



DRINKING WATER QUALITY MANAGEMENT PLAN 2022/2023 ANNUAL REPORT

2022/2023 ANNUAL REPORT

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1. GLOSSARY OF TERMS

ADWG	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia.
DWQMP	Drinking Water Quality Management Plan
E. coli	Escherichia coli, a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk.
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
RMIP	Risk Management Improvement Program, which was developed in the Drinking Water Quality Management Plan.
<	Less than
>	Greater than

2. INTRODUCTION

The Water Supply (Safety and Reliability) Act 2008 requires water service providers in Queensland to provide a Drinking Water Quality Management Plan Report for each financial year from when the Drinking Water Quality Management Plan (DWQMP) was implemented.

This report documents the performance of Hinchinbrook Shire Council's drinking water service with respect to water quality and performance in implementing the actions detailed in the DWQMP for the 2022/2023 financial year. The report assists the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with and provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

The Report details the following information:

- Document actions taken by the service provider to implement the DWQMP.
 - Summarise any amendments that have been made to the DWQMP.
 - Describe which actions in the Risk Management Improvement Program (RMIP) were completed, currently in progress or deferred.
 - Discuss if the actual verification monitoring undertaken met the monitoring program described in the DWQMP.
- Details of compliance with water quality criteria for drinking water.
 - Summary of results for the verification monitoring for the drinking water service.
 - Detail the months, if any, where the annual value for E. coli was not achieved for the service.
 - Comments on where the water quality results met the recommended values in the Australian Drinking Water Guidelines, E. coli and fluoride standards.
- Details information given to the Regulator under sections 102 and 102A of the Act.
 - Summary of each incident reported to the Regulator and describe the corrective and preventive actions undertaken.
- Summary of any water quality complaints received and the responses that were undertaken.
- Details of the findings and any recommendations of audit reports given to the Regulator.
- Outcome of any review and how the service provider has addressed any matters raised in the review.

3. IMPLEMENTATION OF THE DWQMP

3.1. Amendments to Council's DWQMP

Hinchinbrook Shire Council's DWQMP was approved on the 25 March 2013 by the Department of Energy and Water Supply. Hinchinbrook Shire Council undertook a Review of their DWQMP on the 25 March 2020, which resulted in some amendments. Revision F of Council's DWQMP was issued on 22 March 2021.

3.2. Risk Management Improvement Program

Hinchinbrook Shire Council's DWQMP includes a Risk Management Improvement Program (RMIP), which aim is to manage any unacceptable residual risks identified by the hazard/risk assessment and improve parts of the Plan where deficiencies in information did not allow the criteria to be completely and accurately addressed.

The RMIP identified 37 areas where Council could implement changes to manage identified hazards/risk and uncertainties. The program outlines interim, short-term and long-term actions for Council to implement to manage the identified hazards/risk and uncertainties.

The following table is an excerpt from the RMIP table in Council's DWQMP and addresses the actions in the RMIP that have been completed, currently in progress or have been deferred.

Table 3.1 – Summary of Items completed, in progress or deferred from RMIP

Denotes that it is a copy from the RMIP in HSC's DWQMP

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
1	All	River and Groundwater Systems	Inadequate well or bore head protection	~ Improve borehead construction under the borehead replacement program	Investigate upgrade of Halifax Bores as first priority. Halifax has a total of 5 bores, but not all are used due to low pump rates and the possibility of saline intrusion. Cyclone Yasi has also damage fencing and there is currently a power supply issue to some bores.	Commence upgrade of Halifax Bores, if required seal and abandon unused bore.	Complete an inspection report for all bores (Macknade, Forrest Beach, Halifax and Como Road) and complete a works program for required maintenance.	2017	100% complete and operational	Complete
2	All	River and Groundwater Systems	Industrial chemical waste discharge contaminating groundwater &/or surface water	~ No control over private enterprise. ~ Continue to monitor chemical levels in raw water supplies.	Investigate private enterprises within the district that could affect drinking water quality and the possible risks that they present. Those identified will be posing a direct risk to council's drinking water supply.		Continue with existing chemical monitoring and identify any significant changes.	Ongoing	Ongoing	Standard Water Analysis taken from each WTP every month.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
3	3 (Forrest Beach)	Groundwater	High iron levels in groundwater	~ Current proposal for funding in place to connect the Forrest Beach Water Supply to Scheme 1 & 2 which will allow a backup water supply if groundwater quality is not suitable for consumption. ~ Looking at new filtration systems	Submit application for funding assistance to the government.	Advertise a tender for the works to be completed. If works can be done internally prepare quote.	Construction phase. Finalise project.	Funding dependant	Completed	Water main has been commissioned from Ingham to Forrest Beach. Upgrades have also been completed on the aerator and sedimentation channels (clarifier).
4	All	WTP	Open filtration system causing growth of cyanobacteria	~ Testing during hot months of the year ~ Improvements to the aeration and filtration system	Provide temporary shading.	Issue Expression of Interest for consultants to investigate council's existing water treatment plants and what would be required for their upgrade.	Depending on results from consultant's report, budget for upgrades to commence.		100% complete and operational	Complete
5	3 (Forrest Beach)	Reservoir	Rainwater ponding on reservoir roof	~ Investigate costs into sealing roof	Prepare specification for require work. Complete cost estimate.WTP Operator to check condition of reservoir roof and conduct any remedial works that can be completed to reduce risk of contamination from ponding rainwater.	Advertise a tender for the works to be completed. If works can be done internally prepare quote.	Construction phase. Finalise project.	December 2013	Complete	Complete

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
6	2	WTP	Chemical Dosing Failure - Soda Ash	~ A pH test is always conducted prior to dosing with soda ash.	Investigate existing options and equipment.	Prepare site for installation.	Install and commission chemical dosing equipment.	June 2014	Complete	New aerators installed, which altered the pH which eliminated the need for soda ash dosing.
7	1	River and Groundwater Systems	High Turbidity in river water	~ Installation of turbidity meter	Set control points and critical limits to be monitored.	Purchase and installation of turbidity meter.	Monitor turbidity in supply. If control points exceeded then river system is to shut off with use to only recommence when turbidity has reached an acceptable level.	December 2017	Completed	Identified in DWQMP Audit completed on 28 April 2017. Completed
8	1	River and Groundwater Systems	Protozoa Control	~	Determine appropriate process and control points for testing of Protozoa.		Continual testing for protozoa. If protozoa are found, the relevant health authority to be advised and necessary measure put in place.	Ongoing	Ongoing	Identified in DWQMP Audit completed on 28 April 2017. Program to be developed in 2024 depending on future use of Herbert River Supply.
9	1	WTP	Increase storage capacity	~ Current proposal for funding in place to construct new bore at Como Rd along with upgrading the Depot WTP, which will allow a secure water supply if river water quality is not suitable for consumption.	Submit application for funding assistance to the government.	Advertise a tender for the works to be completed.	Construction phase. Finalise project.	Funding Dependent	Complete	Project Completed. New 2.5ML reservoir constructed at Ingham Depot Water Treatment Plant. 45% funding was allocated to this project as part of the Building Our Regions Program.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
10	All	River and Groundwater Systems	Contamination from Septic tanks & Sewer Mains (breakages, etc)	~ Undertake testing monthly for the presence of E. Coli in raw water and monitor the data to identify any peaks associated with high rainfall, etc.	E. Coli testing in river and bore sources. Conduct during dry and wet seasons.	Investigate laboratory results.	Depending on results, further investigations may need to take place to find the source of bacteria into raw source. Some bacteria is to be expected.	Commence first round of testing early 2013	Completed and Implemented	E. Coli testing in river and bore sources commenced in August 2012 and are currently being tested at least once per month.
11	All	Groundwater	Discharge from urban stormwater during rainfall events	~ Terrain currently completing a study on the effects of pesticides to the catchments water supply. Results expected in a 2 year timeframe. ~ Improve borehead construction under the borehead replacement program	As per Item 1 (borehead construction)	As per Item 1 (borehead construction)	As per Item 1 (borehead construction)	As per Item 1 (borehead construction)	100% complete and operational	Complete
12	All	WTP	Formation of disinfection by- products	~ Enforce testing on a yearly basis.	Commence testing on yearly basis. Depending on results further action may need to be taken, but this will need to be assessed when further information is available.	As per interim.	As per interim.	Commence first round of testing early 2013	Ongoing	All source water is primarily drawn from ground water (exclusively for previous two years) minimising or preventing organics in source. Regular testing for disinfection by- products commenced in January 2021 and are currently being tested every six months
13	All	Operational & Maintenance Procedures	N.A.	N.A.	Work in conjunction with council surveyor to collate existing data and determine areas where data is missing.	Assign asset numbers and produce drawings that can be distributed to staff.	Final dataset of mapped assets, including a full list of assets with unique numbering which will work in conjunction with council's asset management system.	Jul-13	Ongoing	Operation and Maintenance Procedures have been developed and will continually be updated as required. Council's asset management plans have been finalised with operational procedures to be updated.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
14	All	Mapping of Water Assets	N.A.	N.A.	Collate existing data and determine areas where data is missing.	Begin collating and putting together data.	Final dataset of mapped assets.	December 2012	Ongoing	Complete and available on Dial Before You Dig.
15	All	Staff Training	N.A.	N.A.	Commence training for Water Treatment Assistants. Certificate II or III in Water and Waste Water Treatment.	Provide assistance to staff undertaking Certificate II or III.	Have sufficient staff who have completed the required training as per national requirements. Continue to provide any training that would be beneficial to the day-to-day operations.	July 2014 (based on a two year completion)	Ongoing	Council has implemented a program for Water Treatment Plant Assistants to undertake the Certificate II in Water Treatment. Three Water Treatment Plant Assistants successfully completed the program in 17/18. 2 operator assistants completed their certificate III in Water Operations in 2018 and 1 has completed the course in 2019.
16	All	Customer Complaint Performance	N.A.	N.A.			Council upgrading the Financial System which will include a new component to handle customer complaints. It will be a major upgrade to the system and it will include easier access to data, eg. Response times.	December 2014	Complete	Council has implemented a new customer request system that incorporates all customer requests within Council in line with the customer service charter.
17	All	Historical Data Database	N.A.	N.A.	Discuss with council staff that are familiar with creating databases and work out an approach to creating the database.	Gather all water quality data into the format required and create database.	Have a fully functional database.	December 2014	In Progress	Complete Existing Database in Excel has been improved to provide some reporting functions. Further upgrades to the database are required as further information on reporting is available.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
18	All	Drinking Water Policy	N.A.	N.A.	Prepare draft Drinking Water Policy.	Conduct a meeting with relevant parties to discuss policy and make notes on areas for improvements.	Finalise policy and get Council to endorse.	June 2021	In Progress	Identified in DWQMP Audit completed on 28 April 2017. Currently in development.
19	All	SCADA Alarm Procedure	N.A.	N.A.	Prepare templates for procedure. Collate any relevant data that could be of use.	Conduct a meeting between relevant tasks to discuss the template that has been produced and make notes on areas for improvements. Conduct site inspections and take photos to include in the procedure.	Create a final Procedure and begin the implementation process. Procedures are to be uploaded to the Council's intranet and distributed to all staff members.	June 2021	In Progress	Identified in DWQMP Audit completed on 28 April 2017. Upgrading to digital clear SCADA over the next 3 years. New procedures to be developed as part of the project implementation and relevant staff trained.
20	All	Hydraulic Model	N.A.	N.A.		Council to procure consultant to construct Hydraulic Model of Council's water network.	Maintain and update as required.	June 2016	Completed	Completed

21	All	All	Lack of asset management	IT Management System with oversight	High level review and meeting with IT	Gather system information	MC-01-Vulnerability assessment Undertake a cybersecurity audit including a penetration test: - identify critical sites and those with cyber access, devices and access points specific to the Supervisory Control and Data Acquisition (SCADA) for water quality management. These will include 1) pump sites. 2) related operational technology systems - servers, firewalls, network switches, access points, Remote Terminal Units (RTUs) and Programmable Logic Controllers (PLCs). 3) Implement actions to maintain effective cyber security controls of SCADA and Industrial Control Systems (ICS). 4) Implement actions and integration consisting of standards and processes to manage both information technology (IT) and operational technology (OT). 5) Implement a single point access to enter the telemetry network. 6) Implement a secure entry	June 2022	In Progress	Currently being developed in conjunction with the IT department for a Council wide cyber security system. Upgrading to digital clear SCADA over the next 3 years which allow for improved cyber security compared to existing system.
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	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
							protocol/procedure to the IT/OT network.			
22	All	All	Inability to detect critical assets	IT Management System with oversight	High level review and meeting with IT	Gather system information	MC-02 -Governance structure - Framework to be in place with responsibilities - Procedures for Information technology and operation technology security to be created. MC-03- Security safeguards - Create a list of permitted applications to be installed / run within Council's Standard Operating Environment (SOE)	June 2022	In Progress	Currently being developed in conjunction with the IT department for a Council wide cyber security system.
23	All	All		IT Management System with oversight	High level review and meeting with IT	Gather system information	MC - 04 Detection process - Require SOE security monitoring system that reports anomalies. e.g., high CPU use, user accounts, high network traffic. MC-05 Response & Recovery - Organise routine backups / archiving for ICS equipment, servers and applications.	June 2022	In Progress	Currently being developed in conjunction with the IT department for a Council wide cyber security system.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
24	All	Cyber Security – Access to sites	Unauthorised access to sites	Increase site security to decrease the chances of unauthorised access.	Ensure all sites are secure if there is no personnel onsite.	Update camera systems and number of cameras to deter intruders.	Install security card access to all sites.	June 2030	In Progress	Council to investigate installing swipe card entry to all Water Sites over the next 10 years
25	All	Cyber Security – Access to drives, chlorinators, controllers, etc	Unauthorised access to drives, chlorinators, controllers, etc	Improve security for these devices to decrease the chances of unauthorised access.	Ensure all drives, chlorinators, controllers, etc are secure if there is no personnel onsite.		Passcode protect all drives, chlorinators, controllers, etc to operators, managers, supervisors and fitters	June 2025	In Progress	Council to investigate securing all drives, chlorinators, controllers, etc with password protection.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
26	All	All	Disruption of Cyber information (IT)	Private network and access management	High level review and meeting with IT	Gather system information	MA - 01 Build out private SCADA network - requires testing and cutover for all water facilities, sites & equipment to ensure the existing network is fully private. MA - 02 Build single point of access and authentication method - Undertake after MA-01. A single point access should be built as a mechanism to enter the telemetry network. MA - 03 Implement rules to prevent across network access - After MA-01 & MA-02, SCADA IT section to create and document a procedure for secure entry to the IT/OT network. MA - 04 Consider disallowing open internet access - To be actioned with MA-01 & MA-02. Address vulnerability scenarios but also allows for system updates (e.g., allowing Windows Update).	June 2022	In Progress	<p>Currently being developed in conjunction with the IT department for a Council wide cyber security system.</p> <p>Upgrading to digital clear SCADA over the next 3 years which allow for improved cyber security compared to existing system.</p>

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
27	All	Cyber Security – Antivirus scan	N.A	N.A	Council use Sophos antivirus software to scan antivirus on systems		Moving to cloud version for better security and operation which will covers Application whitelisting, application hardening	March 2020	Completed	Moving to cloud version completed in March 2020
28	All	Cyber Security – Patches to Systems	N.A	N.A	Automatic Install windows patches to end users workstation and laptops on Council Systems	Quarterly install Windows Patches on Servers on Council Systems	SCCM patch management software planning to implement for better operation	Dec 2021	Ongoing	Patches installed by IT department. Further patches to be installed as required by IT department.
29	All	Cyber Security – Backups	N.A	N.A	Council following daily, weekly and monthly backup plans with 3— 2-1 strategies of all Servers		Council following monthly backup tapes off-site	March 2021	Ongoing	Council has converted over to Teams with all files located in teams are automatically backed to the cloud with a 90 day recovery timeframe. All files on existing file servers are backed up twice daily to other file servers.
30	All	Cyber Security – AusCERT Membership	N.A	N.A			Council is member of AusCERT orgazintion and follow the incident and service management for cyber security	Dec 2021	Ongoing	Council is currently a member of AusCERT.
31	All	All	Inability to detect a cyber security event	Increased awareness from operators surrounding physical security access on ICS sites, provided by means of training sessions. Add this to the procedures	Meeting with IT Officer	Allocated above	Once cyber security is implemented, create a procedure to monitor status	December 2023	Ongoing	Cyber security training undertaken online through the IT department.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
32	All	Filtration	High Raw Water Turbidity affecting filter performance	Change raw water source, reduce filter hydraulic through put. Increase disinfection.	Change raw water source. Continue with weekly filtered/CWS turbidity monitoring using grab samples.	Write procedure	Gauge the raw versus filtered water to determine their performance based on HBT. This will set the disinfection level needed, but is also dependent on if UV is added, although likely not needed for all water sources excluding Herbert River.	December 2022	Ongoing	Turbidity Meter installed at Ingham Pumping Station however this supply is not currently in use since the upgrades carried out as part of the Hinchinbrook Water Security Project at the Ingham Depot . Weekly Turbidity samples carried out at each of the WTPs.
33	All	Raw water	High Raw Water Turbidity affecting filter performance	Change raw water source, reduce filter hydraulic through put. Increase disinfection.	Commence weekly raw turbidity monitoring using grab samples.	Write procedure	Consider online turbidity meters for each raw water source to ensure that the source can be turned off if turbidity reaches a set threshold.	December 2023	Ongoing	Turbidity Meter installed at Ingham Pumping Station however this supply is not currently in use since the upgrades carried out as part of the Hinchinbrook Water Security Project at the Ingham Depot . Weekly Turbidity samples carried out at each of the WTPs.
34	Ingham	Raw Water	High Raw Water Turbidity affecting filter performance due to use of Herbert River water source	Provide additional bore site.	Change raw water source within scheme or obtain water from another scheme.	Write procedure	Add duplication of Bore in the Ingham Depot WTP scheme to the RMIP.	December 2023	Ongoing	Turbidity Meter installed at Ingham Pumping Station however this supply is not currently in use since the upgrades carried out as part of the Hinchinbrook Water Security Project at the Ingham Depot . Weekly Turbidity samples carried out at each of the WTPs.
35	Lower Herbert	Raw Water	PFAS	Selection of raw water sources	Selection of raw water sources	Procedure	Investigate securing Kemps Rd Bore as this have no PFAS issues and has a high yield. Decommission Bores 3 & 4 if Kemps Rd is feasible, alternatively investigate other options for these bores.	December 2023	Ongoing	Bores 3 & 4 are no longer in use. New bore to be constructed at Kemps Road as part of 21/22 capitial works program. Ongoing testing of remaining bores for PFAS.

	1	2	3	4	6	7	8	9	Status as at 30 June 2023	Details and Update
	Scheme	Scheme Component/ Sub-component	Hazard/ Hazardous Event	Proposed Preventative Measure	Actions			Target Date/s		
					Interim	Short-term	Long-term			
36	Lower Herbert & Ingham	Raw Water	Trihalomethanes and Chlorates	Selection of raw water sources	Selection of raw water sources	Procedure	Consider changing the Halifax Depot to a chlorine gas facility to reduce the risk of THMs and Chlorates.	December 2023	Ongoing	All source water is primarily drawn from ground water (exclusively for previous two years) minimising or preventing organics in source. Surface water is now only use as a redundance supply. Testing for disinfection by-products has commenced. Regular testing commenced in January 2021 and are currently being tested every six months
37	All	Water Quality Data	All	Use SWIMLocal to record all water quality information	Continue with current system	Transfer all existing Water Quality Data to SWIMLocal and use basic functions in alignment with existing practise.	Strategic enhancement of information within SWIMLocal including alerts, reporting, additional operational monitoring, and alignment of operational monitoring.	December 2023	To be Commenced	Program to convert to SWIMLocal to be develop. SwimLocal purchased and in process of implementation.

4. COMPLIANCE WITH WATER QUALITY CRITERIA FOR DRINKING WATER

4.1. Escherichia Coli Results for Treated & Reticulated 2022/2023

Table 4.1 – Escherichia Coli Results for Scheme 1 Treated & Reticulated Water

Scheme1 Ingham Water Supply												
Month	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
No. of samples collected	3	6	6	5	7	5	5	5	6	4	7	5
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	68	69	66	67	69	66	67	65	64	64	65	64
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 4.2 – Escherichia Coli Results for Scheme 2 Treated & Reticulated Water

Scheme 2 Lower Herbert Water Supply												
Month	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
No. of samples collected	4	6	4	5	7	3	6	2	5	5	7	4
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	63	63	61	61	63	62	63	59	59	58	60	58
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 4.3 – Escherichia Coli Results for Scheme 3 Treated & Reticulated Water

Scheme 3 Forrest Beach Water Supply												
Month	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
No. of samples collected	5	6	5	6	7	2	6	4	3	5	6	1
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	68	69	68	69	70	68	68	68	65	62	61	61
No. of failures for previous 12 month period	1	1	1	1	1	1	1	1	1	1	0	0
% of samples that comply	98.5%	98.6%	98.5%	98.6%	98.6%	98.5%	98.5%	98.5%	98.4%	98.4%	100%	100%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

4.2. Escherichia Coli Tests for Raw Water 2022/2023

Table 4.4 – Number Escherichia Coli Tests for Raw Water

	TOTAL	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Scheme 1 - Ingham Water Supply	8	0	0	2	0	0	1	0	0	2	0	0	3
Scheme 2 - Lower Herbert Water Supply	3	0	0	1	0	0	0	0	0	1	0	0	1
Scheme 3 - Forrest Beach Water Supply	3	0	0	0	1	0	0	1	0	0	1	0	0

4.3. Water Quality Data 2022/2023 – Scheme 1 Ingham Water Supply

Table 4.5 – Water Quality Data with Drinking Water Quality Criteria 2020/2021 – Scheme 1 Ingham Water Supply

Parameter	Unit	Total Number of Samples Taken	Number of samples parameter was detected.	Number of samples exceeding health guideline value	Min	Max	Average
Raw Water							
Nitrate	mg/L	9	9	0	0.73	20	10.86
Sulphate	mg/L	9	9	0	1	7.8	4.02
Fluoride	mg/L	9	9	0	0.05	0.5	0.11
pH (Lab)	-	9	9	0	6.38	7.06	6.65
Turbidity	NTU	9	2	2	5	9	7.00
Aluminium	mg/L	9	2	1	0.19	0.27	0.23
Boron	mg/L	9	0	0	<0.02	<0.02	<0.02
Copper	mg/L	9	6	0	0.006	0.042	0.03
Iron	mg/L	9	3	0	0.03	0.13	0.09
Manganese	mg/L	9	6	0	0.001	0.037	0.01
Zinc	mg/L	9	0	0	<0.06	<0.06	<0.06
Treated Water							
Nitrate	mg/L	2	2	0	17	18	17.50
Sulphate	mg/L	2	2	0	5.6	7.1	6.35
Fluoride	mg/L	2	2	0	0.06	0.06	0.06
pH (Lab)	-	2	2	0	7.07	7.53	7.3
Turbidity	NTU	2	0	0	<1	<1	<1
Aluminium	mg/L	2	0	0	<0.03	<0.03	<0.03
Boron	mg/L	2	0	0	<0.02	<0.02	<0.02
Copper	mg/L	2	2	0	0.003	0.003	0.003
Iron	mg/L	2	0	0	<0.01	<0.01	<0.01
Manganese	mg/L	2	0	0	<0.001	<0.001	<0.001
Zinc	mg/L	2	0	0	<0.06	<0.06	<0.06
Reticulated Water							
Nitrate	mg/L	5	5	0	17	18	17.40
Sulphate	mg/L	5	5	0	6	6.4	6.12
Fluoride	mg/L	5	5	0	0.06	0.06	0.06
pH (Lab)	-	5	5	0	6.96	7.43	7.18
Turbidity	NTU	5	0	0	<1	<1	<1
Aluminium	mg/L	5	0	0	<0.03	<0.03	<0.03
Boron	mg/L	5	0	0	<0.02	<0.02	<0.02
Copper	mg/L	5	3	0	0.004	0.008	0.01
Iron	mg/L	5	2	0	0.01	0.01	0.01
Manganese	mg/L	5	1	0	0.001	0.001	0.001
Zinc	mg/L	5	0	0	0	0	0
Pesticides/Herbicides Summary*	ug/L	0	-	-			

NOTE: All results that equalled the limit of reporting are assumed to be zero for the purpose of calculating the average value.

*Summary only has been provided. Only samples that have positive detections have been identified. All nil results (i.e. less than the limit of report) has been summarised and reported as total pesticides with zeroes entered for maximum, minimum and average concentration.

4.4. Water Quality Data 2022/2023 – Scheme 2 Lower Herbert Water Supply

Table 4.6 – Water Quality Data with Drinking Water Quality Criteria 2020/2021 – Scheme 2 Lower Herbert Water Supply

Parameter	Unit	Total Number of Samples Taken	Number of samples parameter was detected.	Number of samples exceeding health guideline value	Min	Max	Average
Raw Water							
Nitrate	mg/L	4	4	0	7.2	10	8.55
Sulphate	mg/L	4	4	0	11	15	13.25
Fluoride	mg/L	4	4	0	0.03	0.05	0.05
pH (Lab)	-	4	4	0	6.4	6.84	6.54
Turbidity	NTU	4	3	0	1	2	1.67
Aluminium	mg/L	4	0	0	<0.03	<0.03	<0.03
Boron	mg/L	4	3	0	0.03	0.05	0.04
Copper	mg/L	4	0	0	<0.003	<0.003	<0.003
Iron	mg/L	4	0	0	<0.01	<0.01	<0.01
Manganese	mg/L	4	3	0	0.009	0.15	0.06
Zinc	mg/L	4	0	0	<0.06	<0.06	<0.06
Treated Water							
Nitrate	mg/L	2	2	0	6.7	7.3	7.00
Sulphate	mg/L	2	2	0	15	15	15.00
Fluoride	mg/L	2	2	0	0.05	0.05	0.05
pH (Lab)	-	2	2	0	6.74	6.79	6.77
Turbidity	NTU	2	2	0	2.00	2.00	2.00
Aluminium	mg/L	2	0	0	<0.03	<0.03	<0.03
Boron	mg/L	2	2	0	0.05	0.05	0.05
Copper	mg/L	2	0	0	<0.003	<0.003	<0.003
Iron	mg/L	2	0	0	<0.01	<0.01	<0.01
Manganese	mg/L	2	0	0	<0.001	<0.001	<0.001
Zinc	mg/L	2	0	0	<0.06	<0.06	<0.06
Reticulated Water							
Nitrate	mg/L	7	7	0	6	18	13.66
Sulphate	mg/L	7	7	0	5.8	19	10.24
Fluoride	mg/L	7	7	0	0.06	0.06	0.06
pH (Lab)	-	7	7	0	6.69	7.36	6.97
Turbidity	NTU	7	2	0	1	2	1.50
Aluminium	mg/L	7	0	0	<0.03	<0.03	<0.03
Boron	mg/L	7	4	0	0.02	0.06	0.04
Copper	mg/L	7	3	0	0.003	0.006	0.006
Iron	mg/L	7	5	0	0.03	0.09	0.04
Manganese	mg/L	7	1	0	0.001	0.001	0.001
Zinc	mg/L	7	0	0	<0.06	<0.06	<0.06
Pesticides/Herbicides Summary*	ug/L	0	-	-			

4.5. Water Quality Data 2022/2023 – Scheme 3 Forrest Beach Water Supply

Table 4.7 –Water Quality Data with Drinking Water Quality Criteria 2020/2021 – Scheme 3 Forrest Beach Water Supply

Parameter	Unit	Total Number of Samples Taken	Number of samples parameter was detected.	Number of samples exceeding health guideline value	Min	Max	Average
Raw Water							
Nitrate	mg/L	4	4	0	0.45	1.1	0.73
Sulphate	mg/L	4	4	0	11	14	12.50
Fluoride	mg/L	4	4	0	0.05	0.07	0.06
pH (Lab)	-	4	4	0	6.54	6.95	6.71
Turbidity	NTU	4	4	1	3	9	4.50
Aluminium	mg/L	4	0	0	<0.03	<0.03	<0.03
Boron	mg/L	4	4	0	0.03	0.03	0.03
Copper	mg/L	4	0	0	<0.003	<0.003	<0.003
Iron	mg/L	4	3	0	0.01	0.22	0.09
Manganese	mg/L	4	4	0	0.002	0.036	0.02
Zinc	mg/L	4	0	0	<0.06	<0.06	<0.06
Treated Water							
Nitrate	mg/L	2	2	0	3.9	3.9	3.90
Sulphate	mg/L	2	2	0	10	12	11.00
Fluoride	mg/L	2	2	0	0.05	0.06	0.06
pH (Lab)	-	2	2	0	6.99	7.03	7.01
Turbidity	NTU	2	2	0	2	3	2.5
Aluminium	mg/L	2	1	0	0.04	0.04	0.04
Boron	mg/L	2	2	0	0.02	0.03	0.03
Copper	mg/L	2	0	0	<0.003	<0.003	<0.003
Iron	mg/L	2	2	1	0.15	0.35	0.25
Manganese	mg/L	2	1	0	0.001	0.001	0.00
Zinc	mg/L	2	0	0	<0.06	<0.06	<0.06
Reticulated Water							
Nitrate	mg/L	3	3	0	2.7	4	3.43
Sulphate	mg/L	3	3	0	11	12	11.67
Fluoride	mg/L	3	3	0	0.06	0.06	0.06
pH (Lab)	-	3	3	0	6.68	7.18	7.01
Turbidity	NTU	3	3	0	2	4	3.00
Aluminium	mg/L	3	3	0	0.03	0.03	0.03
Boron	mg/L	3	3	0	0.03	0.03	0.03
Copper	mg/L	3	1	0	0.003	0.003	0.003
Iron	mg/L	3	3	3	0.3	1	0.74
Manganese	mg/L	3	3	0	0.004	0.007	0.01
Zinc	mg/L	3	0	0	<0.06	<0.06	<0.06
Pesticides/Herbicides Summary*	ug/L	0	-	-			

4.6. PFAS Testing for Raw Water 2022/2023

Table 4.8 – PFAS Results for Scheme 2 Raw Water

Parameter	Unit	Total Number of Samples Taken	Number of samples parameter was detected.	Number of samples exceeding health guideline value	Min	Max	Average
Raw Water							
Perfluorobutanoic acid (PFBA)	µg/L	0	0	0	0	0	0
Perfluoropentanoic acid (PFPeA)	µg/L	0	0	0	0	0	0
Perfluorohexanoic acid (PFHxA)	µg/L	0	0	0	0	0	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0	0	0	0	0	0
Perfluorooctanoic acid (PFOA)	µg/L	0	0	0	0	0	0
Perfluorononanoic acid (PFNA)	µg/L	0	0	0	0	0	0
Perfluorodecanoic acid (PFDA)	µg/L	0	0	0	0	0	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0	0	0	0	0	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0	0	0	0	0	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0	0	0	0	0	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0	0	0	0	0	0
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0	0	0	0	0	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0	0	0	0	0	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0	0	0	0	0	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0	0	0	0	0	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0	0	0	0	0	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0	0	0	0	0	0
Perfluorononane sulfonic acid (PFNS)	µg/L	0	0	0	0	0	0
Perfluorodecane sulfonic acid (PFDS)	µg/L	0	0	0	0	0	0
Perfluorooctane sulphonamide (PFOSA)	µg/L	0	0	0	0	0	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0	0	0	0	0	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0	0	0	0	0	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0	0	0	0	0	0

10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0	0	0	0	0	0
Perfluorooctane sulphonamide (PFOSA)	µg/L	0	0	0	0	0	0
N-Ethyl perfluorooctane sulphonamide (N-EtFOSA)	µg/L	0	0	0	0	0	0
N-Ethyl perfluorooctane sulfonamidoacetic acid	µg/L	0	0	0	0	0	0
N-Ethyl perfluorooctane sulfonamidoethanol (N-EtFOSE)	µg/L	0	0	0	0	0	0
N-Methyl perfluorooctane sulfonamide (N-MeFOSA)	µg/L	0	0	0	0	0	0
N-Methyl perfluorooctane sulfonamidoacetic acid	µg/L	0	0	0	0	0	0
MeFOSE by SPE with surr cor	µg/L	0	0	0	0	0	0
PFOS + PFHxS	µg/L	0	0	0	0	0	0
TOTAL C4-C14 Carboxylic acids	µg/L	0	0	0	0	0	0
TOTAL C4-C10 Sulfonic acids	µg/L	0	0	0	0	0	0
PFHxS Surrogate	%	0	0	0	0	0	0
PFOA Surrogate	%	0	0	0	0	0	0
PFOS Surrogate	%	0	0	0	0	0	0

NOTE: All results that equalled the limit of reporting are assumed to be zero for the purpose of calculating the average value.

*Summary only has been provided. Only samples that have positive detections have been identified. All nil results (i.e. less than the limit of report) has been summarised and reported as total pesticides with zeroes entered for maximum, minimum and average concentration.

No PFAS samples were carried out in the 2022/2023 financial year. Samples have been taken in December 2023 with results expected in Early January 2024.

4.7. Trihalomethanes and Chlorates

No water has been sourced from the Ingham Pumping Station therefore no sampling for Trihalomethanes or Chlorates is carried out.

5. DRINKING WATER QUALITY INCIDENTS

5.1. Notice of Noncompliance with Water Quality Criteria

Under Section 102 in the Water Supply (Safety and Reliability) Act 2008 the drinking water service provider must, unless the provider has a reasonable excuse, immediately inform the regulator if the service provider becomes aware that the quality of water supplied from the provider's drinking water service does not comply with the water quality criteria relating to the service.

In the 2022/2023 financial year, Hinchinbrook Shire Council had no instances where the water supplied from Council's drinking water service did not comply with the water quality criteria, therefore no Notices of Noncompliance were submitted to the regulator.

5.2. Notice of Prescribed Incident

Under Section 102A in the Water Supply (Safety and Reliability) Act 2008 if the drinking water service provider becomes aware that a prescribed incident has happened in relation to the provider's service, they must, unless the provider has a reasonable excuse, immediately inform the regulator of the prescribed incident.

In the 2022/2023 financial year, Hinchinbrook Shire Council had no prescribed incidents, therefore there was no incidents reported to the regulator.

6. WATER QUALITY COMPLAINTS

Hinchinbrook Shire Council has a Water and Sewerage Request System that allows direct logging of works requests to the Manager of Water and Sewerage for actioning and provides a basis for storing, checking the status of and reporting of all works request activities.

All approved maintenance work generated from the Request system, are prioritised and scheduled for completion. Once the request works has been completed, the person who had requested the works is contacted and informed about the works completed.

If the person who requested the works is not satisfied with the Council's response to the request, further contact can be made to Council with their concerns, which are then dealt with in accordance with Council's Complaints Procedure.

There are specified response timeframes, depending on the type and nature of the request.

Table 6.1 – Water Quality Complaints

Category	Request Lodged	Action Completed	Percentage Completed
Dirty Water	6	6	100%
Low Water Pressure	4	4	100%

7. DWQMP AUDIT REPORT

Under Section 99 of the Water Supply (Safety and Reliability) Act 2008, regular audits of the approved Drinking Water Quality Management Plan are required. The first regular audit of the Hinchinbrook Shire Council's Drinking Water Quality Management Plan was conducted on 20th and 21st March 2017, and is required to be completed every four (4) years from that date.

The last regular audit of Hinchinbrook Shire Council's Drinking Water Quality Management Plan was completed on 21st May 2021. The results of this audit are summarised below.

Hinchinbrook Shire Council demonstrated a high level of compliance with the regular audit during the audit period. The overall summary of compliance for Hinchinbrook Shire Council can be seen in Table 7.1 below. Eleven (11) requirements were audited within the audit areas.

Table 7.1: Compliance Summary

Compliance Codes		Number of Findings
Compliant	C	11
Minor Non-Compliant	N	0
Major Non-Compliant	M	0

The audit concluded that HSC:

- Had adequate compliance between the current version of the DWQMP in use by HSC and the observations made during the audit.
- The DWQMP was found to be fully relevant, representing an accurate reflection of HSC's infrastructure and the way in which it operated.
- A number of opportunities for improvement were identified during the audit and may help improve efficiency, reliability or reduce the risk of future non-compliances.

8. DWQMP REVIEW

Under Sections 99 and 105 of the Water Supply (Safety and Reliability) Act 2008, regular reviews of the approved Drinking Water Quality Management Plan are required. The last review of Hinchinbrook Shire Council's Drinking Water Quality Management Plan was finalised on 29 April 2022. The next review of Hinchinbrook Shire Council's Drinking Water Quality Management Plan is required to be conducted by 29 March 2024. Further reviews are required to be completed every two years from that date.