

**Drinking Water  
Quality  
Management  
Plan Annual  
Report**

FY 2021/22

eDOCS#4698251

water today  water tomorrow

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# 1 Introduction

Wide Bay Water (WBW) is a Commercial Business unit of Fraser Coast Regional Council which is listed as Service Provider Identification Number (SPID Number) 585 with the Department of Regional Development, Manufacturing and Water.

WBW supplies potable water through three separate systems to the cities of Hervey Bay and Maryborough and the township of Tiaro.

This report details WBW's compliance with its Drinking Water Quality Management Plan (DWQMP).

This DWQMP Report for the financial year of 2021/22 is submitted as required under sections 141 and 142 of the *Water Supply (Safety and Reliability) Act 2008*.

## 2 DWQMP Reporting, Reviews and Audits

### 2.1 DWQMP Reviews

DWQMP reviews are required every two years. A review was completed in June 2022 and submitted to the Department of Natural Resources, Mines and Energy 12<sup>th</sup> August 2022.

### 2.2 DWQMP Audits

DWQMP auditing normally occurs every four years and was not due to be completed until 30 June 2021. However, to bring the auditing into alignment with the Wide Bay Burnett Regional Organisation of Councils (WBBROC) auditing was undertaken August 2020.

WBW&WS engaged the consultancy firm Northern Water Management Pty Ltd to audit the DWQMP and a report was supplied 28<sup>th</sup> September 2020.

There were 12 Opportunities for Improvements noted, council has adopted all recommendations, with actions outlined in the following table.



Table 1: 2019/20 DWQMP Audit Recommendations

Ref. Number	Description		
			Due Date
OFI 1	There is an opportunity to review the geographical spread of verification sampling locations to ensure a reasonable spread of testing locations. For example, Tiaro has the 2 reticulation sampling points at the southern end of the system and 1 could be moved to the northern side:	<b>Action</b>	30/06/2022
		Action for this already exists in the Drinking Water Quality Management Action Plan. Action # N7 Review in progress.	
OFI 2	It is suggested that the sample point location on Intramaps be reviewed to accurately show sample point locations. It is suggested that any remaining private land sample locations are positioned on public land.	<b>Action</b>	30/06/2022
		Action for this already exists in the Drinking Water Quality Management Action Plan. Action # N7 Review in progress.	
OFI 3	It is suggested that the recording of verification information to worksheets be automated by using electronic tablets.	<b>Action</b>	Complete
		"Coast to Cloud" project used to improve electronic connectivity and data capture across FCRC.	
OFI 4	Parameters measured on SCADA: It is suggested that the SCADA system filter the data on the totalizer to remove any doubt that the chlorine has stopped dosing in periods of no flow.	<b>Action</b>	Complete
		SCADA systems have appropriate information to indicate whether or not pump is operational for chlorine.	
OFI 5	SCADA Monitoring: It is suggested that the SCADA results are checked against the verified results to see if there are issues in terms of the calibrated online instruments.	<b>Action</b>	Complete
		Investigate a verification process for pH and Chlorine parameters.	
OFI 6		<b>Action</b>	Complete

Ref. Number	Description		
			Due Date
	Update the water main repair procedure "OPS Planned Scouring of Reticulated Mains" #3275958 to include water safety such as machinery disinfection prior to use in water management situations where cross-contamination may be a risk;	Update procedure as required to include disinfection and cross contamination management	
OFI 7	Chemical Management and Storage: There needs to be a process at the time of chemical delivery on-site whereby each delivery comes with a quality assured certificate for each batch of chemical instead of retrospective certificates being provided. The certificates audited do show the concentration of chemical being supplied. Each delivery docket number should link to that certificate/batch in addition to the Sample ID and delivery docket. The service provider must also be checked for ongoing quality compliance. It is suggested that acceptance testing occurs as per ADWG, and a diluted sample could be used to check the chemical concentration prior to use.	<b>Action</b>	Complete
		Bulk chemical tender includes the specifications and requirements for the delivery and acceptance of chemicals used in the treatment process.	
OFI 8	Sourcing of Quality Assured Materials: A procedure needs to be in place to ensure that all drinking water materials purchased are certified to Australian Standards or are WaterMark approved. The Council Procurement Policy does mention "relevant standards", however, this is potentially vague, particularly for small purchases;	<b>Action</b>	Complete
		The FCRC procurement policy is under review. Procurement Manager to investigate the implications of changing the wording of the policy.	
OFI 9	Procedures: It is a possibility that the paper procedures and those stored on M Drive are not the latest versions. It is recommended that access procedures directly from E Docs Document Portal to ensure that all procedures viewed are the latest. This also avoids needing to provide controlled/uncontrolled paper copies. Consider a system to store operational log sheets to avoid them being lost from M Drive. It is suggested that a process be formalised for raw water quality threshold exceedances to ensure a fast response and that the actions include plant derating for a range of parameters.	<b>Action</b>	31/03/2023
		Review and clean-up of M drive to reinforce the quality awareness and quality management of WBW systems. WBW operators are working with the Quality Officer to formalise procedures into the DOC portal. - Complete	
		Raw Water Quality Thresholds management to be included in the Treatment Plant Operator Manuals – In progress	
OFI 10		<b>Action</b>	Complete

Ref. Number	Description		
			Due Date
	Monitoring Instruments: Undertake a regular check of operational calibration record checks to ensure that the instruments are being calibrated regularly and effectively.	Investigate options for implementation.	
OFI 11	Incident Response Capability: Provide training for management staff in new roles in the water department for incident management, and specifically DWQMP awareness directly relating to the system.	<b>Action</b>	30/06/2023
		Investigate a training needs specifically to the DWQMP and associated processes of the management of water treatment for new staff in key roles. – In progress	
OFI 12	At Tiaro WTP, raise the rain gauge bucket or move the unit so that there is no obstruction near the unit to adversely affect the rainfall results.	<b>Action</b>	Complete
		Clear obstruction from rain gauge at site.	

### 3 Risk Management Improvement Plan

The following table is a record of the DWQMP risk management improvement program as at June 2022, which has been summarised for clarity.

Table 2: Risk Management Improvement Program – DWQMT Action Plan

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date (revised)	Status as at 30/6/2022
<b>WBW Region – Network and WTPs</b>					
N7	Establish permanent sample sites for sampling drinking water in all WBW reticulation systems	Identify and establish permanent sample sites for sampling drinking water. Operations Manager to define project – how we do it, cost involved and identification of sites.	Low	30/06/2022	In progress
N6	Inefficient distribution system - reservoirs pump stations, chlorine sensors and re-chlorination stations	Undertake review of all network chlorine analysers and dose stations to check suitability of locations and equipment	Medium	31/12/2022	Hervey Bay complete. Maryborough In progress.
<b>CYBER SECURITY</b>					
Under s575 of the Water Supply (Safety and Reliability) Act 2008 cybersecurity information is not published.					
<b>ALL WATER TREATMENT PLANTS</b>					
2	All risks except cyber security	Update DWQMP risk assessments for catchments, Water Treatment Plants and distribution networks	High	Jun-22	Complete
2.1	Potential for Critical Control Points to be exceeded	Review CCP's and respective interlocks, shutdowns and alarms to ensure CCP's cannot be exceeded without operator knowledge. Consider hard coding max CCP values in PLC/SCADA	High	Oct-22	In progress
2.2	Raw water supply - Public and livestock access to inner catchments	Review of Catchment Management Plan and consider limiting public and livestock access in close proximity to extraction points (inner catchments).	High	Jun-22	In Progress
2.3	Raw water supply - Unsewered dwellings within inner catchments	Review provisions in FCRC planning approval process to protect drinking water catchments	Med	Jun-20	Complete
2.4	Raw water supply - Unsewered dwellings within inner catchments	Develop project with FCRC Regulatory Services group to review plumbing application and approval processes to include	Med	Dec-22	In progress



Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date (revised)	Status as at 30/6/2022
		considerations to protect drinking water catchments and ongoing inspection and monitoring program for critical sites.			
2.5	Raw water supply -Increased pathogens from runoff	Implement event monitoring at extraction points during flood events	Med	Oct-22	In Progress
2.6	Protozoa not removed through filtration	Update procedures to target turbidity recommendations in ADWG	High	Dec-20	Complete
2.7	Protozoa not removed through filtration	Develop statistical reporting framework to assess filter performance against ADWG	High	Mar-20	Complete
2.8	Protozoa not removed through filtration	Update procedures to include detailed filter performance/condition inspection and coagulation optimisation requirements	High	Dec-20	Complete
2.9	Insufficient multiple barriers to manage protozoa	Inform FCRC Water Strategy 2020 of risks for identification of further planning requirements e.g. installation of UV disinfection.	Med	Oct-22	In Progress
2.10	Blue Green Algae toxins	Inform FCRC Water Strategy 2020 of risks for identification of further planning requirements e.g. development of Blue Green Algae Management Plan	Med	Dec-22	In Progress
2.11	Potential for instruments to be out of calibration and calibration procedures to result in erroneous values recorded	Review instrument calibration/maintenance scheduling and procedures	Med	Dec-20	Complete
2.12	Disinfection by-products in exceedance of ADWG Health Limits	Commission pilot trial of Advanced Catalytic Oxidation process to compare performance against other TOC removal processes and to determine CAPEX and OPEX costs	High	Oct-22	Trial Complete. Reporting in Progress.
2.13	Chlorine overdose due to equipment or control failure	Complete chlorination system review commenced 2019 of all chlorination sites to ensure fail safes/interlocks are in place and PID's are available for all sites	High	Dec-22	In progress
2.14	Insufficient documentation on operation and maintenance of WTP's	Update Operation and Maintenance Manuals	Med	Jun-22	In progress
<b>HERVEY BAY – BURGOWAN WTP SPECIFIC</b>					
3	High turbidity from ballasted floc process	Investigate zeta potential of coagulated water before and after sand addition. Action: Review of the literature concludes that ballasting agent does not affect coagulation chemistry.	Med	Oct-21	Complete

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date (revised)	Status as at 30/6/2022
3.1	High pathogen loading from runoff	Update procedures to fill Cassava Dam during low risk periods and utilise while Burrum River is in flood (Cassava catchment more protected)	High	Dec-22	In progress
3.2	TEMA process not able to meet turbidity targets for protozoa removal	Review performance following finalisation of polymer dosing upgrade. Do not operate if performance remains insufficient.	Med	Aug-22	Dosing upgrade complete. Trials In Progress
3.3	TEMA process challenged by manganese and Blue Green Algae cell removal	Inform FCRC Water Strategy 2020 of performance and capacity constraints across Burgowan and Howard Water Treatment Plants to identify future planning and capital expenditure requirements to resolve these issues e.g. Hervey Bay Water Treatment Master Plan.	High	Aug-22	In progress
3.4	Disinfection by-products in exceedance of ADWG Health Limits	<p>Inform FCRC Water Strategy 2020 with investigations and options analysis for management of DBP's delivered by consultant in 2019 (eDOCS #3815522, #3931456)</p> <p>Options include:</p> <ul style="list-style-type: none"> <li>• Enhanced coagulation</li> <li>• Clarifier replacement</li> <li>• Powder activated Carbon Dosing</li> <li>• Ion exchange</li> <li>• Advanced Catalytic Oxidation</li> <li>• Reservoir aeration.</li> </ul> <p>Also inform the FCRC Water Strategy to consider existing performance and capacity constraints in identifying overall strategic direction and necessary timeframes to rectify</p>	High	Jun-22	In progress
3.6	Sludge management capacity exceeded resulting in poor quality supernatant returned to head of plant (microbial and manganese risks)	Design of sludge dewatering and management facilities	High	Jun-22	Detailed design in progress
3.7	Sludge management capacity exceeded resulting in poor quality supernatant returned to head of plant (microbial and manganese risks)	Construction of sludge dewatering and management facilities	High	Jun-23	Follows 3.6
<b>HERVEY BAY – HOWARD WTP SPECIFIC</b>					

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date (revised)	Status as at 30/6/2022
4	Risk of poor asset condition and process performance	See action #3.3			
4.1	Disinfection by-products in exceedance of ADWG Health Limits	See action #3.4			
<b>MARYBOROUGH – TEDDINGTON WTP SPECIFIC</b>					
5	High pathogen loading from runoff	Update procedures to ensure bulk water transfers from Mary River to Tinana Ck. are subject to water quality testing including E.coli, especially during flood events (Tinana Ck. catchment better protected than Mary River)	High	Dec-22	In Progress
5.1	Disinfection By-products in exceedance of ADWG Health Limits	Inform FCRC Water Strategy 2020 with investigations and options analysis for management of DBP's delivered by consultant in 2019 (eDOCS #3815522, #3931456) Options include: <ul style="list-style-type: none"> <li>· Alternate water supply from Mary River (direct feed to WTP)</li> <li>· Enhanced coagulation</li> <li>· Powder activated Carbon Dosing</li> <li>· Ion exchange</li> <li>· Advanced Catalytic Oxidation</li> </ul>	High	Jul-23	In Progress
5.2	Sludge management capacity exceeded	Design of sludge dewatering and management facilities	High	Jun-22	In Progress
5.3	Sludge management capacity exceeded	Construction of sludge dewatering and management facilities	High	Jun-23	Follows 5.2
<b>TIARO WTP SPECIFIC</b>					
6	High pathogen loading from runoff	Update procedures to formalise practice of shutting down during flood periods while treated water storage volumes allow.	High	Dec-22	In Progress
6.1	Protozoa not removed through filtration	Inform FCRC Water Strategy of need to include additional solids removal process to prevent DAF process failure during periods of high turbidity as identified in Health Based Target project (LRV Assessment eDOCS #3929900)	High	Jun-23	In Progress
6.2	Disinfection By-products in exceedance of ADWG Health Limits (only during high NOM events)	Inform FCRC Water Strategy 2020 with investigations and options analysis for management of DBP's delivered by Consultant in 2019 (EDOCS #3815522, #3931456)	High	Jun-23	In Progress

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date (revised)	Status as at 30/6/2022
		Options include: · Powder activated Carbon Dosing			

## 4 Verification Monitoring Program

Requirements for verification monitoring of drinking water quality is outlined in Council's DWQMP. The quantity and location of monitoring sites is provided in the following table:

Table 3: Monitoring Site Details

Drinking water supply scheme	Quantity of verification monitoring sites	Locations of verification monitoring sites
Hervey Bay	22	See 9.3.2 DWQMP
Maryborough	12	See 10.9.1 DWQMP
Tiaro	4	See 11.7.2 DWQMP

Verification monitoring parameters and frequencies are outlined below:

Table 4: Verification Monitoring Schedule

Physical and Chemical Parameters	Guideline value (ADWG 2011) or Operational target	Frequency of testing Hervey Bay	Frequency of testing Maryborough	Frequency of testing Tiaro
Total Hardness *		Fortnightly	Fortnightly	Monthly
pH *	6.5 – 8.5	Fortnightly	Fortnightly	Monthly
Conductivity *	750 mg/L	Fortnightly	Fortnightly	Monthly
Total Chlorine	<5 mg/L	Weekly	Weekly	Monthly
Aluminium *	0.2 mg/L desirable (acid soluble)	Fortnightly	Fortnightly	Monthly
Turbidity *	No guideline, but < 1 desirable for effective disinfection	Fortnightly	Fortnightly	Monthly
True Colour *	<15 HU	Fortnightly	Fortnightly	Monthly
Copper	<2 mg/L	Fortnightly	Fortnightly	Monthly
Iron *	<0.3 mg/L	Fortnightly	Fortnightly	Monthly
Manganese	<0.5 mg/L	Fortnightly	Fortnightly	Monthly
Zinc *	<3 mg/L	Fortnightly	Fortnightly	Monthly
Trihalomethanes	<0.25 mg/L	Quarterly	Quarterly	Quarterly
<b>Microbiological Parameters</b>				
Heterotrophic plate count (37°C) *	No guideline value <100 cfu/mL desirable for disinfected, filtered supply	Weekly	Weekly	Monthly
Total coliforms *	No health guideline set, monitor trends for system sanitation	Weekly	Weekly	Monthly
<i>Escherichia coli</i>	Zero in 100mL	Weekly	Weekly	Monthly

## 4.1 Verification Results

The water quality monitoring data captured for the 2021/22 reporting period is summarised in the following tables.

### 4.1.1 Hervey Bay Drinking Water Supply Scheme

Table 5 Hervey Bay 2021/22 Water Quality Compliance – ADWG Health Guidelines

Hervey Bay Retic Jul 2021 - Jun 2022	Manganese	Copper	<i>Escherichia coli</i>	Total Chlorine	Total THMs*
	mg/L	mg/L	MPN/100mL	mg/L	µg/L
Maximum	0.132	0.218	0	3.84	611
Minimum	0.000	0.000	0	0.03	49
Average	0.001	0.005	0	1.54	201
Guideline value, ADWG (2011)	0.1 mg/L aesthetic 0.5mg/L health	2mg/L	Zero in 100mL	5mg/L	250µg/L
Health/non health related guideline value	Health	Health	Health	Health	Health
95th percentile	0.002	0.014	0	3.00	356
Number of Samples Tested	575	575	1177	1174	186
Number of Samples Required	572	572	1144	1144	88
Number of exceedances of guideline value	0	0	0	0	31
<b>% Compliance with ADWG</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>83.3%</b>

\*Total THMs – FCRC has ongoing operational and capital programs in place to improve THM levels in the network. There is an open incident for THM exceedances in the Hervey Bay network and FCRC continues to work with the regulator to inform them of FCRC's improvement plan status.

Table 6 Hervey Bay 2021/22 Water Quality Compliance - ADWG Aesthetic Guidelines

Hervey Bay Retic Jul 2021 - Jun 2022	Aluminium	Iron	pH	Total Hardness	True Colour	Turbidity	Zinc
	mg/L	mg/L		mgCaCO <sub>3</sub> /L	Pt-Co Units	NTU	mg/L
Maximum	0.140	0.034	8.4	108	0	2.80	0.057
Minimum	0.000	0.000	7.1	30	0	0.00	0.000
Average	0.047	0.002	7.72	64.86	0	0.24	0.003
Guideline value, ADWG (2004)	0.2mg/L	0.3mg/L	6.5 - 8.5	60 - 200 acceptable	<15 TCU	<5 NTU	3mg/L
Health/non health related guideline value	non health	non health	non health	non health	non health	non health	non health
95th percentile	0.081	0.012	8.00	80	0.0	0.47	0.012
Number of Samples tested	575	575	575	575	575	576	575
Number of Samples Required	572	572	572	572	572	572	572
Number of exceedances of guideline value	0	0	0	0	0	0	0
<b>% Compliance with ADWG</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



## 4.1.2 Maryborough Drinking Water Supply Scheme

Table 7 Maryborough 2021/22 Water Quality Compliance – ADWG Health Guidelines

Maryborough Retic Jul 2021 - Jun 2022	Manganese	Copper	<i>Escherichia coli</i>	Total Chlorine	Total THMs
	mg/L	mg/L	MPN/100mL	mg/L	µg/L
Maximum	0.072	0.545	0	5.10	315
Minimum	0.000	0.000	0	0.10	83
Average	0.001	0.009	0	1.67	155
Guideline value, ADWG (2011)	0.1mg/L aesthetic 0.5mg/L health	2mg/L	Zero in 100mL	5mg/L	250µg/L
Health/non health related guideline value	Health	Health	Health	Health	Health
95th percentile	0.003	0.021	0	2.78	281
Number of Samples tested	320	320	645	638	49
Number of Samples Required	312	312	624	624	48
Number of exceedances of guideline value	0	0	0	1	6
<b>% Compliance with ADWG</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>99.8%*</b>	<b>87.8%**</b>

\*An exceedance of total chlorine was recorded in the Maryborough scheme 28/02/2022 and reported to the regulator. Further investigation confirmed no exceedance of total chlorine, and recoded was likely due to sample analysis error. Incident was closed out with regulator

\*\*Total THMs – WBW continues with operational and capital programs to improve THM levels in the network. As of June 2022, there is an open incident for THM exceedances in the Maryborough network.

Table 8 Maryborough 2021/22 Water Quality Compliance - ADWG Aesthetic Guidelines

Maryborough Retic Jul 2021 - Jun 2022	Aluminium	Iron	pH	Total Hardness	True Colour	Turbidity	Zinc
	mg/L	mg/L		mgCaCO <sub>3</sub> /L	Pt-Co Units	NTU	mg/L
Maximum	0.088	0.089	8.5	143	0	0.70	0.597
Minimum	0.000	0.000	7.4	45	0	0.00	0.000
Average	0.017	0.006	7.80	100	0	0.13	0.003
Guideline value, ADWG (2011)	0.2mg/L	0.3mg/L	6.5 - 8.5	60 - 200 acceptable	<15 TCU	<5 NTU	3mg/L
Health/non health related guideline value	non health	non health	non health	non health	non health	non health	non health
95th percentile	0.044	0.023	8.20	122	0.0	0.33	0.007
Number of Samples tested	320	320	320	320	320	320	320
Number of Samples Required	312	312	312	312	312	312	312
Number of exceedances of guideline value	0	0	0	0	0	0	0
<b>% Compliance with ADWG</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100.0%</b>	<b>100%</b>

### 4.1.3 Tiaro Drinking Water Supply Scheme

Table 9 Tiaro 2021/22 Water Quality Compliance - ADWG Health

Tiaro Retic Jul 2021 - Jun 2022	Manganese	Copper	Escherichia coli	Total Chlorine	Total THMs*
	mg/L	mg/L	MPN/100mL	mg/L	µg/L
Maximum	0.000	0.030	0	1.95	157
Minimum	0.000	0.000	0	1.05	82
Average	0.000	0.000	0	1.50	111
Guideline value, ADWG (2011)	0.1 mg/L aesthetic 0.5mg/L health	2mg/L	Zero in 100mL	5mg/L	250µg/L
Health/non health related guideline value	Health	Health	Health	Health	Health
95th percentile	0.000	0.013	0	1.85	149
Number of Samples Tested	48	48	50	48	16
Number of Samples Required	48	48	48	48	16
Number of exceedances of guideline value	0	0	0	0	0
<b>% Compliance with ADWG</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Table 10 Tiaro 2021/22 Water Quality Compliance - ADWG Aesthetic Guidelines

Tiaro Retic Jul 2021 - Jun 2022	Aluminium	Iron	pH	Total Hardness	True Colour	Turbidity	Zinc
	mg/L	mg/L		mgCaCO <sub>3</sub> /L	Pt-Co Units	NTU	mg/L
Maximum	0.055	0.016	8.1	137	0	0.34	0.013
Minimum	0.000	0.000	7.3	57	0	0.00	0.000
Average	0.000	0.000	7.70	85	0	0.20	0.000
Guideline value, ADWG (2011)	0.2mg/L	0.3mg/L	6.5 - 8.5	60 - 200 acceptable	<15 TCU	<5 NTU	3mg/L
Health/non health related guideline value	non health	non health	non health	non health	non health	non health	non health
95th percentile	0.052	0.011	8.10	136	0.0	0.29	0.008
Number of Samples tested	48	48	48	48	48	48	48
Number of Samples Required	48	48	48	48	48	48	48
Number of exceedances of guideline value	0	0	0	0	0	0	0
<b>% Compliance with ADWG</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100.0%</b>	<b>100%</b>

## 5 Exceedances of ADWG Health Guidelines

### 5.1 Exceedance Summary

Where water quality parameters exceed the health values as prescribes in the ADWG, the incident was reported to the Drinking Water Regulator. Occurrences from the reporting period, or open from previous periods are outlined in the following table:

*Table 11 Health Guidelines Water Quality Parameter Exceedance Summary*

Drinking Water Supply Scheme	Description	Exceedance	Drinking Water Regulator Specific ID	Date reported	Date closed
Maryborough	Elevated THMs	>250µg/L	DWI-7-434-00018	28/07/2014	Open
Hervey Bay	Elevated THMs	>250µg/L	DWI-7-585-00023	13/04/2017	Open
Maryborough	Total Chlorine exceedance	>5 mg/L	DWI-585-22-09491	28/02/2022	02/03/2022

Note that DWI-7-585-00018 has been closed outside the reporting period and the investigation report is being finalised for DWI-7-585-00023 at the time this report was prepared.

#### 5.1.1 THM Exceedances

The cause of elevated trihalomethanes (THM) is due to high concentrations of Natural Organic Matter (NOM) in the raw water supplies for Hervey Bay and Maryborough. While NOM is substantially removed through the treatment process, a sufficient amount remains to produce THM's following chlorine addition for disinfection. The portion of NOM that remains in the water is low molecular weight and highly hydrophilic, which typical methods are ineffective at removing.

THM exceedances occur at times where raw water NOM is high and when treatment processes removal efficiency is lower, for example during high demand conditions or where NOM characteristics are recalcitrant to removal.

Control measures to minimise THM formation currently implemented include:

- Maximising NOM removal through the treatment process
- Minimising chlorine residual where practical
- Aeration of reservoirs in Maryborough. While aeration strips THM's within the reservoirs, THM reformation occurs downstream.

Strategic planning and works to reduce THM concentrations within ADWG limit consistently include:

- The FCRC Water Strategy review (completion due 2023) will consider options to decrease THM formation and outline the planning and expenditure necessary moving forward
- Analysis of results of Advanced Catalytic Oxidation Pilot plant trailed at Burgowan Water Treatment Plant (due to conclude 2022)
- Following chlorine modelling, the construction and commissioning of four new rechlorination sites in the Hervey Bay scheme, two in 2022, a further two in 2023

FCRC continues to work through options highlighted in a THM management audit (completed June 2022) to realize improvement in THM levels in the short to medium term.

### **5.1.2 Total Chlorine Exceedance**

A total chlorine exceedance result of 5.1mg/L was recorded in the Maryborough scheme 28/02/2022 while carrying out routine verification sampling. Free chlorine in the same test was recorded at 3.3mg/L. An investigation was immediately carried out, which included retesting samples, comparing other verification results, and checking online analysers at the site.

A retest at the site returned a total chlorine of 3.5mg/L and free chlorine of 3.3mg/L. A representative sample downstream of this site returned 2.6mg/L total chlorine and 2.4mg/L free chlorine. No other verification sites returned high readings, and the median range in the network was approximately 1.8mg/L total chlorine, and 1.4mg/L free chlorine.

All available data and the follow up investigation suggest that the high level results was an error, and consumers did not receive water with a total chlorine higher than that prescribed in the ADWG of 5mg/L. The completed incident report was filed with the regulator 02/03/2022.

## 6 Customer Complaints

### 6.1 Customer Service Standards

The following data is reported annually to the relevant Queensland Government departments and is a summary of performance statistics for the year 2021/22.

Table 12 Supply Process and Water Quality Performance 2021/22

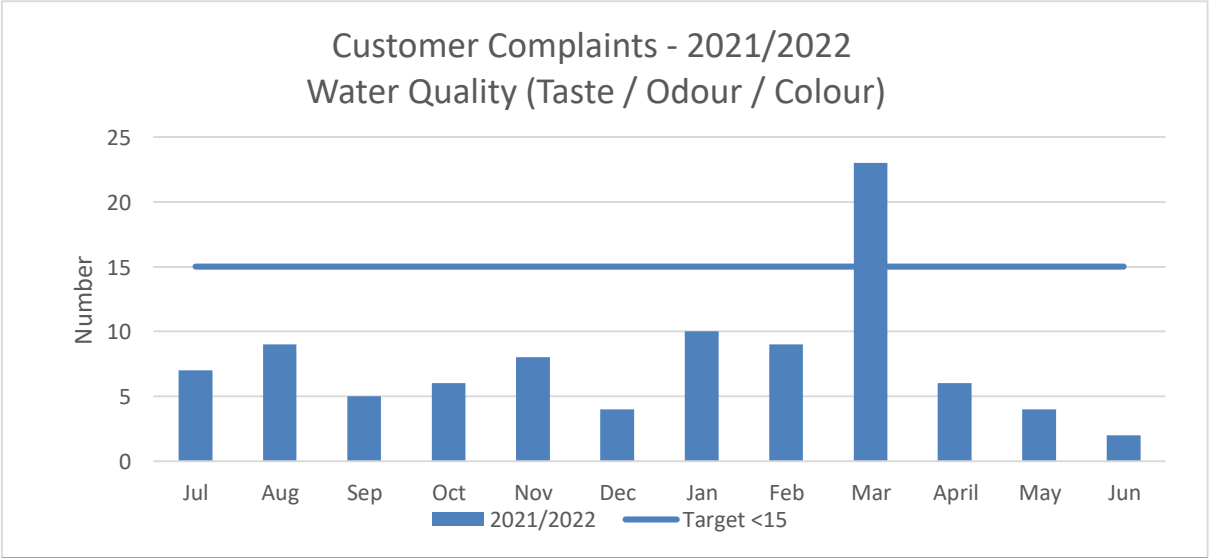
Service Standard / Performance Indicator	Target	Actual
Water at the point of delivery will meet National Health and Medical Research Council Health Guidelines for Australian Drinking Water	100%	99.53%*
Water quality at point of delivery (physical and chemical parameters) will meet National Health and Medical Research Council Aesthetic Drinking Water Guidelines	>95%	99.7%
Minimum flow at the property boundary for 90% of connected properties (litres/minute)	>20	>20
Minimum water pressure at the property boundary for 99% of connected properties (on enquiry or complaint) (kPa)	>200	>200
Time for restoration of service within five hours – percentage of unplanned incidents	>95%	92.4%**
Drinking Water quality complaints – Odour and Taste (per 1,000 connections/year)	<5	2.3

\*THM Exceedances – Hervey Bay 31, Maryborough 6

\*\* Repair time exceedance, breaks in roadways requiring traffic control, roadway repairs and deep buried mains

### 6.2 Water Quality Complaints

The following graph indicates water quality complaints (taste / odour / colour) received for the Hervey Bay, Maryborough, and Tiaro drinking water supply schemes for the 2021/22 financial year.



\*An increase in customer complaints were received in March 2022 due to taste and odour issues caused by lack of CO<sub>2</sub> supply, which is used in the treatment process for the Hervey Bay scheme.