



# Drinking Water Quality Management Plan Report

Richmond Shire Council

SPID: 111

2021-22

This report has been prepared in accordance with the Drinking Water Quality Management Plan Report Guidance Note.

## Table of contents

<b>1</b>	<b>Introduction</b> .....	<b>1</b>
<b>2</b>	<b>Summary of scheme/s operated</b> .....	<b>1</b>
<b>3</b>	<b>DWQMP Implementation</b> .....	<b>2</b>
<b>4</b>	<b>Verification monitoring - water quality information and summary</b> .....	<b>3</b>
<b>5</b>	<b>Incidents reported to the regulator</b> .....	<b>5</b>
<b>6</b>	<b>Customer complaints</b> .....	<b>6</b>
<b>7</b>	<b>DWQMP review outcomes</b> .....	<b>7</b>
7.1	DWQMP Document Updates Required for Next Amendment .....	7
7.1.1	Document Revision .....	7
7.1.2	Infrastructure delivering the service .....	7
7.1.3	Key Stakeholders .....	8
7.1.4	Hazards and hazardous events .....	8
7.1.5	Assessment of Risks.....	8
7.1.6	Risk management Improvement Plan (RMIP) .....	8
7.1.7	Management of Incidents and emergencies .....	8
7.1.8	Operational and Maintenance Procedures .....	9
7.1.9	Operations and Verification Monitoring Programs .....	9
<b>8</b>	<b>Appendix 1 – Updated RMIP Table</b> .....	<b>9</b>

## Table of tables

Table 1 – Summary of schemes .....	1
Table 2 – Risk management improvement program implementation status .....	2
Table 3 – Drinking water quality performance - verification monitoring .....	3
Table 4. E. coli compliance with annual value .....	4
Table 6 – Incidents reported to the regulator .....	5
Table 7 : customer complaints about water quality.....	6

# 1 Introduction

This is the annual Drinking Water Quality Management Plan report for Richmond Shire Council for the 2021-22 financial year. RSC is a registered service provider with identification (SPID) 111 and operates under an approved DWQMP to ensure consistent and safe supply of quality potable water to protect public health.

The report documents the performance of Richmond Shire Council's Water Treatment Plants drinking water service with respect to;

- Water quality summary
- DWQMP review findings
- Progress implementing the actions and improvements identified in the Risk Management Improvement plan detailed in the DWQMP as required under the Water Supply (Safety and Reliability) Act 2008 (the Act).

The report is submitted to the Regulator to fulfil our regulatory requirement and is made available to customers.

## 2 Summary of scheme/s operated

**Table 1 – Summary of schemes**

	<i>Water Source</i>	<i>Treatment processes</i>	<i>Treatment capacity</i>	<i>Towns supplied</i>
Richmond	Great Artesian Basin	Oxidation (chlorine and aeration), coagulation/flocculation, filtration & chlorination.	6.5ML/D (WTP), 6.5ML/d (bores)	Richmond

### 3 DWQMP Implementation

The actions undertaken to implement the DWQMP are summarised below.

During the 2021-22 financial year Richmond Shire Council completed a review of the DWQMP and its implementation as required under the regulations. The review was completed in June - July 2022.

A number of projects were completed to improve security of supply including;

- Upgrading of chemical dosing systems with new dosing pumps to minimise unplanned failures.
- Inspection and testing of filters and filter media to assess need for media replacement.
- Replacement of on-line water quality instruments (Chlorine, pH, Turbidity) to improve reliability and accuracy of results.
- Improvements to SCADA alarming and notifications where by critical alarms are now emailed to relevant personnel.
- Improvements to chemical dosing control systems and adjustment via SCADA HMI.

A number of workshops were undertaken to review the RMIP and progress and also inform new operators of the DWQMP documents, drivers behind the DWQMP and help them better understand and appreciate the importance of record keeping and undertaking critical routine tasks.

Two new staff have been engaged in the plumbing and water treatment group who are undertaking the Certificate three in water operations.

The progress linked to “high priority” actions undertaken to implement the risk management improvement program are discussed in Table 2.

#### ***Table 2 – Risk management improvement program implementation status***

Please refer to Appendix A.

## 4 Verification monitoring - water quality information and summary

This section discusses the compliance with the water quality criteria. The Verification monitoring program was implemented in October 2018, including both internal and external verification analysis.

Richmond Shire Council has undertaken analysis in accordance with the DWQMP verification monitoring program detailed in the DWQMP. RSC Undertakes weekly internal analysis for Ecoli and coliforms and on a monthly basis sends these samples to an external NATA accredited laboratory for verification. The NATA laboratory also undertakes a range of chemical analysis on a monthly, quarterly and six monthly basis. This includes analysis of the raw water sources (not included in verification) to re-establish a level in confidence as to the quality of raw water and any risks that may be presented due to natural change in the source supply.

**Table 3 – Drinking water quality performance - verification monitoring**

Scheme name	Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e ADWG health guideline value)	No. of non compliant samples	Comments
Richmond	Ecoli	12 (external) + 52 (Internal)	12 (external), 52	Not detected	0	100% compliant
	Chemical Parameters	12 x External (varying parameters)	8	Various	0	100% compliant
	Naegleria - Legionella	4	4	Not detected	0	100% compliant
	Chlorate/ DBP's	4	4	Various	0	100% compliant

**Table 4. E. coli compliance with annual value**

**Drinking water scheme:** Richmond

Year	2021-2022											
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected (internal & External)	5	5	5	5	5	5	4*	5	5	5	5	5
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	5	5	5	4*	4*	4*	4*	5	5	5	5	5
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100	100	100	100	100	100	100	100	100	100	100	100
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

*\*Freight services to laboratory did not get samples to the lab within the required period, The sample for January was collected however did not reach the laboratory in time, COC for the missing external sample is available on request. Internal e-coli analysis continued as normal with no negative result..*

## 5 Incidents reported to the regulator

No water quality incidents or non-compliances were reported to the regulator in 2021-22. A notification to the regulator was issued in May 2020 due to freight services being disrupted from Richmond to the laboratory and council were advised that this was note required for future issues with freight. Four samples failed to arrive at the laboratory within their specified holding time in the past financial year.

**Table 6 – Incidents reported to the regulator**

Incident date	Scheme / location	Parameter / issue	Preventive actions





## 7 DWQMP review outcomes

Richmond Shire Council undertook a review of the DWQMP with particular focus on the progress of actions in the RMIP. A significant amendment is also planned for submission March 2023.

Key outcomes of the review are summarised below:

- Completed RMIP Actions
  - Top up disinfection procedure and dose rate table developed for implementation.
  - Main break repair guideline developed including monitoring requirements for disinfection and key WQ criteria.
  - All major project related to water supply to include clause(s) ensuring all materials used are suitable and approved for use in the water supply system.
  - Quarterly monitoring for Naegleria and legionella has been incorporated into verification and operational monitoring programs.
- RMIP Actions with significant Progress (50-75%).
  - Installation of smart meters to monitor water use and improve identification of leaks has been completed. Council working to finalise tariffs for domestic and business water use.
  - Plant and equipment check lists have been further developed to ensure we minimise unplanned corrective maintenance and associated negative impacts on water quality or quantity.
  - Main break repairs procedure requires field testing and record sheet to record water quality after reinstatement and ensure appropriate disinfection of repaired section of pipe.
  - Backflow prevention device inspection and testing procedure has been developed, requires implementation.
  - Two new operations staff employed and benig trained to Certificate 3 in Water Operations.
  - Citect SCADA upgraded and backed up on independent PC external to RSC Intranet, and also maintained by external contractor.
  - SWIM Local data base has been populated with operational and external verification data to end 2021-22 financial year. Arrangements have been made with external laboratory to provide exceedance notifications, and initial steps taken to develop capacity for laboratory to import data directly to SWIM local

### 7.1 DWQMP Document Updates Required for Next Amendment

#### 7.1.1 Document Revision

- Update Document revision number and date (Complete).

#### 7.1.2 Infrastructure delivering the service

- Include Bore 8 infrastructure details in DWQMP document

### 7.1.3 Key Stakeholders

- No Change

### 7.1.4 Hazards and hazardous events

- No Change – Ongoing review of RW data captured since last summary analysis 2021, update catchment water quality summary to incorporate summary of Bore 8 water quality once two years data is available. Assess any notable changes or anomalies for risk if applicable. Undertake comparative analysis of all bores water quality data to see if any notable differences exist between the three primary bores and if operational monitoring program can be streamlined based on assessment of risks subject to water quality variations if present or absent.

### 7.1.5 Assessment of Risks.

- Assessment and decision to transition to the DRDMW Matrix. The DRDMW matrix determined a better fit for a community and supply of this size, significant change to overall risk profile and summary will be required, a lot of residual risks would become lower (High to Medium – Medium to Low) better reflecting the controls in place.

Level of Risk Matrix (ADWG 2011)

Likelihood	Consequences				
	1 – Insignificant	2 - Minor	3 - Moderate	4 - Major	5 – Catastrophic
A - Almost certain	Moderate	High	Very High	Very High	Very High
B - Likely	Moderate	High	High	Very High	Very High
C - Possible	Low	Moderate	High	Very High	Very High
D - Unlikely	Low	Low	Moderate	High	Very High
E - Rare	Low	Low	Moderate	High	High

ADWG Matrix – unable to reduce major risk to below “High” regardless of controls.

Table 8: Example of a qualitative risk analysis matrix—level of risk

Consequence (numbers are indicative of relative weightings)					
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium (6)	High (10)	High (15)	Extreme (20)	Extreme (25)
Likely	Medium (5)	Medium (8)	High (12)	High (16)	Extreme (20)
Possible	Low (3)	Medium (6)	Medium (9)	High (12)	High (15)
Unlikely	Low (2)	Low (4)	Medium (6)	Medium (8)	High (10)
Rare	Low (1)	Low (2)	Low (3)	Medium (5)	Medium (6)

QLD - DRDMW Matrix (From Guidance Note – Preparing a Drinking Water Quality Management Plan Supporting Information September 2010). Risks can be reduced to Medium for both Major and catastrophic consequences.

- Significant update to RMIP and future actions following SCADA upgrades.

### 7.1.6 Risk management Improvement Plan (RMIP)

- Incorporate Bore 8 into RMIP, or subject to adequate data analysis combine bores as a single source water in RMIP given they are all drawing water from the same aquifer at the same depth.

### 7.1.7 Management of Incidents and emergencies

- No Change

### **7.1.8 Operational and Maintenance Procedures**

- Update O&M procedure list to incorporate new procedures implemented and monitoring/record keeping systems.

### **7.1.9 Operations and Verification Monitoring Programs**

- Update to formally incorporate Bore 8 monitoring requirements, including new analytes Naeglaria-Legionella.
- Significant review of both monitoring programs to streamline sampling programs and reduce operational workload.
  - Current programs include sampling frequency and analysis well in excess of minimum requirements outlined in ADWG guidelines based on population served. Current monitoring plans were developed to establish a sound comprehensive baseline of data from which to re-evaluate and better understand (quantify) risks from catchment and process.

## **8 Appendix 1 – Updated RMIP Table**

*See Attached Xcel Spreadsheet.*