



QUILPIE SHIRE COUNCIL DWQMP
ANNUAL REPORT
2022-23 FINANCIAL YEAR

Drinking Water Service Provider ID 108

Document Control

Date	Description	Author
8/12/2023	Initial Draft	Isabeau Gavel
13/12/2023	Review	Peter See
14/12/2023	Report Released to Client	Isabeau Gavel

GBA Project/Doc ID no. **200004 / 469389**

Contact for enquiries and proposed changes

If you have any questions regarding this document or if you have a suggestion for improvements, please contact GBA Consulting Engineers.

Phone 07 4651 5177

Email admin@gbaengineers.com.au



Table of Contents

1.0	INTRODUCTION	1
2.0	SUMMARY OF SCHEMES OPERATED	1
3.0	ACTIONS TAKEN TO IMPLEMENT THE DWQMP	2
3.1	Risk Management Improvement Programme	3
4.0	WATER QUALITY MONITORING – COMPLIANCE WITH QUALITY CRITERIA	4
4.1	Quilpie Drinking Water Quality Summary 2022- 2023 Financial Year	5
4.2	Eromanga Drinking Water Quality Summary 2022- 2023 Financial Year	7
4.3	Quilpie and Eromanga Water Quality Monitoring Summary	10
4.3.1	Quilpie	10
4.3.2	Eromanga	10
4.3.3	Summary of Water Quality Within the Schemes	10
4.3.4	E.coli Verification and Operational Monitoring	10
4.3.5	Missed Verification and Operational Monitoring	10
5.0	INCIDENTS REPORTED TO THE REGULATOR	11
6.0	CUSTOMER COMPLAINTS	11
7.0	DWQMP REVIEW OUTCOMES	11
8.0	DWQMP AUDIT FINDINGS	11
9.0	QSC CUSTOMER SERVICE STANDARDS REVIEW	11

TABLES

Table 1:	Summary of Drinking Water Schemes	1
Table 2:	Quilpie Shire Council Risk Management Improvement Program Implementation Status	3
Table 3:	Quilpie Quarterly Verification Monitoring	5
Table 4:	Quilpie Operational Monitoring (Distribution System)	6
Table 5:	Quilpie <i>E.coli</i> Annual Value Compliance Table	6
Table 6:	Eromanga Quarterly Verification Monitoring	7
Table 7:	Eromanga Operational Monitoring (Distribution System)	9
Table 8:	Eromanga <i>E.coli</i> Annual Value Compliance Table	9
Table 9:	Incidents Reported to the Regulator	11

1.0 INTRODUCTION

This is the Drinking Water Quality Management Plan (DWQMP) Annual Report for Quilpie Shire Council (QSC) for the 2022- 23 Financial Year. This annual report will assist the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with. It further provides a mechanism for service providers to report publicly on their performance in managing drinking water quality.

QSC is a registered Service Provider with Identification (SPID) number 108. QSC operates under an approved DWQMP to ensure consistent supply of safe quality drinking water in order to protect public health. This is done through proactive identification and minimisation of public health related risks associated with drinking water.

This Annual Report includes the following:

- Activities undertaken over the financial year in operating Council's drinking water services;
- A summary of the Quilpie and Eromanga drinking water quality for the 2022- 23 Financial Year;
- A summary of Council's performance in implementing the approved DWQMP;
- Incidents reported to the Regulator;
- Customer complaints;
- Review outcomes and audit findings.

This report will be made available publicly to Council customers through the website or upon request at Council offices.

2.0 SUMMARY OF SCHEMES OPERATED

Quilpie Shire is located in south-western QLD and covers an area of 67,482 km² with a permanent population of approximately 705 people. Quilpie Shire consists of the towns of Quilpie, Eromanga and Adavale, however, there are only two operational water schemes in the shire, located in Quilpie and Eromanga. The administration centre of the shire is located in Quilpie. The Quilpie scheme sources its water from two Artesian bores, whilst the Eromanga scheme sources water from four sub-Artesian bores. Being sub-Artesian sources, these bores yield low volumes of poor quality non-potable water, and therefore, Eromanga's source water undergoes treatment before it can be reticulated to the community.

Table 1: Summary of Drinking Water Schemes.

Town	Water Source	Treatment	Pop. Served	No. Conns	Demand
Quilpie	Artesian Bore Water	None	575	427	1200 KL/d
Eromanga	Sub-Artesian Bore Water	Reverse osmosis and chlorination	45	43	104 KL/d
Adavale	Not applicable, Council does not provide drinking water to Adavale.		15	Not Applicable.	

3.0 ACTIONS TAKEN TO IMPLEMENT THE DWQMP

The implementation of QSC's DWQMP has provided Council with an operational framework to manage the water supply systems of Quilpie and Eromanga to ensure greater surety for the supply of safe drinking water for the Shire. The risk management components of the DWQMP have been a priority for QSC for providing a safe and reliable water source for the local population and visitors.

Section 3.1 below provides a status summary of QSC's Risk Management Improvement Programme (RMIP). The RMIP is an integral part of the DWQMP as it identifies the main risk factors and mitigation measures associated with Council's drinking water schemes. During the 2022- 23 Financial Year, Council completed three of their five Risk Management Improvement Items.

3.1 Risk Management Improvement Programme

Table 2: Quilpie Shire Council Risk Management Improvement Program Implementation Status.

Scheme	Component	Improvement Actions	Target Date	Comments	Status/Revised Target Date	Responsible Officer
Quilpie / Eromanga	Whole of System	Review and update Operation and Maintenance Procedures that address the microbial contamination risks for the maintenance and repair of water mains.	Jun 23		Completed.	Director of Engineering Services
Quilpie / Eromanga	Whole of System	Consolidate all drinking water data and documentation so that it can be managed centrally.	Jun 23	All verification and operational monitoring (and anything else related to water and sewage) are recorded using Council's document control system Infoexpert.	Completed.	Director of Engineering Services
Quilpie / Eromanga	Distribution System	Review schemes and identify if there are any hazardous connections to stock watering points or other potential high-risk sites.	Dec 23	A concrete slab has been built at the sewerage dump point to isolate any spills from potentially fouling the water table.	Ongoing, completion date will be revised in the upcoming DWQMP Review.	Director of Engineering Services
Eromanga	Source Water	Undertake bore water quality investigation to assess the risk of pathogens in the sub-artesian water.	Jun 23		Ongoing, completion date will be revised in the upcoming DWQMP Review.	Director of Engineering Services
Eromanga	Water Treatment Plant	Engage a water treatment specialist to undertake a system review, critical maintenance and develop detailed and succinct WTP Operation and Maintenance Procedures.	Jun 23	Simmonds and Bristow were engaged to do a full refurbishment of the WTP, including full documentation of the operation of the reverse osmosis process and an update to all operation and maintenance procedures.	Completed.	Director of Engineering Services

4.0 WATER QUALITY MONITORING – COMPLIANCE WITH QUALITY CRITERIA

Council undertakes in-house operational monitoring in Quilpie and Eromanga, in addition to visual inspections of all drinking water infrastructure. Council also send out water samples to an external laboratory four times a year as part of their verification monitoring programme.

Sections 4.1 and 4.2 below summarises all operational and verification monitoring for Quilpie and Eromanga undertaken during the reporting period, while Section 4.3. discusses any potential water quality issues encountered by Council.

4.1 Quilpie Drinking Water Quality Summary 2022- 2023 Financial Year

Table 3: Quilpie Quarterly Verification Monitoring.

Quilpie Distribution & Source Water								ADWG Values			
Parameters	Units	Testing Frequency	No. of Samples to be Tested in FY as per DWQMP	No. Samples Tested in FY	Maximum Value	Mean Value	Minimum Value	Health	Exceedances	Aesthetic	Exceedances
<i>E.coli</i>	MPN/100mL	Quarterly	8	7	0	0	0	1	0		
Total Coliforms	MPN/100mL	Quarterly	8	7	2	0.29	0				
Conductivity	µS/cm	Quarterly	8	7	1000	927.14	870				
pH	mg/L	Quarterly	8	7	8.56	8.47	8.38			≥6.5 & ≤ 8.5	2
True Colour	Hazen	Quarterly	8	7	8	8	8			15	0
Turbidity	NTU	Quarterly	8	7	1	1	1			5	0
Chloride	mg/L	Quarterly	8	7	91	85.43	80			250	0
Fluoride	mg/L	Quarterly	8	7	1.8	1.8	1.8	1.5	7		
Total Iron	mg/L	Quarterly	8	7	0.01	0.01	0.01			0.3	0
Total Manganese	mg/L	Quarterly	8	7	0.006	0.005	0.002	0.5	0		
Silica (SiO ₂)	mg/L	Quarterly	8	7	43	42	41			80	0
Sodium	mg/L	Quarterly	8	7	230	212.86	200			180	7
Sulphate	mg/L	Quarterly	8	7	7.8	7.5	7.2	500	0	250	0
Zinc	mg/L	Quarterly	8	7	0.06	0.06	0.06			3	0
Aluminium	mg/L	Quarterly	8	7	0.08	0.047	0.03			0.2	0
Boron	mg/L	Quarterly	8	7	0.62	0.55	0.049	4	0		
Copper	mg/L	Quarterly	8	7	0.012	0.005	0.003	2	0	1	0
Aesthetic Guideline Exceedance											
Health Guideline Exceedance											

Table 4: Quilpie Operational Monitoring (Distribution System).

Parameters	Units	Sampling Frequency	No. of Samples to be Tested as per DWQMP	No. of Samples Tested in FY	Summary of Results			ADWG Value			
					Max Value	Mean Value	Min Value	Health	Exceedances	Aesthetic	Exceedances
<i>E.coli</i>	CFU/100mL	Fortnightly	78	21	0	0	0	1	0		
Aesthetic Guideline Exceedance											
Health Guideline Exceedance											

Table 5: Quilpie *E.coli* Annual Value Compliance Table.

Year	1/07/2022- 30/06/2023											
	July	August	September	October	November	December	January	February	March	April	May	June
No. of samples collected	3	3	3	3	2	2	2	2	2	2	2	2
No. of samples collected in which <i>E.coli</i> is detected	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	30	31	32	33	32	32	32	32	31	30	29	28
No. 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

4.2 Eromanga Drinking Water Quality Summary 2022- 2023 Financial Year

Table 6: Eromanga Quarterly Verification Monitoring.

Quilpie Distribution & Source Water								ADWG Values			
Parameters	Units	Testing Frequency	No. of Samples to be Tested in FY as per DWQMP	No. Samples Tested in FY	Maximum Value	Mean Value	Minimum Value	Health	Exceedances	Aesthetic	Exceedances
<i>E.coli</i>	MPN/100mL	Quarterly	12	7	0	0	0	1	0		
Total Coliforms	MPN/100mL	Quarterly	12	7	0	0	0				
Conductivity	µS/cm	Quarterly	12	7	430	417.1	410				
pH	mg/L	Quarterly	12	7	6.8	6.61	6.38			≥6.5 & ≤ 8.5	2
True Colour	Hazen	Quarterly	12	7	8	8	8			15	0
Turbidity	NTU	Quarterly	12	7	1	1	1			5	0
Chloride	mg/L	Quarterly	12	7	95	94	93			250	0
Fluoride	mg/L	Quarterly	12	7	0.06	0.06	0.06	1.5	0		
Total Iron	mg/L	Quarterly	12	7	0.01	0.01	0.01			0.3	0
Total Manganese	mg/L	Quarterly	12	7	0.001	0.001	0.001	0.5	0		
Silica (SiO ₂)	mg/L	Quarterly	12	7	16	15.6	15			80	0
Sodium	mg/L	Quarterly	12	7	66	65.3	64			180	0
Nitrate	mg/L	Quarterly	12	7	6.9	6.6	6.3	50	0		
Sulphate	mg/L	Quarterly	12	7	18	17	15	500	0	250	0
Zinc	mg/L	Quarterly	12	7	0.06	0.06	0.06			3	0
Aluminium	mg/L	Quarterly	12	7	0.03	0.03	0.03			0.2	0

Quilpie Distribution & Source Water								ADWG Values			
Parameters	Units	Testing Frequency	No. of Samples to be Tested in FY as per DWQMP	No. Samples Tested in FY	Maximum Value	Mean Value	Minimum Value	Health	Exceedances	Aesthetic	Exceedances
Boron	mg/L	Quarterly	12	7	0.21	0.21	0.21	4	0		
Copper	mg/L	Quarterly	12	7	0.31	0.073	0.01	2	0	1	0
Aesthetic Guideline Exceedance											
Health Guideline Exceedance											

Table 7: Eromanga Operational Monitoring (Distribution System).

Parameters	Units	Sampling Frequency	No. of Samples to be Tested as per DWQMP	No. of Samples Tested in FY	Summary of Results			Operational Targets			
					Max Value	Mean Value	Min Value	Health	Exceedances	Aesthetic	Exceedances
<i>E.coli</i>	CFU/100mL	Fortnightly	78	18	0	0	0	1	0		
Free Chlorine	mg/L	Weekly	156	49	1.99	0.53	0.13	>0.2, <5	7 (<0.2mg/L)		
Aesthetic Guideline Exceedance											
Health Guideline Exceedance											

Table 8: Eromanga *E.coli* Annual Value Compliance Table.

Year	1/07/2021- 30/06/2022											
Month	July	August	September	October	November	December	January	February	March	April	May	June
No. of samples collected	2	2	2	3	2	2	2	2	2	2	2	2
No. of samples collected in which <i>E.coli</i> is detected	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	29	29	29	30	27	27	27	27	27	26	26	25
No. 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

4.3 Quilpie and Eromanga Water Quality Monitoring Summary

4.3.1 Quilpie

The following ADWG aesthetic exceedances were reported in Quilpie's drinking water during the reporting period:

- pH (2 exceedances from 7 samples)
- Sodium (7 exceedances from 7 samples)

The following ADWG health exceedances were reported within Quilpie's drinking water:

- Fluoride (7 exceedances from 7 samples) *

*** Note: Elevated Fluoride levels detected in Quilpie's drinking water has been identified as a hazard in Council's DWQMP, this is further discussed in Section 5 below.**

4.3.2 Eromanga

The following ADWG aesthetic exceedances were reported in Eromanga's drinking water during the reporting period:

- pH (2 exceedances from 7 samples)

There were no ADWG health exceedances reported in the Eromanga scheme during the reporting period.

4.3.3 Summary of Water Quality Within the Schemes

Since the implementation of chlorination within the Eromanga scheme, the Quilpie and Eromanga drinking water generally meets the ADWG aesthetic and health criteria for drinking water. For the aesthetic exceedances of Sodium reported in the Quilpie scheme, no ADWG health-based target is considered necessary as elevated levels are generally only associated with taste issues and therefore, do not pose any adverse threats to public health. Similarly, drinking water that does not sit within the ADWG pH aesthetic range of 6.5 and 8.5 may result in a bitter taste and pipe scaling but is not considered unsafe.

4.3.4 E.coli Verification and Operational Monitoring

Bacteriological sampling within the Quilpie and Eromanga schemes recorded no positive *E.coli* results for the reporting period (Tables 5 & 8), subsequently, both schemes were compliant with the 98% *E.coli* value for the 2021-22 financial year.

4.3.5 Missed Verification and Operational Monitoring

Council missed one round of verification monitoring for both the Quilpie and Eromanga schemes during the reporting period. This missed testing was due to the resignation of Council's long-term supervisor and arrangements have since been made with Council's Technical Officer to carry out verification monitoring, with no more missed testing. Additionally, operational monitoring for *E.coli* and Free Chlorine were not conducted at the frequencies stipulated in the DWQMP for both Quilpie and Eromanga and no in-house Turbidity monitoring was undertaken at Eromanga. Missed sampling can largely be attributed to staff turnover and availability. Furthermore, Eromanga is an isolated community located over 100km from Quilpie, making regular water sampling very difficult for Council. Moving forward, Council staff are now aware of their testing requirements under the DWQMP and will work towards ensuring testing is completed as per the DWQMP.

5.0 INCIDENTS REPORTED TO THE REGULATOR

No drinking water incidents or events were reported to the Regulator during the 2022-23 Financial Year. There is however, one ongoing incident (DWI-7-108-00003) in Quilpie for the naturally elevated levels of fluoride within the town's drinking water. Details of this Incident are provided in Table 9 below.

Table 9: Incidents Reported to the Regulator.

Incident	Scheme	Issue	Preventive Actions	Updates	Investigation Report
DWI—7-108-00003	Quilpie	Fluoride in exceedance of ADWG health guideline value.	Public notification and ongoing monitoring to ensure values are stable and remain only slightly above the ADWG health limit.	Provided to the Regulator on 3/11/2023.	N/A, ongoing incident

Quilpie's Elevated fluoride levels are associated with the natural geology of the area and average around 1.8mg/L in the town's drinking water. Treatment to reduce fluoride levels is not financially feasible, considering that the concentration is only slightly above the ADWG health value of 1.5mg/L. Despite the frequent exceedance of fluoride levels, verification monitoring four times a year has been deemed suitable for the Quilpie scheme as historical data has identified fluoride concentrations to be within a consistent range. The main issue associated with elevated fluoride levels in Quilpie is dental fluorosis primarily affecting children under the age of 6. At this stage, Council's primary management strategy is to provide annual public notification to residents in the form of a fluoride fact-sheet to help the community understand the potential impacts of elevated fluoride in the drinking water. Annual notification to residents occurred on 18/10/2022, with a confirmation email sent to the Regulator on the same day. Notification was distributed through the postal service and the Council Facebook page. The Fluoride fact-sheet can also be found on Council's website which is accessible to the public all year round.

6.0 CUSTOMER COMPLAINTS

There were no customer complaints made to Council during the 2022- 23 Financial Year.

7.0 DWQMP REVIEW OUTCOMES

The last DWQMP Review was conducted in February 2022. Council were already in the process of Amending their DWQMP when this Review was completed and therefore, the Review did not identify any further need to update the DWQMP. The Amendment was approved in October 2022. The next Review is scheduled for completion by the 31st March 2024.

8.0 DWQMP AUDIT FINDINGS

The last audit was completed in September 2021. Audit findings and recommendations were incorporated into the 2021 DWQMP Amendment. Therefore, no further Amendment to the DWQMP is required by Council.

9.0 QSC CUSTOMER SERVICE STANDARDS REVIEW

QSC did not undertake a review of their Customer Service Standards during the 2022-23 Financial Year. The next review is scheduled to be undertaken in 2025.