



CARPENTARIA SHIRE
Outback by the Sea

DWQMP Annual Report 2019-20
Carpentaria Shire Council

December 2020



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1. Introduction

This is the Drinking Water Quality Management Plan (DWQMP) Annual Report for Carpentaria Shire Council (CSC or Council) for the financial year 2019-20.

The DWQMP has been established and is being adhered to in order to protect public health through the identification and minimisation of public health related risks associated with drinking water. Council is operating under an approved DWQMP, with the approval granted by the Water Supply Regulation unit, Department of Natural Resources, Mines and Energy (WSR, DNRME).

This Annual Report summarises Council's drinking water quality performance for the reporting period and progress on the implementation of the improvement plan. The report is made available to customers on Council's website and for inspection upon request at the Council office.

1.1. Scope

The report has been prepared to fulfil the legislative DWQMP reporting requirements set out in the *Water Supply (Safety and Reliability) Act 2008* (the Act).

1.2. Purpose

This Annual Report aims to:

- be a reference document for the Regulator, as well as customers, on Council's performance in relation to the DWQMP reporting obligations under the Act, for the reporting period
- provide a summary of Council's performance in implementing the DWQMP.

2. Drinking Water Scheme

With the introduction of the Act, water service providers are required to register as a drinking water service provider for the delivery of a drinking water service. Council is a registered drinking water service provider, with the service provider identification (SPID) number as 32.

Council manages the Carpentaria drinking water supply scheme and distributes treated water to Normanton and Karumba. The water supply scheme is comprised of a surface raw water source supplemented by bore water, a water treatment plant, pump stations, service reservoirs and distribution network.

3. DWQMP Implementation

The implementation of the DWQMP is discussed in this section, and also captured in the other sections that follow.

3.1. Risk Management

The process of keeping drinking water safe is one of risk management. Through efficient operations and implementation of the DWQMP, Council has ensured effective risk management to assure safe quality of drinking water to our customers.

During the reporting period, Council supplied drinking water that complied with the water quality criteria set in the Australian Drinking Water Guidelines (ADWG). There was no major incident or event that comprised Council's ability to supply safe quality drinking water to customers.

3.2. Monitoring

Council maintains comprehensive monitoring programs to ensure that the quality of water supplied to customers is safe. The monitoring programs assist to identify any issue before it becomes a significant water quality incident. The results from the verification monitoring for the reporting period are discussed in Section 5.

Council also undertakes operational monitoring, which includes the planned sequence of measurements and observations to assess and confirm the performance of our preventive or control measures. Measurements are of operational parameters that indicate whether processes are functioning effectively.

Quality assurance is important to guarantee consistently reliable and legally defensible results and ensure customers are provided with the best quality water.

Council has the following quality management systems in place:

- microbiology samples are sent to the Cairns Regional Council Water Laboratory, which is a NATA accredited laboratory
- operations staff have been appropriately trained to undertake sampling.

3.3. Improvement Plan

Council maintains a culture of continuous improvement and are implementing the Improvement Plan of the DWQMP and making progress towards strengthening the management of the water supply. During the reporting period, Council implemented a number of actions including:

- Maintenance and calibration of equipment has been addressed by replacing units and acquiring calibration verification kits.
- The water quality data spreadsheet has been modified to capture additional readings and data has been consolidated.
- CCP limits have been colour coded and displayed in the operations room.
- Staff training has continued in various aspects of water treatment.
- Stormwater from the top of the reservoirs has been diverted to stormwater collection drains. Access

hatches have all been fitted with Council locks.

- A shade structure has been erected over the sodium hypochlorite batch tank.

Detailed status on the Improvement Plan implementation is presented in Appendix A.

4. Reporting to the Regulator

There were no incidents reported to the regulator for the reporting period.

5. Compliance with Water Quality Criteria

Verification of drinking water quality provides an assessment of the overall performance of the system and the ultimate quality of the drinking water being supplied to customers. It confirms compliance with water quality criteria set by DNRME, Queensland Health and any other formal requirements. Council undertakes regular sampling and testing to assess whether water quality is complying with the DWQMP water quality criteria.

Details of data used in the report and treatments applied to the data are as follows:

- data sources: verification monitoring data
- data analysis: undertaken using Microsoft Excel software
- identified errors, if any: removed from statistical analysis, and noted at the respective place.
- <LOD and >UL: <LOD (limit of detection) was treated as LOD/2 and >UL (upper limit specified for test) was taken as UL.
- Outliers: considered in the statistical analysis, uncles classed as specific error.

Verification monitoring was undertaken in accordance with the DWQMP.

The verification monitoring data for the Carpentaria scheme, and level of compliance are show below in Figure 1.

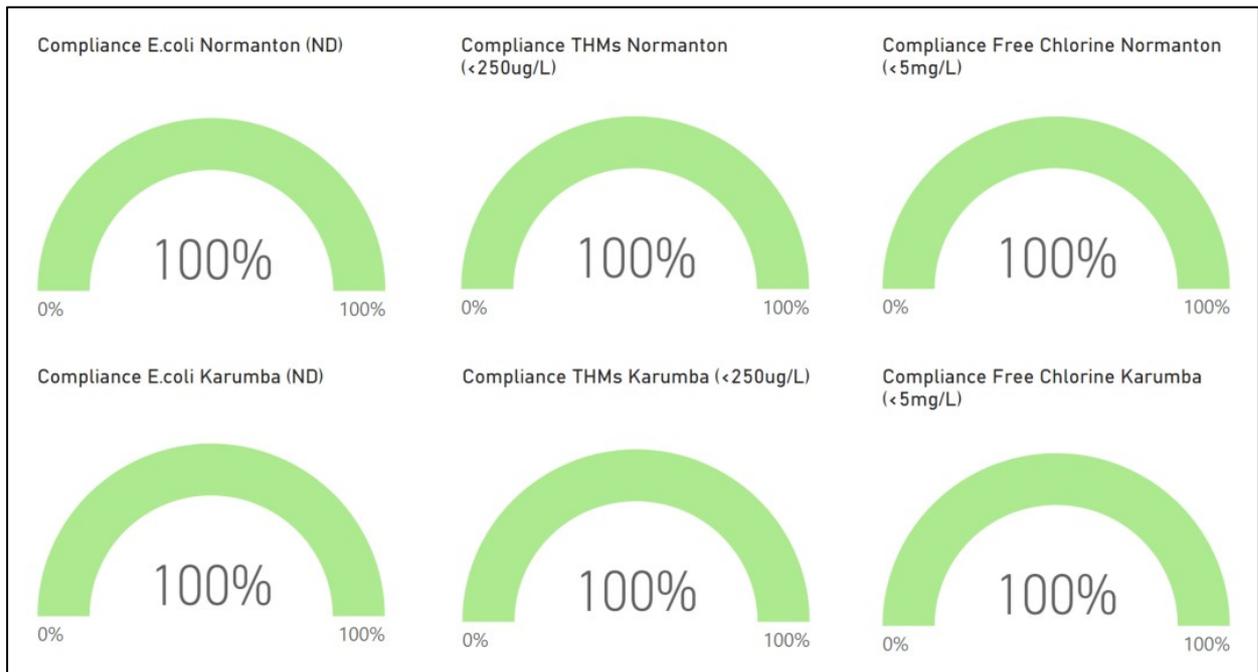


Figure 1 Verification Compliance

Table 1 Verification Monitoring Results

Parameter	Sampling Site	Unit	Min	Max	Mean	Total count	ADWG
							Compliance
E. coli and Total coliforms	All	cfu/ 100mL	ND	ND	ND	82	100%
THMs	All Normanton	µg/L	107	126	119.33	3	100%
	All Karumba	µg/L	145	196	163	3	100%
Free Chlorine	Reservoir	mg/L	0.62	2.11	1.27	366	100%
	KBA1	mg/L	0.55	1.12	0.91	92	100%
	KBA2	mg/L	0.43	1.05	0.79	90	100%
	KBA3	mg/L	0.42	1.01	0.69	90	100%
	STP	mg/L	0.3	0.98	0.58	87	100%
	Brodie St	mg/L	0.71	2.81	1.44	365	100%
	NTN 1	mg/L	0.61	1.02	0.73	5	100%
	NTN 2	mg/L	0.56	1.1	0.83	2	100%
	NTN 3	mg/L	0.53	1.01	0.77	2	100%
	NTN 4	mg/L	0.18	1.08	0.63	3	100%
	Depot	mg/L	0.92	0.92	0.92	1	100%
Dutton St	mg/L	1.03	1.03	1.03	1	100%	

6. Customer Complaints

There were no water quality related customer complaints recorded for the reporting period.

7. DWQMP Review

A review of the DWQMP was undertaken by Viridis Consulting during the reporting period. The DWQMP was amended and updated as required and is available from Carpentaria Shire Council upon request. Minor amendments were made to better reflect plant operations, including changes to monitoring equipment. The amendments were accepted by DNRME and approved in the Notice of Decision dated 24th of December 2019.

8. DWQMP Audit

No audit of the DWQMP was undertaken during the reporting period.

9. References

Carpentaria Shire Council. (2017). DWQMP. Carpentaria Shire Council Office, Normanton, Carpentaria.

Viridis Consultants Pty Ltd 2019, Drinking Water Quality Management Plan – Carpentaria Shire Council, prepared for Carpentaria Shire Council by Viridis Consultants Pty Ltd.

NHMRC & NRMCC. (2011). National Water Quality Management Strategy: Australian Drinking Water Guidelines. 6th Ed., National Health and Medical Research Council and Natural Resource Management Ministerial Council, Australian Government, Canberra.

10. Glossary

Notation	Description
Disinfection	The process designed to kill most microorganisms in water, including essentially all pathogenic (disease-causing) bacteria. There are several ways to disinfect, with chlorine being most frequently used in water treatment.
<i>E. coli</i>	Bacterium found in the gut, used as an indicator of faecal contamination of water.
Hazard	A biological, chemical, physical or radiological agent that has the potential to cause harm.
Hazardous event	An incident or situation that can lead to the presence of a hazard (what can happen and how).
Risk	The likelihood of a hazard causing harm in exposed populations in a specified time frame, including the magnitude of that harm.
Source water	Water in its natural state, before any treatment to make it suitable for drinking.
Total coliforms	Group of bacteria whose presence in drinking water can be used as an indicator for operational monitoring.

Appendix A Improvement Plan

Ref	Source/Ref	Component	Improvement Actions	Residual Risk	Responsibility	Priority	Timeframe	Status	Comments	Column1
WQ1	Improvement Plan 2013 Review	Whole of System	Investigate arrangement with relevant suppliers (Veolia and Endress Hauser) for maintenance and calibration visits every 2 years.	n/a	MENG	Medium	Sep-18	Completed	Replaced units, came with calibration verification kit	
WQ3	Risk Review 2015 / C6, C7, DWQMP Review 2015, DWQMP Review 2017	Normanton-Karumba scheme	Modify water quality data spreadsheet to capture measurement for clarified water, filtered water and chlorine analyser from the respective online meter readings at least daily when grab samples are tested, and when there is a CCP breach. Include CCP targets and critical levels in the spreadsheet - colour code for breaches.	Medium	MENG	Medium	Mar-18	Completed	Done.	SWIMlocal
WQ5	Risk Review 2015 / C14	Normanton-Karumba scheme	Karumba reservoirs - secure overflow pipes to ensure no access point for pests and vermins	Medium	MENG	Medium	Jun-18	Completed	Quotation has been sought, work will be undertaken in 2018. Timeframe changed to reflect this.	Whirlybirds
WQ6	Risk Review 2015 / C16, DWQMP Review 2017	Normanton-Karumba scheme	Investigate options to reduce THMs, e.g. re-configuration of Karumba reservoir pipeworks and optimising amount of re-chlorination. Consider relocating the rechlorination point.	High	MENG	High	Dec-17	In progress	Re-chlorination system has been upgraded. Will investigate whether low concentration hypo made on site will reduce THM levels further.	
WQ8	Improvement Plan 2013 Review, Risk Review 2015 /C13, C15, WS4, WS5, DWQMP Audit 2017	Whole of System	Compile operating procedures for the service into a Manual, including reservoir cleaning (with schedule), jar tests, filter backwash, mains repairs, hygiene (tools, personnel), sampling, equipment calibration, flushing. This includes development of relevant checklist to record preventive measures undertaken.	High	MENG	Medium	Jun-18	Completed	This was delayed due to staff movement, but will be considered. Timeframe changed to reflect this.	Induction Package
WQ11	DWQMP Review 2017	Whole of System	Develop a DWQMP implementation training package, including CCPs and deliver to relevant water staff, including operators.	Medium	MENG	Medium	Mar-18	Completed		Induction Package
WQ12	DWQMP Audit/Review 2017	Whole of System	Implement a document transfer process from the Manager to the operators, including operators required to sign off on current DWQMP documents after receiving/reading them	Medium	MENG	Medium	Jan-18	Completed		Induction Package
WQ13	DWQMP Audit/Review 2018	Whole of System	Consider adding structure to the InfoXpert system so documents and records can be stored in folder making them easier to find.	Medium	MENG	Medium	Dec-18	Completed		On SCADA PC, accessible via teamviewer
WQ14	DWQMP Review/Update 2019	Normanton-Karumba scheme	Improve vermin-proofing of reservoirs.	Medium	MENG	Medium	Dec-20	In progress	Working at heights required for one reservoir.	
WQ15	DWQMP Review/Update 2019	Normanton-Karumba scheme	Implement locking of reservoir hatches.	Medium	MENG	Medium	Dec-20	Completed	locked with water and waste key access only.	
WQ16	DWQMP Review/Update 2019	Normanton WTP	Rectify stormwater diversion on the 1.46ML reservoir.	Medium	MENG	Medium	Dec-20	Completed	diverted to stormwater drain.	
WQ17	DWQMP Review/Update 2019	Normanton WTP	Aerate the ground water reservoirs.	Medium	MENG	Medium	Dec-21	In progress	Looking into necessity of whether this is still required after clarifier/filter upgrades.	
WQ18	DWQMP Review/Update 2019	Whole of System	Undertake baseline PFAS, PFOS and PFHxS testing utilising a trained sampler	Medium	MENG	Medium	Dec-20	To Start		
WQ19	DWQMP Review/Update 2019	Raw Water	Install an online turbidity meter at the Glenore Weir.	Medium	MENG	Medium	Dec-20	In progress		
WQ20	DWQMP Review/Update 2019	Whole of System	Investigate installing an online free chlorine instrument near Normanton Sports Ground.	Medium	MENG	Medium	Dec-20	In progress	Upgrades of the sports ground are about occur - will be tied in with that project.	
WQ21	DWQMP Review/Update 2019	Normanton WTP	Install a shade structure for the hypochlorite product tank.	Medium	MENG	Medium	Dec-20	Completed		
WQ22	DWQMP Review/Update 2019	Whole of System	Install "DO NOT DRINK" and "DANGER ELEVATED FLUORIDE LEVELS" warnings at bore sites.	Medium	MENG	Medium	Dec-20	Completed		
WQ23	DWQMP Review/Update 2019	Normanton WTP	Implement interlock of the filtration system with an exceedance of the operational limit for settled water	Medium	MENG	Medium	Dec-21	In progress	SCADA integrator engaged to perform various works.	
WQ24	DWQMP Review/Update 2019	Whole of System	Improve focus on backflow prevention measures by enabling water and waste staff to undertake and monitoring the backflow prevention device testing program.	Medium	MENG	Medium	Dec-21	In progress	Plumbers to undertake training.	
WQ25	DWQMP Review/Update 2019	Normanton WTP	Print CCP procedures and display in the control room of the plant.	Medium	MENG	Medium	Dec-21	Completed		
WQ26	DWQMP Review/Update 2019	Normanton WTP	Consider consolidating water quality records into three files (Normanton WTP, Normanton Reticulation, Karumba Reticulation).	Medium	MENG	Medium	Dec-21	Completed		
WQ27	DWQMP Review/Update 2019	Whole of System	Commence in-house E. coli testing as an operator training exercise at Normanton and Karumba. Consider amending verification monitoring plan once training is completed.	Medium	MENG	Medium	Dec-21	In progress	Testing in-house and will acquire more training. Verification monitoring plan to be checked during next DWQMP review.	
WQ28	DWQMP Review/Update 2019	Whole of System	Undertake a baseline study of chlorate to determine typical levels using hypochlorite generator.	Medium	MENG	Medium	Dec-21	To Start		
WQ29	DWQMP Review/Update 2019	Normanton WTP	OMM for hypochlorite generator.	Medium	MENG	Medium	Dec-20	Completed		