

Drinking Water Service Annual Report

Livingstone Shire Council

SPID: 556



2022-2023

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

Table of contents

1	Introduction	3
2	Summary of scheme/s operated	4
3	DWQMP implementation	6
4	Verification monitoring – water quality information and summary	11
5	Incidents reported to the regulator	23
6	Customer inquiries or complaints	24
6.1	Health Concern.....	24
6.2	Discoloured Water	24
6.3	Taste and Odour.....	24
6.4	Other.....	24
7	DWQMP review outcomes	25
8	DWQMP audit findings	25

Table of tables

Table 1 – Summary of schemes	4
Table 2 – Risk management improvement program implementation status	7
Table 3 - Risk management improvement program	Error! Bookmark not defined.
Table 4 – Drinking water quality performance - verification monitoring ..	Error! Bookmark not defined.
Table 5 - Reticulation E. coli verification monitoring	20
Table 6 – Incidents reported to the regulator	23
Table 7 - Customer inquiries or complaints about drinking water aesthetics or quality.....	24

1 Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Livingstone Shire Council (LSC) for the financial year 2022-23 i.e., 1/07/2022 to 30/06/2023

Livingstone Shire Council is a registered service provider with identification (SPID) number 556. Livingstone Shire Council is operating under an approved DWQMP to ensure consistent supply of safe and high-quality drinking water to protect public health.

This is done through proactive identification and minimisation of public health related risks associated with drinking water.

This DWQMP report includes:

- the activities undertaken over the financial year in operating our drinking water services
- drinking water quality summary
- summary of our performance in implementing our approved DWQMP

This report is submitted to the Regulator to fulfil our regulatory requirement and is also made available to our customers through our website or for inspection upon request at council office.

Over the course of the reporting period LSC took 190 bacteriological samples and tested these for the presence of Ecoli. Of the samples tested in an independent laboratory, 100% were compliant and found to contain nil Ecoli.

This 100% bacteriological compliance continues Council's outstanding achievement over the previous 9 years plus.

Over the same period LSC was required to take 1696 physical / chemical samples and actually took 1728.

2 Summary of scheme/s operated

Livingstone Shire Council was established after de-amalgamation on 1 January 2014 and has a permanent population of more than 39,877 residents. Livingstone Shire Council is in Central Queensland with a service area of approximately 11,776 km². Livingstone Shire Council operates four (4) drinking water schemes:

Table 1 – Summary of schemes

	Water Source	Treatment processes	Treatment capacity	Towns supplied
Capricorn Coast DWSS	<p>The Capricorn Coast Scheme is a multiple entity scheme that has two distinct water supplies. The first supply is Waterpark Creek, which is harvested into the Kelly's Offstream Storage.</p> <p>Water from the Woodbury WTP is supplemented by a second water supply via the Rockhampton to Yeppoon Water Supply Pipeline. The ~40 km pipeline supplies water treated conventionally by Fitzroy River Water (FRW), a business unit of Rockhampton Regional Council, at their Glenmore Water Treatment Plant in Rockhampton.</p>	<p>Water from this storage is conventionally treated (coagulation, flocculation, clarification, filtration & disinfection by chlorination - at the Woodbury Water Treatment Plant (WTP), which is operated by Livingstone Shire Council.</p>	<p>Woodbury WTP - approx. 210 litres per second</p>	<p>Yeppoon, The Causeway, Kinka Beach, Zilzie, Emu Park and Keppel Sands.</p>
Nerimbera DWSS	<p>The entire water supply for "The Nerimbera area" is sourced from and is a zone within the Glenmore Water Treatment Plant reticulation network. The local government boundary separates this zone from the Glenmore WTP</p>	<p>Coagulation, flocculation, clarification, filtration, chlorination - operated by Rockhampton Regional Council Fitzroy River Water.</p>	<p>As demand dictates</p>	<p>Nerimbera is a small community located ~8 km East of Rockhampton town Centre, and pressure is maintained by the Lakes Creek Road Water Pump Station. Livingstone Shire Council has no pumps or reservoirs in the Nerimbera zone. There is a major customer in this zone - abattoir</p>

	Water Source	Treatment processes	Treatment capacity	Towns supplied
	reticulation network.			located at the far end of this reticulation zone, and this is a high-risk customer. There is no further treatment or re-chlorination in this zone.
The Caves (Mt Charlton) DWSS	<p>The entire water supply for "The Caves" area is a zone within the Glenmore Water Treatment Plant reticulation network.</p> <p>Livingstone Shire Council has control only of re-chlorination at Mt Charlton reservoir. The local government boundary separates this zone from the Glenmore WTP reticulation network.</p>	Coagulation, flocculation, clarification, filtration, chlorination - operated by Rockhampton Regional Council Fitzroy River Water.	As demand dictates	The Caves area, located to the north of Rockhampton, includes the Mt Charlton, Ramsay Creek, Etna Creek, Glenlee, Glendale, Rockyview and The Caves communities. The Capricorn Correctional Centre is a major customer in this zone. Water is supplied to Livingstone Shire Council at the Ramsay Creek flowmeter. There is a small reticulation area off Argyle St where drinking water returns to Fitzroy River Water (FRW) control. Both LSC and FRW agree that there is no further increase in public health risks to Fitzroy River Water (FRW) due to this arrangement.
Marlborough DWSS	Bore Water Catchment	Bore water is treated by bag filtration and/or reverse osmosis prior to disinfection	<p>Approx. 1.3 Litres per second</p> <p>Approx. 110 kL per day</p>	This is a bore water "catchment to tap" scheme that serves the community of Marlborough. It is fully owned and operated by Livingstone Shire Council.

3 DWQMP implementation

The actions undertaken to implement the DWQMP are summarised below.

Livingstone Shire Council Infrastructure Water and Sewer staff meet every month to discuss water and sewerage issues. This provides the opportunity to refer to the approved DWQMP and emphasise the importance of using the plan with any items that relate to the ongoing implementation discussed and noted.

Any relevant issues are recorded in the ongoing Risk Management Improvement Program (RMIP). See Table 3 below.

As part of council's induction program, any new incoming water and sewer staff are made aware of the approved DWQMP, a summary of which is part of the induction package and made available on the Livingstone Shire Council records management system and external website.

Consistent with LSC's approach to meeting the 12 elements of ADWG and specifically element 9 – Research and Development, between December 2017 and July 2019 Livingstone Shire Council has partnered with Central Queensland University in a joint collaborative water quality study of the raw water supply (including Kelly's Dam Offstream Storage) to the Capricorn Coast. Aspects of this ongoing study including relevance to the approved DWQMP were jointly presented to Council in December 2019 with an academic paper published in April 2023.

Each month the Water Quality Officer reports on relevant Water Quality matters - including but not limited to aspects of the approved DWQMP - to the Manager Water and Waste Operations. The Manager Water and Waste Operations then reports to the Executive Leadership team by exception.

The actions undertaken to implement the risk management improvement program are discussed in Table 2.

These were the remaining outstanding RMIP actions from the approved DWQMP as at 24 May 2023. A DWQMP review was undertaken after the end of the financial year, and the RMIP was updated at this time. A DWQMP amendment was submitted to the Regulator in October 2022, and it is anticipated that future DWQMP Reports will contain updates on the implementation of the amended DWQMP, including the new RMIP actions.

The following two outstanding items from the previous RMIP have been incorporated in a revised RMIP at table 2 below.

Table 2 – Risk management improvement program implementation status

Item	Relevant Scheme(s)	Unmitigated Risk level	Mitigated Risk level	Actions			Responsibility	Complete
				Immediate actions (31/03/2021)	Short Term (30/06/2021)	Long Term (30/06/2023)		
Recontamination from supernatant	Capricorn Coast	Extreme	High	Install turbidity analyser on return line & develop protocol around high turbidity shutdown	Turbidity meter installed and automatic plant shutdown at greater than 10NTU.		Coordinator Water & Sewerage Process Operations	Yes
Coagulation failure (e.g. change of raw water quality)	Capricorn Coast	Medium	Low			Consider Installing ORP analyser at Woodbury WTP inlet	Technical Specialist	Raw water quality very stable. Continue to monitor
Source water contamination / filtration	Capricorn Coast	Extreme	High	Review turbidity-based backwash triggers (e.g. >0.3 for 14mins if possible)	Consider installing a turbidity meter at the clarifier to provide advance warning of carryover	Business case for CAPEX - structural works and filter media replacements	Coordinator Water & Sewerage Process Operations	Project 90% complete. High turbidity backwash initiated on refurbished filters.
						Consider undertaking Cost-Benefit Analysis	Coordinator Water & Sewerage	Complete. Due to high cost - UV not feasible.

Item	Relevant Scheme(s)	Unmitigated Risk level	Mitigated Risk level	Actions			Responsibility	Complete
				Immediate actions (31/03/2021)	Short Term (30/06/2021)	Long Term (30/06/2023)		
						for UV at Woodbury WTP	Process Operations	
Failure filtration/ soda ash	Capricorn Coast	Medium	Medium		Install duty/standby soda ash pumps at Woodbury WTP. Complete.		Coordinator Water & Sewerage Process Operations	Complete
Disinfection / underdosing	Capricorn Coast	Extreme	Medium		Investigate auto-removal of control system inhibit (e.g. when calibrating)	Look at including as part of filtration upgrade.	Coordinator Water & Sewerage Process Operations	Will be investigated at end of filter project.
Deliberate contamination (incl cyber security attacks with a physical element)	Whole of System	High	High		Develop scope of works for site security upgrades	Undertake site security upgrades. site security checked.	Manager Water and Waste	Complete. New automatic security gate installed and chemical shed locks re-keyed.
Change to SCADA limits resulting in compromised system operation	Whole of System	Extreme	High		Review SCADA access protocols to determine if any short-term improvements are available	Consider engaging an expert to undertake a cyber security review. Cyber security exercise ran in September 2022.	Manager Water and Waste	Complete. SCADA access level access controls implemented.
Unauthorised remote access to systems leading to water quality impacts	Whole of System	High	Medium					Ongoing – Individual SCADA logins implemented. SCADA data sent via encrypted network.

Item	Relevant Scheme(s)	Unmitigated Risk level	Mitigated Risk level	Actions			Responsibility	Complete
				Immediate actions (31/03/2021)	Short Term (30/06/2021)	Long Term (30/06/2023)		
								Password changes 2 Monthly.
Insufficient Operators available	Whole of System	Extreme	High		Prepare a business case for additional Operator(s). Business case.		Coordinator Water & Sewerage Process Operations	Complete. 2 x operators employed.
Source contamination	Marlborough	High	Medium	Inspect bore heads and seal any identified gaps	Bore heads inspected and gaps sealed.		Coordinator Water & Sewerage Process Operations	Complete
Failure of chlorine dosing	Marlborough	High	Medium		Begin monitoring <i>E. coli</i> in raw water. Complete.		Technical Specialist	Complete
Recontamination of reservoirs/network (Mount Charlton)	The Caves	High	High	Implement weekly verification monitoring at Mount Charlton Reservoir (<i>E. coli</i> and chlorine). Complete.	Address vermin proofing and reservoir integrity breaches upon inspections where a high risk is identified. Inspections initiated.	Replace roof structure and sheeting on Mount Charlton Reservoir (To be completed end of October 2022)	Manager Water and Waste	Complete. Roof replaced, vermin proofing rectified, and new dosing points installed.
Low chlorine residuals supplied by Rockhampton RC	Nerimbera and The Caves	High	Medium		Improved communication with FRW and regular reporting to build relationships.	Renegotiation of Bulk Water Supply Agreement in 2024 to increase chlorine residual levels in water supplied by FRW	Coordinator Water & Sewerage Process Operations	Water quality KPI's will be included.

Item	Relevant Scheme(s)	Unmitigated Risk level	Mitigated Risk level	Actions			Responsibility	Complete
				Immediate actions (31/03/2021)	Short Term (30/06/2021)	Long Term (30/06/2023)		
Chlorine residuals in networks supplied by Rockhampton RC	Nerimbera and The Caves	Medium	Low		Improved communication with FRW and regular reporting to build relationships.	Provide historic trends of chlorine residuals showing improvement over the last 18 months.	Coordinator Water & Sewerage Process Operations	Disinfection residual graphs will be included in next amendment of the DWQMP.
Reservoir CCP's	All Schemes	Medium	Low			Update document MSP064 to reflect CCPs apply for all reservoirs	Coordinator Water & Sewerage Process Operations	Updated document MSP064 will be included in next amendment of the DWQMP.
Chlorine CCP Limits	All Schemes	Medium	Low			Update document MSP064 to make it clear that upper limits for chlorine is for total chlorine, not free.	Coordinator Water & Sewerage Process Operations	Updated document MSP064 will be included in next amendment of the DWQMP.
Customer complaints	All Schemes	Low	Low			Summarise customer complaints as reported in DWQMP annual reports	Coordinator Water & Sewerage Process Operations	Will be included in next amendment of the DWQMP.
Catchment characterisation	Marlborough	Medium	Low			Include catchment characterisation for Marlborough Bores	Coordinator Water & Sewerage Process Operations	Will be included in next amendment of the DWQMP.
Raw Water E. Coli	Capricorn Coast Marlborough	Medium	Low			Review of Raw Water E. Coli Sampling	Coordinator Water & Sewerage Process Operations	Will be included in next amendment of the DWQMP.

4 Verification monitoring – water quality information and summary

This section discusses the compliance with the water quality criteria.

Table 4 – Drinking water quality performance - verification monitoring

Scheme name	Scheme component	Parameter	Units	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 samples exceeding water quality criteria	Comments
Total samples	All schemes	All parameters		1696	1728		0	NATA lab testing only

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples non-compliant	Comments
Capricorn Coast	Kelly's Offstream Storage (Source Water)	Nitrate	mg/L	12	12	50	0	
		Sulphate	mg/L	12	12	No Value	0	
		Fluoride (naturally occurring)	mg/L	12	12	1.5	0	
		Aluminium (acid-soluble)	mg/L	12	12	No Value	0	
		Copper	mg/L	12	12	2	0	
		Iron	mg/L	12	12	No Value	0	
		Lead	mg/L	12	12	0.01	0	
		Manganese	mg/L	12	12	0.5	0	
		Zinc	mg/L	12	12	No Value	0	
		pH		12	12	No Value	0	
		Turbidity	NTU	12	12	No Value	0	
		Alkalinity (Total as CaCO ₃)	mg/L	12	12	No Value	0	
		Calcium	mg/L	12	12	No Value	0	
		Chloride	mg/L	12	12	No Value	0	
		Colour (True)	PCU	12	12	No Value	0	
		Conductivity	µS/cm	12	12	No Value	0	
		Magnesium	mg/L	12	12	No Value	0	
		Potassium	mg/L	12	12	No Value	0	
		Sodium	mg/L	12	12	No Value	0	
		Total Dissolved Solids	mg/L	12	12	No Value	0	
Hardness (Total as CaCO ₃)	mg/L	12	12	No Value	0			
Total Organic Carbon	mg/L	4	4	No Value	0			

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples non-compliant	Comments
Capricorn Coast	Kelly's Offstream Storage (Source Water)	Arsenic	mg/L	1	3	0.01	0	
		Cadmium	mg/L	1	3	0.002	0	
		Chromium	mg/L	1	3	0.05	0	
		Nickel	mg/L	1	3	0.02	0	
		Selenium	mg/L	1	3	0.01	0	
		Mercury	mg/L	1	1	0.001	0	
		Cryptosporidium & Giardia	oocysts & cysts	1	1	Nil Detected	0	
		pH		Daily	Daily	No Value	0	In-house Telemetry
		Turbidity	NTU	Daily	Daily	No Value	0	In-house Telemetry
		Nitrate	mg/L	12	12	50	0	
		Sulphate	mg/L	12	12	No Value	0	
		Trihalomethanes (Total)	ug/L	4	4	250	0	
		Fluoride (naturally occurring)	mg/L	12	12	1.5	0	
		Aluminium (acid-soluble)	mg/L	12	12	No Value	0	
		Copper	mg/L	12	12	2	0	
		Iron	mg/L	12	12	No Value	0	
		Lead	mg/L	12	12	0.01	0	
		Manganese	mg/L	12	12	0.5	0	
		Zinc	mg/L	12	12	No Value	0	
pH		12	12	No Value	0			

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples exceeding water quality criteria	Comments	
Capricorn Coast	Woodbury Water Treatment Plant	Turbidity	NTU	12	12	No Value	0		
		Alkalinity (Total as CaCO ₃)	mg/L	12	12	No Value	0		
		Calcium	mg/L	12	12	No Value	0		
		Chloride	mg/L	12	12	No Value	0		
		Colour (True)	PCU	12	12	No Value	0		
		Conductivity	µS/cm	12	12	No Value	0		
		Magnesium	mg/L	12	12	No Value	0		
		Potassium	mg/L	12	12	No Value	0		
		Sodium	mg/L	12	12	No Value	0		
		Total Dissolved Solids	mg/L	12	12	No Value	0		
		Hardness (Total as CaCO ₃)	mg/L	12	12	No Value	0		
		Total Organic Carbon	mg/L	4	4	No Value	0		
		Arsenic	mg/L	1	2	0.01	0		
		Cadmium	mg/L	1	2	0.002	0		
		Chromium	mg/L	1	2	0.05	0		
		Nickel	mg/L	1	2	0.02	0		
		Selenium	mg/L	1	2	0.01	0		
		Mercury	mg/L	1	2	0.001	0		
		Cryptosporidium & Giardia	oocysts & cysts	1	1	Nil Detected	0		
		Chlorine (free)	mg/L	365	365	5	0	In-house Telemetry	
	pH		365	365	No Value	0	In-house Telemetry		
		Reticulation	Chlorine (free)	mg/L	Weekly	78	5	0	In-house
			pH		Weekly	78	No Value	0	In-house
			Turbidity	NTU	Weekly	78	No Value	0	In-house
			Trihalomethanes	µg/L	8	8	250	0	
			Chlorates (Total)	mg/L	8	8	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	0	

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples exceeding water quality criteria	Comments
Marlborough	Source Water	Nitrate	mg/L	12	12	50	0	
		Sulphate	mg/L	12	12	No Value	0	
		Fluoride (naturally occurring)	mg/L	12	12	1.5	0	
		Aluminium (acid-soluble)	mg/L	12	12	No Value	0	
		Copper	mg/L	12	12	2	0	
		Iron	mg/L	12	12	No Value	0	
		Lead	mg/L	12	12	0.01	0	
		Manganese	mg/L	12	12	0.5	0	
		Zinc	mg/L	12	12	No Value	0	
		pH		12	12	No Value	0	
		Turbidity	NTU	12	12	No Value	0	
		Alkalinity (Total as CaCO3)	mg/L	12	12	No Value	0	
		Calcium	mg/L	12	12	No Value	0	
		Chloride	mg/L	12	12	No Value	0	
		Colour (True)	PCU	12	12	No Value	0	
		Conductivity	µS/cm	12	12	No Value	0	
		Magnesium	mg/L	12	12	No Value	0	
		Potassium	mg/L	12	12	No Value	0	
		Sodium	mg/L	12	12	No Value	0	
		Total Dissolved Solids	mg/L	12	12	No Value	0	
		Hardness (Total as CaCO3)	mg/L	12	12	No Value	0	
		Total Organic Carbon	mg/L	4	4	No Value	0	
		Arsenic	mg/L	1	2	0.01	0	
		Cadmium	mg/L	1	2	0.002	0	
		Chromium	mg/L	1	2	0.05	0	
		Nickel	mg/L	1	2	0.02	0	
		Selenium	mg/L	1	2	0.01	0	
Mercury	mg/L	1	2	0.001	0			
Cryptosporidium & Giardia	oocysts & cysts	1	1	Nil Detected	0			

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples exceeding water quality criteria	Comments
Marlborough	Marlborough Water Treatment Plant Potable	Nitrate	mg/L	12	12	50	0	
		Sulphate	mg/L	12	12	No Value	0	
		Trihalomethanes (Total)	µg/L	4	4	250	0	
		Fluoride	mg/L	12	12	1.5	0	
		Aluminium (acid-soluble)	mg/L	12	12	No Value	0	
		Copper	mg/L	12	12	2	0	
		Iron	mg/L	12	12	No Value	0	
		Lead	mg/L	12	12	0.01	0	
		Manganese	mg/L	12	12	0.5	0	
		Zinc	mg/L	12	12	No Value	0	
		pH		12	12	No Value	0	
		Turbidity	NTU	12	12	No Value	0	
		Alkalinity (Total as CaCO ₃)	mg/L	12	12	No Value	0	
		Calcium	mg/L	12	12	No Value	0	
		Chloride	mg/L	12	12	No Value	0	
		Colour (True)	PCU	12	12	No Value	0	
		Conductivity	µS/cm	12	12	No Value	0	
		Magnesium	mg/L	12	12	No Value	0	
		Nitrite	mg/L	12	12	3	0	
		Potassium	mg/L	12	12	No Value	0	
		Sodium	mg/L	12	12	No Value	0	
		Total Dissolved Solids	mg/L	12	12	No Value	0	
		Hardness (Total as CaCO ₃)	mg/L	12	12	No Value	0	
		Total Organic Carbon	mg/L	4	4	No Value	0	
		Arsenic	mg/L	1	3	0.01	0	
		Cadmium	mg/L	1	3	0.002	0	
Chromium	mg/L	1	3	0.05	0			
Nickel	mg/L	1	3	0.02	0			
Selenium	mg/L	1	3	0.01	0			

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples exceeding water quality criteria	Comments
Marlborough	Reticulation	Mercury	mg/L	1	1	0.001	0	
		Cryptosporidium & Giardia	oocysts & cysts	1	1	Nil Detected	0	
		Chlorine (free)	mg/L	365	365	5	0	In-house Telemetry
		pH		365	365	No Value	0	In-house Telemetry
		Conductivity	µS/cm	365	365	No Value	0	In-house Telemetry
		Chlorine (free)	mg/L	12	12	5	0	In-house
		pH		12	12	No Value	0	In-house
		Turbidity	NTU	12	12	No Value	0	In-house
		Trihalomethanes (Total) (Marlborough School)	µg/L	4	4	250	0	
		Chlorates (Total) (Marlborough School)	mg/L	4	4	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	0	
Caves & Nerimbera (RRC)	Source Water	Nitrate	mg/L	12	12	50	0	
		Sulphate	mg/L	12	12	No Value	0	
		Fluoride	mg/L	12	12	1.5	0	
		Aluminium (acid-soluble)	mg/L	12	12	No Value	0	
		Copper	mg/L	12	12	2	0	
		Iron	mg/L	12	12	No Value	0	
		Lead	mg/L	12	12	0.01	0	
		Manganese	mg/L	12	12	0.5	0	
		Zinc	mg/L	12	12	No Value	0	
		pH		12	12	No Value	0	
		Turbidity	NTU	12	12	No Value	0	
		Alkalinity (Total as CaCO3)	mg/L	12	12	No Value	0	
		Calcium	mg/L	12	12	No Value	0	
		Chloride	mg/L	12	12	No Value	0	
		Colour (True)	PCU	12	12	No Value	0	
		Conductivity	µS/cm	12	12	No Value	0	
		Magnesium	mg/L	12	12	No Value	0	

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples exceeding water quality criteria	Comments
Caves & Nerimbera (RRC)	Source Water	Nitrite	mg/L	12	12	3	0	
		Potassium	mg/L	12	12	No Value	0	
		Sodium	mg/L	12	12	No Value	0	
		Total Dissolved Solids	mg/L	12	12	3	0	
		Hardness (Total as CaCO ₃)	mg/L	12	12	No Value	0	
		Total Organic Carbon	mg/L	4	4	No Value	0	
		Arsenic	mg/L	1	1	0.01	0	
		Cadmium	mg/L	1	1	0.002	0	
		Chromium	mg/L	1	1	0.05	0	
		Nickel	mg/L	1	1	0.02	0	
		Selenium	mg/L	1	1	0.01	0	
		Mercury	mg/L	1	1	0.001	0	
	Water Treatment Plant	Nitrate	mg/L	12	12	50	0	
		Sulphate	mg/L	12	12	No Value	0	
		Trihalomethanes (Total)	µg/L	4	4	250	0	
		Fluoride	mg/L	12	12	1.5	0	
		Aluminium (acid-soluble)	mg/L	12	12	No Value	0	
		Copper	mg/L	12	12	2	0	
		Iron	mg/L	12	12	No Value	0	
		Lead	mg/L	12	12	0.01	0	
		Manganese	mg/L	12	12	0.5	0	
		Zinc	mg/L	12	12	No Value	0	
		pH		12	12	No Value	0	
		Turbidity	NTU	12	12	No Value	0	
		Alkalinity (Total as CaCO ₃)	mg/L	12	12	No Value	0	
		Calcium	mg/L	12	12	No Value	0	
Chloride	mg/L	12	12	No Value	0			
Colour (True)	PCU	12	12	No Value	0			
Conductivity	µS/cm	12	12	No Value	0			

Scheme name	Scheme component	Parameter	Units	No. of samples required to be collected (as per the approved DWQMP)	No of samples collected and tested	Water quality criteria (i.e. ADWG health guideline value)	No. of samples exceeding water quality criteria	Comments
Caves & Nerimbera (RRC)	Water Treatment Plant	Magnesium	mg/L	12	12	No Value	0	
		Nitrite	mg/L	12	12	3	0	
		Potassium	mg/L	12	12	No Value	0	
		Sodium	mg/L	12	12	No Value	0	
		Total Dissolved Solids	mg/L	12	12	No Value	0	
		Hardness (Total as CaCO ₃)	mg/L	12	12	No Value	0	
		Total Organic Carbon	mg/L	4	4	No Value	0	
		Arsenic	mg/L	1	1	0.01	0	
		Cadmium	mg/L	1	1	0.002	0	
		Chromium	mg/L	1	1	0.05	0	
		Nickel	mg/L	1	1	0.02	0	
		Selenium	mg/L	1	1	0.01	0	
		Mercury	mg/L	1	1	0.001	0	
		Trihalomethanes	µg/L	8	8	250	0	Includes four (4) samples each for The Caves & Nerimbera
		Chlorates (Total)	mg/L	8	8	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	0	Includes four (4) samples each for The Caves & Nerimbera

Table 5 - Reticulation E. coli verification monitoring

Drinking Water Scheme:	Total samples – all schemes													
	Year	2022						2023						Financial
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Year
No. of samples collected		15	19	15	14	18	16	12	15	18	15	18	15	190
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	0
No. of samples collected in previous 12 month period		179	182	184	186	186	187	188	187	188	192	193	192	2244
No. of failures for previous 12 month period		0	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply (monthly samples)		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Compliance with 98% annual value (previous 12 months)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Drinking Water Scheme:	Capricorn Coast												
	Year	2022						2023					
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected		6	8	6	6	7	6	8	6	6	7	6	6
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		83	78	77	77	77	77	83	78	77	77	77	77
No. of failures for previous 12 month period		0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply (monthly samples)		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Compliance with 98% annual value (previous 12 months)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Drinking Water Scheme:	Nerimbera												
	Year Month	2022						2023					
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	5	4	4	5	3	5	4	4	4	5	4	
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	21	24	27	30	33	37	40	43	46	50	52	52	
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0	
% of samples that comply (monthly samples)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Compliance with 98% annual value (previous 12 months)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Drinking Water Scheme:	Caves System												
	Year Month	2022						2023					
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	5	4	3	5	4	4	4	5	4	5	4	
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	21	24	27	30	33	37	40	43	46	50	52	52	
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0	
% of samples that comply (monthly samples)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Compliance with 98% annual value (previous 12 months)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Drinking Water Scheme:	Marlborough Reticulation												
	Year Month	2022						2023					
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	1	1	1	1	1	1	1	1	1	1	1	1	
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	13	13	13	13	14	13	13	13	12	13	13	13	
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0	
% of samples that comply (monthly samples)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Compliance with 98% annual value (previous 12 months)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

5 Incidents reported to the regulator

Notification to the regulator under sections 102 and 102A of the Act.

There were nil incidents reported to the regulator in the 2022 - 2023 year i.e. 01/07/2022-30/06/2023.

Table 6 – Incidents reported to the regulator

Incident date	Scheme / location	Parameter / issue	Preventive actions
Nil	Nil	Nil	Nil

6 Customer inquiries or complaints

This section discusses details of any complaints received about drinking water aesthetics or quality.

Table 7 - Customer inquiries or complaints about drinking water aesthetics or quality

Scheme	Health concern	Discoloured water	Taste and odour	Other
Capricorn Coast DWSS	Nil	27	8	1
The Caves (Mt Charlton) DWSS	Nil	Nil	Nil	Nil
Nerimbera DWSS	Nil	Nil	Nil	Nil
Marlborough DWSS	Nil	Nil	Nil	Nil
Total	Nil	27	8	1

DWSS - Drinking Water Supply Scheme

6.1 Health Concern

Livingstone Shire Council investigates each complaint relating to alleged illness from our water quality, typically by testing the customers tap and closest reticulation sampling point for presence of E.coli.

From 01/7/2022 to 30/06/2023 inclusive, there were nil reported concerns and confirmed cases of illness arising from the drinking water supply system.

6.2 Discoloured Water

From Table 7 a total of twenty-seven (27) complaints related to 6.2 discoloured water were received from within Livingstone Shire Council from 01/07/2022 to 30/06/2023 inclusive.

Of these twenty-seven (27) complaints, all twenty-seven (27) complaints all were in the Capricorn Coast DWSS). Water mains were flushed in the adjacent local area network to rectify the discoloured water concern.

With reference to the Caves (Mt Charlton) DWSS, Livingstone Shire Council has no direct control over water quality received from Bulk Water Service Provider Rockhampton Regional Council. However, Livingstone Shire Council continues responds to any concerns in these zones with local flushing and liaison with Rockhampton Regional Council as required.

6.3 Taste and Odour

From Table 7 - of the total eight (8) customer complaints related to taste & odour - were from residents in the Capricorn Coast DWSS.

Complaints were investigated and where necessary appropriate testing was performed.

With reference to both the Caves (Mt Charlton) DWSS and Nerimbera DWSS, Livingstone Shire Council has no direct control over water quality received from Bulk Water Service Provider Rockhampton Regional Council. However, Livingstone Shire Council continues to carry out regular verification testing in these zones.

6.4 Other

These other enquiries related to water quality data for blended water supply.

7 DWQMP review outcomes

There was an internal review of the DWQMP during the period: 01/07/2022-30/06/2023, with a wsr506 DWQMP Amendment Application Form submitted. These review outcomes have all being included in Table 2 – Risk management improvement program implementation status.

8 DWQMP audit findings

There was no external regulatory audit of the DWQMP during the period 01/07/2022-30/06/2023.

