



# Drinking Water Quality Management Plan

## Annual Report 2021-22

December 2022



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## EXECUTIVE SUMMARY

Water suppliers in Queensland (QLD) are required under the *Water Supply (Safety and Reliability) Act 2008* (the Act) to operate under an approved Drinking Water Quality Management Plan (DWQMP) to protect public health. In addition, the preparation of a DWQMP report per financial year is required by the Act.

This DWQMP report documents the performance of Cherbourg Aboriginal Shire Council (Council) in implementing the DWQMP for the 2021-22 financial year.

Council is a registered service provider that 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.

Council has undertaken risk management and water quality testing to ensure the supply of safe drinking water. The water quality verification results and assessment showed that Council in general supplied safe quality water to the customers. Incidents were reported to the Regulator as required and managed effectively to rectify any issues. There were no recorded water quality related customer complaints which indicated a very good overall customer satisfaction.

Various improvement actions have been undertaken and/or planned as continual improvement. The improvement actions have been identified through detailed risk assessment to ensure safe quality of drinking water.

A minor amendment of the DWQMP was required by 12 February 2022. Due to unforeseen circumstances, Council was unable to complete this minor amendment. Subsequently, as detailed review of the DWQMP was undertaken, post this reporting period. The outcomes will be included in the next DWQMP Annual Report.

No regulatory audit was required to be conducted during the reporting period. The next regular audit of the DWQMP must be conducted by 30 June 2025.

## 1. INTRODUCTION

This is the Drinking Water Quality Management Plan (DWQMP) Annual Report for Cherbourg Aboriginal Shire Council (Council) for the financial year 2021-22.

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 Department of Regional Development, Manufacturing and Water (DRDMW).

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. SCHEME OPERATED

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. 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 largely complied with the water quality criteria, with minor exceptions (refer to Section 4). All incidents were managed in a manner to ensure protection of public health, refer to section 5.

#### **3.2. Monitoring**

Council maintains 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 4.

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. Installation of SCADA has greatly strengthened operational monitoring.

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:

- samples were sent to the QHFSS, which is a NATA accredited laboratory, during the reporting period
- operations staff have been appropriately trained to undertake sampling and continue to receive refreshers, as required.

#### **3.3. Implementation of Risk Management Improvement Plan (RMIP)**

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.

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

## 4. VERIFICATION MONITORING COMPLIANCE

This section discusses the compliance with the water quality criteria.

A summary of the microbiological samples tested is included in Tables 1 and 2. Council supplied compliant drinking water to its customers during the reporting period, as discussed in Table 1.

Table 1 Drinking water quality performance – *E. coli*

Location	Parameter	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
CHER T (WTP)	<i>E. coli</i> (MPN/100mL)	Weekly	53	0	0	Not detected (ND)	0	✓ Compliant. <i>E. coli</i> rolling average for the reporting period was 98.03%, at least 98% is required by the Public Health Regulation 2018.
CHER 1 (Park across STP)	<i>E. coli</i> (CFU/100mL)	Weekly	52	0	0	Not detected (ND)	0	
CHER 2 (Depot)	<i>E. coli</i> (CFU/100mL)	Weekly	52	0	0	Not detected (ND)	0	
CHER 3 (Early Learning)	<i>E. coli</i> (CFU/100mL)	Weekly	51	0	1	Not detected (ND)	1	
CHER 4 (Bert Button Lookout Reservoir)	<i>E. coli</i> (CFU/100mL)	Weekly	46	0	4	Not detected (ND)	4	

**Note:**

- Missed sampling has been discussed at the review of the DWQMP (post this reporting period) and will be rectified.

Table 2 Drinking water quality performance – Total Coliforms

Location	Parameter	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
CHER T (WTP)	Total coliforms (MPN/100mL)	NA <sup>1</sup>	54	0	25	NA	NA	Actins are taken on high total coliforms to ensure the system integrity remains intact and water quality is not compromised.
CHER 1 (Park across STP)	Total coliforms (MPN/100mL)	NA <sup>1</sup>	51	0	>200	NA	NA	
CHER 2 (Depot)	Total coliforms (MPN/100mL)	NA <sup>1</sup>	52	0	53	NA	NA	
CHER 3 (Early Learning)	Total coliforms (MPN/100mL)	NA <sup>1</sup>	50	0	>200	NA	NA	

<sup>1</sup> Not applicable for compliance but is tested when *E. coli* is tested.

Location	Parameter	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
CHER 4 (Bert Button Lookout Reservoir)	Total coliforms (MPN/100mL)	NA <sup>1</sup>	42	0	>200	NA	NA	

A summary of the physio-chemical parameters tested is included in Table 3. Council supplied compliant water, except only one out-of-specification trihalomethanes (THMs) result.

Table 3 Drinking water quality performance – Physio-chemical

Location	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
<b>Total chlorine (mg/L)</b>							
CHER T (WTP)	Daily	286	0.13	2.2	5 (H)	0	✓ Compliant.
CHER 1 (Park across STP)	Daily	295	0.09	1.67	5 (H)	0	
CHER 2 (Depot)	Daily	288	0.09	1.27	5 (H)	0	
CHER 3 (Early Learning)	Daily	241	0.08	1.52	5 (H)	0	
CHER 4 (Bert Button Lookout Reservoir)	Daily	200	0.1	4.81	5 (H)	0	
<b>Free chlorine (mg/L)</b>							
CHER T (WTP)	Daily	289	0.01	2.04	NA	NA	There is no ADWG guideline or compliance value but operationally Council endeavour to keep the results at >0.2 mg/L. Actions are taken when results are out-of-spec.
CHER 1 (Park across STP)	Daily	295	0.01	1.49	NA	NA	
CHER 2 (Depot)	Daily	290	0.01	0.79	NA	NA	
CHER 3 (Early Learning)	Daily	241	0.04	1.25	NA	NA	
CHER 4 (Bert Button Lookout Reservoir)	Daily	201	0.04	4.71	NA	NA	
<b>Turbidity (NTU)</b>							
CHER T (WTP)	Daily	268	0.01	3.97	5 (A)	0	✓ Compliant.
CHER 1 (Park across STP)	Daily	274	0.1	3.86	5 (A)	0	
CHER 2 (Depot)	Daily	268	0.04	3.72	5 (A)	0	
CHER 3 (Early Learning)	Daily	223	0.06	1.74	5 (A)	0	
CHER 4 (Bert Button Lookout Reservoir)	Daily	183	0.13	2.97	5 (A)	0	

Location	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
<b>pH</b>							
CHER T (WTP)	Daily	279	6.46	8.04	6.5-8.5 (A)	0	✓ Compliant.
CHER 1 (Park across STP)	Daily	282	6.51	8.33	6.5-8.5 (A)	0	
CHER 2 (Depot)	Daily	282	6.64	8.4	6.5-8.5 (A)	0	
CHER 3 (Early Learning)	Daily	233	6.53	8.13	6.5-8.5 (A)	1	
CHER 4 (Bert Button Lookout Reservoir)	Daily	194	6.7	8.4	6.5-8.5 (A)	4	
<b>THMs (ug/L)</b>							
CHER 2 (Depot)	Monthly	48	15	290	250 (H)	1	Only 1 out-of-spec result. Council is working towards ensuring that THMs consistently remain within the water quality criteria.

A – aesthetic guidelines (spec) as per the ADWG. Does not impact public health.

H – health-based guidelines (spec) as per the ADWG. Requires investigation and corrective actions.

**Note:**

- Missed sampling has been discussed at the review of the DWQMP (post this reporting period) and will be rectified.

A summary of the metals tested is included in Table 4. Council supplied compliant water, except only one out-of-specification aluminum result.

Table 4 Drinking water quality performance – Metals

Location	Parameter	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
CHER T (WTP)	Aluminium (mg/L)	Monthly	5	0.03	0.32	0.2 (A)	1	Only 1 out-of-spec aesthetic value.
	Arsenic (mg/L)	Monthly	4	0.0006	0.0017	0.01 (H)	0	✓ Compliant.
	Boron (mg/L)	Monthly	3	0.04	0.05	4 (H)	0	✓ Compliant.
	Cadmium (mg/L)	Monthly	4	0.0001	0.0001	0.002 (H)	0	✓ Compliant.
	Chromium (mg/L)	Monthly	4	0.0001	0.0001	0.05 (H)	0	✓ Compliant.
	Copper (mg/L)	Monthly	5	0.001	0.003	1.0 (A)	0	✓ Compliant.



Location	Parameter	Frequency	Sample count	Min. result	Max. result	Water quality criteria (spec)	Non-compliant samples	Comments
	Iron (mg/L)	Monthly	5	0.009	0.032	0.3 (A)	0	✓ Compliant.
	Lead (mg/L)	Monthly	4	0.0001	0.0002	0.01 (H)	0	✓ Compliant.
	Manganese (mg/L)	Monthly	5	0.002	0.032	0.5 (H)	0	✓ Compliant.
	Nickel (mg/L)	Monthly	4	0.0011	0.0014	0.02 (H)	0	✓ Compliant.
	Zinc (mg/L)	Monthly	5	0.001	0.06	3 (A)	0	✓ Compliant.
CHER 2 (Depot)	Aluminium (mg/L)	Monthly	13	0.03	0.1	0.2 (A)	0	✓ Compliant.
	Arsenic (mg/L)	Monthly	7	0.0006	0.0014	0.01 (H)	0	✓ Compliant.
	Boron (mg/L)	Monthly	8	0.03	0.05	4 (H)	0	✓ Compliant.
	Cadmium (mg/L)	Monthly	7	0.0001	0.0001	0.002 (H)	0	✓ Compliant.
	Chromium (mg/L)	Monthly	7	0.0001	0.0006	0.05 (H)	0	✓ Compliant.
	Copper (mg/L)	Monthly	13	0.003	0.047	1.0 (A)	0	✓ Compliant.
	Iron (mg/L)	Monthly	13	0.008	0.094	0.3 (A)	0	✓ Compliant.
	Lead (mg/L)	Monthly	7	0.0001	0.0003	0.01 (H)	0	✓ Compliant.
	Manganese (mg/L)	Monthly	13	0.001	0.17	0.5 (H)	0	✓ Compliant.
	Nickel (mg/L)	Monthly	6	0.0006	0.0012	0.02 (H)	0	✓ Compliant.
	Zinc (mg/L)	Monthly	13	0.003	0.06	3 (A)	0	✓ Compliant.

A – aesthetic guidelines (spec) as per the ADWG. Does not impact public health.

H – health-based guidelines (spec) as per the ADWG. Requires investigation and corrective actions.

**Note:**

- Missed sampling has been discussed at the review of the DWQMP (post this reporting period) and will be rectified.

A summary of the blue-green algae (BGA) tested is included in Table 5. Council supplied compliant water. The detection levels are not considered significant but need ongoing monitoring. A biovolume of  $\geq 0.6 \text{ mm}^3/\text{L}$  or  $>15,000 \text{ Raphidiopsis raciborskii}$  cells/mL requires further actions, which is not the case from the data.

Table 5 Drinking water quality performance – BGA

Parameter	Location	Min	Mean	Max	Count
Total Potentially Toxic Species ( <i>Raphidiopsis raciborskii</i> ) (cells/mL)	CHER T	30	30	30	1
	CHER 2	425	425	425	1
	CHER 3	90	90	90	1

Parameter	Location	Min	Mean	Max	Count
<b>Total Biovolume (Cyanobacteria - Blue Green Algae) (mm<sup>3</sup>/L)</b>	CHER T	0.018	0.074	0.13	2
	CHER 1	0.023	0.049	0.074	2
	CHER 2	0.0041	0.0572	0.13	6
	CHER 3	0.0039	0.072	0.14	2
	CHER 4	0.023	0.067	0.11	2

Note:

- Missed sampling has been discussed at the review of the DWQMP (post this reporting period) and will be rectified.

## 5. REPORTING TO THE REGULATOR

The following reporting was undertaken to the Regulator for 2021-22 period. Appropriate actions were undertaken to ensure water quality risks were proactively managed.

Table 6 Incidents reported

Date	ID (description from Regulator)	What Happened	Actions Taken
14-Sep-21	DWI-146-21-09098 (Loss of supply)	The backwash pump failed, which in turn SCADA shut down the whole plant. SCADA SMS notifications were sent out to operators and key staff for action.	The clear water tank was cleaned, and another back wash pump was fitted and commissioned.
2-Nov-21	DWI-146-21-09226 (BGA)	A rain event occurred. This may have caused push of water source causing changes to the clarified water containing BGA. Detection of a BGA in the raw and treated water supply.	Clarifier scheduled to be cleaned in December 2021, this was moved forward to November 2021. All relevant persons were notified of potentially toxic species. Additional samples to be taken. Consultation with SunWater. Operators were also to flush the network mains to rid system of remaining Algae. The clarifier was cleaned, and Jar tests were performed for coagulant concentration optimisation. The toxicity of the algae was tested and found to be not evident.
17-Dec-21	DWI-146-21-09360 ( <i>E. coli</i> )	<i>E. coli</i> detected at Burt Button Lookout.	Additional samples sent, tap not disinfected properly, did super dose, increased monitoring, issued boil water alert. Refresher staff training.
7-Jan-22	DWI-146-09410 ( <i>E. coli</i> )	<i>E. coli</i> detected at Burt Button Lookout.	Inexperienced staff did sampling. Refresher staff training completed, sampling water daily, and placed tap cover on CHER 4 tap. The security issue was rectified, and reservoirs cleaned on 08.02.2022. Following the incident, it was ensured disinfection procedure is followed. Residents on top were put on boil water alert.
19-Apr-22	DWI-146-22-09579 (Loss of supply Burt Button)	Level dropped and tank was empty, no sensors.	Sensors in tank now, daily monitoring of water level via checklist.
4-May-22	DWI-146-22-09594 (THMs)	THM verification result on 27/04/2022 recorded over the limit as 290 ug/L.	Under investigation
20-May-22	DWI-146-09615 ( <i>E. coli</i> )	Detection of <i>E. coli</i> at Day Care	Boil water alert issued, manual chlorine dosed in reservoirs, clarifier was emptied and cleaned. Chlorine was low in reticulation hence manual dosing was done. Improving chlorine levels is part of the risk assessment discussions (risk workshop in Sept 2022)
30-May-22	DWI-146-22-09630 (BGA)	BGA detected in supernatant ponds.	Ponds taken offline, and further investigation happening. This has been discussed at the risk workshop in Sept 2022.
16-Jun-22	DWI-146-22-09646 (Backwashing incident)	SCADA alerts not received, SIM card issue. Sensors in filters malfunctioned and multiple backwashes happened.	SCADA alert has been rectified, SCADA server upgrade will happen. Sensors in the filters were replaced.

## **6. CUSTOMER COMPLAINTS**

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

## **7. DWQMP REVIEW OUTCOMES**

A minor amendment of the DWQMP was required by 12 February 2022. Due to unforeseen circumstances, Council was unable to complete this minor amendment. Subsequently, as detailed review of the DWQMP was undertaken, post this reporting period. The outcomes will be included in the next DWQMP Annual Report.

## **8. DWQMP AUDIT FINDINGS**

No regulatory audit was required to be conducted during the reporting period. The next regular audit of the DWQMP must be conducted by 30 June 2025.

## 9. GLOSSARY

ADWG	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
BGA	Blue-green algae
DRDMW	Department of Regional Development, Manufacturing and Water
DWQMP	Drinking Water Quality Management Plan
<i>E. coli</i>	<i>Escherichia coli</i> , a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
THMs	Trihalomethanes, a group of disinfection by-products that become a potential health risk in elevated concentrations.
Event	Means anything that has happened to the service that has escalated beyond the ability to control and there is concern that public health may be adversely impacted as a result.
Incident	Means a non-compliance with water quality criteria (e.g. exceeding an ADWG health guideline value).
mg/L	Milligrams per litre
MPN/100mL	Most probable number per 100 millilitres

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Viridis Consultants Pty Ltd  
 PO Box 131  
 Bulimba Qld 4171  
 Australia

1300 799 310

www.viridis.net.au  
 ABN: 49 129 185 271

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## A. IMPROVEMENT PLAN PROGRESS

The improvement actions relevant for this reporting period are included in the Table below with relevant commentary on implementation status. Post this reporting period, additional actions were added to the Improvement Plan, which will be reported in the next DWQMP Annual Report.

Action No.	Improvement Action or Follow up Action	Status	Comments
1	Develop formal record keeping procedure for complaints	Completed	Complaints and actions are being recorded in the Water spreadsheet.
2	Develop a list of Operations and maintenance procedures	Completed	Compliance Notice timeframe for this was 30/9/22. List has been developed and included in the updated DWQMP.
3	Replacement of valves and old pipes in reticulation	To start	Carried over from the archived Improvement Plan tab. Within timeframe.
4	OFI-03 Consider developing a drinking water policy and including induction to the policy for all relevant staff.	To start	Carried over from the archived Improvement Plan tab. Something to consider later. Within timeframe.
5	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.	To start	Training for Indigenous Water Operators program is currently being scoped and this can be considered. Queensland Health and WIOA initiative. Medium risk - timeframe extended.
6	Drinking water supply upgrade - funded by the Indigenous Councils Critical Infrastructure Program (ICCIIP). Project 1 (or phase/stage 1) - complete minor tidy up works and obtain O&M manuals etc from the Contractor Project 2 (or phase 2) - complete the following: - upgrade of the intake pipework into the creek wet well pump station - replacement of the remaining section of rising main not yet replaced. - provision of a generator set to the rising main control building - replacement of two reservoir clear water tanks - upgrade of two sludge ponds - demolition works of the old dosing pump and switchboard building (costs only)	In Progress	Practical completion of Stage 1 and Stage 2 achieved. Additional funding granted to complete further critical works - CWT roof replacement (in progress) and introduction of carbon filters into filtration cells (completed).
7	The water team to meet with the CEO/Councillors to discuss paddock accessibility and use, considering the impact or risk on the water supply source.	Completed	The action was considered, herd numbers have decreased, cattle have been removed to mainly other side of River. There is still access by animals upstream and risk from animal activity will remain. Agreed that gates and signs around catchment area will be more useful to reduce some contaminant load in the vicinity. Hence this action has been closed.
8	Investigate and implement an education program to discourage swimming at the intake point for water quality and safety risk (e.g. social media use and program with the school).	In Progress	- Signage has been installed at location. - Community messaging still being discussed. This has always been a swimming hole for the community.

Action No.	Improvement Action or Follow up Action	Status	Comments
9	Investigate and implement improvements to the security of raw water infrastructure (e.g. lock the wet well hatch, appropriate screening of the intake pipe etc) Investigate and implement improvements to the engineering design of the pontoon (safety risk for children jumping off it)	Completed	- Floating pontoon has been removed, removing diving platform - Intake has been submerged, screened and anchored 1.5 metres from base of creek with cast iron dead weight and chain. - Pump well has been secured, lids are locked and railing installed.
10	Undertake monthly testing of standard water analysis suite (SWA), heavy metals, BGA and pesticides in raw water and treated water (one sample).	Completed	Monthly testing being done
11	Investigate and ensure that the raw water online turbidity has an alarm at an appropriate level in SCADA to alert operators on need for intervention e.g. jar testing.	To start	There is no alarm in place and needs to be set up. Contractor is out of country but when back this should be discussed and then progressed.
12	Develop a blue-green algae (BGA) algal response plan or SOP.	Completed	Done
13	Complete installation of carbon filters as planned.	Completed	Done
14	Contact the quarry to find out their processes (chemicals used etc).	To start	Other higher risk actions need to be completed first, this has a low residual risk and can be done later.
15	Undertake a one-off testing for PFAS in discussions with DDPHU and QFSS-QH.	To start	Other higher risk actions need to be completed first, this has a low residual risk and can be done later.
16	Label all dosing lines and points at the WTP (chemical name and flow direction).	Completed	Completed
17	Develop a maintenance schedule for equipment (dosing and raw pumps etc) and asset inspection (including filters and reservoirs), calibration and cleaning (including reservoirs, clarifier and sludge lagoon). Ensure the contractor specifies the frequencies in the hand over report. Investigate auto reminders on when items are due.	Completed	Maintenance schedule done, as part of ongoing task this will be maintained.
18	Develop a SOP for jar testing.	Completed	Done
19	Undertake suitability analysis on different coagulants and decide on optimum one to use for the supply.	Completed	Done, Ultrion is being used now.
20	Investigate and ensure that the clarified water online turbidity has an alarm at an appropriate level in SCADA (i.e. 5 NTU) to alert operators on need for intervention e.g. jar testing.	To start	Needs to be set up at 5 NTU. Contractor is out of country but when back this should be discussed and then progressed.
21	Develop a critical spares list.	To start	Will be developed by WTF as part of project completion.
22	Investigate and ensure that the online pH has an alarm at an appropriate level in SCADA (e.g. pH 8) to alert operators on need for intervention. Labelling and maintenance - as per earlier	In Progress	Low alarm is okay, high alarm to be set at 8.5. Contractor is out of country but when back this should be discussed and then progressed.
23	Develop a SOP on soda ash batching.	Completed	Soda ash use has become optional with new coagulant hence a new broader SOP on soda ash use is needed and identified in 2022 actions. This old one is closed.



Action No.	Improvement Action or Follow up Action	Status	Comments
24	Investigate and ensure that the online filtered water turbidity has alarms and shutdown at appropriate levels in SCADA (i.e. target <0.5 NTU, 0.5-1.0 NTU alarm sent to investigate and action, >1.0 NTU plant to shutdown).	To start	Needs to be set up at 1 NTU. Contractor is out of country but when back this should be discussed and then progressed.
25	Investigate installing online turbidity meters for each filter cell. This will guide the need to backwash cell of concern.	To start	Was not part of works. Post filtration analyser in place only. But individual meters need to be investigated and installed in the future. Timeframe revised.
26	Investigate and ensure that there is auto backwash trigger also on turbidity (i.e. >1.0 NTU should start the backwash) and headloss.	To start	Contractor is out of country but when back this should be discussed and then progressed.
27	Investigate and ensure that the online chlorine (pre clear water tank) has an alarm and shutoff at an appropriate level in SCADA to alert operators on need for intervention.	To start	SCADA alert in place for 0.5 mg/L. New reservoirs are larger in size and low alert should be set at 1.0 mg/L. Contractor is out of country but when back this should be discussed and then progressed.
28	Review the current process on acknowledging fault alarms (i.e. should call contractor on any issue before any acknowledgement).	Completed	SOP in place
29	Install online chlorine meter for treated water post the new reservoirs (to ensure chlorine C.t is achieved).	To start	Daily grab samples are undertaken but online will be preferred in the future.
30	Consider maintaining the sodium hypo chlorine dosing set up option until such a time that there is confidence in operating the chlorine gas system well.	Completed	Not applicable. Gas chlorination system in place and manual dosing can be done when needed.
31	Continue to collect data on THMs and review risk level at the next DWQMP review.	Completed	Assessed in Data Analysis Report 2022.
32	Improve integrity of the clear water tank (hatch, holes, overflow pipe) Develop and use a reservoir inspection checklist.	Completed	CWT roof being replaced and this will be converted to new backwash water service tank.
33	Ensure there is isolation possible for the reservoirs, identify the valving and document as a record.	Completed	Completed as part of works.
34	Fix the leak at the Burt Button reservoir.	Completed	Completed as part of works.
35	Investigate possibility of supplying Burt Button customers with mains (instead of the reservoir), and investigate if this is covered by current design works in phase 2.	To start	Not progressing at this stage. Will be reviewed when future housing development at this end of community is developed. Fixing of reservoirs has reduced the risk, new timeframe.
36	Fix fence and lock gate of Burt Button reservoir.	Completed	Fence fixed and locks have been applied.
37	Install a sampling tap outside of Day Care instead of sampling from inside.	Completed	Completed by CASC
38	Develop a SOP on mains/pipes repair to share with the plumber.	Completed	Done
39	Review the process on contractor management (i.e. qualification checks and maintaining records of the contractor e.g. plumber)	In Progress	Process exists via the Project Management Software - to verify that its working as needed (with Plumber as the water related example)
40	Investigate replacement of old AC pipes.	Completed	Was just the raw water pipe, replaced now.
41	Improve offtake design - make it variable - to be done in phase 2 of works.	Completed	Done

Action No.	Improvement Action or Follow up Action	Status	Comments
42	Operators to undertake training on the new system as needed.	Completed	Completed with practical completion of Stage 2 works.
43	Obtain relevant information (e.g. warranty details), manuals and procedures from contractor at hand over.	In Progress	Done for works completed, old CWT is being fixed.
44	Organise / deliver operator training (i.e. Liz and Jack doing Cert 3 and Justin to complete Cert 4).	In Progress	Lizzie and Jackson have completed Cert III. Justin to complete Cert IV, waiting on dates to be confirmed.
45	Investigate a generator for raw water pumping and supply.	Completed	Completed as part of works.
46	Document securely the password to access the SCADA computer (currently only known by some people but not documented).	Completed	CASC have secured.
47	Verify with the contractor on the cybersecurity provisions.	Completed	Telemetry manual provided by contractor, SCADA system use shared by contractor. For cybersecurity, Council will assess with SCADA server upgrade or audit.
48	Review the process on system and data backups and ensure these are being implemented.	In Progress	With SCADA server upgrade
49	Develop and implement an external calibration program for the online meters (e.g. every 6-12 months externally calibrated).	Completed	In the maintenance program.
50	Review the chemical procurement process. Ensure that there are clauses to state that only chemicals suitable for drinking water are to be used; chemical certificate of analysis should be provided by the supplier etc).	In Progress	CASC reviewing.
51	Develop and maintain a chemical inventory process to ensure chemicals are ordered well in time to avoid risk of running out.	Completed	Done
52	Review the Drought Management Plan to ensure emergency water supply is captured and/or develop a procedure for emergency or alternate supply of water when required (e.g. carted water or bottled water etc).	To start	CASC will review