

# Drinking Water Quality Management Plan Report

Livingstone Shire Council

SPID: 556



**2021-2022**

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

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# 1 Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Livingstone Shire Council (LSC) for the financial year 2021-22 i.e., 1/07/2021 to 30/06/2022

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 8 years plus.

Over the same period LSC was required to take 1696 physical / chemical samples and actually took 1728. Of the samples tested two (2) samples (Trihalomethanes, Chlorates) were found to be non-compliant in an independent laboratory.

## 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 37,000 residents. Livingstone Shire Council is in Central Queensland with a service area of approximately 11,776 km<sup>2</sup>. Livingstone Shire Council operates four (4) drinking water schemes:

*note: LSC has until recently considered Nerimbera and the Caves to be a single scheme for reporting purposes, however now considers each a scheme in its own right, and will shortly be submitting a DWQMP amendment application*

**Table 1 – Summary of schemes**

	<b>Water Source</b>	<b>Treatment processes</b>	<b>Treatment capacity</b>	<b>Towns supplied</b>
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 &amp; 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</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</p>

	<b><i>Water Source</i></b>	<b><i>Treatment processes</i></b>	<b><i>Treatment capacity</i></b>	<b><i>Towns supplied</i></b>
	zone from the Glenmore WTP reticulation network.			major customer in this zone - abattoir 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 due to be published in early 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 30 June 2021. 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 September 2020, 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 3 below.

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

Item	Relevant Scheme	Unmitigated Risk level	Mitigated Risk level	Actions			Priority	Responsibility	Action
				Immediate actions	Short Term (6 months)	Long Term (18 months)			
Review SCADA Limit (SCADA Access)	Capricorn Coast	Extreme 25	High 10	Investigate locking out Critical SCADA limits to remove operator level access	Operator access has been revised appropriately		1	Mgr WWO	Completed
Cyber Security	All schemes	Medium 8	Low 3	Awaiting finalisation of Performance Reporting Framework from Department of Water Supply Regulation	Integrate Performance Reporting Framework into DWQMP		1	Coord Water & Sewage Ops/ Mgr WWO	Incorporate Cyber security into DWQMP in conjunction with DWQMP Review

**Table 3 - Risk management improvement program**

Item	Relevant Scheme(s)	Unmitigated Risk level	Mitigated Risk level	Actions			Responsibility
				Immediate actions (31/03/2021)	Short Term (30/06/2021)	Long Term (30/06/2023)	
Recontamination from supernatant	Capricorn Coast	Extreme	High	Installation of turbidity analyser on return line & develop protocol around high turbidity shutdown COMPLETED			Coordinator Water & Sewerage Process Operations
Source water contamination / filtration	Capricorn Coast	Extreme	High	Review turbidity-based backwash triggers (e.g. >0.3 for 14mins if possible) Underway	Consider installing a turbidity meter at the clarifier to provide advance warning of carryover NOT WARRANTED CONSIDERING BAFFLE WALL INSTALLATION & FLOCCULATOR REPLACEMENT	Business case for CAPEX - structural works and filter media replacements Complete and project underway	Coordinator Water & Sewerage Process Operations
						Consider undertaking Cost-Benefit Analysis for installation of UV at Woodbury WTP post filter upgrade.	Coordinator Water & Sewerage Process Operations
Failure filtration/ soda ash	Capricorn Coast	Medium	Medium		Install duty/standby soda ash pumps at Woodbury WTP Pumps now duty / standby		Coordinator Water & Sewerage Process Operations
Disinfection / underdosing	Capricorn Coast	Extreme	Medium		Investigate auto-removal of control system inhibit (e.g. when calibrating) pending		Coordinator Water & Sewerage Process Operations
Deliberate contamination	All schemes	High	High		Develop scope of works for site security upgrades business case underway for Woodbury WTP gates	Security gates currently on order.	Coordinator Water & Sewerage Process Operations
Change to SCADA limits resulting in compromised system operation	All schemes	Extreme	High		Review SCADA access protocols to determine if any short-term improvements are available PERSONNEL ACCESS LEVELS CHECKED	Consider engaging an expert to undertake a cyber security review	Manager Water and Waste Operations
Unauthorised remote access to systems leading to water quality impacts	All schemes	High	Medium			Consider engaging an expert to undertake a cyber security review	Manager Water and Waste Operations
Recontamination of reservoirs/network (Mount Charlton)	The Caves	High	High	Implement weekly verification monitoring at Mount Charlton Reservoir (E. coli and chlorine)	Address vermin proofing and reservoir integrity breaches upon inspections	Replace roof structure and sheeting on Mount Charlton Reservoir – currently underway	Manager Water and Waste Operations



Item	Relevant Scheme(s)	Unmitigated Risk level	Mitigated Risk level	Actions			Responsibility
				Immediate actions (31/03/2021)	Short Term (30/06/2021)	Long Term (30/06/2023)	
				ONGOING WEEKLY MONITORING COMMENCED	where a high risk is identified WORKS DUE TO COMMENCE JANUARY 2022		

## 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		2	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 <sub>3</sub> )	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 <sub>3</sub> )	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 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	
		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	1	251 ug/L @ KS2 Schofield Parade – 01/02/2022
		Chlorates (Total)	mg/L	8	8	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	1	1.14 mg/L @ KS2 Schofield Parade – 01/02/2022

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 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	
		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 CaCO3)	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		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
	Reticulation	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 CaCO <sub>3</sub> )	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 CaCO3)	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 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	

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 <sub>3</sub> )	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:  Year  Month	Total samples – all schemes												
	2021						2022						Financial
	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:  Year  Month	Capricorn Coast											
	2021						2022					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	6	8	6	6	7	7	4	6	8	6	7	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	111	108	104	100	94	88	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: Year Month	Nerimbera											
	2021						2022					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	5	4	4	5	4	3	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:  Year Month	Caves System											
	2021						2022					
	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	2021						2022					
		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 2021 - 2022 year i.e. 01/07/2021-30/06/2022.

***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	32	10	14
The Caves (Mt Charlton) DWSS	Nil	Nil	Nil	Nil
Nerimbera DWSS	Nil	Nil	Nil	Nil
Marlborough DWSS	Nil	Nil	Nil	Nil
<b>Total</b>	<b>Nil</b>	<b>32</b>	<b>10</b>	<b>14</b>

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 01/7/2021 to 30/06/2022 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 thirty-two (32) complaints related to 6.2 discoloured water were received from within Livingstone Shire Council from 01/07/2021 to 30/06/2022 inclusive.

Of these thirty-two (32) complaints, all thirty-two (32) 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 ten (10) 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, testing for rainwater tanks and water softness information for white goods.

## 7 DWQMP review outcomes

There was no review of the DWQMP during the period: 01/07/2021-30/06/2022. The previous review of the DWQMP was completed during the period 01/07/2020-30/06/2021 and was reported in the Annual Report submitted on 17/12/2021.

## 8 DWQMP audit findings

There was an external regulatory audit of the DWQMP during the period 01/07/2021-30/06/2022. The audit report was submitted to the Regulator on 19/08/2021. An updated summary of findings and actions completed to date has been appended to this report.

