



DWQMP Annual Report 2018-19
Cherbourg Aboriginal Shire Council

January 2020



DWQMP Annual Report 2018-19

Cherbourg Aboriginal Shire Council

Viridis Consultants Pty Ltd

PO Box 131

Bulimba Qld 4171

Australia

www.viridis.net.au

ABN: 49 129 185 271

Telephone: 1300 799 310

Date: 31 January 2020

Reference: 20QU08

Status: Final

© **Viridis Consultants Pty Ltd 2020**

Citation: Viridis Consultants Pty Ltd 2020, DWQMP Annual Report 2018-19 - Cherbourg Aboriginal Shire Council, prepared for Cherbourg Aboriginal Shire Council by Viridis Consultants Pty Ltd.

Contents

1. Introduction	1
1.1. Scope	1
1.2. Purpose	1
2. Drinking Water Scheme	1
3. DWQMP Implementation	2
3.1. Risk Management	2
3.2. Monitoring	2
3.3. Improvement Plan	2
4. Reporting to the Regulator	2
5. Compliance with Water Quality Criteria	3
6. Customer Complaints	4
7. DWQMP Review	4
8. DWQMP Audit	5
9. References	6

Tables

Table 1 Verification Monitoring Results	3
Table 2 Microbial Verification Monitoring Results	4

Document History and Status

Revision	Date	Author	Reviewed	Approved	Details
0.1	30/01/20	Stacey Edwards	Tasleem Hasan	Tasleem Hasan	Internal review
0.2	30/01/20	Stacey Edwards	Chatur Zala	Chatur Zala	For client review
1.0	31/01/20	Stacey Edwards	Stacey Edwards	Stacey Edwards	Final issue

Project manager:	Tasleem Hasan
Name of client:	Cherbourg Aboriginal Shire Council
Name of project:	DWQMP Annual Report 2018-19
Name of document:	Cherbourg Aboriginal Shire Council
Document number	REC-20-020
Document version:	1.0
Project number:	20QU08

1. Introduction

This is the Drinking Water Quality Management Plan (DWQMP) Annual Report for Cherbourg Aboriginal Shire Council (CASC or Council) for the financial year 2018-19.

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 will be 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 146.

Council manages the Cherbourg drinking water supply scheme and distributes treated water to the Cherbourg community. The water supply scheme is comprised of a single raw water source, 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. Council has been working hard, with support also provided by the Public Health Unit in relation to water quality monitoring and mentoring.

Issues have been identified with high chlorine demand and trihalomethanes (THMs), which are being addressed. A proper review of the DWQMP was undertaken in September/October 2019, although outside this reporting period. The review has identified relevant improvement actions to strengthen water quality management.

3.2. Monitoring

Council maintains monitoring programs to verify 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.

A recent review of the DWQMP identified some improvements required to the monitoring and data recording process.

3.3. Improvement Plan

During the reporting period, Council implemented their improvement plan, including:

- Repairing vermin proofing on the clear water tank.
- Undertaking internal reviews.

A plant upgrade planned for 2020 will address a number of Improvement Plan items. Detailed status on the Improvement Plan implementation is presented in Appendix A. Note, the Improvement Plan includes new actions added as part of the recent 2019 DWQMP Review, reporting on the review outcomes is out of the scope of the 2018-19 Annual Report but will be included in the 2019-20 Report as required.

4. Reporting to the Regulator

There was an incident of *E. coli* detected in the reticulation at Bert Button Lookout during the reporting period and reported to the regulator. Actions were undertaken to rectify the issue.

There are also ongoing issues with chlorine and THMs, which the regulator is aware of.

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 provided by Council
- 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, unless classed as specific error.

The verification monitoring data for the Cherbourg scheme, and level of compliance are discussed in Table 1. There were 4 instances of high total chlorine in the reticulation (>5mg/L) and disinfection byproducts (THMs) were typically above the guideline value (only 12.5% compliant). There was one *E. coli* detection at the Bert Button lookout.

Table 1 Verification Monitoring Results

Parameter	Location	Min	5 th %ile	Mean	95 th %ile	Max	Guideline Value	Compliance	Count
Free Chlorine	After treatment yard tap CHER T	0.24	0.34	1.73	4.29	5	<5 (H)	100%	43
	STP yard tap CHER1	0.01	0.05	0.63	2.65	3.51	<5 (H)	100%	43
	Training room kitchen tap CHER 2	0.01	0.02	0.41	2.64	3.15	<5 (H)	100%	42
	Day care kitchen tap CHER 3	0.01	0.09	1.14	3.99	4.81	<5 (H)	100%	41
	Bert Button lookout tap CHER 4	0.04	0.09	0.39	1.09	2.08	<5 (H)	100%	41
pH	After treatment yard tap CHER T	7.26	7.52	7.87	8.2	8.4	6.5-8.5 (A)	100%	41
	STP yard tap CHER1	7.14	7.48	7.83	8.15	8.38	6.5-8.5 (A)	100%	42
	Training room kitchen tap CHER 2	7.25	7.34	7.68	7.93	8.14	6.5-8.5 (A)	100%	42
	Day care kitchen tap CHER 3	7.22	7.48	7.80	8.08	8.15	6.5-8.5 (A)	100%	41
	Bert Button lookout tap CHER 4	7.52	7.67	7.87	8.21	8.4	6.5-8.5 (A)	100%	39
Total Chlorine	After treatment yard tap CHER T	0.47	0.68	2.33	4.61	5	<5 (H)	100%	41
	STP yard tap CHER1	0.13	0.24	1.2	3.29	4.13	<5 (H)	100%	40

Parameter	Location	Min	5 th %ile	Mean	95 th %ile	Max	Guideline Value	Compliance	Count
	Training room kitchen tap CHER 2	0.09	0.18	0.96	3.79	7.52	<5 (H)	97.6%	41
	Farm house yard tap	2.12	2.12	2.12	2.12	2.12	<5 (H)	100%	1
	Day care kitchen tap CHER 3	0.32	0.58	1.89	5.10	7.99	<5 (H)	92.1%	38
	State school tuckshop kitchen tap	1.6	1.6	1.6	1.6	1.6	<5 (H)	100%	1
	Bert Button lookout tap CHER 4	0.24	0.35	0.9	1.86	2.74	<5 (H)	100%	37
THMs	Cherbourg	170	230	375.3	492.5	530	<250 (H)	12.5%	32

Table 2 Microbial Verification Monitoring Results

Parameter	Location	Pass Count	Fail Count	Sample Count	Comments
<i>E. coli</i>	After treatment yard tap CHER T	40	0	40	NA
	STP yard tap CHER1	41	0	41	NA
	Training room kitchen tap CHER 2	38	0	38	NA
	Day care kitchen tap CHER 3	40	0	40	NA
	Bert Button lookout tap CHER 4*	39	1	40	Failed 28/11/2018

6. Customer Complaints

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

7. DWQMP Review

No review of the DWQMP was undertaken during the reporting period. A review was undertaken in 2019, outside the reporting period and will be reported in the next Annual Report.

8. DWQMP Audit

An audit of the DWQMP was undertaken on 20-21 September 2018. The audit found 5 compliant, 4 minor non-compliant and 2 major non-compliant grades. Major non-compliances were identified for Implementation of Operational and Verification Monitoring Programs and Relevance of the Plan.

Recommendations and opportunities for improvement were identified in the audit report. These have been included in the Improvement Plan to track implementation. Appendix A includes the status of the actions resulting from the audit report 2018.

9. References

Cherbourg Aboriginal Shire Council. (2017). DWQMP. Cherbourg Aboriginal Shire Council Office, Cherbourg.

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.

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

Cherbourg Aboriginal Shire Council - DWQMP Improvement Plan

Action No.	Source	Improvement Action or Follow up Action	Priority	Responsibility	Due/Review date set	Status	Comments
1	DWQMP Feb 2018	Develop formal record keeping procedure for complaints	Low	Operations Manager	1-Jun-21	To start	Not many complaints received, can look at in the future.
2	DWQMP Feb 2018	Develop a list of Operations and maintenance procedures	Medium	Operations Manager	1-Dec-20	To start	Some procedures exist, including CCPs
3	DWQMP Feb 2018	Replacement of Valves and old pipes in reticulation	Medium	Operations Manager	1-Dec-20	To start	With upgrade in 2020
4	DWQMP Audit 2018	REC-01 Ensure Annual Report includes all verification sampling, non-compliances, details of monthly sampling, progress of recommendations from audits	Medium	Operations Manager	1-Dec-20	To start	The process will be looked at and implemented
5	DWQMP Audit 2018	REC-02 Establish mechanisms to ensure regulatory reporting requirements are complied with, including annual reporting and non-compliance with water quality criteria.	Medium	Operations Manager	NA	Completed	Internal processes reviewed by Operations Manager, not believed to be a concern.
6	DWQMP Audit 2018	REC-03 Confirm that pre-chlorine dosing is undertaken	Medium	Operations Manager	NA	Completed	Not undertaken
7	DWQMP Audit 2018	REC-04 Repair vermin proofing on the clear water tank	High	Operations Manager	NA	Completed	Completed.
8	DWQMP Audit 2018	REC-05 Secure the hatch on Burt Button Reservoir to prevent vandalism.	High	Operations Manager	NA	Completed	Can't be locked (precast lid). Silicone bead to increase difficulty of getting it off.
9	DWQMP Audit 2018	REC-06 Ensure that all incidents are managed in accordance with the DWQMP, including reporting, keeping records, resampling, investigations and corrective actions.	High	Operations Manager	NA	Completed	Reviewed internally, future incidents will be managed according to the plan
10	DWQMP Audit 2018	REC-07 Ensure the operational monitoring plan detailed in the DWQMP is implemented.	High	Operations Manager	1-Dec-20	To start	DWQMP reviewed and updated. Operations Manager to check this is being done.
11	DWQMP Audit 2018	REC-08 Provide training to all operational staff to ensure monitoring is undertaken consistently.	High	Operations Manager	1-Dec-20	In progress	PHU is assisting with a mentoring program
12	DWQMP Audit 2018	REC-09 Provide the required monitoring instruments (turbidity meter) to enable the operational monitoring program to be implemented.	High	Operations Manager	1-Dec-20	To start	Plant upgrade in 2020
13	DWQMP Audit 2018	REC-10 Establish a calibration and maintenance program for monitoring equipment to ensure the results of monitoring are reliable. Keep records of calibration and maintenance of monitoring instruments.	High	Operations Manager	1-Dec-20	To start	Different tablets for different branded machines.
14	DWQMP Audit 2018	REC-11 Establish processes to ensure that microbiological samples arrive at the laboratory within the required holding times.	High	Operations Manager	NA	Completed	Reviewed internally, no procedure required. Arranged with courier

15	DWQMP Audit 2018	REC-12 Establish appropriate process control plans (or equivalent procedure) for filtration that includes monitoring of filtered water turbidity, action limits that are consistent with the ADWG to trigger action in response to exceedance of the limit and suitable corrective actions to prevent the supply of potentially unsafe drinking water.	High	Operations Manager	NA	Completed	CCPs have been developed as part of the DWQMP 2019 review and update. CCP limits will need to be reviewed in the near future.
16	DWQMP Audit 2018	REC-13 – Calculate the C.f. currently achieved by the CASC system to confirm that the system is capable of achieving primary disinfection based on the current free chlorine limits in the PCP, otherwise revise the limits to reflect the minimum free chlorine residual required at the outlet of the clear water tank.	High	Operations Manager	NA	Completed	Done as part of the DWQMP review and updated 2019.
17	DWQMP Audit 2018	REC-14 Identify appropriate record keeping processes in the DWQMP that capture the results of operational monitoring and any actions taken in response to deviation from limits.	High	Operations Manager	NA	Completed	Done as part of the DWQMP review and updated 2019.
18	DWQMP Audit 2018	REC-15 Identify appropriate reporting mechanisms in the DWQMP to notify managers and supervisors of treatment failures and deviation from limit.	High	Operations Manager	NA	Completed	Done as part of the DWQMP review and updated 2019.
19	DWQMP Audit 2018	REC-16 Establish procedures to review operational monitoring results to confirm that all operational monitoring is undertaken in accordance with the DWQMP and records are consistently kept.	High	Operations Manager	NA	Completed	Duplication of Action No 10
20	DWQMP Audit 2018	REC-17 Establish procedures and schedules for regular reservoirs inspections that identifies the aspects to be inspected, criteria for acceptance/corrective action, record keeping and reporting processes.	High	Operations Manager	NA	Completed	Done as part of the DWQMP review and updated 2019.
21	DWQMP Audit 2018	OFI-02 Establish record keeping processes for mains flushing.	Medium	Operations Manager	1-Dec-20	To start	
22	DWQMP Audit 2018	OFI-04 Establish record keeping and reporting processes for operational issues.	Medium	Operations Manager	NA	Completed	Done as part of the DWQMP review and updated 2019.
23	DWQMP Audit 2018	OFI-05 Consider updating the hard copy and electronic record keeping process to capture all of the necessary information to reflect the documented monitoring plan.	Medium	Operations Manager	1-Dec-20	To start	DWQMP has been reviewed and updated in 2019, record keeping sheets to be looked at
24	DWQMP Audit 2018	OFI-06 Consider using a process to progress and track improvement items, for example in WRIKE.	Medium	Operations Manager	NA	Completed	This spreadsheet will be used
25	DWQMP Audit 2018	OFI-07 Include corrective actions identified through incidents, reviews, audits and other pathways on the improvement plan.	Medium	Operations Manager	NA	Completed	This spreadsheet will be used
26	DWQMP Audit 2018	OFI-09 Confirm that the event register is established and is being used for all failures, including at the WTP.	Medium	Operations Manager	1-Dec-20	To start	Complaints to be tracked using the plant diary
27	DWQMP Audit 2018	OFI-10 Establish procedures for undertaking regular review in accordance with the regulators audit and review guidelines and keep records of reviews, for example in a review report.	Medium	Operations Manager	NA	Completed	CASC now engage consultants to undertake reviews.
28	Risk Assessment Review 2019	Test (at least daily), record and trend filtered water turbidity data. Re-assess risk level at the next DWQMP review.	High	Operators / Operations Manager	1-Dec-20	In progress	Review in 12 months

29	Risk Assessment Review 2019	Record the verification monitoring results as actual values in a spreadsheet, instead of only marking it as Presence/Absence	High	EHW	1-Jun-20	To start	Operations Manager to inform and have discussions with the EHO
30	Risk Assessment Review 2019	Investigate a process optimisation study for the treatment processes.	High	Operations Manager	1-Dec-20	To start	Plant upgrade in 2020 may possibly improve performance, review following upgrade.
31	Risk Assessment Review 2019	Develop SOP for pipe/mains repairs and hygiene	Medium	Operations Manager	1-Dec-20	To start	
32	Risk Assessment Review 2019	Investigate a training program for water treatment operations, including the DWQMP, which can be delivered when needed e.g. for new staff and/or contractors.	Medium	Operations Manager	1-Jun-21	To start	Following plant upgrade, in the interim PHU is providing mentoring.



www.viridis.net.au

A decorative graphic at the bottom of the page consisting of a dark blue wave-like shape with a thin white line above it, curving across the width of the page.