



DRINKING WATER QUALITY MANAGEMENT PLAN REPORT 2020

Douglas Shire Council

Reporting period: 1 July 2019 – 30 June 2020

Drinking Water Service Provider 558

December 2020

DOUGLAS SHIRE
COUNCIL

Improving Environmental Performance
Ngaral Kulji Bubungu - Eastern Kuku Yalanji
Pulmpa dakit jarral-a-kaling - Yirrganydji

Little Falls Creek Intake

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Drinking Water Quality Management Plan Report

1. Introduction

This report documents the performance of Douglas Shire Council (Council) as a Drinking Water Service Provider (SPID 558) during the financial year 2019-2020. Council is operating under an approved Drinking Water Quality Management Plan (DWQMP) to ensure consistent supply of safe drinking water in order to protect public health and as required under the *Water Supply (Safety and Reliability) Act 2008*.

The report provides a mechanism to report publicly on the performance in managing drinking water services and drinking water quality.

2. Summary of schemes operated

Council operates three principle water supply schemes that source water from highly protected catchments and treat water to Australian Drinking Water Guideline (ADWG) standards utilising a combination of ultrafiltration and chlorination, with the ability to use supplemental UV disinfection. Additionally, Whyanbeel Water Treatment Plant utilises sodium carbonate for pH adjustment (Table 1).

Table 1. Summary of the three drinking water schemes.

Scheme	Water Source	Treatment Processes	Treatment Capacity (ML/day)	Towns Supplies
Daintree	Intake Creek	Pre-filtration, ultrafiltration, chlorination	0.49	Daintree Township
Mossman/Port Douglas	Rex Creek	Pre-filtration, ultrafiltration, chlorination	30.0	Mossman, North Mossman, Port Douglas, Craiglie, Newell Beach, Cooya Beach, Cassowary, Mowbray
Whyanbeel	Little Falls Creek	Pre-filtration, ultrafiltration, chlorination, sodium carbonate	4.9	Whyanbeel, Miallo, Bamboo, Rocky Point, Port Douglas Views, Wonga Beach

3. DWQMP implementation

DWQMP is a public health-based risk management plan that demonstrates how public health risks to drinking water services are managed. All relevant staff are made aware of the DWQMP and the plan is used as a tool when assessing different aspect of drinking water management. The Council Water and Wastewater staff meet fortnightly to relate messages, share updates and to discuss matters relating to water quality and treatment operations.

Council's DWQMP was amended in April 2020. The amended plan is still awaiting approval from the Regulator and is currently being assessed after issuing an Information Requirement Notice in August 2020. Within the amendment the Council has undertaken a system assessment and a public health risk assessment. Through the risk assessment process, Council has identified a number of risks to the drinking water schemes that require improvements over time. These are detailed within the approved DWQMP Hazard Identification and Risk Assessment section. The actions undertaken and the progress of the Risk Management Improvement Plan (RMIP) can be seen in [Appendix A: Implementation of the DWQMP Risk Management Improvement Program](#). Additionally, the DWQMP includes Critical Control Points (CCP) which ensure that operators become aware of potential issues faster and can respond and rectify any issues in fast manner.

CCP compliance is continually monitored via Supervisory Control and Data Acquisition (SCADA) control system and operational checks are performed by plant operators. Verification of drinking water quality monitoring is undertaken weekly within the reticulation network to demonstrate the Council provides safe drinking water. For quality assurance external analyses are undertaken at a National Association of Testing Authorities (NATA) certified laboratory. All data is recorded and reviewed in timely manner.

4. Verification monitoring

During the reporting period, Council undertook verification monitoring in accordance with the requirements of the approved DWQMP.

During the financial year 2019-2020 all physical, chemical and microbiological parameters measured were within the ADWG health guideline values and the standards of the Public Health Regulation 2005. Water quality data is presented in [Appendix B: Water quality information and summary](#).

5. Notification to the Regulator under sections 102 and 201A of the Act

There were no incidents reported to the Regulator in financial year 2019-2020. This declares a high level of compliance imposed by the *Water Supply (Safety and Reliability) Act 2008* during the reporting period.

6. Customer complaints

Douglas Shire Council values customer feedback. During the reporting period there were 1 water quality complaint within the three drinking water schemes (Table 2). The complaint was handled by Council staff investigating the issue, flushing of the service water mains and by undertaking water quality monitoring. During the investigation, the drinking water quality demonstrated compliance with ADWG health guideline values.

Table 2. Drinking water quality complaints during the financial year 2019-2020.

Scheme	Health concern	Discoloured Water	Taste and Odour	Other	Total
Daintree	0	0	0	0	0
Mossman / Port Douglas	0	0	1	0	1
Whyanbeel	0	0	0	0	0

7. DWQMP review outcomes

Council’s DWQMP was amended in April 2020. The current amendment of the DWQMP was conducted following a review of Council’s DWQMP (Table 3). The amended DWQMP provides up to date information including capital improvements, critical control points, risk management improvement plan and updated verification monitoring program. There is a regulatory requirement to review the DWQMP biannually, however Council may review the plan more frequently if required.

Table 3. DWQMP review outcomes 2109-2020.

Review Component	Findings	Outcomes	Status of actions
Service description	Include Daintree non-potable supply in service details. Contact details changed. Update population and water connection figures.	Update contact and service details. Need to update population and water connection figures.	All information updated.
Details of infrastructure	Backwash recovery plant added to Mossman – Port Douglas scheme. Schematics requiring updating on all water schemes. Interconnection between Mossman-Port Douglas and Whyanbeel Schemes.	Schematics and infrastructure information needs to be updated in the approved DWQMP	All information updated.
Water quality and catchment characteristics	Add Daintree Rainwater System as additional catchment. New set of water quality data is available for the past two years.	Update catchment characteristics to include Daintree rainwater system. Water quality analysis table in the approved DWQMP needs to be updated.	Catchment characteristics updated. New water quality data collated, and table updated in DWQMP.
Risk Assessment	With the new rainwater system, Daintree bore and backwash recovery plant, there are associated risk with water quality. These hazards should be assessed for risks and preventative measures identified and implemented.	The risk assessment needs to be updated.	Risk assessment has been updated by DWQMP review team.

Operations and maintenance procedures	The maintenance schedule should include the Daintree rainwater system, Daintree bore and backwash recovery plant. Review and update existing procedures. Identify and develop new procedures.	Maintenance schedule to be revised. Existing procedures to be reviewed. New procedures to be developed.	Maintenance schedule revised. Existing procedures reviewed by DWQMP review team. New procedures developed.
Management of incidents and emergencies	Inclusion of cyber security risks.	Current cyber security measures to be reviewed.	Cyber security measures reviewed.
Risk management improvement program	A number of improvement actions have been implemented and some are in progress.	The risk management improvement program needs to be revised.	The risk management improvement program has been updated by the DWQMP review team.
Service wide information management	No changes	Not applicable	Not applicable
Operational monitoring	Backwash recovery plant to be included in SCADA/telemetry monitoring with alarm set points for water quality parameters and disinfection dose rates.	The operational monitoring program needs to be revised.	Operational monitoring program revised.
Verification monitoring	As Sodium Hypochlorite is used as disinfection within the Daintree scheme, there is a risk of chlorate formation.	Commence investigative monitoring of Chlorates within the Daintree scheme	Quarterly monitoring of Chlorates within the Daintree scheme in progress.
Other	Changes in regulations, legislation and formal requirements.	Update appropriate information to include regulatory changes.	Information updated to include regulatory changes.

8. DWQMP audit findings

No audit was conducted during the reporting period July 2019 – June 2020.

Appendix A: Implementation of the DWQMP Risk Management Improvement Program

Table 4. Status update for RMIP

Scheme	Component	Improvement actions	Status	Hazardous Event
All Schemes	Raw Water Feed	Intake Creek upgrade of race and Johnston screen	Finalised	Failure of supply through blocked intake.
Mossman/Port Douglas	Reservoir	Craiglie Reservoir roof replacement	Under construction (Expected finalisation December 2020)	Ingress into reservoirs, limited supply
Mossman/Port Douglas	Reservoir	Cooya Reservoir connection	Ongoing – in design phase.	Ingress into reservoirs, limited supply
Whyanbeel	Reservoir	Wonga reservoir refurbishment	Paused – reviewing condition assessment to bring online	Ingress into reservoirs, limited supply
All Schemes	Water reticulation	Replacement of ageing water reticulation infrastructure including water meters	Ongoing – continuous improvements	Mains break, failure of supply, backflow, water quality issues
Mossman/Port Douglas & Whyanbeel	Water reticulation	Mossman/Port Douglas and Whyanbeel interconnection	Finalised	Limited supply
All schemes	Water Reticulation	Install backflow devices on standpipes available for hire. Water meter replacement/smart meters.	Ongoing – 30% complete. On track to be completed by end of 2020/21 FY. Ongoing – design phase of smart meter trial project. On track to be operational by 2021/22 FY.	Ingress of contaminated water into reticulation network.
Mossman/Port Douglas	Water supply	Feasibility study, design and install of Alternate Intake location	Ongoing – design complete. Obtaining permits and licences. On track to have licences and permits by 2020-21 FY.	Failure of supply

Daintree	Disinfection	Using recommended best practice for management/storage of Sodium Hypochlorite and commence investigative monitoring of chlorates.	Ongoing – improved management/storage practices. Commencing quarterly monitoring of Chlorates. On track to confirm level of risk.	Chlorate formation
All Schemes	System Wide	Cyber security risk and vulnerability assessment to identify areas of improvement. Upgrade of networks and systems.	Ongoing – Engaged consultant to review current measures. Council is planning to implement measures to mitigate identified risks. Possible delays due to Covid-19 impacts.	SCADA/telemetry failure/Cyber attack
All Schemes	Staff professional development	Staff training	Ongoing – continuous improvements.	Operator error

Appendix B: Water quality information and summary

Daintree water supply scheme – Verification monitoring results

Table 5. Daintree water supply scheme verification monitoring results for financial year 2019-2020.

Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	ADWG health guideline value	No. of non compliant samples	Summary of results		
					Min	Max	Avg
Chlorine residual (mg/L)	24	26	5	0	<0.1	0.88	0.2
Colour (PCU)	12	13	N/A	N/A	<1	5.9	<5
Copper (mg/L)	12	13	2	0	0.002	0.008	0.004
E.coli (MPN/100mL)	24	29	<1	0	<1	<1	<1
Iron (mg/L)	12	13	N/A	N/A	<0.008	0.028	0.01
Manganese (mg/L)	12	13	0.5	0	<0.0002	<0.005	0.0002
pH (pH units)	24	39	N/A	N/A	6.8	8.9	8

Table 6. Daintree water supply scheme E.coli compliance with annual value.

Year	2019-2020											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
No. of samples collected	3	2	2	2	3	2	3	2	3	2	3	2
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	28	27	27	27	28	28	28	27	28	28	29	29
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Compliance with 98% annual value	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Mossman/Port Douglas water supply scheme – Verification monitoring results

Table 7. Mossman/Port Douglas water supply scheme verification monitoring results for financial year 2019-2020.

Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	ADWG health guideline value	No. of non compliant samples	Summary of results		
					Min	Max	Avg
Alkalinity (mg/L as CaCO₃)*	30	26	N/A	N/A	<5	17	8
Chlorine residual (mg/L)	174	199	5	0	<0.1	1.4	0.9
Colour (PCU)	84	91	N/A	N/A	<1	<5	<1
Copper (mg/L)	84	93	2	0	0.003	0.368	0.02
E.coli (MPN/100mL)	174	196	<1	0	<1	<1	<1
Iron (mg/L)	84	93	N/A	N/A	<0.005	0.089	<0.008
Manganese (mg/L)	84	93	0.5	0	<0.0002	0.001	0.0004
pH (pH units)	174	316	N/A	N/A	5.5	8.9	7

*Numbers lower due to Craiglie Park Reservoir being offline during reporting period.

Table 8. Mossman/ Port Douglas water supply scheme E.coli compliance with annual value.

Year Month	2019-2020											
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
No. of samples collected	18	18	14	20	16	14	17	13	16	16	20	14
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	200	201	201	196	198	197	196	192	193	194	197	196
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Compliance with 98% annual value	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Whyanbeel water supply scheme – Verification monitoring results

Table 9. Whyanbeel water supply scheme verification monitoring results for financial year 2019-2020.

Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	ADWG health guideline value	No. of non compliant samples	Summary of results		
					Min	Max	Avg
Alkalinity (mg/L as CaCO ₃)	12	13	N/A	N/A	11	16	12.7
Chlorine residual (mg/L)	60	66	5	0	0.21	1.16	0.9
Colour (PCU)	24	26	N/A	N/A	<1	<5	<1
Copper (mg/L)	24	26	2	0	<0.001	0.015	0.003
E.coli (MPN/100mL)	60	69	<1	0	<1	<1	<1
Iron (mg/L)	24	26	N/A	N/A	0.006	0.036	0.016
Manganese (mg/L)	24	26	0.5	0	<0.0002	<0.005	0.0003
pH (pH units)	60	105	N/A	N/A	6.5	8.6	7.9

Table 10. Whyanbeel water supply scheme E.coli compliance with annual value.

Year Month	2019-2020											
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
No. of samples collected	6	6	5	7	6	5	6	5	6	6	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	68	68	68	67	68	68	68	67	68	69	69	69
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Compliance with 98% annual value	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y