

Drinking Water Quality Management Plan Report

Livingstone Shire Council

SPID: 556



2020-2021

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	10
5	Incidents reported to the regulator.....	20
6	Customer inquiries or complaints	21
6.1	Health Concern.....	21
6.2	Dirty Water.....	21
6.3	Taste and Odour.....	21
6.4	Other.....	21
7	DWQMP review outcomes	22
8	DWQMP audit findings.....	22

Table of tables

Table 1 – Summary of schemes	4
Table 2 – Risk management improvement program implementation status	7
Table 3 - Risk management improvement program	8
Table 4 – Drinking water quality performance - verification monitoring.....	10
Table 5 - Reticulation E. coli verification monitoring	18
Table 6 – Incidents reported to the regulator	20
Table 7 - Customer inquiries or complaints about drinking water aesthetics or quality.....	21

1 Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Livingstone Shire Council (LSC) for the financial year 2020-21 i.e. 1/07/2020 to 30/06/2021

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 in order 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 183 bacteriological samples and tested these for the presence of Ecoli. Of the samples tested in an independent laboratory, 100% were found to contain nil Ecoli and therefore compliant. Over the same period LSC was required to take 1554 physical / chemical samples and actually took 1594. Of the samples tested, 100% were found to be compliant in an independent laboratory.

This 100% compliance continues Council's achievement of this statistic over the previous 7 years.

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 km². 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

	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 are zones 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>

	Water Source	Treatment processes	Treatment capacity	Towns supplied
	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" areas are sourced from and are zones 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.

Over the last twenty-four (24) months 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 Off stream 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 a paper due to be published in 2022.

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 2020. 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	
Cyber Security	All	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
Coagulation failure (e.g. change of raw water quality)	Capricorn Coast	Medium	Low		Install ORP analyser at Woodbury WTP inlet PROJECT DEFERRED as NOT WARRANTED		Water Quality Officer
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	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 (incl cyber security attacks with a physical element)	Whole of System	High	High		Develop scope of works for site security upgrades business case underway for Woodbury WTP gates	Undertake site security upgrades	Coordinator Water & Sewerage Process Operations
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 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	Whole of System	High	Medium			Consider engaging an expert to undertake a cyber security review	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)	
Insufficient Operators available	Whole of System	Extreme	High		Prepare a business case for additional Operator(s) ADDITIONAL TPO ENGAGED COMPLETED		Coordinator Water & Sewerage Process Operations
Source contamination	Marlborough	High	Medium	Inspect bore heads and seal any identified gaps COMPLETED			Coordinator Water & Sewerage Process Operations
Failure of chlorine dosing	Marlborough	High	Medium		Begin monitoring E. coli in raw water ONGOING MONITORING COMMENCED ACTION CLOSED		Water Quality Officer
Recontamination of reservoirs/network (Mount Charlton)	The Caves	High	High	Implement weekly verification monitoring at Mount Charlton Reservoir (E. coli and chlorine) ONGOING WEEKLY MONITORING COMMENCED	Address vermin proofing and reservoir integrity breaches upon inspections where a high risk is identified WORKS DUE TO COMMENCE JANUARY 2022	Replace roof structure and sheeting on Mount Charlton Reservoir (beginning Q2 2022)	Manager Water and Waste Operations

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 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 actually 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	
		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 actually 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	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	
		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	109	5	0	In-house
		pH		Weekly	109	No Value	0	In-house
		Turbidity	NTU	Weekly	109	No Value	0	In-house
		Trihalomethanes	µg/L	8	8	250	0	Includes four (4) samples each for Schofield Parade & St Benedicts
		Chlorates(Total)	mg/L	4	4	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	0	Sampling commenced in February via DWQMP Review Includes two (2) samples each for Schofield Parade & St Benedicts

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
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	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	

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
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 actually 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	
		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	13	5	0	In-house
		pH		12	13	No Value	0	In-house
		Turbidity	NTU	12	13	No Value	0	In-house
		Trihalomethanes (Total) (Marlborough School)	µg/L	4	4	250	0	
		Chlorates(Total)	mg/L	2	2	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	0	Sampling commenced in February via DWQMP Review Includes two (2) samples for Marlborough School
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 actually 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 actually 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 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	
		Trihalomethanes	µg/L	8	8	250	0	Includes four (4) samples each for The Caves & Nerimbera
		Chlorates(Total)	mg/L	4	4	0.8mg/L Advised by Water Supply Regulator of Qld Health Directive	0	Sampling commenced in February via DWQMP Review Includes two (2) samples each for each for The Caves & Nerimbera

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		1554	1594		0	NATA lab testing only

Table 5 - Reticulation *E. coli* verification monitoring

Drinking Water Scheme: Year Month	Capricorn Coast											
	2020						2021					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	11	12	10	12	14	12	10	7	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	143	140	142	139	140	142	142	140	136	132	131	126
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											
	2020						2021					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	1	2	1	1	1	1	1	2	1	2	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	15	15	16	15	15	15	14	13	14	13	14	18
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											
	2020						2021					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	1	2	1	1	1	1	3	5	6	4	6	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	14	14	15	15	15	15	15	16	20	22	26	33
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	2020						2021					
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected		1	1	1	1	1	1	1	3	3	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	13	13	13	13	15	14	15	14
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	Total samples – all schemes												
	2020						2021						Financial
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Year
No. of samples collected	14	17	13	15	17	15	15	17	18	13	19	10	183
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	185	182	186	182	183	185	184	182	185	181	186	191	2212
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

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 2020 - 2021 year i.e. 01/07/2020-30/06/2021.

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	Dirty water	Taste and odour	Other
Capricorn Coast DWSS	Nil	29	9	6
The Caves (Mt Charlton) DWSS	Nil	Nil	Nil	Nil
Nerimbera DWSS	Nil	Nil	Nil	Nil
Marlborough DWSS	Nil	1	Nil	Nil
Total	Nil	30	9	6

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 01/7/2020 to 30/06/2021 inclusive, there were nil reported concerns and confirmed cases of illness arising from the drinking water supply system.

6.2 Dirty Water

From Table 7 a total of thirty (30) complaints related to dirty water were received from within Livingstone Shire Council from 01/07/2020 to 30/06/2021 inclusive.

Of these thirty (30) complaints, twenty nine (29) were in the Capricorn Coast DWSS and one (1) complaint in the Nerimbera DWSS. Water mains are flushed in the adjacent local area network to rectify the dirty 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 nine (9) 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

A review of the DWQMP was commenced during the period: 01/07/2020-30/06/2021. The review was approved in March 2021.

8 DWQMP audit findings

There was no audit undertaken of the DWQMP during the period 01/07/2020-30/06/2021.

