DRINKING WATER SERVICE REPORT: 2023-24

Gladstone Regional Council

SPID: 483

DOCUMENT CONTROL SHEET

DOCUMENT

Drinking Water Service Report: 2023-24

AUTHOR

Sean Hinton

WATER SERVICE PROVIDER

Gladstone Regional Council

PROVIDER CONTACT

Jane Doran

VERSION	AUTHOR	REVIEWED	APPROVED	DATE
1.0	Sean Hinton (SH)	Jane Doran (JD)	Jane Doran (JD)	12/12/2024

Gladstone Regional Council
ABN: 27 330 979 106
PO Box 29
101 Goondoon Street
Gladstone QLD 4680
info@gladstonerc.qld.gov.au
Phone: (07) 4970 0700
Fax: (07) 4975 8500

TABLE OF CONTENTS

FIGURES

No table of figures entries found.

TABLES

APPENDICES

LIST OF ACRONYMS

Acronym	Definition
ADWG	Australian Drinking Water Guidelines
CFU/mL	Colony forming units per millilitre
DLGWV	Department of Local Government, Water & Volunteers
DWQMP	Drinking Water Quality Management Plan
GAWB	Gladstone Area Water Board
GRC	Gladstone Regional Council
HPC	Heterotrophic Plate Count
HU	Hazen Units (measure for colour)
LOR	Limit of Reporting
MPN/100mL	Most Probable Number per 100 millilitre
NTU	Nephelometric Turbidity Units
PHR	*Public Health Regulation 2018*
RMIP	Risk Management Improvement Program
WTP	Water Treatment Plant
<	Less than
>	Greater than

1 INTRODUCTION

This report documents the performance of Gladstone Regional Council's (GRC) drinking water service with respect to water quality, and implementation of the drinking water quality management plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act).

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.

2 OVERVIEW OF OPERATIONS

The Gladstone Regional Council provides water to its residents through four water schemes:

- **Lake Awoonga Scheme.** Under this scheme the Gladstone Area Water Board (GAWB) collects and treats raw water harvested from the Lake Awoonga Dam. The water is treated through a conventional water treatment plant before being sold to Gladstone Regional Council at a number of reservoir and supply points throughout Gladstone, Boyne Island, Tannum Sands, Calliope and Mt Larcom.
- **Bororen Scheme**. GRC sources water from two production bores located to the west of Lagoon Creek within the Baffle Creek catchment. The groundwater is treated at the Bororen Water Treatment Plant (WTP) and disinfected before being reticulated to customers within the Bororen Township.
- **Miriam Vale Scheme**. GRC usually sources water from Baffle Creek (~80%) and the Thornes Road bore. The water is mixed and treated at the Miriam Vale WTP through a conventional treatment process and disinfected before being reticulated to customers.
- **Agnes Water/1770 Scheme**. GRC sources water from seawater and groundwater bores along Springs Road. The seawater is treated through a reverse osmosis desalination plant, and the bore water is treated through an ultrafiltration plant. Disinfected water is supplied to customers within the townships of Agnes Water and 1770. The treatment plant is operated and maintained under contract by Trility Pty Ltd.

GRC manages drinking water quality through an approved Drinking Water Quality Management Plan (DWQMP). This ensures that water supplied to its customers is safe and public health is maintained.

3 COMPLIANCE WITH WATER QUALITY CRITERIA

A summary of water quality performance for the four schemes is summarised in Appendix A.

GRC has produced a consistent and safe water supply that meet the requirements set by the *Public Health Regulation 2018* (PHR) for drinking water, with 100% of drinking water samples tested free of *E. coli* during 2023-24. The monthly rolling compliance value (i.e. the rolling 12-month compliance calculated at the end of each calendar month) was 100% for all months through the 2023-24 period.

The microbial, chemical and physical testing program involved approximately 12,938 individual tests undertaken on drinking water samples. None of these test results exceeded a health guideline value in the Australian Drinking Water Guidelines 2011.

4 NOTIFICATIONS TO THE REGULATOR

There was one instance during 2023-24 where the Regulator was notified under sections 102 or 102A of the Act.

- The zeolite filters at the Bororen WTP had their media replaced in November 2023. Due to operational issues both related and unrelated to the media replacement, there were problems with filter backwashing that led to some higher turbidity water entering the clear water tank. Some of the filter media was removed to allow appropriate 'bed expansion', as well as other operational modifications. Treated water in the clear water tank did not exceed 2NTU during the incident. Longer term plans are underway to upgrade the Bororen WTP.

5 CUSTOMER WATER QUALITY COMPLAINTS

Gladstone Regional Council is required to report on the number of complaints, general details of complaints, and the responses undertaken.

Throughout the year the following complaints about water quality were received:

Table 1 Customer water quality complaints 2023-24

Scheme	Suspected Illness	Discoloured water	Taste and Odour	Other	Total
Lake Awoonga	0	11	6	0	17
Agnes Water/1770	0	2	1	3	6
Miriam Vale	0	0	0	0	0
Bororen	0	0	0	2	2
Total	0	13	7	5	25

5.1 Suspected Illness

Gladstone Regional Council investigates each complaint relating to alleged illness from the water supply, typically by reviewing the water supply configuration along with any recent network activities, conducting *E. coli* analysis from the source tap, and monitoring the levels of free chlorine present in the water.

During 2023-2024, there were no suspected or confirmed cases of illness arising from the water supply system.

5.2 Discoloured water

A total of 13 customer complaints were received related to discoloured water. In response to discoloured water complaints, Council staff flush the relevant mains until the water runs clear. Council staff also contact the customer to advise them of the actions taken. Council proactively flushes mains on a routine basis in areas with a history of discoloured water complaints.

It is standard practice for Council to flush mains after breaks, however when a break occurs, the sudden change in water velocity can stir up fine sediments that have settled out over time.

During the reporting period, four discoloured water complaints following unplanned works to repair a major water main failure. There were also several internal plumbing issues identified, for example blue water coming through taps in a Lake Awoonga household due to corroding internal copper

plumbing. In cases like these, GRC assists the customer with identifying the nature of the problem, however resolving internal plumbing issues remains the responsibility of the customer.

5.3 Taste and odour

Gladstone Regional Council investigates taste and odour complaints and where required, undertakes response actions (for example checking of chlorine results or flushing in the reticulation system).

Investigation of each of the taste and odour complaints found no evidence of public health risks. Most taste and odour complaints come from chlorine which may vary throughout the year and/or other operational changes. On some occasions taste complaints were due to people moving to the area and noticing a change in taste from their previous home.

5.4 Other

There were 5 complaints for various other reasons such as mineral content and scale. In all cases information was provided and water testing did not show anything unusual.

6 DWQMP REGULAR AUDIT OUTCOMES AND ACTIONS

There was no regular audit of the DWQMP in 2023-24.

7 DWQMP REVIEW OUTCOMES AND ACTIONS

A review of the DWQMP was undertaken in 2023-24.

The review found that the following areas of the Plan required update:

- Details of infrastructure for providing the service
- Identify hazards and hazardous events
- Information gathering – water quality and catchment characteristics
- Assessment of risks
- Risk management measures
- Operation and maintenance procedures
- Management of incidents and emergencies
- Risk management improvement program (RMIP)
- Operational monitoring
- Verification monitoring
- Other minor administrative changes throughout the DWQMP

An amended DWQMP was prepared and submitted to the Regulator close to the end of the 2023-24 reporting period. It is anticipated that the amended plan will be approved in the 2024-25 reporting period.

8 REVIEW OF CUSTOMER SERVICE STANDARDS

There was no review of the Customer Service Standards in 2023-24.

9 ACTIONS TAKEN TO IMPLEMENT THE DWQMP

Actions taken by GRC to implement the DWQMP in 2023-24 included:

- 4 x Drinking Water Technical Group meetings held including attendees from Gladstone Area Water Board (4 meetings attended), Queensland Health (4 meetings attended), Trility (4 meetings attended) and Department of Local Government (DLGWV), Water and Volunteers (1 meeting attended).
- Progression on the design for the new Round Hill Reservoir, which will allow the old reservoir with roof issues to be taken offline.
- Review of the drinking water risk assessment.
- Ongoing collaboration with GAWB regarding investigations and improvements to manage chlorine residual in the Lake Awoonga scheme.
- Refinement of the EnviroSys water quality management system configuration, troubleshooting, and optimisation.
- Review of key Standard Operating Procedures referenced in the DWQMP.
- Refurbishment, disinfection and recommissioning of drinking water reservoirs in accordance with GRC's Drinking Water Asset Commissioning Procedure.

APPENDIX A
SUMMARY OF WATER QUALITY DATA

Table 2 Lake Awoonga drinking water quality performance summary 2023-2024

Parameter	Unit of Measure	Samples Require	Sample Results	Guideline Value	Min	Average	Max	NC
Aluminium - Total	mg/L	76	84		0.02	0.06	0.08	0
Antimony - Total	mg/L	19	19	0.003	<	<	<	0
Arsenic - Total	mg/L	19	19	0.01	<	<	<	0
Barium - Total	mg/L	19	19	2	0.012	0.01	0.017	0
Boron - Total	mg/L	19	19	4	<	<	<	0
Bromate	mg/L	76	84	0.02	<	<	<	0
Bromide	mg/L	76	84		<	0.02	0.064	0
Bromodichloromethane	µg/L	88	99	250	<	25	41	0
Bromoform	µg/L	88	99	250	<	<	14	0
Cadmium - Total	mg/L	19	19	0.002	<	<	<	0
Chlorate	mg/L	88	99	0.8^	0.022	0.14	0.41	0
Chloride	mg/L	76	84		27	40	52	0
Chlorine (free)	mg/L	790	835	5	<	<	2.5	0
Chloroform	µg/L	88	99	250	6	30	60	0
Chromium - Total	mg/L	19	19	0.05	<	<	0.003	0
Copper - Total	mg/L	19	38	2	<	0.003	0.019	0
Dibromochloromethane	µg/L	88	99	250	8	18	28	0
E. coli (Colilert)	MPN/100mL	790	830	0	<	<	<	0
Electrical Conductivity	µS/cm	790	833		306	363	468	0
Fluoride	mg/L	76	84	1.5	<	<	0.1	0
HPC (22°C)	CFU/mL	478	494		<	15	>300	0
Iron - Total	mg/L	76	84		<	<	0.22	0
Lead - Total	mg/L	19	19	0.01	<	<	<	0
Manganese - Dissolved	mg/L	76	168	0.5	<	<	0.007	0
Manganese - Total	mg/L	76	168	0.5	<	<	0.008	0
Mercury - Total	mg/L	19	19	0.001	<	<	<	0
Molybdenum - Total	mg/L	19	19	0.05	<	<	<	0
Nickel - Total	mg/L	19	19	0.02	<	<	<	0
Nitrate as NO_3^-	mg/L	76	84	50	0.03	0.09	0.16	0
Nitrite NO_2	mg/L	76	84	3	<	0.006	0.07	0
pH	pH units	790	835		6.8	7.4	8.6	0
Phosphate PO_4	mg/L	76	84		<	0.007	0.08	0
Selenium - Total	mg/L	19	19	0.01	<	<	<	0
Sulfate as SO_4	mg/L	76	84		23	28	37	0
Temperature	°C	790	833		17.7	25.6	35.5	0
Total Alkalinity (as CaCO3)	mg/L	76	84		70	82	107	0
Total Coliforms (Colilert)	MPN/100mL	790	830		<	<	<	0
Total Hardness (as CaCO3)	mg/L	76	84		82	95	112	0
Trihalomethanes Total	µg/L	88	99	250	25	73	125	0
True Colour	HU	790	835		<	<	3	0
Turbidity (NTU)	NTU	790	835		<	0.15	1.2	0
Zinc - Total	mg/L	19	19		<	<	0.009	0

*Guideline values and non-compliances refer to the regulatory water quality criteria (i.e. health based limits) but not aesthetic limits

^ A guideline value of 0.8mg/L for chlorate has been implemented under GRC's DWQMP as per guidance from QLD Health

< symbol denotes that the number is below the limit of reporting (LOR) for the test. In all cases, the LOR's are below the ADWG health (and aesthetic) guideline values.

Table 3 Agnes Water / 1770 drinking water quality performance summary 2023-2024

Parameter	Unit of Measure	Samples Require	Sample Results	Guideline Value	Min	Average	Max	NC
Aluminium - Total	mg/L	16	19		0.02	0.03	0.05	0
Antimony - Total	mg/L	4	4	0.003	<	<	<	0
Arsenic - Total	mg/L	4	4	0.01	<	<	<	0
Barium - Total	mg/L	4	4	2	0.004	0.004	0.005	0
Boron - Total	mg/L	4	4	4	0.77	0.8	0.88	0
Bromate	mg/L	16	19	0.02	<	<	<	0
Bromide	mg/L	16	19		0.023	0.2	0.30	0
Cadmium - Total	mg/L	4	4	0.002	<	<	<	0
Chlorate	mg/L	16	19	0.8^	0.08	0.14	0.22	0
Chloride	mg/L	16	19		29	85	112	0
Chlorine (free)	mg/L	112	120	5	0.26	0.84	1.2	0
Chromium - Total	mg/L	4	4	0.05	<	<	<	0
Copper - Total	mg/L	4	8	2	<	<	0.002	0
E. coli (Colilert)	MPN/100mL	112	119	0	<	<	<	0
Electrical Conductivity	µS/cm	112	119		330	401	494	0
Fluoride	mg/L	16	19	1.5	<	<	<	0
HPC (22°C)	CFU/mL	52	53		<	22	277	0
Iron - Total	mg/L	16	19		<	<	<	0
Lead - Total	mg/L	4	4	0.01	<	<	<	0
Manganese - Dissolved	mg/L	16	38	0.5	<	<	0.003	0
Manganese - Total	mg/L	16	38	0.5	<	0.002	0.004	0
Mercury - Total	mg/L	4	4	0.001	<	<	<	0
Molybdenum - Total	mg/L	4	4	0.05	<	<	<	0
Nickel - Total	mg/L	4	4	0.02	<	<	<	0
Nitrate as NO_3^-	mg/L	16	19	50	0.04	0.13	0.21	0
Nitrite NO_2	mg/L	16	19	3	<	0.01	0.1	0
pH	pH units	112	120		6.9	7.6	8.0	0
Phosphate PO_4	mg/L	16	19		0.005	0.01	0.07	0
Selenium - Total	mg/L	4	4	0.01	<	<	<	0
Sulfate as SO_4	mg/L	16	19		<	2.29	3	0
Temperature	°C	112	119		16.8	25.9	33.2	0
Total Alkalinity (as CaCO3)	mg/L	16	19		45	54	71	0
Total Coliforms (Colilert)	MPN/100mL	112	118		<	<	<	0
Total Hardness (as CaCO3)	mg/L	16	19		49	59	71	0
True Colour	HU	112	120		<	<	2	0
Turbidity (NTU)	NTU	112	120		0.02	0.17	0.96	0
Zinc - Total	mg/L	4	4		<	<	<	0

*Guideline values and non-compliances refer to the regulatory water quality criteria (i.e. health based limits) but not aesthetic limits

^ A guideline value of 0.8mg/L for chlorate has been implemented under GRC's DWQMP as per guidance from QLD Health

< symbol denotes that the number is below the LOR for the test. In all cases, the LOR's are below the ADWG health (and aesthetic) guideline values.

Table 4 Bororen drinking water quality performance summary 2023-2024

Parameter	Unit of Measure	Samples Require	Sample Results	Guideline Value	Min	Average	Max	NC
Aluminium - Total	mg/L	24	26		<	0.04	0.19	0
Antimony - Total	mg/L	1	2	0.003	<	<	<	0
Arsenic - Total	mg/L	1	2	0.01	<	<	<	0
Barium - Total	mg/L	1	2	2	0.014	0.02	0.034	0
Boron - Total	mg/L	1	2	4	<	<	0.06	0
Bromate	mg/L	4	5	0.02	<	<	<	0
Bromide	mg/L	4	5		0.108	0.13	0.17	0
Bromodichloromethane	µg/L	8	10	250	<	<	8	0
Bromoform	µg/L	8	10	250	<	9	19	0
Cadmium - Total	mg/L	1	2	0.002	<	<	<	0
Chlorate	mg/L	8	10	0.8^	0.16	0.29	0.5	0
Chloride	mg/L	4	5		128	131	135	0
Chlorine (free)	mg/L	52	53	5	1.0	1.4	1.7	0
Chloroform	µg/L	8	10	250	<	<	<	0
Chromium - Total	mg/L	1	2	0.05	<	<	<	0
Copper - Total	mg/L	1	4	2	<	0.002	0.003	0
Dibromochloromethane	µg/L	8	10	250	<	11	21	0
E. coli (Colilert)	MPN/100mL	52	52	0	<	<	<	0
Electrical Conductivity	µS/cm	24	54		769	813	864	0
Fluoride	mg/L	4	5	1.5	<	<	<	0
HPC (22°C)	CFU/mL	26	27		<	3	45	0
Iron - Total	mg/L	24	26		<	<	0.18	0
Lead - Total	mg/L	1	2	0.01	<	<	<	0
Manganese - Dissolved	mg/L	24	52	0.5	<	<	0.007	0
Manganese - Total	mg/L	24	52	0.5	<	0.01	0.018	0
Mercury - Total	mg/L	1	1	0.001	<	<	<	0
Molybdenum - Total	mg/L	1	2	0.05	<	<	<	0
Nickel - Total	mg/L	1	2	0.02	<	<	0.001	0
Nitrate as NO_3^-	mg/L	4	5	50	0.005	0.021	0.06	0
Nitrite NO_2	mg/L	4	5	3	0.005	0.005	0.005	0
Pesticides	µg/L	1	1	various	<	<	<	0
pH	pH units	24	54		6.6	7.4	7.7	0
Phosphate PO_4	mg/L	4	5		<	<	<	0
Selenium - Total	mg/L	1	2	0.01	<	<	<	0
Sulfate as SO_4	mg/L	4	5		2	3	4	0
Temperature	°C	24	54		19.3	24.9	30.0	0
Total Alkalinity (as CaCO3)	mg/L	24	26		194	213	240	0
Total Coliforms (Colilert)	MPN/100mL	52	52		<	<	2	0
Total Hardness (as CaCO3)	mg/L	24	26		267	287	300	0
Trihalomethanes Total	µg/L	8	10	250	<	23	48	0
True Colour	HU	24	52		<	<	<	0
Turbidity (NTU)	NTU	24	54		<	0.17	0.62	0
Zinc - Total	mg/L	1	2		<	<	0.007	0

*Guideline values and non-compliances refer to the regulatory water quality criteria (i.e. health based limits) but not aesthetic limits

^ A guideline value of 0.8mg/L for chlorate has been implemented under GRC's DWQMP as per guidance from QLD Health

< symbol denotes that the number is below the LOR for the test. In all cases, the LOR's are below the ADWG health (and aesthetic) guideline values.

Table 5 Miriam Vale drinking water quality performance summary 2023-2024

Parameter	Unit of Measure	Samples Required	Sample Results	Guideline Value	Min	Average	Max	NC
Aluminium - Total	mg/L	52	44		<	0.03	0.52	0
Antimony - Total	mg/L	2	2	0.003	<	<	<	0
Arsenic - Total	mg/L	2	2	0.01	<	<	<	0
Barium - Total	mg/L	2	2	2	0.029	0.03	0.033	0
Boron - Total	mg/L	2	2	4	<	<	<	0
Bromate	mg/L	8	10	0.02	<	<	<	0
Bromide	mg/L	8	10		<	0.03	0.078	0
Bromodichloromethane	µg/L	20	24	250	7	22	46	0
Bromoform	µg/L	20	24	250	<	5.9	14	0
Cadmium - Total	mg/L	2	2	0.002	<	<	<	0
Chlorate	mg/L	20	24	0.8^	0.19	0.34	0.79	0
Chloride	mg/L	8	10		46	89.6	122	0
Chlorine (free)	mg/L	74	91	5	0.02	1.25	2.19	0
Chloroform	µg/L	20	24	250	<	21	74	0
Chromium - Total	mg/L	2	2	0.05	<	<	<	0
Copper - Total	mg/L	2	4	2	<	0.01	0.01	0
Dibromochloromethane	µg/L	20	24	250	7	21.3	40	0
E. coli (Colilert)	MPN/100mL	88	91	0	<	<	<	0
Electrical Conductivity	µS/cm	74	91		211	527	732	0
Fluoride	mg/L	8	10	1.5	<	<	0.1	0
HPC (22°C)	CFU/mL	62	66		<	17	>300	0
Iron - Total	mg/L	52	44		<	<	0.06	0
Lead - Total	mg/L	2	2	0.01	<	<	<	0
Manganese - Dissolved	mg/L	52	88	0.5	<	<	0.002	0
Manganese - Total	mg/L	52	88	0.5	<	<	0.002	0
Mercury - Total	mg/L	2	2	0.001	<	<	<	0
Molybdenum - Total	mg/L	2	2	0.05	<	<	<	0
Nickel - Total	mg/L	2	2	0.02	<	<	<	0
Nitrate as NO_3^-	mg/L	8	10	50	0.13	0.16	0.19	0
Nitrite NO_2	mg/L	8	10	3	<	<	<	0
Pesticides	µg/L	1	1	various	<	<	<	0
pH	pH units	74	91		6.8	7.2	7.6	0
Phosphate PO_4	mg/L	8	10		<	0.01	0.05	0
Selenium - Total	mg/L	2	2	0.01	<	<	<	0
Sulfate as SO_4	mg/L	8	10		2	3.1	4	0
Temperature	°C	74	91		19.0	25.1	30.0	0
Total Alkalinity (as CaCO3)	mg/L	52	44		22	100	156	0
Total Coliforms (Colilert)	MPN/100mL	88	91		<	<	2	0
Total Hardness (as CaCO3)	mg/L	52	44		23	97	145	0
Trihalomethanes Total	µg/L	20	24	250	28	69	137	0
True Colour	HU	74	91		<	<	7	0
Turbidity (NTU)	NTU	74	91		<	0.14	0.36	0
Zinc - Total	mg/L	2	2		<	0.01	0.008	0

*Guideline values and non-compliances refer to the regulatory water quality criteria (i.e. health based limits) but not aesthetic limits

^ A guideline value of 0.8mg/L for chlorate has been implemented under GRC's DWQMP as per guidance from QLD Health

< symbol denotes that the number is below the LOR for the test. In all cases, the LOR's are below the ADWG health (and aesthetic) guideline values.

Values in red indicate where the sampling schedule was not met. This was due to a single fault with the sample schedule in the EnviroSys water quality management system whereby sample SP115 did not have aluminium, iron, total alkalinity and total hardness applied. This error is in the process of being resolved as of December 2024 however will also likely impact on the 2024-25 dataset.