the PHR applies at this Point of Supply. This assessment is provided below in Section 3.

During the reporting period the following volumes of recycled water were supplied to:

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- CleanCo's Swanbank Power Station: 1,295 ML
- Stanwell's Tarong Power Station: 4,013 ML
- Urban Utilities (for on-supply to Incitec Pivot): 649 ML

2.3.4. Lake Wivenhoe Point of Supply (augmentation of drinking water supply)

Recycled water was not supplied to Lake Wivenhoe during the reporting period, however Seqwater undertakes sampling from the Lake Wivenhoe Point of Supply when PRW is being supplied to Tarong Power Station. The Scheme is currently not approved to supply recycled water to augment a supply of drinking water via the Lake Wivenhoe Point of Supply. However, under the current Information Notice for the Decision, the quality standard for recycled water at this Point of Supply is the standard for recycled water intended to augment a supply of drinking water described in Section 53 of the PHR. This assessment is provided below in Section 3.

3. Quality standard for recycled water intended to augment a supply of drinking water

Seqwater's PLN-00447 WCRWS Monitoring Plan (**Monitoring Plan**) details the Verification Monitoring component of the Scheme Monitoring program. It represents a final assessment of the performance of the WCRWS verifying recycled water meets the quality criteria and monitors any long-term trends or changes in quality of recycled water. Verification Monitoring is separate to Operational Monitoring and is undertaken by independent laboratories that are National Association of Testing Authorities (**NATA**) accredited for most of the analyses. Analysis that is not NATA-accredited, where specialised analysis is required, is undertaken typically at research laboratories, under a robust quality system.

Under the Monitoring Plan, a total of 23,924 tests were performed on samples from the Luggage Point AWTP Point of Supply and a total of 23,245 tests were performed on samples from the Lake Wivenhoe Point of Supply. Furthermore, there were a total of 41,206 tests performed on treated wastewater, the source water to the AWTPs. The summary statistics from the Monitoring Plan for all parameters for source water, and recycled water at the Luggage Point AWTP Point of Supply and the Lake Wivenhoe Point of Supply is provided within Enclosure 1 and Enclosures 2a and 2b.

Under Seqwater's Information Notice for the Decision, the quality of the recycled water produced or supplied by the WCRWS must be tested for the presence of each required parameter at the frequency specified in the Monitoring Plan at the Lake Wivenhoe Point of Supply and at the AWTP Points of Supply. Each sample of the water taken at the Point of Supply and tested for a parameter must comply with the quality standard for recycled water intended to augment a supply of drinking water prescribed in Section 53 of the PHR.

There were no instances in the reporting period in which a sample of recycled water (excluding points of supply to energy generation and industrial use) returned a result for which the concentration of a parameter is more than the value stated in Section 53 of the PHR.

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4. Monitoring Program compliance

It is a condition of Seqwater’s Information Notice for the Decision dated 6 July 2021 that notification and replacement sampling occurs, where the quality of recycled water produced by the scheme is tested for the presence of a parameter at the Points of Supply as specified in the Monitoring Plan, and a test result of ‘no result’ or ‘laboratory error’ is recorded.

A total of 47,169 tests for 749 parameters were undertaken in the reporting period at the Luggage Point AWTP and Lake Wivenhoe Points of Supply, which also incorporates the point of supply for industrial use. A total of 1915 additional tests were undertaken at the points of supply for energy generation. A total of 11 tests returned a test result equivalent to ‘no result’ or ‘laboratory error’ and are summarised in **Table 2** along with contributing factors and improvements. In all instances, replacement samples were collected.

Table 2 Purified Recycled Water Points of Supply incidents for non-compliance with water quality criteria: failure to test or missing data

Parameter	Regulated Standard	Frequency of test	Required number of tests	Number of tests taken in scheduled frequency	Number of tests missed	Date/s notified to regulator	Contributing factors and improvements
Somatic coliphages	<1 pfu/100 mL	Weekly	148	141	3	4 August 2022	1 x Luggage Point AWTP PoS; Lake Wivenhoe PoS; Stanwell Corporation PoS. Scheduled samples: 2 Aug 2022. Replacement samples: 8 Aug 2022. External Laboratory Quality Control failure due to contamination of positive control. External laboratory changed stock culture preparation method to prevent stock culture contamination.
					4	26 May 2023	1 x Luggage Point AWTP PoS; Lake Wivenhoe PoS; Stanwell Corporation PoS; CleanCo Corporation PoS. Scheduled samples: 23 May 2023. Replacement samples: 29 May 2023. External laboratory Quality Control failure due to decline in quality of positive control culture. Samples outsourced until master stock established allowing testing to return in house.

Parameter	Regulated Standard	Frequency of test	Required number of tests	Number of tests taken in scheduled frequency	Number of tests missed	Date/s notified to regulator	Contributing factors and improvements
Formaldehyde	0.5 mg/L	Weekly	102	98	4	23 February 2023	<p>2 x Luggage Point AWTP PoS; Lake Wivenhoe PoS.</p> <p>Scheduled samples: 7 Feb 2023, 11 April 2023.</p> <p>Replacement samples: 1 Mar 2023, 3 May 2023.</p> <p>First set of failure to test was due to samples failing to reach external contracted laboratory interstate with sufficient holding time remaining.</p> <p>Second set was due to instrument issue at the external laboratory. The instrument issue was identified through Quality Control (QC) process requiring the samples to be re-run however the samples were then outside of holding time and could not be run.</p> <p>External laboratory contractor management processes have increased to ensure issues are identified in shorter timeframes to allow for makeup samples to be collected within the sample frequency window to reduce likelihood of missed test non-compliance.</p>

5. Prescribed incidents

There were no other prescribed incidents, under section 271 of the Act, for the reporting period.

6. Reviews

The RWMP was scheduled for regular review within the reporting period. Seqwater conducted a regular review of the RWMP and submitted an amended RWMP in line with the regular review conditions. The amendment incorporated updates of Seqwater’s structure and Enterprise Risk Management Framework, the WCRWS Risk Assessment and Monitoring Program which includes deriving an interim water quality value for parameters that have been quantified in PRW that do not have a standard in Section 53 of PHR, incorporation of feedback from Radiation Safety Unit for radiological characterisation monitoring, feedback from Department of Health on the Scope of Public Health Risk Assessments, outcomes of additional Commissioning Validation and Commissioning

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Verification activities, the Improvement Plan, and various other updates to ensure currency of documentation relevant to Seqwater and Urban Utilities operations of the WCRWS.

7. Audits

7.1. Internal audits under s 260 of the Act

There were no internal audits given to the Regulator in the reporting period. The next internal audit is scheduled to be performed by 31 August 2024.

7.2. Regular audits under s 261 of the Act

A regular audit report was given to the Regulator on 11 December 2022. Because the audit itself was undertaken in the previous reporting period, details of the findings and any recommendations were reported on in the annual report for 2021-2022.

Details of the findings of, and any recommendations stated in, the regular audit report as contained in the annual report for 2021-2022 are reproduced in **Enclosure 3**.

A finding that remains from the regular audit performed in the 2021-2022 reporting period relates to the implementation of a Laboratory Information Management System (LIMS). Other OFIs open in the previous RWMP Annual Report (2021-2022) have now been closed as described in **Table 3**.

Table 3 Details of regular (external) audit findings of RWMP and Regulator-applied conditions open in the reporting period

Regular audit finding	Details	Action taken or planned to be taken
OFI	Consideration should be given to implementing a Laboratory Information Management System (LIMS) to schedule, oversee, manage, and report the verification monitoring program, or seeking support from a laboratory services provider to undertake that function	LIMS system options analysis complete. Contracted operator is in the process of completing corporate review (including cyber security) and approval processes.
OFI	Consideration should be given to drawing upon operational experience with the scheme and setting more practical monitoring procedures, frequencies, and tolerances, based on good practice, but not being unnecessarily stringent.	Tolerance ranges reviewed and finalised by 31 March 2023. Closed.
OFI	Consideration should be given to uncoupling or reorienting the monitoring program such that operations and production take priority over monitoring logistics.	Addressed as part of RWMP amendment currently under review for approval. Refer SMP Table 33. Monitoring will also not occur if operational or demand constraints result in water not being supplied past the PoS to a downstream user within the time window that the laboratory is able to accept samples for analysis (i.e. the lab is unable to accept samples late in the week due to analysis turnaround time constraints). Further guidance can be added to Veolia's sampling procedure to operationalise this. Closed.

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8. Glossary

Term	Definition
AWTP	Advanced Water Treatment Plant
DRDMW	Department of Regional Development, Manufacturing and Water – see Regulator
Guidelines	<i>Annual Reporting Guidelines for Recycled Water Schemes (2010)</i>
ML	Mega Litres (1 Million Litres)
mL	Millilitre (1000th of a litre). 1 cubic centimetre
OFI	Opportunity for Improvement
PFU	Plaque Forming Unit. A measure used in analysis of viruses. One (1) plaque is considered to represent a single, viable, viral particle from the sample.
PHR	<i>Public Health Regulation 2018 (Qld)</i>
PRW	Purified Recycled Water produced by the WCRWS
QC	Quality Control
Regulator (the Regulator)	Department of Regional Development, Manufacturing and Water, Water Supply Regulation (WSR) (i.e., the Director-General of DRDMW) is responsible for regulating water service provider performance, drinking water quality and provision of recycled water
Reporting period	1 July 2022 to 30 June 2023
RWMP	Recycled Water Management Plan
Seqwater	Queensland Bulk Water Supply Authority (QBWSA)
SMP	Scheme Manager Recycled Water Management Plan
STP	Sewage Treatment Plant
The Act	<i>Water Supply (Safety and Reliability) Act 2008 (Qld)</i>
The Scheme	Western Corridor Recycled Water Scheme – see WCRWS
Urban Utilities	Urban Utilities – Central SEQ Distributor-Retailer Authority (formerly known as Queensland Urban Utilities)
Veolia	Veolia Australia & New Zealand
WCRWS	Western Corridor Recycled Water Scheme
WSR	Water Supply Regulation – see Regulator

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9. Enclosures

Enclosure	Name
1	Luggage Point AWTP Source Water Data water quality report 2022-2023
2a	Luggage Point AWTP Point of Supply assessment against augmentation of a drinking water supply water quality criteria 2022-2023
2b	Lake Wivenhoe Point of Supply assessment against augmentation of a drinking water supply water quality criteria 2022-2023
3	Reporting of regular audit in Recycled Water Management Plan Annual Report 2021-2022

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